

PROCEEDINGS

ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.

Executive Committee
Frequency Allocations Committee
State Systems Standards Committee
Engineering Reports and Research Committee

February 10-11, 1940
Hotel Sherman
Chicago, Illinois

TABLE OF CONTENTS

	Page
Executive Committee	
Saturday Morning, February 10, 1940	
Roster	1
Discussion of plans for convention in Orlando	2
Adoption of motion that the convention be held the first week of December	22
Convention to be four days	22
Committees on which those present are serving	23
Informal conference of February 28 ...	24, 48
Executive Committee	
Sunday Afternoon, February 11, 1940	
Discussion on payment of dues by those becoming members late in the year	37
Adoption of motion that 1941 dues be collected at the registration desk at time of registration	40
Adoption of motion to endorse proposed change in Sections 10.122 and 10.123	40
Discussion on Mr. Virden's convention plans	43
Discussion on questionnaires	46
Material for the Bulletin	48
Discussion on membership	49
Adoption of motion to instruct Mr. Virden to change his releases to "1940 Police Communications Officers' Conference"	58
Adoption of motions to send letters to various people	58

TABLE OF CONTENTS

	Page
Frequency Allocations Committee	
Saturday Afternoon, February 10, 1940	
Outline of committee's work	60
Radiotelegraph	61
Radiotelephone	71
Plan of action for informal meeting before the Commission jointly with the IACP	96
Adoption of statement on the future need of reallocation of frequencies in the 30 to 40-megacycle band	119
Telegram from Bob Franklin	121
Statement of Colonel Black of Ohio	122
State Systems Standards Committee	
Sunday Morning, February 11, 1940	
Radiotelephone relay	123
Motion	140
Summaries	141
Motion	152
Emergency messages versus non-emergency messages	153
Interference caused by testing and experimental work	157
Discussion on FCC's regulation covering the keeping of a log	161
Appointment of subcommittee	177
Discussion on the advisability of providing a radiotelephone procedure	179

TABLE OF CONTENTS

	Page
Engineering Reports and Research Committee Sunday Afternoon, February 11, 1940	
Outline of work of committee	183
Band width of commercial receivers	185
Discussion on increase in power limits, both CW and phone stations	188
Discussion on handbook	191

Executive Committee
ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.
Saturday Morning, February 10, 1940
Hotel Sherman
Chicago, Illinois

The meeting convened at eleven o'clock, Mr. Herbert F. Wareing, President of the Association, presiding.

PRESIDENT WAREING: I think that we can call the formal meeting of the committees of the APCO to order at this time, in spite of the fact that Colonel White is not present, also Captain Leonard is not present, but we can discuss matters of strictly APCO business, which do not concern the IACP or the FCC, at this time. I received a wire from Captain Leonard that his plane was grounded due to the weather and that he will not be here until this afternoon.

... The following persons were present:

Herbert F. Wareing,
President,
Associated Police Communication Officers, Inc.

Frank Morrow,
Secretary-Treasurer,
Associated Police Communication Officers, Inc.

Ray Groenier,
Chief Engineer,
Madison Police Department,
Madison, Wisconsin.

Ted Lowe,
Chief Engineer,
Illinois State Highway Maintenance Police.

J. Minter Wherritt,
Missouri State Highway Patrol,
Jefferson City, Missouri

Eugene F. Brown,
Superintendent Radio Division,
Department of Public Safety,
Des Moines, Iowa.

Lloyd Chatterton,
Superintendent,
Department of Public Safety,
Radio Division,
Cleveland, Ohio.

Jack Wilt,
Kansas City, Kansas.

Robert Batts,
Deputy, Inspector,
Indianapolis Police Department.

C. M. Smith,
Chief Engineer,
North Carolina Highway Patrol.

Arnet A. Curry,
Chief Radio Engineer,
Indiana State Police.

Howard M. Williams,
Chief Operator,
Denver Police Department.

William Bouck,
Chief Dispatcher,
Michigan State Police Department.

S. Renner,
Police Department,
Urbana, Illinois.

E. Zindars,
Deputy Sheriff,
Walworth County, Wisconsin.

James Teeter,
Communication Officer,
St. Louis Police Department. . . .

PRESIDENT WAREING: I think one matter we can take up at this time is the convention date. I should like to have the Secretary read some correspondence from James Virden on that subject, because he is the man who must run the convention and we had better have his ideas first.

SECRETARY MORROW: Mr. Virden's first letter is dated January 16:

"Mr. Herbert Wareing,
4715 W. Vliet St.,
Milwaukee, Wisconsin.

"Dear Herb:

"Your letters of January 10 have been received and the subject up for discussion, namely, setting the date of the forthcoming APCO Convention in Orlando, is of primary importance to us down here.

"After considerable cogitation about the matter, it looks to me as though the first week in December is the logical time to plan on for our next convention. Of course, there may be other items unknown to us down here, or to those we have talked to, that would make that date undesirable. However, in September the IACP holds their convention in Milwaukee; October sees the IMSA Convention in Jacksonville; November has elections and Thanksgiving or Thanksgivings, as the case may be.

"Then, climatically speaking, we have fairly heavy fogs occasionally in September and the first half of October, fogs that northerners might construe as rain since a container set outside might show 5" of water after a day's fog. These fogs are sometimes accompanied by a gentle SE breeze that the boys from California delight in dubbing 'hurricanes.'

"Seriously, though, the summer flowers are about gone during September and the winter beauty doesn't come until the latter part of November. Between those two dates is a 'dormant' or 'dead' season that would cut down considerably on the pleasure of the trip for the delegates. By December the citrus is nearly all tree ripe and winter flowers are in bloom. The hotels here, while preferring to have the crowd earlier, have been very cooperative by offering regular commercial rates to us for December. For the better class hotels, this \$2.50 single, \$4.00 double or \$5.00 double with twin beds; \$9.00 for two-room suites. Some of the places that have first-class accommodations are offering them for \$2.00 single and \$3.00 double.

"Mr. Mickle, of RCA, was in town last week and said that in his travels he found most of the fellows, exhibitors as well as delegates preferring December. December usually is a beautiful month here until after Christmas, at which time a stormy period for the whole nation upsets us down here to quite an extent.

"Mr. Robertson, of the Graybar Company, has also expressed his opinion that the first part of December would be desirable. He is the Florida representative for Graybar and has studied the situation from a national viewpoint and has his years in Florida for a local viewpoint.

"I am writing to Mr. Kent, of Finch Telecommunications, and Mr. Link, of Fred Link, Inc., to get their views and will pass them on to you as soon as I receive them. That will take in all the exhibitors' representatives on the Convention Committee.

"Yours truly,
James Virden,
Convention Chairman, APCO,
Police Department,
Orlando, Florida.

"P.S. It has been suggested that we arrange a program similar to the 'Americans at Work' program that CBS carries and offer it to one of the national hookups for broadcasting during the convention. What are your suggestions along this line? Do you have anyone in mind who could prepare such a program or another type that would appeal to the general public?

"I have sent copies of this volume to Wherritt, Morrow, Kent, Mickle, Link and Robertson. Don't forget your suggestions.

"Jim"

Mr. Virden has also included with this same letter under the same date a copy of a letter sent to the Exhibitors, Convention Committee, President, Secretary, and Editor of APCO.

"Gentlemen:

"The following is a rough outline of the APCO Convention plans as drawn up from suggestions from various sources. Your comments and criticisms are wanted at this time.

"Booths are to be 8' deep and 10' wide with a rental charge of \$60.00 for the convention. There will be between 50 to 60 booths available. Rental terms to be similar to those used in Kansas City.

"Each exhibitor to be required to furnish the Convention Chairman with 1,000 copies of a letter to be mailed to potential delegates. This letter is to be drawn up by the exhibitor and should contain a message relative to the time and place of the convention, one or more reasons why the potential delegate should attend the APCO Convention, an invitation to visit the company's exhibit with perhaps a short sales message on the company's product. The letter should be relatively short--not over a page--although some advertising bulletin might be included at the discretion of the company representative. All letters to be on the exhibitors' stationery and stamped envelopes to be included. The salutation is to be deleted and will be inserted by the committee members in Orlando where a personal mailing list is being compiled. The envelopes will also be addressed by the Orlando members. These letters to be sent to the Convention Chairman in Orlando by July 1.

"These letters together with others to be solicited from various points of interest in Florida as well as transportation companies and oil companies will make a series of approximately 75 letters. A letter will be started to each potential delegate, from Orlando, each day for a period of two months or sixty days, preferably during September and October, if the convention is to be held in the first week of December. This will utilize 60 of the series of 75 letters. Ten of the remaining 15 letters will be mailed to the Chiefs of Police of the same cities during the same two months, averaging a letter each six days. The remaining 5 to be sent to the Mayor of each city during the same two months at an average of one letter to each Mayor every twelve days. The companies picked out for their letters to go to the Mayors or Chiefs will be so notified on receiving the contract so their letters can be drawn up accordingly. The mailing list will include all police radio stations, state and municipal,

and any other cities that convention committee members in the respective territories feel should be represented.

"Personal notices will be sent out in advance by the convention committee to the mailing list of potential delegates advising them of the series to follow, together with a request that all such letters be held and kept in a separate file until the end of the series. At that time, another notice will be sent them advising them to take the entire file to their Chief and Mayor as a means of showing them what can be expected at the convention.

"This will be followed by a telegram type of message to be delivered by Western Union to each City Council in session at their first meeting in November. This message will be addressed to each Mayor personally and the Council as a body, and will request them to make adequate provision for their representation at the convention of APCO, giving the date and place of the convention and listing the names of the exhibitors that will be there.

"Each exhibitor will be requested to insert 'plugs' for the coming convention in their advertising in the various trade magazines and instruct their salesmen to talk it out in the field in their regular calls; to furnish the Convention Chairman with a copy of each such ad, stating in which journal the ad is placed. This ad file will be exhibited at the convention for the perusal of the delegates as a means of showing the good will of the exhibitors thus advertising. For this reason it is thought perhaps that the 'plugs' should be a request rather than a requirement of the contract.

"Invitational contracts for booth space to be mailed out first to the companies that exhibited at Kansas City with the others to follow some three or four weeks later to give the first group a chance to get in their choice before mailing of the other invitations. All such booths chosen by the first group would be blocked out on the second mailing. This to be done as a courtesy and act of good-will of the APCO toward those companies who have cooperated in previous times.

"Companies manufacturing yearly models to be urged to hold a formal showing of their 1941 merchandise at the convention if it is held in December."

Mr. Virden then submits a list of potential exhibitors for the 1940 convention, totalling, I would say off-hand,

about 60 or 65 possible exhibitors, and he has asked for additional information concerning any companies that we happen to know about that might not have been covered by this list.

While that is quite a humorous situation from the standpoint of the amount of work that is set up on the part of Orlando, I think we must realize that Virden has done a lot of thinking along this line, and at past convention sessions any number of delegates have told us that if somebody had just gotten to their mayors or their chiefs of police or city councils a little before the conventions with some material that would have given them an idea of what the conventions were going to be like and what the Association is doing, they would have had a much easier time getting their boards of accounts, or whoever it was, to authorize their expenses. I think that this will thoroughly cover this particular problem.

Also in connection with the question of the first week in December, or the early part of December, as the convention date, the thought struck me that in view of the fact that the IMSA convention will be in Jacksonville in October in all probability a number of displays that are sent down for that, which ordinarily APCO conventions might not get, might possibly be held over in Florida and exhibited at our convention, due to the fact that they both occur in the same state within sixty days of each other. That is a thought that we can bear in mind on that.

Since those communications another has followed on the fifth of February, addressed to Executive Board Members, APCO, Incorporated:

"Gentlemen:

"Since time and distance prohibits my attending the meeting in Chicago and having the genuine pleasure of meeting you gentlemen again, I will attempt to make a few (?) remarks by correspondence.

"One item up for discussion is the date to be set for our 1940 Convention. Normally, I believe, it is held in October. However, the convention has never before been held in winter playgrounds, and for this reason it might be wise to break with precedent this one time and perhaps it might establish a different precedent.

"I have been asked by several members of the organization, both verbally and written, to use my influence for a late date. It was with hesitancy that a late date was acceptable to my point of view, as we usually (this winter no exception) experience a great influx of tourists about December 1 and a heavier influx January 1. However, the hotels, while preferring an earlier date, have promised us regular commercial rates for all delegates attending the convention even if it is held in December."

That portion is a repetition of what appeared in the earlier letter, down to the latter part of the paragraph.

"Certainly no advantage would be had there in holding it earlier. It might be wise to add that Orlando is one of the most economical cities in the U. S. with regard to restaurant prices at any time of year. Excellent meals may be had from 25¢ up. This includes four-course meals.

"By holding our convention during the first week in December we do not conflict with any similar or cooperating organization. In September is IACP, October the IMSA, November elections and Thanksgiving. December will give the manufacturers a chance to display their 1941 wares for the first time. This would make the convention more valuable to them as well as to ourselves by so doing. From a manufacturer's point of view there isn't so much value in showing items that are to be replaced within 60 to 90 days and from our side, we would much prefer to see what is to be sold next year than what has been sold this year.

"In the first part of December we can have the exhibits and convention assembly in an outdoor plaza back of the convention hotel with little fear of rain, but earlier in the year the chances of rain are too great to take the risk. An outdoor show and assembly beneath swaying palm trees and among orange and grapefruit trees, not to mention the stately Magnolia, is, I believe, something that we all would enjoy rather than being housed up for four long days. Waterproof tents, of course, similar to concession tents, will be provided for exhibits in case of showers, and the assembly could move indoors for a short period if a shower came up.

"Then, too, there is the time available for advertising the convention to consider. A tentative plan which we have drawn up is presented elsewhere for your action. If

accepted, it will take all the available time between now and December to put it over properly, but we down here believe it will be worth it in increased memberships. It might be well to add that we have a direct mail campaign consisting of 75,000 letters in addition to the above-mentioned program that will also require time to handle properly.

"Since writing to you earlier, Herb, I have received word from Mr. Roscoe Kent, of Finch Telecommunications, Inc., stating that he thought the first week in December would be an ideal date for all parties concerned.

"Wishing you all a successful meeting, I am

"Very truly yours,
James Virden,
Convention Chairman"

Then another--in fact, two others. This is dated February 5; to the Executive Board Members, APCO, Incorporated:

"Gentlemen:

"You gentlemen assembled in this meeting realize the importance of police communications in the national picture as a reserve communications system for the national defense, emergency communication system in times of flood or storm, the communications system at the disposal of the FBI, and a very effective weapon in capture of criminals known to be operating nationally. It is, therefore, to national interest that improved police communications should be pushed in all localities. There are many ways open for the Federal Government to espouse such improvement, but most of them would call for huge sums of money to be expended by the National Treasury.

"However, if this body would petition the President of the United States to proclaim our convention week as 'National Police Communications Week,' your petition to be backed by petitions from your own city and county governments and state governors as well as your national Representatives and Senators, a way would be open for active support from the National Government for improved police communications at no cost to the United States Treasury. With this proclamation, many avenues of advertising would be opened to us, not

only for our convention, but for improvements in all our individual systems.

"One class of taxpayers is particularly interested in police communications and, incidentally, can have much influence in gaining needed improvements in individual localities. I refer to the merchants and manufacturers throughout the country. A presidential proclamation would open trade association magazines to us for proper articles, urging each member to contact his local government officials asking that they have their city represented at the Police Communications Exhibition. Such associations as the Retail Grocers' Association, the Retail Hardware Association, the Retail Dry Goods Association, the Retail Druggists' Association, the American Manufacturers' Association, the United States Chamber of Commerce, and the American Bankers' Association will be available for such a program,

"To reach a still larger group, a different advertising set-up would be needed. This could be accomplished by calling upon a large national advertiser in each line, such as General Foods, Inc., or Best Foods, Inc., in the grocery line, Parke-Davis in the drug line, Ponds in cosmetics, Gulf Oil Co. in the oil business, etc., to draw public attention to police communications and the exhibition in their advertising during the month previous to the convention. If you have noticed, all the above companies' advertisements are presumably for the public's protection, i.e, 'Protect your health by eating Post Toasties,' 'Protect your health by using Parke-Davis Drugs,' 'Protect your skin by using Ponds' cosmetics,' 'Protect your car by using Gulf Products,' etc. Their main theme is 'Protect you and yours.' Why not, then, for one month call their customers' attention to the protection of improved police communications in conjunction with their own specific protection? They do it for other lines-- 'Look to your grocer for protection,' 'Look to your local druggist for protection,' 'Look to your doctor for protection,' 'Look to men selling Gulf Products for protection to your car,' etc. They can be induced to do it for police communications, if it is brought to their attention in the proper manner and backed by a presidential proclamation. Such advertising would get a lot of women of each community to insist on their section being represented at the exhibition and to inquire about services in their own locality.

"Then, in fairness to the Federal Government and

the industries helping on such a program, each governmental unit should open their own communication system for public inspection during that week. At the same time, the exhibitions at our convention should be open to the public at least one evening. This would result in people from all sections of the country who are touring in Florida getting a first-hand glimpse of the newer innovations in police communications.

"By having visitors register at the exhibition, each delegate could be given the names of those in his locality who saw the exhibits and thus give him support back home in getting needed improvements as he could call on those visitors for their opinions. Needless to say, these visitors are people of means, who are influential citizens back in their home communities. This would also be a decided advantage to the manufacturers to have such a list available.

"However, to give the general public some knowledge of what is new, a radio program can be broadcast over a national hookup, utilizing script similar to the 'Americans at Work' program where a portion of the program could be made from the convention's exhibitions describing the newer items--no names of companies to be mentioned, of course.

"It is our sincere belief that such an advertising program would accomplish much good for everyone, but before proceeding with it we want your opinions and, if favorable, your unstinted support.

"Jim Virden,
Convention Chairman"

The concluding letter is also dated February 5, to the Executive Board Members, Incorporated:

"Gentlemen:

"There is one problem that, no doubt, can stand much discussion, namely, membership and payment of dues. In times past, our Association membership has started out each year very small. The main reason for this is that, after all, our Secretary-Treasurer, being human has only one body and can, therefore, be in only one spot at any one time and doesn't have much time in any one particular spot during the convention. After the convention, when we all get home, we

have a feeling that many of us have a hard time finding the necessary money for dues at the same time that we might find it physically convenient to get it off to the Treasurer. Now, just when during the entire year do we have the most money and the most convenient time for joining? The answer is more psychological than material. Everyone who attends the convention should be a member--some are not. This will be especially true this time if we go through with our proposed advertising plan.

"Since we all have more money at the registration time of the convention than at any later time during the convention, and we are in the proper psychological temperament for registering on anything handy at convention registration, it would seem that membership dues should be collected by the registration clerks at the time of registration, the dues so collected to be for 1941. I know this is contrary to custom in this Association, since we are supposed to pay 1940 dues before attending the 1940 convention - but - new members (and how we love to see them) will have a bad taste in their mouths if they find they have paid a year's dues for a 30-day period of membership. Besides, if they are paid up for 1941, their interest in the Association for that year will be on the upgrade and they will be more apt to attend the 1941 convention. Additional members can be more easily persuaded if we can say, 'We have 1,000 paid-up memberships - come on in,' instead of 'Join APCO - we are trying to get 200 paid-up members.' It is just as easy for the registration clerk to say, 'That will be \$7.50, please--\$2.50 for dues for 1941 and \$5.00 registration fee,' as it is to say, '\$5.00, please.' It will be much easier to get the \$7.50 that way than it will be to make two attempts at two different times and places for it.

"In case membership dues are increased at the coming convention for 1941, make it applicable to future membership only. After all, the 'Charter Members' for that year are deserving of some consideration.

"By the way, if the Executive Committee has the job of setting the convention registration fees, we would like to make it \$5.00 per delegate this year. With women free, and we are expecting a lot of wives to attend, expense per paid delegate will be rather heavy, if we are to show them a good time and I know we all want that. After all, what is left goes to the Association's treasury so it won't be lost.

"THE END

"Jim Virden

"P.S. Herb, you asked for all this, but it is doubtful if you meant for all this harangue to fall your way. Anyhow, these are merely suggestions in all three parts and will help while away some of the hours in Chi, Kind of keep you out of trouble, you know. 73s."

I think that again illustrates the extensive thought that Jim has put on this thing and it represents a lot of hard work along with it.

PRESIDENT WAREING: Well, he has a mighty ambitious program there.

MR. CHATTERTON: If the mayors and the councils get all those letters, who do you think they will send to the convention? (Laughter)

PRESIDENT WAREING: That is another angle.

MR. WHERRITT: If we go through with that program, we will have something.

PRESIDENT WAREING: If he is willing to do all the work (he is willing to work enough to think it up) and he has the facilities for putting it into action, I do not think it will hurt the APCO at all.

MR. GROENIER: Isn't there an argument against publicizing police communications too much to the public?

PRESIDENT WAREING: Does anybody think that we should keep police communications a secret from the public?

SECRETARY MORROW: Ray, maybe you can amplify your point.

MR. GROENIER: In our city in particular we are not permitted to release anything for publication relative to police work without an O.K. from the Chief. After we had put in the two-way newspaper reporters wanted a story and I had to send them to the Chief for that story.

SECRETARY MORROW: I think that is almost common procedure in any department with regard to news releases or information from the department as to its operations.

MR. GROENIER: All right, and in this particular case we are going to go ahead and advertise it nationally without consulting our chiefs.

SECRETARY MORROW: Advertise not your department or idea or mine, but the idea of modern police communications which, after all, is what APCO essentially is to do.

MR. GROENIER: I am just raising the question.

PRESIDENT WAREING: There is quite a possibility that we will be able to obtain more money and more support if our work is better known, and anything that the APCO can do to improve the public's knowledge of our work will undoubtedly help each and every one of us.

Now, many of us wanted to hold the convention before the Chiefs' convention, which is on September 9, in Milwaukee. It would obviously be rather difficult to hold a convention in Orlando in August, and if we have to hold the convention after the Chiefs' convention, there is no point in holding it rather afterwards. So if it has to be after August it might just as well be in December.

SECRETARY MORROW: With reference to that, in talking to Superintendent Stiver regarding a meeting that was held recently of the executive officials of the IACP that question was brought up, and I believe that Captain Leonard made the request of the officials of the IACP to the effect that the Communications Committee of the IACP be empowered by their convention to take action on any suggestions that come from the APCO convention with regard to forwarding them to the Commission or handling their transmittal. So that might remove one element of antipathy to our convention being held after the Chiefs' convention.

PRESIDENT WAREING: It is evident that the APCO will have to work closely with the IACP's Communications Committee this year and keep them posted at all times on what is being accomplished and what is to be accomplished, so that Captain Leonard will be in a position to report at the Chiefs' convention on what the APCO has done during 1940.

We have the Bulletin, which is an excellent medium for keeping Captain Leonard posted. I do not see why we need to hold our convention before the Chiefs' convention, but it means that we must keep everything out in front in the Bulletin throughout the year, in order to keep the Chiefs posted on our work.

Ted, you were very strongly in favor of an early date. How do you feel about it?

MR. LOWE: Looking at it from the national viewpoint, with the national elections as well as the state elections that are coming up, I feel that we should give it due consideration, in view of the fact that it may prevent many of our present membership from being present at a later date. It seems to me quite possible there will be many changes in our organization as far as communication officers are concerned after this coming election. I say that in protection of everybody who is not on a civil service basis, because the pendulum will swing and I think it would be very difficult to convince, let us say, the new regime should it come in as to the need for being present at a convention whereas it might not be so hard to get away to attend it at an earlier date. Of course, I feel personally that some time prior to the November elections would be more suitable. October seems to be an ideal time, if you do not take into consideration the climatic conditions. I am willing to abide by the decision that is rendered here; however, I doubt very seriously if those from Illinois will be present if it is held in December.

PRESIDENT WAREING: As a point of information, when do the incumbent state officials leave office?

MR. LOWE: January 1.

PRESIDENT WAREING: Then that would not be a problem.

MR. LOWE: Yes, it would be because if they are to be replaced, you can readily realize that they are going to be spending their time making outside connections; their interest has dropped to the zero point and they are not longer interested in anything which will build up for the opposition or whoever takes over. In other words, a period

of isolation is incurred.

PRESIDENT WAREING: Do you have something to say, Lieutenant Teeter?

MR. TEETER: I cannot agree with Mr. Lowe. I believe that the APCO should stand for what it is supposed to stand and that we should take it up with our Chiefs as you mentioned before. We should go to Orlando or any place else feeling that we may be replaced, which is likely to happen to anybody, but I believe that APCO, our organization, is recognized and that it will be more recognized as time goes on. I do not see why Mr. Lowe, of Illinois, should feel that he would not be just as welcome, and even if the state of Illinois should fail to recognize what he has done, he certainly would not be eliminated from the organization in view of the fine work that he has done. I think that we should go to Orlando with that feeling. Many of us who are here or who will be at the convention at Orlando may not be able to attend future conventions. Death and other causes may prevent it, but, as I said at the Kansas City convention and I am going to keep on saying, our chiefs are the people to whom we are directly responsible, and we will always have chiefs and the APCO. If our chiefs go out, possibly we will go out but there will be other chiefs. Our record stands and on that record we stand or fall. We must as an organization; otherwise, we are not an organization.

I think that we ought to go on record right here as formulating some sort of plan to put those conditions before our Chiefs. Mr. Virden has done a lot of work and all of you have done a lot of work. The faces that I see here I saw at Kansas City and I hope to see them more as we go along, but who knows what ones of us may be eliminated by causes other than political. I am not a politician, I do not know anything about politics, and I am not sure that I will be in the Radio Division when we meet in Orlando, but I do know that my Chief knows what radio is all about, especially in his own department, and is enthused, and when I acquaint him with what the national organization is doing, he will see that somebody is there and it is an even bet that I will be there.

PRESIDENT WAREING: Who thinks that the late date of December might be at a time when the budgets are pretty well completed for the year so that that might cause some

trouble? Does anyone think that that would be an important factor?

MR. BATTS: I think that it will definitely be a factor. However, I was down in Florida last year during October. There was considerable "fog." For example, when we left there the latter part of the month it rained or "fogged" fifteen times in an hour and a half. There were only showers, but they would be very inconvenient if you had equipment on exhibit outdoors or if you were walking around in your shirt sleeves, going from one place to another. I think there is a great deal in what these various gentlemen have pointed out along these various lines, but having been down there in October, I think that should be one of the primary considerations, and in view of Virden's ideas, since we have already selected Florida, it would be smart to have it the first week in December.

PRESIDENT WAREING: The IMSA are to hold their convention in Jacksonville, Florida, in October. I believe that many of our people belong to the IMSA and that it would be very difficult for them to get transportation to Florida twice in the same month.

MR. GROENIER: How about polling the group individually, verbally?

PRESIDENT WAREING: Is there anybody else here who is not under civil service who could comment on Mr. Lowe's statements?

MR. BROWN: In some respects I can agree exactly with Ted on his viewpoint on the subject. In October we will be in the heat of state and national elections. State elections are the ones that have an effect as far as state employees are concerned, and it might be rather poor publicity to send a state employee away as far as Florida during the heat of a political campaign. I do not think it would necessarily make any difference to me personally and my connection, but I think it is a matter that might come up in some departments.

PRESIDENT WAREING: Mr. Chatterton, how do you feel about it?

MR. CHATTERTON: I do not know. I think that you have a very complicated problem and you are making it more

complicated. I believe that Lieutenant Teeter probably has the right slant on this, that there are so many things to be considered, that as you consider one thing to be of paramount importance you immediately find another one of greater importance. I think that we should consider the information that Mr. Virden has given us and be guided accordingly. Not too many of us are familiar with the Florida climate. I should like to be; I may be. However, you will probably get a different opinion from every person in the room as to what his local political situation may be, whether he is a civil service employee, and so on and so forth. Probably the best thing you can do is to question whether it shall be in October or December and see what everyone says.

PRESIDENT WAREING: I thought that we might get a few more ideas on the floor to mull over before we bring it up. Mr. Williams, how does it affect you out in Colorado?

MR. WILLIAMS: It is practically immaterial with the possible exception of the budget. We are on civil service out there. If it is possible to secure the funds, I could possibly reserve them early enough. The date is more or less immaterial.

PRESIDENT WAREING: I imagine that most of you gentlemen already have your requests in for a certain amount to be set aside for that purpose. If you haven't, you ought to get it in.

Mr. Schnell, you felt that it should be before the Chiefs' convention.

MR. SCHNELL: Only for the reason that I do not see that the weather has anything to do with it and I do not see that the elections have anything to do with it. I have been in Florida in September and October and at various times during the year. Are we going down there to look at the weather or are we going down there to transact business? I have no intention of going down there just for the sake of going down there. My sole purpose of going down there will be to conduct the affairs of this organization. I realize, too, that it is always advantageous to have what fun you can under the best conditions. September and October are not months to go to Florida for that purpose, but certainly we are not going to hold our meetings on the streets or on the beach.

As to holding the convention before the IACP's, I felt that it provided an opportunity to make a recapitulation of the past year with recommendations for the forthcoming year, so that during their meeting the IACP would have a yardstick by which to measure the future. Elections do not seem to enter into it at all. My preference would be to go down there in October, as soon as possible, but I have no choice and the weather doesn't interest me.

MR. CHATTERTON: Of course, October would be after the Chiefs' convention.

PRESIDENT WAREING: It would be at least a month after their convention and the same month that the IMSA will hold their convention in Jacksonville, which is very bad.

MR. CHATTERTON: Well, it is very bad or very good as the case may be. As far as the IMSA is concerned, as you stated several men belong to both organizations and they must almost of necessity give up one or the other. So that you have a logical argument for having it in October, if you want it in October. They can attend both conventions.

PRESIDENT WAREING: Do you mean to run them consecutively?

MR. CHATTERTON: That is right.

MR. SATTS: Going back to my remarks a while ago about the weather in Florida in October, that rainy season is very disagreeable, at least it is for me, a northerner. I had to sit inside for one whole day. It was extremely sultry and the temperature was 85° and above. I do not think that October should be considered as a month for the meeting in Orlando.

PRESIDENT WAREING: Mr. Smith, how do you feel about it?

MR. SMITH: I am rather in favor of following Mr. Virden's suggestion. I think that all of these things, political and so on, that have been mentioned bear some weight, of course, but that as to the political angle the organization should be, at least theoretically, above the political argument, that is, we should not go to the extent of recognizing the fact that it does have pressure on us.

I may get there with the present politics at home and I may not and if they change the same thing is still true, but I believe that the organization should not do ~~my~~ home-state politics the honor of considering that in setting the dates of its convention.

PRESIDENT WAREING: Mr. Wherritt.

MR. WHERRITT: I see no objections at all to holding it in December. I had a few minor objections at first, but I think those have all been taken care of. Mr. Virden has done an enormous amount of work. He has considered this from all angles, and from the advertisers' standpoint I know that he is correct in that some of the manufacturers prefer it in December. I have talked to a few myself who would rather attend in December and who possibly could not exhibit on an earlier date due to other arrangements they have. As I say, I have talked to a few of them myself who have expressed the same opinion, and since we are depending on their displays of new equipment, etc., for an interesting convention, I think that should be given primary consideration. I think that we should consider when most of them can be there. I am interested in seeing all the new equipment I possibly can; in fact, I learn something from that new equipment every time I attend a convention. That is one of the main reasons I like to attend them.

PRESIDENT WAREING: Has anybody else any ideas before a motion is placed on the floor? It is evident that Mr. Virden would like to have the convention the first week in December, but he realizes that he has only the southern viewpoint and he expects us to take the national viewpoint into consideration in making the decision, which is pretty well represented, there being members here from Colorado, New York, and so on, and we should get a pretty good picture.

MR. WILLIAMS: What really definite benefit is actually derived from having our meeting prior to the Chiefs'? It seems to me that if there is sufficient benefit to be derived from that, we should certainly take it into consideration; on the other hand, if the plan of handling it through the Bulletin, as you outlined, is adequate, then I see no reason for considering it from that standpoint.

PRESIDENT WAREING: This year we had our Frequency Allocations Committee's report, which was acted upon at our

convention and then turned right over to the Chiefs for presentation at their convention. That is probably the best way to handle it and it should be the policy of this Association to hold its conventions prior to the Chiefs' conventions when possible, but when we select a convention city we do not know where the Chiefs' convention will be held next year or what the dates will be. It is a bad situation this year.

MR. CURRY: It appears from what Sergeant Morrow has already said that the Chiefs themselves have taken care of this in authorizing their Communications Committee to act on any proposal that may come from this group.

PRESIDENT WAREING: I think that some of you gentlemen may not have seen the letter that Captain Leonard wrote on this subject:

SECRETARY MORROW: As you know, President Wareing addressed a letter to the members of the Executive Committee asking for expressions of opinion regarding the selection of convention dates. In reply to that letter, Captain Leonard writes as follows on January 8:

"Dear Mr. Wareing:

"I was pleased to receive your letter of the 4th and to know of your plans for the forthcoming APCO convention to be held at Orlando, Florida. Generally speaking, I believe it is better for the IACP convention to follow that of your organization, but there is no reason why circumstances as explained by you do not offer justification for changing this routine. It is necessary for you to take climatic conditions into consideration, and I do not believe it would be advisable for you to attempt to hold your convention this year before September, during which month IACP will meet in Milwaukee.

"In accordance with your suggestion, I see no reason why IACP could not extend blanket authority to originate necessary requests on the later recommendations of APCO.

"With reference to the resolutions submitted by APCO which were approved at San Francisco by IACP, I am pleased to inform you that these have been forwarded to the Federal Communications Commission. As yet I have not heard from the FCC as to their action on the same.

"I appreciate the availability of the APCO Bulletin, and if the opportunity presents itself will be pleased to send in an article for publication.

"You may rest assured that our interest continues in the welfare of APCO, and at any time our Association or myself personally can do anything in the furtherance of this cause, do not hesitate to let us know.

"With kindest personal regards, I am

"Very truly yours,
Donald S. Leonard, Vice President,
International Association of
Chiefs of Police"

PRESIDENT WAREING: Some of you gentlemen who are not members of the Executive Committee probably do not know that Captain Leonard also offered us the use of the IACP offices in Chicago for this meeting, but as Fred Schnell had already made arrangements with the Hotel Sherman we did not change them.

I will entertain a motion as to the convention date.

MR. CURRY: I make a motion that the convention be held in Orlando, Florida, the first week of December.

MR. RENNER: I will second the motion.

PRESIDENT WAREING: Is there further discussion? If not, we will take a vote on the motion. All those in favor signify by saying "aye"; any opposed. The motion is carried.

Do you think that by any chance we ought to change the length of the convention this year? Sometimes it has been four days; once it was three days. If there are no suggestions to the contrary, we will let Mr. Virden set it for four days.

That disposes of that matter.

Now, I do not think that Colonel White knows who are here. So I will read the names of the men present and the various committees on which they function. These are

joint meetings of the Executive Committee, the Frequency Allocations Committee, the Engineering Reports and Research Committee, and the State Systems Standards Committee. Due to the fact that almost every man is a member of more than one of those committees, it will be necessary to hold one committee meeting at a time, and I think it is very desirable for everybody to sit in on every one of the committee meetings. The chairman of the committee involved will preside. At the present time this is an Executive Committee meeting.

We have Bob Batts, Deputy Inspector of the Indianapolis Police Department, who is Chairman of the Frequency Allocations Committee, a member of the Executive Committee, and a member of the Engineering Reports and Research Committee,

I will read them alphabetically.

Eugene Brown, a member of the Executive Committee, of the Frequency Allocations Committee, and of the State Systems Standards Committee. Mr. Brown is from Iowa.

Arnet A. Curry, of Indiana, a member of the Frequency Allocations Committee and Chairman of the Engineering Reports and Research Committee.

Ed Denstaedt, unfortunately, did not get here.

Robert Franklin did not get here.

Ray Groenier, of the Madison Police Department, a member of the State Systems Standards Committee.

Virgil Lehman is not here.

Ted Lowe, Chairman of the State Systems Standards Committee, and a member of the Executive Committee and of the Frequency Allocations Committee.

Frank Morrow, Secretary of the Executive Committee and a member of the State Systems Standards Committee.

Maurice O'Neil has been unable to attend.

Captain Renner, from Urbana, is a member of the State Systems Standards Committee.

Captain Scavarda, of the Michigan State Police, has been unable to attend, but has delegated William Bouck, the Chief Dispatcher of the Michigan State Police, to attend as a member of the State Systems Standards Committee.

Fred Schnell is a member of the Executive Committee and of the Frequency Allocations Committee.

C. M. Smith, Jr., from North Carolina, is a member of the Frequency Allocations Committee and of the Engineering Reports and Research Committee.

Lieutenant James Teeter, from St. Louis, is a member of the Executive Committee.

Captain J. Minter Wherritt is a member of the Executive Committee and of the State Systems Standards Committee.

Howard M. Williams, from Denver, is a member of the Engineering Reports and Research Committee.

And Jack Wilt, from Kansas City, is a member of the engineering Reports and Research Committee.

Now, in addition we have Elmer Zindars, from the Sheriff's Office of Walworth County, Wisconsin, who is not a member of any of these committees, but he is very welcome to be with us.

There is another matter of which I think we should dispose. Colonel White, did you know that Captain Leonard's plane was grounded and that he will not be here until this afternoon?

COLONEL WHITE: I had not heard.

PRESIDENT WAREING: So we will delay the work of the Frequency Allocations Committee until he arrives.

Another matter that ought to be disposed of is that of the informal conference of February 28. A great deal of misinformation has been spread around about that informal conference, including statements in some of the technical journals that frequency allocations is one of the matters to be discussed. I should like Colonel White to tell us at this time for just what that informal conference is supposed to

be.

COLONEL WHITE: As near as I can find out from the office of the Commission, where there ought to be information, the informal conference of February 28 is on broadcasts and broadcasts alone. The allocation that is to be discussed is allocation within the broadcast allocation. At the present time part of the frequencies that are assigned to broadcasts are assigned to frequency modulation and part of them are assigned to amplitude modulation, and they want to have an argument about whether the amplitude modulation should be abandoned entirely and be made available for frequency modulation or whether the present plan should be continued. As far as stepping out into other frequency bands is concerned and considering allocations of other services, that is not on the agenda. As far as I know, if anybody tries to raise that question he will be ruled out of order, as not being on the agenda and not appropriate for discussion.

As I wrote Bob and Lloyd, I think that a lot of smoke is going to be cleared away about frequency modulation at this informal conference. As engineers interested in communication, if you can get down there you will probably find that the time has been well spent. There is the argument between the wide bands and the narrow bands frequency modulation, about this circuit, that circuit and the other circuit, the advantages of noise suppression, the relation of modulus wing to modulation frequency, and all of those things will be discussed and aired and everybody will have his own little horses to trot out. I expect it to be a most interesting conference.

I have copies, if you haven't seen it, of the mimeographed letter that we put out about frequency modulations in services other than broadcasts. We hope that some of you police people get your feet wet. We already have a few who are in it. Professor Noble, of State College, Connecticut, was in the office a week or so before I came here, and he is very much pleased with the results that he has had. I have one or two car transmitters, 25-watt, built by Fred Link, based on a modification of Armstrong circuits. With the receiving point that he has been using for his tests, a 200-foot tower (I think the height above the average **terrane** is around 600 feet, that is, on a hill, which means 800 feet above sea level and 500 or 600 feet above the average **terrane**) he has twenty-five to thirty miles with no dead spots.

Even in railroad cuts and places like that, he walks right through and in some directions he gets as much as forty miles with his car transmitter, solid communication. The signals come from the car just as well at twenty-five miles as they do at five miles. There is no fading or anything else, and at the very edge of the communication range you get a condition of standing waves in which perhaps five or six feet will be the difference between communication and no communication, but as long as you stay still in one of those spots you have good communication. In his mind the big advantage is the absence of ignition noise. He thinks that he can get away with amplitude modulation on the Merit Parkway, which is the Boston Post Road, which is a very heavily traveled road, and the frequency modulation is absolutely quiet, there is no trouble, and he figures on ten stations in all his cars with one frequency both from the cars to the station and the cars out. There are some arguments against that, which he realizes, but he thinks that they can be taken care of, and for economic reasons he is going to go to that. The large controlling factor is the cost of wire lines and control circuits, if you have two frequencies. You can get away with one pair with one, but you have to have at least two pair if you have two. That is the situation on that.

Are there any questions?

MR. GROENIER: On what frequency is he operating?

COLONEL WHITE: I think he is operating on that state police frequency, around 37. There is one state police. I do not remember the exact frequency. He is working with the MMPRA, that is, the Metropolitan Municipal Police Radio Association of the New York metropolitan area, and I think has selected 39.1 as the first shot for his permanent system. There are four other communities on that frequency.

MR. GROENIER: Has anybody reached any conclusions as to whether there will be any benefits over amplitude modulations for sky wave?

COLONEL WHITE: Do you mean sky wave frequency modulation?

MR. GROENIER: Yes.

COLONEL WHITE: Well, in the first place with frequency modulation, if your own signal is twice as strong as the other fellow's you never hear him, so in any area where you are twice as strong as the sky wave you will never hear that fellow on a heterodyne or anything else. There is absolutely nothing there. I believe that certain cases have been observed where the sky wave is stronger than the local wave in certain areas. The bad part of it in an area like that is that you can hear the sky wave and never even know that your own station is on the air, but that is a case of surveying and finding those places and eliminating them.

One of the big advantages, as I see it, is you can have two communities, ten or fifteen miles apart, on the same frequency and if either one of them speaks his own cars will hear him and never hear the other fellow. Some of you have perhaps heard about the demonstrations that General Electric has put on with their equipment. They had a transmitter at Albany and another one at Schenectady. They are about fifteen miles apart. Put them both in amplitude modulation and as soon as you are out of sight of the antenna that is connected with the station you are bothered by heterodyne and cross modulation and hear nothing. Put them both in frequency modulation. Get about one-third of the way out of Schenectady, where the low-power transmitter was before you ran into the standing wave band, and then you hear Schenectady and Albany alternately but never both at once, first one and then the other until you get beyond where Albany is twice as strong as Schenectady and you hear nothing but Albany. We never heard Albany at all, heterodyne or any other way, when the Schenectady transmitter was on the air. If Schenectady was off the air we would hear Albany.

MR. WILLIAMS: How effective does the system seem to be?

COLONEL WHITE: We asked Armstrong about that. He said there was less diathermy interference, the main reason being that most of these diathermic gadgets have both frequency and amplitude modulation and apparently it is not as serious as it is in the amplitude modulation.

MR. CURRY: On the question of band widths for the police, what band widths are you going to allow?

COLONEL WHITE: We are permitting only the present

communication band, That is a 40-kilocycle band. That means that with a 35-megacycle area, if you use all of the 200 per cent tolerance that you have available, you have to restrict your swing to around 12 or 13 kilocycles.

MR. CURRY: Will that be great enough actually to test the benefits of the frequency modulation?

COLONEL WHITE: Well, there is this about it: You may not be able to get as much as you would get if you had more but, unfortunately, we are stuck with more than 6,000 transmitters in the police field alone and you have several thousand transmitters in another channel right next door. I do not think that you can get an allocation which will wash out all of these amplitude modulations to take care of wider bands in frequency modulation. I think you are stuck with the practical difficulty there that you have to get the maximum you can with a 30 or 40-megacycle band in a 40-kilocycle channel.

Noble and these other people who are playing with it say that for voice transmission the benefits are considerable, that if you go to wider bands about all you gain is a little greater freedom from noise and the ability to go to very much higher modulation frequencies for higher quality, but the police are not in the broadcast business. They are in the business of transmitting words.

MR. SMITH: Our interest is purely in the effect of the band width on noise discrimination. I am sure that is what Mr. Curry meant to ask about.

COLONEL WHITE: You get an advantage in noise discrimination. As Armstrong puts it, if your signal is more than twice your noise at any time, you never hear the noise at all.

MR. BATTS: Can that be squelched out in the no-signal condition?

COLONEL WHITE: You can put a squelch on the end, but you will have some difficulties with it. That is one of the things on which Noble is working. You cannot use the RF squelch; you must use the audio system. He is having some fun with it, but that will be licked.

MR. BATTS: The modification of equipment that Mr. Noble is using is the G.E. system?

COLONEL WHITE: No, that is based on the Armstrong. Some of them call the G.E. the lend-back system. The G.E. is a self-oscillator with a modulator tube that corrects the frequency of the self-oscillator and also provides your modulation. Then you have a distance control system to your self-oscillator which feeds the correct voltage back into the modulator. The difficulty that G.E. will admit they are having and that Noble says they are having with their car transmitters is that on cold mornings when you go out to crank it up, the constant of your self-oscillating set has gone so far astray your receiver doesn't even hear it and it does not start to correct it. You must "fiddle" with it to get it going. He is using a phase displacement, but since he is limited to a 15-kilocycle swing, he does not have too many modifying stages. You can take a reasonable number of angle degrees in your phase and make it up in kilocycles.

MR. SMITH: Do you know how many stages he is using in his experimental units now?

COLONEL WHITE: I think that Noble is using only four stages.

MR. BATTS: Do you know how he works his frequency?

COLONEL WHITE: It is a phase displacement with his oscillator. It is a modification of his own. I do not know what the circuit diagram is, but it is a phase displacement in the oscillator and his quadruplicate changes that into 15 kilocycles.

PRESIDENT WAREING: Colonel White, you mentioned that Professor Noble is operating on one of the state police assignments in the ultra high.

COLONEL WHITE: That is on car cycle.

PRESIDENT WAREING: On his mobile units?

COLONEL WHITE: Yes, that is the only one.

PRESIDENT WAREING: What does he expect to do with

his fixed stations?

COLONEL WHITE: He is working with the MMPRA, and if I remember right it is 39.1.

PRESIDENT WAREING: Those are municipal and state?

COLONEL WHITE: Those are municipal and state. There is no fixed.

PRESIDENT WAREING: That is what I was wondering, except for one watt or less.

COLONEL WHITE: Yes, but that is the same as for anybody else.

MR. BATTS: Is it true that the Commission expects to license police departments to operate to headquarter stations on some of the headquarter station channels, both amplitude and frequency modulation?

COLONEL WHITE: I do not have very many of them with me, but this is our letter to licensees about frequency modulation. Generally, the Commission will issue a license for an experimental station, and you can operate it, as far as operation is concerned, as if it were the regular police station, but we require certain reports and we expect something to be done with it. The state use of those frequency modulation stations will be very much like the state use of amplitude modulation stations before we had our new emergency rules. They will be operated on an experimental basis to learn if there are really any advantages and the conditions under which they can be operated. In your case, if you want to put a couple of frequency modulation transmitters along with your amplitude modulation transmitters, that is your business. As long as you do not step on anybody else, we welcome it.

MR. BATTS: Say, some city would desire to put on a 500-watt or one-kilowatt frequency modulator job on one of the frequencies under group "A" or "B", I believe it is. That would be permissible in line with this?

COLONEL WHITE: Yes, as to experimentation. If it starts to cause interference--that is the purpose of it experimentally--then you cut it back to voice size. We must

find out one way or the other. These fellows are playing in the laboratories, but we know very well that no one in the laboratories has the knowledge of conditions that you fellows do. If you really want the low down on the thing after the fellow in the laboratory thinks it is right, put it out and give it a service test, and that is what we want to do. The broadcasters are ready. They have been "fiddling" around with broadcast transmission, they have been doing quite a bit of broadcasting and have a lot of service test information outside the laboratory information.

MR. BATTS: I received a letter yesterday from Schuler, in Fresno, California, and he is going to apply for an experimental license in accordance with this letter.

MR. CHATTERTON: You spoke about sky wave interference. Have there been any observations on sky wave interference with amplitude modulation frequency?

COLONEL WHITE: No, nothing has been reported. It looks as though, as far as a frequency modulation system is concerned, sky wave interference with amplitude modulated stations would not appear under any circumstances. As far as amplitude modulated stations are concerned, it looks as though on the same frequency, a frequency modulated station is no worse than another amplitude modulated station. It is probably better than another amplitude modulated station with the equivalent service range because, for instance, a 25-watt frequency modulated station is never more than 25 watts and an amplitude modulated goes up to 100 watts. As far as adjacent channels are concerned, there is where the rub comes in. Your interference appears to draw out of the adjacent channels. We do not think that will be so serious, because, you remember, in making our allocation plan we tried to set it up so that normally services beside adjacent channels would be geographically separated, that is, you usually do not find a forestry station alongside a police station. You do alongside a state but not alongside a municipal area. You do in some cases, but that is not usual, and this plan is carried out as well as your power station where your power in the allocation plan goes in waves. You will find next door to your car transmitters low power service, and next door to the class "A" stations you will find high power services.

MR. CURRY: There is the question of the width

of the band and, of course, as you pointed out, it is definitely limited now. Don't you think, however, that in time, if this proves out satisfactorily, there may be a reallocation of these frequencies so that we can get wider bands if that proves to be the stumbling block?

COLONEL WHITE: Perhaps, but it is a pretty difficult proposition. Of course, you do have a number of channels around 120 kilocycle widths, and it might be that you would find many jobs in that part of the spectrum that you would do just as well on a 30 to 40-megacycle band. One thing is positively certain: We have never yet heard any long-range sky wave interference on that part of the spectrum.

MR. CURRY: I have one thing especially in mind, and that is in a given area like the Chicago area all of the frequencies that are available have been allocated to this area because of interference problems. With frequency modulation you could cut that down considerably, the number of frequencies that would have to be allocated to this area and, therefore, you could widen the band.

COLONEL WHITE: You might be able to, but there are no adjacent channels at that. If it is a solid band, like in broadcast, it would be different. Of course, you fellows in Chicago may think that you have a problem, but you ought to take a look at the situation in New York where they have 85 systems and they are still growing. It is quite a headache. Adjacent channels and all the rest of it are complicated problems. If we are going to do anything at all, we had better get our feet wet on the narrow bands. It looks as though that will do the job, and the advantages that you would gain for the wider band, considering the police problem, would be more luxurious if necessary.

MR. CURRY: Do they have any material available yet as to the interference that you get from adjacent channels even though they sweep across each other to a certain extent?

COLONEL WHITE: Do you mean in frequency modulation?

MR. CURRY: Yes, in frequency modulation.

COLONEL WHITE: I don't know, but I think it is pretty definitely agreed that if you carry them across each

other you are in trouble.

SECRETARY MORROW: In view of the fact that this conference in Washington on the 28th is apparently going to be virtually the opening up of a new era in communications generally, is it possible that the Commission will prepare minutes of that conference that will be available to persons who require the information in other fields than broadcasting?

COLONEL WHITE: Of course, a stenographic record will be made of the conference.

SECRETARY MORROW: How will that be obtainable?

COLONEL WHITE: You will be able to buy it from the reporter. Normally it is very expensive. I think the record of the Telegraph Division, Order 40, I believe is the title of it, cost over \$4,000 for one copy. It would cover that table. It is so much a page. There was such a demand for the record of the June, '36 hearing, the reporter, instead of using the Ditto process, went to a different process of reproduction and cut the price down so that I think you could get the record for about \$50. I don't remember the price, but it was materially lower; otherwise, it is around \$150.

SECRETARY MORROW: Purely from the standpoint, for instance, of police units in that type of transmission, it seems to me that if something of that sort were available, the organization, and organizations of a similar nature in the country, would procure copies for reference by members as they need the information from time to time.

COLONEL WHITE: You will probably find that the conference will be covered pretty thoroughly in the trade publications. Incidentally, when Noble was there I suggested to him that I thought the APCO Bulletin would welcome an article from him on what he is doing. He said he would be glad to write one.

PRESIDENT WAREING: Mr. White, one of the things that we were worried about before we had any definite information on this conference was whether or not the broadcast interests would want our 30 to 40 megacycle range now or later and whether or not we should be represented at that conference.

COLONEL WHITE: There is no point in being represented officially.

PRESIDENT WAREING: In other words, you assure us that they will be ruled out if they attempt to take anything away from anybody else?

COLONEL WHITE: I do not see how they possibly can let them talk about it under the legal status. The agenda is on broadcast. I do not think you need to worry about their taking the 30 to 40 megacycles.

PRESIDENT WAREING: It is obvious that one of the important things they must have to operate on is frequency.

COLONEL WHITE: Yes, but from 41 to 56 is almost solid broadcast.

PRESIDENT WAREING: The present frequency modulation receivers are calibrated from 40 to 44 megacycles, if I remember right, so apparently they have no intentions of going below 40.

COLONEL WHITE: As I said, as nearly as I can find out, the argument is whether the present practice of having part of that band amplitude and part frequency broadcast should be continued, and it is not whether they need more frequency than they have now.

MR. CHATTERTON: The frequency allocation plans that they were discussing down East were to take the present bands that are allocated for frequency modulation and amplitude modulation and reallocate the whole thing in their own minds.

COLONEL WHITE: That is just that band.

MR. CHATTERTON: Just that band and take the amplitude modulation broadcast frequency and reallocate it on a frequency modulation basis.

COLONEL WHITE: But they are not trying to get other frequencies from other services. It is just merely an allocation within their own band.

PRESIDENT WAREING: Suppose one of our members

will be at the conference, will he be free to write up in the APCO Bulletin any points that are brought out that will be of interest to the police?

COLONEL WHITE: Surely! It is a public conference. I think it would be very valuable for someone to be down there who will take the time to do it.

MR. GROENIER: Do you think there is anything in the higher frequencies that would interest us in police work?

COLONEL WHITE: Do you mean 120 megacycles?

MR. GROENIER: Yes, or from 56 up to 100 or somewhere along there.

COLONEL WHITE: Between 60 and about 130 is occupied solidly by the government and aids to our navigation. Then 130 to 150 is a band in which there are a number of police frequencies and a number of others. Two or three people have gotten their feet wet in the use of those frequencies experimentally for relays between receivers and high mountains and police headquarters and places like that. They have had authorization and have put a receiver, self-contained, on top of a mountain that is on a power supply where there is no wire line or anything else, and they are able to catch cars all over the territory, which they could not otherwise do without a multiplicity of receivers and a whole lot of lead wires and everything else. They are using one of those 120-megacycle police channels as a relay channel on an experimental basis to see how it works out.

MR. BATTS: I asked for permission to do that about a year ago and they turned me down.

COLONEL WHITE: Not at 130 megacycles.

MR. BATTS: At 132 megacycles.

MR. CHATTERTON: You have too many wire lines down there, Bob.

MR. BATTS: Might it be possible if I would resubmit it from a different angle, I could get authorization?

COLONEL WHITE: You never can tell.

PRESIDENT WAREING: I was surprised that you did not insist that these frequency-modulated police stations operate in those 120 or 130-megacycle bands.

COLONEL WHITE: There is evidence that the coverage is not as good.

PRESIDENT WAREING: It would permit using half-wave antennas on cars and might more than make up for higher antennas.

COLONEL WHITE: The multiple reflection is the main trouble apparently. The coverage isn't too good.

MR. GROENIER: I wonder if that would be an objection out in the country. You say your multiple reflection is the big objection. That, of course, would be true in a city like Chicago.

COLONEL WHITE: I wondered about that, but Noble said that he did quite a bit of work in that band in connection with his broadcast experimental work and very definitely did not get as good results as he did in the 30 to 40-megacycle band. As to what the reasons are, I do not know any more than anybody does yet. They haven't been explored.

MR. GROENIER: Supposing we do go on our present frequency with frequency modulation, are you going to accept our present frequency measuring methods of determining that we are on that frequency?

COLONEL WHITE: One thing is if you cut your modulation off, of course, you have constant carrier and you can get your carrier.

MR. GROENIER: We have no real method now of knowing--well, of course, with our modulation we could devise some way of knowing that we weren't modulating beyond these frequency limits.

COLONEL WHITE: I think that as a practical matter that will have to be built into your transmitter. That is another thing I have been told about the G.E. transmitter as it is now designed, that there is no limit to the swing.

If some bull-voice sergeant comes along and shouts into the microphone, he may get a 25 or 30 kilocycle swing and so you have to have some sort of limit on that, but there are all sorts of things there. This experimental work is to find out what you have to put on in the way of restrictions, what regulations are necessary, if any. It may be that the ones we have now are all right, or we may have to put some additional ones on.

... The meeting recessed at twelve forty-five o'clock ...

Executive Committee
 ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.
 Sunday Afternoon, February 11, 1940
 Hotel Sherman
 Chicago, Illinois

The meeting convened at two-thirty o'clock, Mr. Herbert F. Wareing, President of the Association, presiding.

PRESIDENT WAREING: Well, let's wind things up now. I think that Mr. Zindars has a question to ask the Secretary.

MR. ZINDARS: The question that I have in mind is as Secretary of the Wisconsin Chapter. Many of the fellows have paid their \$5, \$2.50 to our Association, that is, the active members, and \$2.50 to the National Association, but some of them have been hesitant about coming in the latter part of the year and paying \$2.50 for only a couple of months. We have three members--I furnished you the names of them--and I understand that they will be placed on the 1940 list, whereas the others who paid at the same time were given credit for only 1939 and we have to collect another \$5 from them.

SECRETARY MORROW: If you recall, at the time the chapter set-up was made, and prior to the convention in Kansas City, it was announced that 1939 dues would be ac-

cepted up to and including the date of the convention. That was because--and you will recognize that it is true in any organization--their opinion and their voice in a convention is valid only if they are members as of that current year. Memberships that were received during the last part of the convention and from then on have gone on the 1940 list. If you will recall, the memberships, other than those three, were all memberships as of the date of the convention. That is the reason for the difference.

MR. ZINDARS: Frank, there is no argument as far as the members who have already paid are concerned, but I know that right over in my own county I could have gotten at least five associate members, and at our next Wisconsin meeting I will get those members, but they refused to come in and pay \$2.50 to our chapter and naturally I did not get them as members. That is true in several other places, including Madison. We have a list of eligible members of the Association. Now, as to the future, there are just a few months left in 1940, say, for instance, and we try to get members, will they be members in 1940 or 1941?

SECRETARY MORROW: The question is rather strange in this respect, that it puts the burden of getting the membership on the organization rather than on the prospective member. In other words, if a man waits until October, of 1940, to become a member, he doesn't have to pay his 1940 membership fee. He becomes a member in '41 although he actually participates in membership in 1940. I do not believe that there is any organization that has a calendar year membership, which it should be because of that very fact, that makes a pro rata basis for the last three months or the last six months of the year. If the membership is worth anything at all, it is worth the membership fee, and it is their responsibility to pay that membership fee at the time it is going to do them the most good.

Of course, we have a peculiar problem there, in that many men were not familiar with the organization and the fact that it has chapters. In all probability the problem will not occur again, because presumably we are making a drive for memberships among the people who should belong. I think that that will solve itself in that way, but it is peculiar in that it places the burden from that point of view on the organization rather than on the man desiring the membership. In other words, if the APCO membership is

worth anything at all, let's make it a privilege to belong rather than our obligation to go out and get them in order to help them.

MR. ZINDARS: With the regular active members whom we have in the Association, we do not have that difficulty, but we do have it with those--what did Colonel White call them--button pushers whom we are interested in getting into our Association as associate members. If they become members after six months of the year is gone, they feel that they should pay only half the fee.

SECRETARY MORROW: The point is can't we reach those people before six months of the year are gone? I mean if we are going to conduct a membership drive, let's conduct it in the first two or three months of the year.

MR. ZINDARS: The trouble with that is that new stations are developing all the time. You are going to have the problem of Sauk County coming in and possibly Eau Claire County. As they come in we are right on their tail to join this Association. Six or eight months are gone and we want \$2.50

SECRETARY MORROW: After all, the membership is worth just as much to them as it was in January.

MR. ZINDARS: But it is hard to explain that. They know that we are all members, but it is very hard to explain not to the active members, no, but to the associate members.

PRESIDENT WAREING: While we are on that subject, Mr. Virden has made a recommendation that he collect the 1941 dues at the time of registration for the 1940 convention. Let's get some ideas on that and tell Mr. Virden what he can do.

MR. SCHNELL: It occurs to me that this is a case of a secretary of one organization speaking to the secretary of the national organization on a subject that has nothing to do with this committee, and I, therefore, make the proposal that the subject up for discussion be named so that everybody can hear it and that the discussion be limited to the subject on the floor.

PRESIDENT WAREING: Well, your answer to Mr.

Zindars, Mr. Morrow, was that his dues were for 1939 and that he now owes the Association the 1940 dues.

SECRETARY MORROW: That is right.

PRESIDENT WAREING: Now what shall we do about 1941 dues? Shall we permit Mr. Virden to collect them at time of registering? Personally, I think that is the best time to get them.

MR. BATTS: I think the idea is very good, but that it should be announced beforehand in the Bulletin.

MR. RENNER: I make a motion to that effect.

PRESIDENT WAREING: That the 1941 dues be collected at the registration desk at the time of registration. Is there a second to the motion?

MR. CURRY: I second it.

PRESIDENT WAREING: I will call for a vote on that motion. All those in favor signify by saying "aye"; any opposed. The motion is carried.

Colonel White.

COLONEL WHITE: The last thing that I have on my agenda is covered in this letter. "It is proposed to make a change in Sections 10.122 and 10.123 of the 'Rules Governing Emergency Radio Services' to provide for advance notice to the Commission before the agreements referred to in those paragraphs may be terminated." Generally, we have three types of agreements. It is all in the municipal field. One is the type of agreement when a city asks for increased power in order to cover a county territory. We require that the county bind themselves to take the service and that the city bind themselves to give the service before they get the high power. We should like to modify our rule, **if there is no objection**, that such a contract cannot be terminated unless 60 days' notice has been given to the Commission. The **second** contract, such as you have, Wareing, **is** where you get the consent of everybody in your frequency area before you can have 1000 watts. There ought to be 60 days' notice before any fellow can withdraw his consent. The **third** is a sheriff's department that wants to get on a fixed **station**

frequency of a city so that his cars, **licensed in his own** name, can operate actually as part of the city system. His contract should be terminated only after notice to us because it may be necessary to have time for adjustments. Is there any objection to such changes in our rules?

MR. WILLIAMS: Mr. President, I move that we heartily endorse such a change.

MR. SCHNELL: I second the motion.

PRESIDENT WAREING: The motion has been made and seconded. I should like to ask Colonel White, in the case of the 1000-watt agreements, what difference would it make if someone did say that he did not want to agree any more?

COLONEL WHITE: We would have to go back to 500 watts.

PRESIDENT WAREING: I thought that any stations coming in in the future were not to be considered thus because they were not existent at the time.

COLONEL WHITE: If they came in, of course, you might say that they tentatively agreed to enter the existing contract, and if they want to raise an objection it will be the same thing as terminating their agreement. The language would have to be worked out. It is the principle of the thing, so that nobody can put you in a box by suddenly saying, "Next Tuesday we are raising an objection and you will have to cut back to 500 watts." You will have a period in which to do some finagling.

PRESIDENT WAREING: I did not think anybody could do it.

COLONEL WHITE: I suppose that a fellow could change his mind. They try to once in a while.

PRESIDENT WAREING: He said that he had no objection and you invested the money.

COLONEL WHITE: That is the sort of thing we want to have understood. That particular agreement is not so important, but we want to make it absolutely certain that no agreement of that kind can be terminated without notice to

us.

PRESIDENT WAREING: What I am trying to drive at is the fact that if you mention the possibility of terminating that agreement, somebody may get the idea of doing it. I would rather see it stated that the agreement can never be terminated.

COLONEL WHITE: Then you are going to have difficulty getting it signed, because in many cases the fellow says, "Well, I am perfectly willing for Wareing to try his 1000 watts and as far as I know it won't bother our service, but if it does he will have to go back to 500 watts.

PRESIDENT WAREING: Can't you make that for a period of a year or something--that is already passed I mean,

COLONEL WHITE: I think that usually a contract of that type is self-continuing unless revoked by either party. We want to make it that there must be at least 60 days' notice of the revocation and that we be notified.

PRESIDENT WAREING: There is another point that I should like to have cleared up. I imagine that others are also interested in it. Suppose that a city is serving all the governmental units in a county, as we are, under agreements, and everybody is satisfied but suddenly want two-way or something that we cannot give them and they wish to put in a system of their own. Does that immediately break up the status of that metropolitan area station and limit its power to the city limits population again?

COLONEL WHITE: Strictly speaking, yes, but unless they raise the question, if they are just putting in ultra high for two-way, we usually consider that what they are actually doing is putting in a duplex system, that they are just amplifying the service they are getting from you, and let it ride from that. You have that situation in Washington now. Montgomery is figuring on putting in some additional service. If they do it, we will just consider it as amplification of the existing service they are getting from WPEW rather than a withdrawal from WPEW.

PRESIDENT WAREING: Is there any other discussion on the motion before the house? How did you word your motion,

Mr. Williams?

MR. WILLIAMS: I moved that the Commission's proposed change in regulations--the specific numbers referred to--be heartily endorsed by this group.

MR. BATTS: Sections 10.122 and 10.123.

PRESIDENT WAREING: Any other discussion? I think that you are all familiar with the motion. All those in favor signify by the usual sign; any opposed. The motion is carried.

Have you any other points, Colonel White?

COLONEL WHITE: I think my agenda is complete.

SECRETARY MORROW: Now, we are going to have to figure out some more problems to get the Colonel back here next time.

PRESIDENT WAREING: You gentlemen all heard Mr. Virden's plans yesterday. I should like to ask if any of you would like to suggest that he hold down his ambition a little or whether we should let him go ahead and do as big a job as he can.

MR. CURRY: I see no harm in letting him do as much as he can.

SECRETARY MORROW: Mr. President, as I understand it, that mailing program that he spoke of would not cost us a dime. It is their program. The companies will furnish the stamped envelopes and the letters. I am for his doing everything he possibly can.

MR. WHERRITT: That will be a wonderful membership drive in addition to everything else.

PRESIDENT WAREING: Does anybody have any suggestions on his broadcast program? It is a big order, but he is waiting for suggestions from us.

MR. RENNER: The suggestion has been made that the Commission had better be furnished a copy of the script before it goes on the air.

SECRETARY MORROW: We will make sure that Orson Welles is in Siberia about that time.

PRESIDENT WAREING: Has anyone any suggestions to offer Mr. Virden in the way of additions to his present plans?

MR. LOWE: I should like to make one suggestion. In the past several problems have faced us at our conventions. I believe they can be avoided. I should like to suggest that you give consideration if necessary to adding one extra day to the convention and that you also designate that general assemblies and meetings shall be held in the mornings, the afternoons to be devoted to committee meetings, or if there are no calls for committee meetings, that will permit the members present to have the afternoons for their own diversion, such as golf or whatever may suit their fancies.

PRESIDENT WAREING: How about evenings?

MR. LOWE: I would say that committee meetings should be held in the evenings if necessary and that there should be no general meetings in the evenings.

PRESIDENT WAREING: Do you not think that it would be better to have the inspection trips in the afternoon and the committee meetings in the evening, so that the active members will not have to miss whatever is offered there?

MR. BROWN: I feel rather inclined to agree with Mr. Lowe in the matter, because at Kansas City, for instance, several of us who are on various committees were in attendance at the conference during the day and the committee meetings usually ran from one to two o'clock at night. Then, too, there are the exhibitors who should be considered. If no time is allowed for the members to visit their exhibits, there is ill feeling. They think that the members assembled at the convention should have adequate time to visit all the booths.

SECRETARY MORROW: With regard to Mr. Lowe's statement, I think if that motion--was it placed in the form of a motion?

MR. LOWE: A suggestion.

SECRETARY MORROW: Well, in addition to that suggestion and a part thereof, I think it will be expedient to do something that we have never been able to do before, and that is to go down to Orlando with each committee chairman in possession of the majority of the points that he wants to cover during that convention session, so that we will not have to wait until we are actually assembled in convention before they chairmen get the information on what they are going to talk about, again the establishment of an agenda from which we can work. It won't contain all the points to be brought up, that is true, but it will contain many points of a controversial nature upon which certain quasi final decisions have been made.

MR. LOWE: I should like to amplify the suggestion further and to say that we should not have any outdoor meetings, that we are going down there for business purposes and when that business has been conducted and taken care of, then we can go out and amuse ourselves.

MR. BATTIS: Referring to the committees being tied up during the sessions, if anything can be done along that line, I am sure it will be appreciated by a large number of the members, and there is a representative group of that large number right here.

SECRETARY MORROW: I think, Bob, that idea will counteract that. As you recall the situation in Kansas City, the chairmen themselves did not know what the committees were going to have to talk about until after they had it up in the session and then they went into a huddle on it.

MR. BATTIS: I took about a sixteen-page report to Kansas City as a guide for my committee chairmanship. I did not mean to indicate that I think that Mr. Lowe's suggestion is the answer to that, but anything that can be done will certainly be appreciated. I bought copies of the minutes in order to find out what went on in Kansas City, and, incidentally, I should like to recommend that you fellows buy copies of those minutes. It is the best job I have ever seen of anything along that line, and I think that something should be done to help Wherritt out of the hole he is in by nobody taking them.

PRESIDENT WAREING: Any other suggestions now for Mr. Virden's convention plans? I want to give him some

message from this meeting. What am I to tell him? He is waiting for an answer.

MR. SCHNELL: Tell him his plan sounds swell and to shoot the works.

MR. RENNER: Shoot the works and forget the fogs. Don't have any fogs.

PRESIDENT WAREING: How about the proclamation and all that? If we can do it, shall we let him go ahead with it?

SECRETARY MORROW: I do not think that any of the state groups will have any trouble in getting their governors to go for that.

MR. LOWE: Before that is done, let's get the authority and the approval of the IACP.

SECRETARY MORROW: I think that is conceded.

PRESIDENT WAREING: That would have to come through the Executive Committee anyway.

Another thing I should like to bring up, Mr. Morrow, is the reason you did not get answers to the questionnaire. I have some of it over in my department, but I think that you did get some parts of it this week. We asked for too darned much information at once and it had to come from too many people. I think that if we want any more information in the way of prepared handbooks or anything else, we should decide on some one simple subject and send out requests for the information and get it before going to another one. The communication officers could have answered half the questions on the questionnaires the day they received them if it were not for the other questions. The only way I have done anything about mine at all, after having had it for a year, is to fill out parts and send them back to Mr. Morrow. The rest of it is still in the office.

I think that every committee chairman should keep that in mind. Don't try to bite off too big a chunk at one time.

SECRETARY MORROW: The consideration there, Mr.

President, was a financial one rather than anything else. It was a matter of 1500 mailings, and the thought was that we could probably get a majority of the information on a number of subjects included in the questionnaire, which would enable us to get some facts for our compilation, whereas if we had mailed them in several mailings it would have been 1500 times 3 times the number of mailings we had to make, and we needed the information and we also needed to conserve our finances at that time.

PRESIDENT WAREING: The trouble is we did not get the information. I would suggest that the Editor of the Bulletin run a squib next month requesting those men who are holding questionnaires to tear the pages out and answer those questions which can be answered in a few minutes on a typewriter and send them to the Secretary, so that we get at least some of the information back.

Unfortunately, we also included in that questionnaire some matters on which the Chiefs do not care to give information, such as salaries, etc.

MR. WHERRITT: I think that we can just delete that.

PRESIDENT WAREING: It is too bad that one sheet like that will throw out the whole questionnaire.

MR. WHERRITT: I think that the work of filling out that questionnaire was greatly exaggerated. Frank sent me a sample copy and I sat down and filled out all I could of it; then I took it down to the Identification Bureau and they filled out the remainder of it. In one day I had the complete questionnaire filled out and ready to go back and it was no trouble at all. I have heard a lot of fellows say that it would take two weeks to fill it out.

PRESIDENT WAREING: The trouble is that it looks so imposing and impossible. When you really get down and pull one sheet out you can answer it.

MR. WHERRITT: The work necessary to fill it out has been greatly exaggerated. The faulty thing about it may be that it appears difficult to fill out to most people, but it actually isn't.

PRESIDENT WAREING: It frightened me. I did not even look inside the cover for about a year.

On this conference on the 28th, Ed Denstaedt, of Detroit, will be there and I am going to ask him to pick out the engineering items of particular interest to the police and report on them to Captain Wherritt for the Bulletin. I wish that a few of you others would also write Ed and make the same request of him. It is unfortunate that he could not be here today, but he had already had his request for attendance at the Washington conference approved and he was unable to get approval to come here just a couple of weeks before that; otherwise, he would be here. He is one of our very active members, and if I write a letter to him, I can be sure of getting an answer, which is something I cannot say for everybody. Mr. Chatterton will also be there and he offered to give us the information, but Ed Denstaedt offered about a month before that, so I think that we can stick to him.

Now, Captain Leonard has offered us the use of any facilities that he or the International Association of Chiefs of Police have which can be used by our committee chairmen to good advantage, such as mimeographing outlines or suggestions for their committee members, getting quantities of maps or such things which can be reduced to the size you want. Captain Leonard will be glad to furnish those to you on request. I think that the more we take advantage of his offer the more he will feel that we appreciate it. So I should like to see some of the committee chairmen ask him for some help.

Another matter is material for the Bulletin. Mr. Editor, are you getting enough material for the Bulletin?

MR. WHERRITT: One thing that I should like to say is in connection with this directory that we planned to put out. I have written a great number of letters in an effort to get those cuts from the various states. We got four in one issue, then we skipped an issue, and now we have two for the coming issue, Michigan and North Carolina. So far those are the only states from which we have even heard, with the exception of one, with regard to supply us with the cut or information on their state systems to go in the Bulletin. As soon as I print them in the Bulletin I send them on to the Chairman of the State System Standards Committee, so

that we can accumulate the information for the directory, but at the rate they are coming in, it will be a year or two before we get a directory published. There is no reason for that. It is a simple matter. It takes a man about five minutes to draw off a state map and send it over to the printer. It is a small job and I cannot understand the difficulty.

PRESIDENT WAREING: They must work fast out in Missouri.

MR. WHERRITT: That is a fact: It is a trivial job. It does not even take a draftsman.

... Discussion off the record ...

PRESIDENT WHERRITT: I still should like to ask Captain Wherritt if he is being swamped with material for the Bulletin.

MR. WHERRITT: No, but the last month or two it has been coming in better. We had enough this issue for a sixteen-page Bulletin, but due to a mistake on the part of the printer some material that we had been holding for some time, to fill in if we ran short and was marked "hold" was run and the material we marked to be run at this time was left out. We had some rather important material for this issue, which he did not get in. We had quite a round about that and, for your information, the printer tried to raise the price on us and we had a round about that. I have the suggestion to make that somebody take the job next year who is in a city where they can get decent printing facilities and can get it done decently, because having a job printer who has no facilities to run off a bulletin worries one to death.

PRESIDENT WAREING: I have written several hundred letters, and I do not think I have written one letter that I have not requested the recipient to furnish Captain Wherritt with something for the Bulletin, with some specific suggestion for that particular person, and I should like to repeat the plea to every one of you men that you give Captain Wherritt something to put in that Bulletin.

Now, there is one other matter and that is membership. I think that we started out this year with more paid-

up members than we have ever started out with before. Our vital problem is to make the APCO truly representative of police communications systems. We are not getting there very fast, and I think that if each one of you gentlemen would try to interest someone else in joining the APCO we could make a big jump all at once. I should like to ask right now if anybody knows why we have nothing in the northwestern section of the country. We have the state of Washington with ten radiotelegraph stations. They are organized with radiotelegraph and they are not a part of the national network. I do not think we have an APCO member in that entire section of the country.

MR. WILLIAMS: The day before yesterday, for your information, we worked on one of the stations in Oregon and he stated that he would be on 5100 and would maintain a watch on that frequency.

PRESIDENT WAREING: Is that KOHM?

MR. WILLIAMS: Yes, KOHM. He is very slow in receiving and in using a hand key and seemed a little uncertain as to just what it is all about, but it does appear that there is going to be some possibility of having a contact there in the near future.

COLONEL WHITE: When I went through in October I gave the APCO a boost and the network.

PRESIDENT WAREING: Did it do any good?

COLONEL WHITE: I don't know. I hope so.

PRESIDENT WAREING: I haven't heard anything about it yet. I wonder if each of you gentlemen when you write a letter to some other man in this business, about any matter at all, will mention APCO membership. It might help and we really cannot do a good job until we are representative. All of the things that we talk about do not mean a thing unless we are representative of police radio communication systems. I do not feel that we are except for the middle of the county here from the north to the south. We do not represent the two sides very well. Can anyone make any suggestions as to how we can improve that situation? I am after Martin Joyce to get those 30 members of his Eastern States Police Radio League in right now, and there are several other large

groups that we are trying to get in.

MR. WHERRITT: I would suggest that the Secretary write an article for the Chiefs' News Letter explaining the work of this organization. From letters that I have received from some of the Chiefs inquiring about the organization, I do not think that half of them know what the organization is. I do not believe there has ever been anything in the Chiefs' News Letter actually explaining the work and the connection of the organization with the IACP.

PRESIDENT WAREING: Captain Leonard has very kindly offered us the use of the Police Chiefs' News Letter. Let's take advantage of it. I wonder if you could pick out suitable articles from the Bulletin and request Captain Leonard to print them in the Chiefs' News Letter.

MR. WHERRITT: Well, I correspond with the Editor of the Chiefs' News Letter and you remember last year I ran three notices in there of the convention in Kansas City and along with some other remarks that was about all. However, in a letter the Editor asked if he could be free to use any articles that appear in the APCO Bulletin. Of course, I wrote him a lengthy letter, telling him that we would be glad for him to do that and that we hoped that he would feel free to do so. I haven't actually sent him any of the articles for publication. I assumed from the remarks that he made in his letter to me that if he saw any that he thought were important they would be printed.

PRESIDENT WAREING: I am afraid that people do not do that.

MR. WHERRITT: Apparently they do not.

MR. SCHNELL: Mr. President, I should like to ask a question on the basis of membership in the APCO. It is not clear in my mind. I think the objective of the organization should be quality and not quantity. I am thinking in terms of **is** every one of our 3800 licensed policemen in the city of Chicago plus--how many have you in the Park District?

MR. EVANS: Seven hundred and fifty.

MR. SCHNELL: --eligible to membership in this organization?

PRESIDENT WAREING: Whether they are eligible or not, they would not get much benefit from it, but I will let the Secretary answer that question.

MR. SCHNELL: That is the point I raise. I think that in the Wisconsin organization--is this right, Mr. Zindars--the membership is communities and not strictly as individual members.

MR. SINDARS: Well, the supervisor in charge of the station is the only person who can be an active member. Then, of course, we give any of the men operating in cars who hold third-class permits the benefit of belonging to the Association as associate members.

MR. SCHNELL: The set-up of the APCCA is membership by the community and not by the individual, in which case, with the exception only of matters that have to do with communications, we have no objection if the whole community wants to attend the meetings of the APCCA, providing we have the facilities. Of course, I suppose that we could accommodate 120,000 people over there if we had to. The reason for that is when we started out at that time, Zindars came down, he was Secretary of the APCCA, and we wanted to find out whether this was a curiosity proposition or whether they really meant cold turkey. So we set up membership dues of \$25 per year. Nobody backed out. They were really serious. Then we buckled down to cases and cut it down to the reasonable figure of \$5. We have a pretty good attendance, but it does not mean that the individual is a member of the organization: It is the community. All these chartered papers that go to the Commission are signed and sealed either by the Mayor or the Chief of Police or whoever the official happens to be.

If you make a drive for memberships in the APCO where are you going to get the material? What is the advantage going to be for example to the man in the case-- well, Zindars has a definite advantage in the associate membership because it acquaints those people with what is going on, but you can never hope to get together a national group of people in the APCO who represent national pictures. It seems to me the drive should be made through the IACP for the Chief, if he is really interested in this radio organization, to provide the facilities--and I mean the money--so that he will know what is going on, but until you provide the facilities

I do not see how any individual can afford to pay it out of his own pocket, and you have to have some sort of attraction before you can get a member to become interested. You have to provide something. Now, maybe all of the good of this organization has not been propagated sufficiently. Maybe what we need is a national hook-up, with stations on the air night after night. Maybe we can arouse the interest of some of these organizations. There are 1,000 police systems, but how many have we in here? We do not know, but Ted goodness knows how many operators who belong to the APCO, and all of them combined can do no more in representation than he can himself in so far as the Association is concerned. I mean that every policeman throughout the United States is not a member of the IACP, because all of the work that is done by the IACP is done directly by the man who is head of that particular department.

PRESIDENT WAREING: I should like to make one thing clear, Fred, the Association is one of police communication officers, not police officers. Elmer said that the men on the cars who hold third-class permits in Wisconsin may join as associate members. That is true, but we do not expect to get many of them. The associate membership is for radio operators, radio mechanics, dispatchers, people who spend their entire time on duty handling police communication work, and not men in the cars whose communication work is entirely incidental to their duty.

SECRETARY MORROW: In connection with that problem, Fred, we have thought it over month after month. When the organization first started its membership was limited to communication officers, that is, the supervisors of systems. The more you go into it from a national standpoint the more you find that you are going to need more than them in the organization as the body of the organization; therefore, in view of the fact that the constitution of the organization has to be revised to take care of present-day trends and future probabilities, we haven't made any definite settlement on it. However, there are several alternatives that may be followed. First, increase the cost of the regular membership, which should be done. Second, limit the regular membership in the organization to include the supervisors, the chief operators, service supervisors, and men in communication systems who have active charge or are engaged in the operation of fixed station transmitters. That will eliminate the question of whether or not this office with the third-

class permit is eligible for membership. It will not, however, exclude him from participation in the activities of the organization as far as associate membership is concerned. It is a problem that cannot be solved in a hurry, because many of the best ideas, as far as the promotional end of communications is concerned as applied to police departments, are going to come from those men who are doing the work. We see a danger in limiting it to the executive officers of communication divisions, because the executive officer in many cases is not familiar with the actual operating problems. So we draw the line of limit at the fixed station operator and permit anyone from that operator up to and including the supervisors to become regular members. That is one solution.

MR. SCHNELL: The other danger is this--and merely as a point, for don't ever think that I do it--suppose, for example, that the Commissioner here issued an order that everyone who has an FCC license must become a member of the APCO, and if we wanted a convention here what chance would all the rest of the country have against Chicago? You see it is so unbalanced.

SECRETARY MORROW: For instance, at the present time from that status the state of Illinois could control APCO right now.

MR. SCHNELL: That is right.

SECRETARY MORROW: And that is another question that is going to have to come up in the revision of the constitution, that is, the matter of representation and vote, whether you will proceed on the basis of one vote per municipality or so many votes per state on a basis of membership within the state or just what status will be established. Those are problems with which the Committee on the Revision of the Constitution have to wrestle between now and the Orlando convention and it is going to be a wrestling match. In a group of a half dozen fellows you can get twenty-one different ideas on any one of those points. Your points are good and I am glad you brought them up because they give the fellows who are on that committee something to think about.

PRESIDENT WAREING: I think that we should definitely restrict our membership to police communication officers, not to police officers. Unless a man is engaged during his full tour of duty as a police communication office, doing

communication work, I do not see where he belongs in the APCO. The mere facts that he holds a license and pushes buttons has nothing to do with it.

SECRETARY MORROW: That is, as an active member.

PRESIDENT WAREING: As any kind of a member.

MR. GROENIER: We can have him as an associate member.

PRESIDENT WAREING: We want him to come in if he is interested. We do not expect to get every "copper" on a beat in Milwaukee. That would be silly.

MR. GROENIER: This is our annual argument again.

SECRETARY MORROW: With regard to this question, would not it solve the problem if we limited it to operators, that is the lower classification, the operators actually in charge or on duty in a fixed station location?

MR. GROENIER: That is right.

MR. ZINDARS: You will find that in our constitution.

MR. GROENIER: The whole idea of the associate memberships is to sell them subscriptions to the Bulletin for \$2.50. That is all we are after. We charge them \$3 in Wisconsin and hook another 50 cents.

PRESIDENT WAREING: I do not agree with that. For instance, in my station I have six first-class telephone and second-class telegraph operators who are better than any other man in the state in charge of a system as far as technical requirements go. Those men cannot be regular members, but they certainly should be associate members. I have four or five radio mechanics on duty in the radio shop, all of whom hold licenses and they are entitled to join. We have radio dispatchers on duty twenty-four hours a day. We have telephone operators who may be very much interested. Those men should be taken in if they are interested enough to try to improve the work they do, but they are all police communication men.

SECRETARY MORROW: I did not mean by that to exclude the man who is on the telephone switchboard, but the point is that I believe that the man who is in a certain position all day long during his tour of duty, engaged in the work of police communications, has a perfect right to belong to the organization in an active capacity. I do not see how you can keep him out.

MR. SCHNELL: Then this should be an association for police communication operators.

SECRETARY MORROW: If a man is in the status of a police communications man he is certainly entitled to the rank of officer.

MR. BROWN: Would that entitle him to a vote?

SECRETARY MORROW: As a regular member it would, that is, under the present status.

MR. BROWN: I think that the voting should be limited to one vote for a department.

SECRETARY MORROW: Either that or you run into a condition from this standpoint: Take, for instance, your Chicago area here with how many departments, Fred?

MR. SCHNELL: There are a total of 50 communities in the Chicago area.

MR. BROWN: They are different departments, aren't they, Fred?

MR. SCHNELL: Oh, yes, there are Park Ridge, Lake Forest, Winnetka, and right in Chicago we have the Park District and the city of Chicago.

SECRETARY MORROW: That is right. What I am trying to get at is that it would again put the bulk of the presentation within a state boundary. In other words, you are going to have to arrive at something on the order of what we have in the House, where the membership within a state indicates the total number of votes that that state has at the national convention.

MR. WHERITT: How about the IACP regional system?

SECRETARY MORROW: It might be worked out along that plan. In other words, it is a matter of arriving at a sane conclusion one way or another, and it will have to be done before the Orlando convention because it has gone on now for three years with nothing having been done on it.

MR. SCHNELL: Wareing's idea was to do something to boost membership in the APCO. In other words, what is the piece of pie that you can hold out to this organization that does not now belong? Well, the only material thing that we have at the present time is the Bulletin and it is a darned good sheet.

Here is a suggestion: If there are some back issues of the Bulletin available in the editorial offices, it may be possible to gather up two or three or four or five and send them with a letter to a police communication officer who is known to have a radio outfit, and that information can be taken from the last published list of the FCC as the best information available to date.

PRESIDENT WAREING: I should like to clarify what I am after in the way of membership. I want the supervisor of every police radio station in the United States as a regular member of the APCO, and I should like eventually to get as many of the better class licensed operators as associate members as possible. That is all I am interested in.

SECRETARY MORROW: I think, Mr. President, that it should be amplified to include the supervisors of teletype systems and the heads of other types of communication systems in the country.

PRESIDENT WAREING: Did I say "police radio stations"? I meant to say "police communication systems."

MR. BATTS: There should also be a commercial membership at considerable more per year than the active or associate membership.

PRESIDENT WAREING: I like to have all these matters suggested so that they will be on the record and I can take them up with the proper committees, but we have committees to take care of all these matters and they are supposed to be working on them. Any ideas that we get, of course, will be turned over to the proper committees from

this record, I do not think that we have to quarrel about the matters here. They will come up, of course, before the Executive Committee and whatever groups we have as the programs develop.

... Discussion off the record ...

PRESIDENT WAREING: Shall I instruct Mr. Virden to change his releases to "1940 Police Communications Officers' Conference"?

MR. SMITH: I move that you do so.

... The motion was seconded ...

PRESIDENT WAREING: All those in favor signify by saying "aye"; any opposed. The motion is carried.

MR. BROWN: Mr. President, as a matter of the record, I should like to move that the members of the committees assembled here go on record to send to the Commissioner of Police a letter expressing our appreciation of the courtesies that they have made available for us.

PRESIDENT WAREING: That is Commissioner James P. Allman of Chicago.

... The motion was seconded ...

PRESIDENT WAREING: All those in favor signify by saying "aye". I guess there is no opposition.

SECRETARY MORROW: Mr. President, may we add one resolution in connection with that, that an expression of gratitude from these committees go to Colonel Black, of the Ohio State Patrol, for his interest in the deliberations of these committees?

MR. BROWN: It might also be well for the Secretary to write to the Chief of Police here after returning home, expressing the appreciation of the APCO in the form of a letter.

PRESIDENT WAREING: There is a motion for the Secretary to write to the Chief of every man here, thanking him for sending his communication officer to this meeting.

MR. BROWN: I was referring to the Chief of Police here, but also a letter direct to the Commissioner of Police of Chicago expressing the appreciation of the organization.

PRESIDENT WAREING: But I thought there was a suggestion here that the Secretary write to the chief of every communication officer who has attended this meeting, thanking him for sending him to the meeting. Perhaps if someone will make a motion to that effect we can get a second to it.

MR. CURRY: I move that.

... The motion was seconded ...

PRESIDENT WAREING: All those in favor signify by saying "aye". That is unanimous, too, then.

... Discussion off the record ...

PRESIDENT WAREING: There is another man who should be thanked, and I personally want to thank Fred Schnell for his courteous handling of the arrangements for this meeting, for going to all the trouble he has gone to and will still go to tomorrow to help to make this meeting a success. I want to thank you very much for that, Fred.

MR. FRED SCHNELL: Herb, it was no trouble because I just picked up the telephone and that was all there was to it. It was no trouble--absolutely none.

PRESIDENT WAREING: It would have been rather difficult for anyone but you to do it, because you were the only man who was in Chicago to do it.

... Secretary Morrow will also send letters expressing appreciation to the International Association of Chiefs of Police for the services of Captain Leonard, and to the Federal Communications Commission expressing appreciation for the services of Colonel White ...

PRESIDENT WAREING: Well, have we taken care of all the business before the meeting?

MR. CURRY: I move that the meeting adjourn, Mr. President.

... The motion was seconded and carried and the meeting adjourned at five o'clock ...

Frequency Allocations Committee
ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.
Saturday Afternoon, February 10, 1940
Hotel Sherman
Chicago, Illinois

The meeting convened at two-twenty o'clock, Mr. Robert Batts, Chairman of the Committee, presiding.

CHAIRMAN BATTIS: Gentlemen, on this Frequency Allocations Committee work it would have been very difficult to have attempted to outline a set program along which we might proceed this afternoon. That is true for several reasons. One reason is that this is a joint meeting of four committees and it was impossible to know just what course things might take. Another reason is that we have already made certain definite recommendations which have been transmitted through the IACP to the Commission, on which we have not received sufficiently definite word that we might proceed to any great extent in this meeting.

It seems to me that it will be impossible for us to arrive at any ultimate decision here this afternoon, but we will merely have to decide and plan on what action we are going to take, or rather what preparation we are going to make in getting ready to go to Washington for that informal conference on state police radiotelephone operations. I am quite sure that most of you have read, in the Bulletin or otherwise, copies of the letter that Secretary Morrow received from the Commission regarding the APCO Kansas City frequency allocation recommendations. The first part of the letter dealt with our recommendations on radiotelephone relays. That definitely is not the Frequency Allocations Committee's work and was not when we took it up in Kansas City.

PRESIDENT WAREING: That matter has been turned over to the State Systems Standards Committee as it is radiotelephone procedure.

CHAIRMAN BATTIS: I think that is fine and it definitely should not be taken up here. The first part of the Commission's letter refers to that, and then the last paragraph says, "With reference to your proposed plans for reallocation of frequencies for state police stations this office has found that it will definitely be impossible to make any reallocations of frequencies below 1750 kilocycles

until after a discussion of such a plan among representatives of the APCO, the IACP, and the Commission." Therefore, a meeting in Washington will be necessary and it will be necessary that we do a great deal of preparation before we go there.

Another phase of this committee's work is the municipal police frequency allocations, on which at this time we have not prepared anything, and there is no proposal that we do take any action on municipal police allocations except as some of those municipal allocations may be affected in the state police radiotelephone reallocations.

Another phase of the committee's work is ultra high frequency allocations. We have nothing under way nor definitely planned along those lines at present and no consideration was given that, no preparation, at Kansas City.

Then we have the radiotelegraph frequency allocations and the recommendations submitted by the APCO at Kansas City, on which we have received nothing whatsoever from the Commission.

So, as I said, it seems to me that all we can do here is to attempt to prepare our plan of action between now and the time we have this Washington hearing on state police radiotelephone allocations. We certainly will be open to any suggestions on what we can do and the method of attack that we should use, what our plans should be, and so on. I think the best way to get started is to attempt to find out just how our Kansas City recommendations stand at this time. Colonel White has stated that he will be glad to give us the Commission's angle. I think it might be wise first to deal with the radiotelegraph, since that will be rather brief, I am quite sure, and then get to state police radiotelephone allocations, which is much more involved and we might say more important at least at the time being.

Mr. Wareing, do you think it is satisfactory to proceed along those lines?

PRESIDENT WAREING: I think that we should have Mr. White's version of the affair first.

CHAIRMAN BATTS: Mr. White, will you start in perhaps with the radiotelegraph?

COLONEL WHITE: The reason the Commission's letter did not say anything about radiotelegraph is because we figured that the same day the letter was mailed announcement would come out that the plan of the APCO had been adopted by the Commission. Unfortunately, this plan, which was in general based on a shift of the amateur band, ~~included one~~ frequency, 2022, for relay broadcast. We picked out a replacement for it on 2300, and the Canadians, in the expansion of their defense system, had picked a frequency 2 kilocycles from it. Suddenly the broadcasters discovered that and "no soap." They didn't want to agree and, rather than have a nasty fight before the Commission, we said, "All right, you had better mark time a little and see if you cannot straighten this out." So we are working with the broadcast people, trying to find a frequency that they can use or else convince them that the one we picked for them is the best we can do.

There was nothing stirring the past week. I do not know that there will be anything stirring this next week, but I think that by the week after that we may be able to take the brakes off again and let that go through. Frankly, that is the situation. There is no use getting into an argument because you can catch more flies with honey than vinegar, as you all know. There isn't any question about that.

CHAIRMAN BATTIS: Does anyone have any questions along that line?

PRESIDENT WAREING: One question occurs to me, that is, the new stations that are coming into the network. For instance, we have three small stations in Wisconsin which want to go on CW, but they cannot invest their money in 2000 kilocycle equipment of three crystals perhaps to lose it next week.

COLONEL WHITE: They do not have to do that.

PRESIDENT WAREING: The Commission, however, is licensing them to operate on a secondary basis for zone communication on 2800 kilocycles.

COLONEL WHITE: We cannot issue a license in any other way than the rule is. We cannot issue a CP any other way than the rule is, but if a fellow comes in and asks for 2800 only, that is O.K. and the 5000 only is O.K. Ask only for the two that are available for secondary use.

PRESIDENT WAREING: Does that hamper his operation?

COLONEL WHITE: I do not know what the Commission would do with requests for temporary authority to use the other frequencies, that is, the other 2800 and the other 5100, but at least they can be submitted and in the meantime go ahead with your construction. Probably before you get your construction completed, the rules will be changed and your application for license can be submitted in accordance with the rule, regardless of what the construction man said in that phase, as you can add the extra frequencies to which you are entitled. If you already have a license, you can ask for modification as the rules come through.

PRESIDENT WAREING: Then you definitely would not recommend anyone's applying for 2000 on a new station?

COLONEL WHITE: I certainly would not recommend anybody's buying crystals for it.

MR. WHERRITT: You said 2000--

COLONEL WHITE: I would not recommend anybody's buying crystals for it, but whether you put them in your application or not, it doesn't make much difference, but until we get those rules changed, applications and licenses will have to conform to the rules.

MR. CURRY: When the change is made from 2000 to 2800, will it be necessary to reapply for modification of the license in order to change?

COLONEL WHITE: Generally, you would have to apply for modification of the license. Whether any special arrangements will be made, I do not know. If we can make it concurrent with renewal, it will be most convenient, but there is no great difficulty in applying for modification of a license. You have to fill out only about three questions. The first page is to identify yourself, the next page is to show what frequencies you want and how you want your new license, and the last page is to sign, seal and deliver. That is all there is to it. You do not have to fill out any of the other items, because you are not changing equipment, location, control point or anything else.

CHAIRMAN BATTS: May we expect our Kansas City

recommendations to go through as they were submitted?

COLONEL WHITE: Well, as we think they were submitted. Here is what they are: 2800 is for zone frequencies, replacing the 2000's. On the 5100's the day only restriction will be taken off. They will be primarily interzoned, and secondarily zoned shall be on calling and working, as will be the 2800. The 7000 will be zoned day only, but not designated as calling and working. That is what your recommendation was, wasn't it?

CHAIRMAN BATTIS: Not exactly. We recommended that the 2800 bands be day and night zone and interzone.

COLONEL WHITE: They will be primarily interzone. The interzones are always entitled to all the zone frequencies.

CHAIRMAN BATTIS: I thought that you specified those frequencies as zones only.

COLONEL WHITE: Yes, but the interzone stations are entitled to them.

CHAIRMAN BATTIS: The 5100 day and night are interzoned day and night and zoned day.

COLONEL WHITE: No, two of them are primarily interzoned secondary zone and the other one is interzoned, I believe, and there are two calling and one working. Instead of the day only restriction it is changed to, "Subject to no interference to any international service from any station." I think that is the way it is.

MR. LOWE: How about their interfering with us.

COLONEL WHITE: I really think that does not amount to much, as far as the restriction is concerned, frankly speaking.

MR. LOWE: The 5100's aren't going to be serviceable in Illinois.

COLONEL WHITE: Too high?

MR. LOWE: Interference.

COLONEL WHITE: Under international agreements frequencies of that order are supposed to be reserved for long distance international communication. We cannot very well carry out our obligation in the family of nations and fight for domestic use of these frequencies. So we just have to make what use we can of it and do what we can. We certainly cannot shove an international service off to take care of a domestic service that can be served by wire except for economic reasons.

MR. LOWE: I merely brought up the question, Colonel, because it seems to me that we will find that in the 5100 band it will be impossible to work after night due to the interference levels, because if we receive interference from them it is quite certain that certain stations are likely to cause them interference.

COLONEL WHITE: There is a possibility, but I think you will find these fixed service people who are using adjacent channels are using equipment that is far beyond anything that you have. Some of them have equipment that has a selectivity of 200 or 300 cycles. That is cutting it pretty fine and that is real selectivity. They do not hear anything beyond that. They get the receiver band just wide enough to take the width band reserved for telegraphic communication and no more, so they probably won't hear you when you hear them. They are much better than anything you can buy on the market. You have to build them. I know that one of them is using a super super super, that is, he converts once and cuts the band back, converts again and cuts the band back, and converts a third time and cuts the band back, and in each conversion it spreads out your interference, so when he gets through anything within 200 or 300 cycles of your original carrier is lost. I do not know of any police department that has anything approaching that.

CHAIRMAN BATTS: It seems to me that mere permission to use these 5100 bands for a couple more hours in the evening will be a great help, that is, assuming that there is a great deal of interference at later hours in the night, it will still be worth while to the police in general to have two or three more hours' use of those frequencies in the day time.

COLONEL WHITE: Then if you get this channel communication idea worked out, which is quite evidently in the

back of your minds--

CHAIRMAN BATTS: Our trunk lines.

COLONEL WHITE: They might be very valuable for some of those night hops. That is something in the future to be worked out, of course. The reason we did not call in the workmen on the 7800 megacycle frequency was so that you could work out that trunk line system and align the frequency to the trunk and have a party line trunk.

I think that is about all there is on the telegraph situation.

CHAIRMAN BATTS: Do you think that we might hear something on this in a week or so then?

COLONEL WHITE: I hope so. One of the reasons I think there will probably be something done is that the crew will be back from Santiago and they will have a lot of information from down there that will be very useful in impressing upon these broadcast people that they have to accept something, that they just cannot sit back on their haunches and say, "Well, we are going to sit here until we like the place you want us to land."

MR. WILLIAMS: Is it contemplated that the time changing from day to night frequencies will still be continued for two hours before and after sunset?

COLONEL WHITE: The reason for that time, which applies only to the 7 megacycle frequencies, is that is the time that they begin to get sources of interferences. As you know, communication two hours before sunset is when they begin to start out. It may be that after some practice and some trial they may be able to reduce that restriction, but at present I think you had better stick right by the book.

CHAIRMAN BATTS: If we can start using our 5100 band after that time, that will be a big help in filling in those two hours.

PRESIDENT WAREING: I think that the southern stations will still be out of contact for a couple of hours during the change-over. They are at the present time absolutely out of contact when they drop to 7900.

COLONEL WHITE: Do you think that they need something between the 5 megs and the 7900?

PRESIDENT WAREING: They need an extension on that 7900 operating time.

CHAIRMAN BATTS: They also drop the 5100 at the same time, that is, when they drop the 7900 they cannot switch over to the 5100 and go ahead.

SECRETARY MORROW: In other words, an extension on 5100 for that period of time would take care of the situation.

PRESIDENT WAREING: Denver ought to know. What do you think about that, Mr. Williams?

MR. WILLIAMS: I believe it will. I had forgotten about the extension of 5100. I think that 5100 will fill that in.

COLONEL WHITE: What time does your 5100 start coming in?

MR. WILLIAMS: We do not open up early in the morning. We operate only sixteen hours, but we lose the 5100. About this time of the year it is about three o'clock and we cannot communicate on 2800 until anywhere from four to five depending on conditions that particular day.

COLONEL WHITE: Your 7000 will be even higher than that and make it even worse. I do not know what we can do about that because there certainly isn't any frequency in the 2800 and 5100 that you can find anywhere.

MR. WILLIAMS: That 5100 will probably carry us through that two-hour period.

COLONEL WHITE: Well, we will have to try it and see.

MR. GROENIER: Is there any hope of the Naval Reserve on their drills leaving the 2384 and 2380 or is that going to continue?

COLONEL WHITE: Those are interfering with your

voice?

MR. GROENIER: Yes, 2382.

COLONEL WHITE: They are junior assignments to your police, and if you get into any trouble we can make them change frequencies in those areas, because those Navy frequencies are only inland, on agreement that they do not interfere with the police, and they are supposed to pick geographical locations for Naval Reserve activities that will not interfere with municipal police. If they are interfering with you, you will have to give me definite time, name or call letter, and everything about it, and I will turn it over to the Navy Department, my good friend, Jack Radiman, over there, and we will go into a huddle and see what we can do about it.

MR. GROENIER: I have three or four of them now at home.

COLONEL WHITE: They realize that the police job is more important than this Naval Reserve job, but they also feel that they have a responsibility for giving these Naval Reservists training, and this question of frequency is a difficult job.

... Discussion off the record ...

CHAIRMAN BATTS: Are there other questions?

MR. LOWE: We are still on this same subject of telegraph frequency?

CHAIRMAN BATTS: Yes.

MR. LOWE: I wrote you a letter some time ago and, of course, I am expecting a reply, that dealt with the ultra high and possibilities of point-to-point communication by telegraph.

COLONEL WHITE: I do not remember getting the letter.

MR. LOWE: I have a copy of it here.

COLONEL WHITE: When was it written?

MR. LOWE: The 15th of January.

COLONEL WHITE: It may be there but it has not reached my desk. I should like to see a copy of it.

MR. LOWE: As we discussed this in Indianapolis, this loss of the 2000 band is going to give us some headaches on some of the distances that we have involved, and this other looked like a probable out or possible solution. So I wrote you and, of course, you are in and out so much I haven't had a reply.

COLONEL WHITE: I have been there in the office, but I do not remember seeing the letter. Sharp may still have it on his desk.

MR. LOWE: It is dated January 15.

COLONEL WHITE: I do not suppose I can give you the answer to it now. I have not received this letter. It was addressed to me personally, too. Yes, I did see part of it. I do not think that we had better try to answer it now.

MR. LOWE: I was afraid of that.

COLONEL WHITE: As I mentioned this morning, some of these areas are not so much ultra highs as they are for voice, and it would be a major operation to try to chisel a frequency out for telegraph, unless some way could be figured out to slip your telegraph in right along with your voice.

MR. LOWE: That is what I had in mind.

... Discussion off the record ...

CHAIRMAN BATTIS: Any further questions on radio-telegraph?

PRESIDENT WAREING: I was think that this frequency modulation on ultra high will make possible the occupation of the printers' circuits.

COLONEL WHITE: There is one thing about it. On the demonstrations they have probably put their printers on the same circuit with their voice with no interference. In general, those are done by modulating a frequency outside

of your voice spectrum. If you are using narrow band frequency modulation, you are going to have to curtail your modulation frequency and you cannot put your facsimile or your printer, either one of them, outside of it. You have to put them inside. Last summer up in Michigan they discussed the possibility of doing as some of the airlines are doing. I do not know whether or not they have done anything about it. The American Airlines have been doing it, that is, following the procedure of the simultaneous radio range, knocking a couple hundred cycles out of the voice spectrum around 1000 cycles. In the hole you make you put in your printer. Put a diversion filter on your receiver, so that your printer buzz-saw goes to your printer and nothing but your voice goes to your head set and you get a simultaneous printer and voice circuit without interference. It has been done. It has not been done generally, but there is a lot of possibility there of getting a printer, dividing your voice spectrum, and, without the annoyance of people who are not interested in your printer or what have you, hearing your buzz-saw, and not hearing anything at all because I think you can build a filter quite cheaply that will knock those 200 cycles out of your voice spectrum and you won't have to have the more complicated and more expensive filter for diversion. The filter that is used in aircraft to divide the radio range signals and voice is about so big. I think it weights 8 1/2 pounds and probably cost \$15, but if more of them were made they would be a lot cheaper. The only thing that makes them expensive is that you use stock conductors and you have to match them individually. You cannot just take so many .0001 condensers and so many conductors and put them together and expect them to match, because there is enough individual variation between them to make it necessary to do individual adjusting.

That was kind of off the subject.

CHAIRMAN BATTIS: It probably was but it was very interesting, and--

COLONEL WHITE: There is the possibility, of course, that you could make the facsimile amplitude modulation and voice frequency modulation. I do not know whether that is an engineering possibility. I do not know whether or not it has been done.

PRESIDENT WAREING: The main reason for using a system like that would be to get away from noise peaks that

would upset the operation of your printer, so you need frequency operation for the printer circuit.

COLONEL WHITE: Unless your printer circuit was to restricted locations, running from your headquarters to your precinct stations or some place like that and not general to your car.

PRESIDENT WAREING: Not for cars, no. I was thinking of intercity.

COLONEL WHITE: There you can control your noise pretty well, that is, you cannot control the atmospheric but you can control the ignition noise.

PRESIDENT WAREING: We never have been able to.

SECRETARY MORROW: Herb, speaking of intercity, are you speaking of within your zone?

PRESIDENT WAREING: Yes, I mean for busy zone stations.

COLONEL WHITE: Short distance zones.

CHAIRMAN BATTS: If there are no further questions on the time of CW or radiotelegraph, we will proceed to the state police radiotelephone allocations.

PRESIDENT WAREING: I should like to ask one more question. Mr. White, suppose that the broadcast people do not like anything that is suggested and the matter is still hung on a pin some place for months or years perhaps?

COLONEL WHITE: You have a treaty that says they have to move.

PRESIDENT WAREING: I was wondering if we could get some temporary relief by extending the day operating period on 5100 and 7900.

COLONEL WHITE: I think there is this much about it. If we do get stymied and it looks as though it is going to be a long-drawnout thing, I think that I can probably split that memorandum into two halves and lift the day only on the 5100 and assign the 7000 and leave the 2000 and 2800

and get the 2000 later.

... Discussion off the record ...

CHAIRMAN BATTS: Herb, have you anything else on your mind?

PRESIDENT WAREING: No.

COLONEL WHITE: I know we said in our letter that we were not satisfied with the APCO plans as far as police radiotelegraph is concerned and that we could not put them in--

CHAIRMAN BATTS: State police radiotelephone.

COLONEL WHITE: State police radiotelephone. I brought with me for your information and confidential use a complete list of assignments between 1600 and 1750. You will notice it shows the amateurs still between 1716 and 1750, but they are coming out and those that are now between 1716 and 1736 and marked "amateur" will become police. One of the plans included the continuation of 1596. That goes to the broadcasters, and one of the reasons broadcasters haven't been in there is that Mexico hadn't signed an agreement as far as broadcasters were concerned until just a couple or three weeks ago. You probably noticed in the papers that is due to go into effect some time this summer, and probably during that time Ohio will have to buy themselves some good receivers and get on 1682 where they belong. It is too bad, Brown, that they are probably getting too close to you on the same frequency.

MR. BROWN: Is that Ohio?

COLONEL WHITE: 1682 is the regular assignment.

MR. BROWN: We are sharing that with two other stations now.

COLONEL WHITE: I know. Maybe we can do something in the general allocation. Now another thing, you propose to wash out general experimental frequency 1614 with no suggestion as to replacement. I want to point out that that is the only experimental frequency in that band and you fellows probably get just as much benefit out of the activities on

it as any service. That is the band where the manufacturer can go and develop his ideas to make you better equipment. Unless he has a frequency of the same order that you use to operate on, he cannot do a good job of designing. So we feel that you cannot just wash out that station. Even if you neglect the legal difficulties you would have to get those birds off, as a practical matter it is undesirable to wash out that class of station.

MR. CURRY: Along that line, is there any definite information that those companies have used that frequency within the last two or three years?

COLONEL WHITE: They are using it every day.

MR. CURRY: On developing police communication equipment?

COLONEL WHITE: Police equipment and other equipment, not alone police but all kinds of equipment of that kind.

MR. CURRY: But they haven't got it on the market yet.

COLONEL WHITE: All the equipment that is on the market has been developed on that frequency.

CHAIRMAN BATTS: Can't they do that on miniature antennas?

COLONEL WHITE: Some of it they can and some of it they cannot use on miniature antennas. A lot of this antenna research work is done on miniature antennas with ultra high frequencies. There is a certain amount of work that has to be done actually on the air. That is particularly true of things on antenna development. After you do work on your ultra high with your miniature antenna, you have to prove that you are not mistaken by putting it on a regular antenna. There are a lot of other things that they do, antenna companies, and even if they are on dummies, sometimes dummies leak. It is better to have a frequency even if they are on a dummy.

Then you propose washing out the relay broadcast frequencies.. As far as the Geophysical is concerned, they

have been in midchannels all along, and I think they can be left in midchannels. They are low-powered, temporary stuff, used in specialized service. Generally it is an important service. They have to have radio for many of their operations. I am not worried about them, but this relay broadcast business is something else.

CHAIRMAN BATTS: We have not been quite so harsh as that. We state that we want to wash out these various frequency assignments, but have recommended that these various services, particularly relay broadcasts, be permitted to use those frequencies in areas where they do not cause any interferences to police.

COLONEL WHITE: That certainly would restrict them, and if there were enough of them--if, for instance, you could put in a flock at midchannels you might get the broadcast people to accept that condition, that is, enough of them so that they could always find a frequency or two that they could use, you might get them accepted, but particularly the networks, they go everywhere in the world with their broadcasts. The solution will have to be met before we can make a reallocation. I am giving you the things that have been taken care of adequately enough to take this allocation band and say, "All right, it is O.K."

CHAIRMAN BATTS: Do you mean that it might be wise for us to oppose midchannel assignments?

COLONEL WHITE: Your proposal should take care of everything. If you want your proposal to be accepted, it should be complete. Not being complete, we could not accept your proposal, until we get together around a table and work out a proposal that looks as if it is workable. Perhaps it will be necessary to call in some broadcast people to sit in with us on their phase of the problem and maybe a manufacturer to sit in with us on their phase of the problem. "What can be done? How much curtailment can you make in your service, and how much will you give up in order that the general good may be served?" Do you see what I mean? That is why we could not just say, "All right, we will approve this allocation band." That is why we said that we must get together on it.

In connection with moving the amateur band, the government had three frequencies between 2000 and 2050. In

order to get the band moved at all, they said they would have to find places for it. They took what I think is the least desirable of the frequencies. They took the frequencies right up next to the hands, that is, they have 1738, 1742, and 1746, and 1750 is where the amateurs start. Those three are the least desirable, but they could not just give up their frequencies and say, "All right, boys, we will just jump off into space and catch a sky hook and stay there." They wanted some place to land and that is where they have landed. So those frequencies are out as far as consideration is concerned. That is an accomplished fact and there is nothing we can do about it. Whether we like it or not, it has been accomplished and so those three frequencies are out.

CHAIRMAN BATTS: We might not even accomplish anything by having the IRAC in on the discussion in Washington.

COLONEL WHITE: They will probably be in on the discussion. I do not think you will have a chance in the world of getting them out. As for the Commission's forcing them out, that is out.

In this list of frequencies I have some here marked "Justice," and in general, the Justice, Treasury (Customs) and Labor Immigration are performing police functions and are either coordinated with the police that may come in or else drop out when the police come in. For instance, this 1626 Treasury (Customs) that is West Virginia, Oklahoma and Vermont. They are operating the border patrol up along the Canadian border, Vermont, New Hampshire and Maine. If the state police go in there, they will coordinate with the state police, if they do not actually drop out and turn their communications over to the state police system.

The Department of Justice is in general either the FBI or some federal prison or something of that sort. If it is the FBI, it is an assignment, so that if an FBI car comes into the Chicago area, it can get on 1712 and become part of the Chicago system or what have you, that is, it really makes it possible for them to fit their operations into the police's. That is the only reason they have it and that is the only condition under which they can use it. The FBI has no authority on these frequencies to establish their own communication system. It is only for the purpose of having the frequencies available so that they can

coordinate legally. I think that you ought to know about that.

As far as Alaska is concerned, frankly, I do not think you need to worry very much about them. They are junior assignments. As an example of the problem they have up there, I was in Fairbanks last fall. The day I arrived there I went over to the radio station in the airport. There was a woman there. She introduced herself as Mrs. Johnson. She had come down to the radio station to find out about radio sets, and particularly to find out what the pilots needed in the way of weather information, how it was collected and reported, etc. She went on to tell us that it was the first time she had been in town in three and one-half to four years and that her nearest neighbor was forty miles away. While she was in town she was going to take an operator's examination and file an application for a point-to-point telephone station. She and her husband were out there working this little placer. She came from the southeast somewhere. I do not remember whether it was Alabama or Georgia, but somewhere down there. They were building a landing field so that if somebody got sick an airplane could land. She said, "It is an awful lot of work, particularly since my husband and I have only a pick shovel and a wheelbarrow to do it." Absolutely no other means of communication than radio. You cannot let those fellows down. Think of things like that when you think of Alaska.

Now, I think in your plan, if I remember correctly, you provided for assignments to fewer than forty-eight states. I think there were about twenty-eight, weren't there?

CHAIRMAN BATTIS: We did not have any forty-eight requested frequencies. The requested frequencies were a total of nineteen.

COLONEL WHITE: I know, but your assignment was based on all forty-eight states.

MR. SMITH: That is true. I believe I see what you mean.

COLONEL WHITE: Now, from our point of view, any plan that is presented--any plan to be approved--must be adequate to take care of the forty-eight states, Alaska,

Hawaii, Porto Rico, and leave a break for Canada and Mexico.

MR. SMITH: It must be a complete plan, showing the whole thing in the proposal.

COLONEL WHITE: I think you can appreciate that if we hadn't adopted that policy many years ago, you would be faced with requests for changes of frequencies or you would have interference two or three times a year. Right now Maine have some money and they are putting in a station. If you had not taken care of Maine you might have to move half a dozen people in order to find a frequency for Maine. Georgia are just starting up. They have been awfully slow, but they are just starting up. South Carolina was going to start up and quit. They had a big row there. I think that the South Carolina highway system is supported by a special gas tax or something, and they had quite a bit of money and were proposing to put in a police radio system. They are in bad with the Governor; at any rate, a letter was received by the Commission stating that the Commission should not grant any licenses to anybody for the state police in South Carolina until it had been O.K.'d through the Governor's office. So that is the way it is. They haven't put anything in. However, they are all coming in. Wyoming is the only state now that has no police facilities of any kind in it.

MR. WILLIAMS: They are figuring on radio now.

COLONEL WHITE: I was just going to say that I saw in the papers the other day that they are figuring on one in Cheyenne.

MR. WILLIAMS: The county and the state are going together financially, but I understand that they are requesting a municipal frequency.

CHAIRMAN BATTS: Colonel White, I did not understand your question a while ago when you asked whether our plans provided frequencies for forty-eight states. It was definitely the plan of the committee that whatever was done should take care of the forty-eight states in the best possible manner.

COLONEL WHITE: Your plan did not show that.

MR. SMITH: As I understand it, Bob, he wants us

to present to him any suggestion like that, filling in not only the changes that we are asking, but also showing what we are leaving stand of what is already set up so that the full picture is presented in the proposal.

COLONEL WHITE: Before we take the plan to the Commission, it must be complete in all its details. Because this plan was not complete, we could not take it to the Commission and we did not want to fix it up according to our ideas without consulting you fellows.

MR. SMITH: In other words, you do not want a situation where we ask that you make certain changes in a group of allocations, and other than these certain involved changes, leave everything else stand as it is, because then you have to compare notes and see what it is.

COLONEL WHITE: We want to understand what the whole complete picture is, so that you will know what it is and I will know what it is and the Army will know what it is and the Navy will know what it is, and anybody who is involved will have the whole complete picture in one document..

CHAIRMAN BATTS: Do I understand that when you say that you want complete details you mean that we should go so far as to prepare maps and recommend the actual states which should be assigned certain definite frequencies?

COLONEL WHITE: Yes.

CHAIRMAN BATTS: And when you say "in complete detail," you mean absolutely?

SECRETARY MORROW: Taking into consideration future development in those various states.

COLONEL WHITE: When we made up this present police plan--I do not know whether you were there when we made it up--I had a big map of the United States. I stuck pins in each one of the forty-eight states, and I made up a series of colored cards, one color for each frequency. Then we said, "All right, Michigan is on this frequency now, Massachusetts is on this frequency now, and New York is on this frequency now. We will hang these up here first and see what happens. If New York is 1658, we should have not an adjacent frequency to New York. So we will put these aside and hang

something else up here and then we will try something else along here. Then work from this." We stood back and looked at it. "Here are two frequencies the same color. They are too close together. Maybe we can fix them up. Then you take this tack off here and put this one here, and for any two frequencies that you put down, as a practical matter you come out with two different allocation bands. Generally, if you change any two frequencies, you will find reverberations all over the United States. I think that Scavarda, Donald Leonard, Martin Joyce and some others came down, and we hung them about five times before we finally got one that everybody said was all right.

CHAIRMAN BATTS: The picture is entirely different now. I mean in practical application it looks entirely different now from what it must have looked then, because these states are experiencing serious interference not from adjoining states but long distances.

COLONEL WHITE: Now, even at the worst, if we could just merely find a place to put three new frequencies we could take care of some of them. I believe that there is interference now between Arkansas and Michigan that is bad. Well, Arkansas hasn't a very extensive installation as yet. They could take one of the new frequencies.

SECRETARY MORROW: Oklahoma, Virginia, and Indiana are really in the soup.

COLONEL WHITE: Yes, they all come in bad in Washington, too. We can hear Vermont, West Virginia, Indiana, and Oklahoma fine.

MR. WHERRITT: I believe that 1674 is also assigned to six states.

COLONEL WHITE: If you can solve the problem north of the south line of Tennessee and east of the Ohio River, the rest of it will fall in its place easily, but you can take Kentucky and Tennessee also. I think that Kentucky is the worst. I think they have eight adjoining states.

MR. WHERRITT: We have eight adjoining states, actually touching.

COLONEL WHITE: And you have the island of

Kentucky inside, too. Those are the problems that are hard. If you have nine frequencies available, that means the whole thing is right there. They are all used up to take care of that one picture. You have your five New England States, New York, New Jersey, Pennsylvania, Delaware, and Virginia. There are ten frequencies right there without duplication. Then you have to start duplicating.

MR. WHERRITT: The present assignment shows Tennessee, which adjoins our state, on the same frequency. Of course, they have not put in their frequencies yet. Not long ago they showed 1674.

COLONEL WHITE: It might have been a typographical error, but Tennessee is not on the same frequency. There are no adjoining states on the same frequency, but there are a number of cases where there is only a state between you. Now, there is one thing that relieves the situation and I think it will be continued. Connecticut is going on ultra high and Delaware and Maryland are getting along all right. Maybe if they thought there was another frequency available, they would insist upon a division. I do not know. In the original plan Rhode Island and Connecticut are going to have to share--

MR. CURRY: That is another thing that comes up about any allocation plan. The effect of this ultra high frequency for state use is going to have to be taken into consideration, because if it works out all right in Connecticut, other states will also desire ultra high frequency.

COLONEL WHITE: It is a little too early to do that.

MR. SMITH: Let me ask this question along that same line: In setting up a proposal now, for instance, in plotting a map of what we propose now, would we be safe in leaving Connecticut out of the picture of medium high frequency or must we make provision for that?

COLONEL WHITE: I want you to talk with Noble about that and see what he thinks about the probability. At the present time he doesn't have any idea that they are ever going to intermediate. He thinks that they are doing all right, but if they don't they have already expressed their strong opposition to any idea of coordination with Rhode Island. We had to talk like Dutch Uncles when Delaware came

in to get them to play along with Maryland. They are doing it now and I think that they have found that it really is working out.

Another spot in the present plan is North and South Carolina. One is 1706 and one is 1712. South Carolina ought to have one of the new frequencies to get further separation. There are only six kilocycles difference, which is even worse than Iowa and Missouri with a difference of eight kilocycles.

MR. BROWN: We don't have any trouble now with the new receivers.

COLONEL WHITE: Incidentally, I talked like a Dutch Uncle to those fellows over at Motorola last summer. I was in Michigan and I came over and Fred took me out to see the gang at Motorola and I said, "Why don't you fellows build a decent police receiver?" They said, "Oh, we have a honey," and so I opened up and told them about the various and sundry problems, that you have to have something with 8 kilocycles separation that is really selective.

MR. BROWN: It absolutely does it.

COLONEL WHITE: So he called in his engineer who is working on design and said, "Can you do it?" He said, "I think I can." He was told to go out and do it and apparently they have done it. I have seen 8-kilocycle receivers before, but most of them have not been made to stay in tune. With the new AT cut crystals that takes care of it. It has completely washed out your adjacent channels, and that will take care of Ohio's squawk about Pennsylvania, but it won't take care of the too close separation between Ohio and Iowa. You see, you have New York, Ohio, and Iowa. After you get west of Ohio it is easy. The whole trouble is in the east.

MR. SMITH: In our own case, on 1706 you know that we are 6 kc.'s separated from some existing stations on 1712 now, but we haven't had a bit of trouble from them at all.

COLONEL WHITE: You see, you have 1706, North Carolina, Cincinnati 1712, and Pittsburgh, Chicago, Dallas, and Boston.

MR. SMITH: The only points that give us really

serious trouble are Cincinnati, St. Louis and Lexington,

CHAIRMAN BATTS: What about Texas?

MR. SMITH: They are heard fairly well at times, but nothing that I would call serious interference.

CHAIRMAN BATTS: Colonel White, before the Kansas City convention, I wrote to all the states that now have radio and attempted to obtain interference maps in order to have something to work on, and along with those maps a complete statement of their entire situation with as many measurements as they could give, and I obtained several. However, I think that all of them could be more complete and improved upon. Do you think that it would be desirable to go through that process and get all of that information in the form of maps?

COLONEL WHITE: I do not think that is necessary. It would be necessary if you were going to a formal hearing, but this will be a round-table conference, at least to start with. Get something good enough to go to a hearing if you have to. But did you ask one question? Did you ask them, "If we get more frequencies, will you spend the money to change your frequency if that should be necessary?"

MR. SMITH: He asked me and I told him.

COLONEL WHITE: Because you will find that very often it is a swell idea for the other fellow to do it.

MR. SMITH: That is natural.

COLONEL WHITE: And sometimes it is not their fault.

CHAIRMAN BATTS: In our Kansas City recommendations we pointed out that this plan does not propose to change any state police allocations, but we pointed out that it would be necessary to change some assignments in order to bring relief to the situation.

COLONEL WHITE: You have to change the allocation of Michigan and Arkansas to relieve this situation.

CHAIRMAN BATTS: I meant allocation of channels

assigned for state police use, but actually frequency assignments, licensed assignments would have to be changed.

COLONEL WHITE: Of course, from the Commission's point of view, if you get a plan that looks good and it is all right for everybody, we will say except one fellow, we can make that one fellow conform, but the only way we can make him conform is to go through a formal hearing, which costs everybody money and gives everybody a headache and may end up with a flock of heartaches. So if it is at all possible, even if it takes longer, it is worth while to get voluntary agreements from everybody involved, "If this looks O.K. to me and it goes through this way, I will spend the necessary money to make my station conform." That is very desirable. We did it the last time when we had our last re-allocation of the police back in 1933 or '34. It took some time and there was a lot of talking to some of those fellows to convince them that they really ought to spend the money, particularly if they said, "I am satisfied. There is nothing bothering me. If the other fellow is having the trouble, why doesn't he spend his money to clear it up? Why does he ask me to spend my money?" We had to do a lot of talking to convince them that it was not the existing situation we were talking about, but the future, and if they didn't make the change then, it would probably cost more in the end.

CHAIRMAN BATTIS: I think the general situation among the state licensees today is considerably different from what it was then. I think that is largely due to our getting together in meetings just such as this and at our conventions where we hear the other fellows' problems, and we are more cooperative than we used to be, I think. Also that situation may not be so bad as yet--I mean the situation of changing frequencies, for the reason that I do not believe there is any great percentage of crystal-controlled receivers in use in various sheriffs' offices, etc. and even a lot of state police cars do not have crystal-controlled receivers, so that the expense involved would not be so great.

COLONEL WHITE: That is why if you are going to change you ought to do it promptly, because you fellows have already bought crystal-controlled receivers. It is going to cost you money to change frequencies, and if it is a good receiver, as it appears to be, all these fellows who are having trouble are going to buy them. The more who buy

them, the harder it is going to be to get, and you want to watch that you are not in the same position that you are now in modulus transmission. You have a Chinaman's chance of saying to those fellows now occupying 30 or 40-megacycle bands, "All right, wash out your equipment. We are going to go to frequency modulation."

PRESIDENT WAREING: Colonel White, when you referred to Alaska, Porto Rico, Hawaii, etc., did you refer to state police in those localities?

COLONEL WHITE: Take, for instance, Porto Rico, when you are speaking about frequencies for Florida and perhaps up as far as Louisiana and North Carolina, contemplate what is going to happen if they put a station in in Porto Rico and the Virgin Islands, and it does not hurt at all to think about what is going to happen if they put in three stations, say, in three sections of Cuba. This plan that we have now is such that you can string state police stations in all the provinces of Canada and get the same grade of service as we get on our own stations. In order to achieve cooperation with Canada, which you realize is absolutely necessary with 3,000 miles of border, they must work with us. We must go to them with a plan--we would have to go to them with this--which will make possible their people getting just as good service out of these frequencies as we are getting. These frequencies are police frequencies throughout the Western Hemisphere. The United States cannot hog them all and leave Canada and Mexico out in the cold and expect to get along,

That is one of the troubles that we had in the broadcast picture. The difficulty we have had with border stations and the interference with Cuba and Mexico is that in the original plans for broadcasting in the United States no holes were left anywhere for Cuba or Mexico. Some were left for Canada. When they decided that they wanted broadcast stations, we were on all the channels. So they said, "We will raise so much interference up there, they will have to do something to give us a place in the sun." We do not want the same thing to happen with the police. Our relations are very friendly now. If we get a case of interference of one kind or another, we do not bother going through the State Department as far as Canada is concerned. We pick up the phone and call the Canadian radio outfit up there and say, "How about it?" and they say, "We will see what we can

do and call you back." The next day, or maybe the same afternoon, we get an answer. It is worth while to keep that kind of feeling up.

SECRETARY MORROW: In other words, Colonel White, in preparing any sort of plan or map to show a future allocation set-up, the map to all intents and purposes should include all of the provinces of Canada, all of the states of this country, Cuba, Porto Rico, and Alaska as units of measurement?

COLONEL WHITE: Absolutely. I think that it will help if you will do that. Try to put on our hat and look at it from the point of view that we are forced to take. Those are good tactics in hearings or anything else. Put yourself in your opponent's point of view and see what he is going to think about it, and then build up your defense along the lines that he is going to figure it out. They say that one of the reasons for Napoleon's successes is that he studied his opposing generals. They tell the story that one time he was working on war plans with some of his men, and he said, "In the situation there are seventeen solutions besides the one I just gave you." One of his officers questioned him, and he said, "This is the solution if So-And-So is in command, this is the solution if So-And-So is in command," and he wrote down seventeen different solutions, depending upon his opponent and the way the opponent thought. So when you are thinking of a contest or hearing or anything of that sort, that is a good thing to think about.

CHAIRMAN BATTS: But we are not to consider the Commission our opponents, are we?

COLONEL WHITE: No. We are your opponents only to this extent, that we have to resist any plan that we think does not give somebody else an equal break. You want us to do that, because if the shoe were on the other foot, you would want us to fight for you, and you know we have done that.

CHAIRMAN BATTS: Referring again to this Canadian and Mexican and island possessions situation, did I understand correctly that we must consider them as sharing the same group of state police frequencies?

COLONEL WHITE: Some solution has to be reached.

CHAIRMAN BATTS: And that there are no frequency assignments in Canada and Mexico for state police use other than these frequencies?

COLONEL WHITE: That is all that are available internationally, and they are not all police exclusively. I can assure you this much, that whatever allocation we make we have to give consideration to Canada. We have a problem right now with Canada that we haven't completely solved, because they have proposed to assign 1744 to the police in Canada, and between 1742 and 1746 to government, and they do not like the idea of our government boarding those frequencies without talking to them about it. So this whole plan will have to be taken to them with a good story and the whole thing be straightened out. They went ahead and assigned them and agreed that they would reconsider the matter when we had our whole plan of allocation. Their police plan has not been developed. For example, they assigned Windsor a frequency that really is unnecessarily close to Detroit. They have 2380 and Detroit is 2414. Considering the geographical spacing there, they should have taken another frequency. What standards they used I do not know, but because of the close cooperation between Denstaedt and the people over in Windsor, we are getting along all right. We had some trouble the first day and we got together with a flat-iron and ironed out all the difficulties and worked out an agreement that is working out all right, but it is an unnecessarily close assignment and a lot of difficulties could have been avoided.

SECRETARY MORROW: Colonel White, in connection with the shift in frequencies under this international agreement, there is one question that has been raised several times and has never been definitely answered, from a numerical standpoint at least, and that is the fact that the announcement of this shift in frequencies came out with the statement that the change was being made to accommodate the requirements of state police, I believe it said, and government service. Now the question has been raised as to how many of those frequencies are to be used by government service.

COLONEL WHITE: There are those three. They are all government in there, and they are to replace three that were in the 2000 band. I think that I have explained every government station that appears on here.

As I said, this is a confidential list, because we have shown three frequencies on here that are in the confidential Executive Order and that is not a public document. They merely show on the list as being assigned to the government and who has them is a confidential matter.

SECRETARY MORROW: In other words, this listing is the assignments as they will be when that change is made?

COLONEL WHITE: As they are right now. As far as I know, there is no threat of additional occupancy by the government in any of this band.

MR. SMITH: You do not feel, do you, that Canada's objections to the government's having taken those three channels without consulting them beforehand is going to be serious enough to prompt any sort of reconsideration of that move?

COLONEL WHITE: No, I do not.

MR. SMITH: In other words, this government, I suppose, takes the attitude, doesn't it, that government and police are synonymous, and if it desires to call those three "government frequencies" it can do so under international agreements?

COLONEL WHITE: No, they do not quite think that. They feel that the defense forces are paramount to any nation. What a nation has to do for its own defense can be done, regardless of any of these allocation treaties, and in all the allocation treaties there is a provision that the governments have always insisted be in there, that the treaty recognize the paramount needs of the country for its defense, and that the allocation of frequencies that may be necessary for defense purposes may be made regardless of what the treaty says.

... Discussion off the record ...

SECRETARY MORROW: Colonel, can you suggest, as a matter of information for use by the committee in preparing such a plan with a view to this informal conference set-up, what other groups should be represented at such an informal conference from the standpoint of making the thing wholesome in its detail?

COLONEL WHITE: In the long run, everybody affected will have to be consulted.

SECRETARY MORROW: That is what I mean. In other words, if in setting it up we could lay out a schedule of those who would be affected and make sure that everyone is represented at such an informal conference, then we would be less likely to have delays due to having to consult someone afterwards.

COLONEL WHITE: I guess that the NAB technical staff are all in Washington and some of them are out here.

SECRETARY MORROW: Aren't there one or two here in Chicago?

MR. SCHNELL: Yes, and there is still a new one the name of which I do not know, but it has to do with a group of people organized specifically on frequency modulation.

COLONEL WHITE: The Frequency Modulation Broadcast Association or something of that sort. They are in New York, but they are not involved in this particular picture.

MR. SCHNELL: They will be by the time this is ready.

COLONEL WHITE: This 1600 to 1750?

MR. SCHNELL: No, I don't think so.

COLONEL WHITE: If you can get some man here locally who is with the NAB, one of their technical men and have him sit in with you on a couple of conferences, he could probably give you a better picture of how it looks to them than I can give you or than you can work out for yourselves or than any individual broadcast company could work out for you. As far as Alaska is concerned, you probably do not have to give them much consideration because you have a long distance there. If the frequencies that are assigned to Alaska are not assigned to Montana, Idaho or Oregon, you probably are safe. Those extra few hundred miles will probably avoid any possibility of interference. As far as Hawaii is concerned, you have 2000 miles of ocean there. I do not think that you need to worry a nickel's worth about Hawaii, and as far as actual assignment to Mexico is con-

cerned, as long as you can assure yourselves that there are frequencies that Mexico can use--the same is true of Cuba--you are O.K. As far as Cuba is concerned and Porto Rico and the Virgin Islands, I think by the time they go into police there is a very good probability they will go to the ultra highs with frequency modulation because of the high level of atmospheric conditions, but I think it is still too early to shut the door in their face in the other bands and tell them, "You have to go there." You are going to have to sell the Cubans on the idea that they can get the service.

MR. SMITH: In the case of Canada, it won't be necessary to suggest any assignments of frequencies to their various provinces, but just to be sure that not all of the available frequencies are being used in this country near their borders, isn't that correct?

COLONEL WHITE: Well, you cannot even do that, because on my checker board I found out that I could not give complete border protection to any frequency, that is, I could give protection of frequencies, say, to Quebec and Ontario, but I might have to use that same frequency out in Montana, and I might not be able to give protection of frequency to Saskatchewan, but I probably could give protection to the same frequency up in Nova Scotia. So you are pretty nearly going to have to work out a plan and then sell Canada on the idea of agreeing to the plan.

CHAIRMAN BATTS: That is, actually suggest frequencies that can be used.

COLONEL WHITE: Actually suggest frequencies.

MR. GROENIER: Are the larger cities like Chicago, New York, Los Angeles, and St. Louis that are in that 1700-kilocycle band going to continue to use that frequency or are they going to ultra high?

COLONEL WHITE: Well, they are represented here. How about it, Fred?

MR. SCHNELL: Two things are involved. One is that we contemplate equipping 200 cars with ultra high transmitters. At the present time we use three transmitters on 1712 for transmission to the cars. That provides for us

communication which you may call "duplex" or "simplex" regarding communication back and forth between the car and station, and it also makes it possible for a car, located, let's say, in the far northwest side of the city to communicate with a car way on the south side of the city. We do not know under what conditions that would be required, that is, why would a car on the northwest side of the city want to communicate with a car on the south side of the city? In addition, there is the economic side which would mean changing over the three present transmitters and some 250 receivers for ultra high, and as we look at it now, prospecting for about two and one-half to four years, we will continue as we are as long as 1712 is available for that service.

COLONEL WHITE: How about you, Mr. Chatterton?

MR. CHATTERTON: Well, if the levy passes this year and we do some of the things that we hope to do, if you will give us another ultra high maybe you can have that one.

COLONEL WHITE: Do you mean 2458? It looks as far as your needs are concerned, you are approaching the time when you are going to go entirely ultra high and drop 2458. As far as you are concerned, Fred, it looks like economics, regardless of desirability, would mean two or three years before you can do it.

MR. SCHNELL: That is about the picture because we have the advantage of the other system--there are two in the city, you know--whereby working ultra high from the main transmitter to the car and then working ultra high from the car back to the main station on the same frequency that provides car-to-car communication over very short distances, and if it all could be pulled out by the roots now and we could say, "We are going to plant a new seed," I think it would be all ultra high on two frequencies to provide duplex communication frequency modulation.

COLONEL WHITE: How about St. Louis?

MR. TEETER: St. Louis is fine.

COLONEL WHITE: You wouldn't consider going to ultra high?

MR. TEETER: We have ultra high. We have 1706.

COLONEL WHITE: And you wouldn't consider abandoning 1706 and going all ultra high?

MR. TEETER: We can't see it at this time.

COLONEL WHITE: Does that answer your question?

MR. GROENIER: Yes, I was wondering whether we were going to have any more channels up there.

COLONEL WHITE: Well, that is the situation. I do think this about it, that aside from those places that have county commitments, the majority of the newcomers are coming ultra high. I think that is pretty generally true.

MR. CHATTERTON: Unless they have a terribly oversized county they are still going to ultra high.

COLONEL WHITE: Some of those counties are pretty big.

CHAIRMAN BATTS: Are you thinking of Texas.

COLONEL WHITE: Some of them are pretty big outside of Texas, too.

PRESIDENT WAREING: Colonel, Connecticut has some exclusive frequencies for the municipal police.

COLONEL WHITE: They are exclusive only in that we said that certain of the frequencies in the municipal police of 1200 were very desirable for other reasons and left them unassigned on the borders for Canada and Mexico. Originally the 2300 to 2400 band was Canadian priority. That went back to about 1929. In 1928 or 1929 there was an informal conference between the United States and Canadian representatives and they took a cleaver and cut the kilocycles up and gave certain portions of the band to Canada exclusively--priority, rather--a certain part to us priority, and then some sharing. That 2300 to 2400 was originally a Canadian priority.

We have been talking for more than a year now, every time we have talked with Canada, on the idea that our problems are really such that we cannot consider a Canadian problem or United States problem, which is particularly true

in things like aviation, because we must take the whole problem and consider it as one single engineering problem. We both have our needs, we both have our desires, and we both have our obligations to our citizens, and they cannot be worked out on an exclusive basis. About two years ago we had a conference on frequencies for radio ranges. Canada came down with the idea that we should give them certain radio range frequencies exclusively for Canada and that we would have the rest exclusively for us. Well, after about a day of discussion we convinced them that really would not work, that there weren't enough frequencies to give them enough or us enough, but if we considered that we had so many frequencies for Canada and the United States and coordinated our assignments, neglecting the border and treating the whole thing as a single engineering problem, we could reach a solution and we did, and I think we can sell them on the same idea in this police business; We cannot get along with Canadian frequencies and United States frequencies, but we can get along with police frequencies and if we work together on the problem we can get somewhere.

PRESIDENT WAREING: But for the last couple of years there have been a group of frequencies exclusively Canadian for municipal police, have there not been?

COLONEL WHITE: They are exclusively Canadian as far as our assignments are concerned, that is, we have not assigned them.

PRESIDENT WAREING: To anybody in the United States?

COLONEL WHITE: The government is on most of them.

PRESIDENT WAREING: What I want to know is, Would Canada be satisfied with a sharing proposition for state police when they have exclusive municipal police in effect?

COLONEL WHITE: Yes, I think they would.

... Recess ...

CHAIRMAN BATTS: Gentlemen, the meeting will please come to order again. Colonel White, said he was about through talking. If any of the rest of you have any

further questions or remarks to make along the same line that we were talking when we had the recess, we would like to hear from you now.

PRESIDENT WAREING: Colonel White, I asked if the Canadian Government would be satisfied with sharing state police channels when they have exclusive municipal police assignments and the telephone interrupted your answer.

COLONEL WHITE: I cannot answer for Canada, but I think probably it could be worked out.

PRESIDENT WAREING: You do not think it would be necessary to provide any exclusively Canadian channels in this allocation?

COLONEL WHITE: I do not see how it is physically possible.

PRESIDENT WAREING: No, I do not either.

COLONEL WHITE: And I think, as I tried to illustrate, that we have the Canadians recognizing the principle that these problems have to be treated as a nation engineers a continental engineering problem rather than as a national engineering problem. We have to consider the police needs of Canada and the United States, as we consider the aviation needs of the two countries, as a single problem. We have so many frequencies and we have a certain job to do between us. How can we do that job the best? We have come to that conclusion, but it is pretty hard for anybody who has always thought, "This is mine; I don't share with anybody," to realize that he has to abandon that position.

MR. CURRY: Colonel White, in going through there you made mention of the fact that it would be impossible to do anything with three government frequencies, and you made mention that it would be unwise to attack the channels that are for experimental use. Are there any others in that set-up for which we should not attempt to find other places?

COLONEL WHITE: I did not say "unwise to attack." I said that the way your plan came to us they were to be moved out and there was no place suggested that they be put. I do not think it would even be wise to consider the complete abolition of a frequency of that order for experi-

mental stations. If it is advisable to move it 10, 15 or 20 kilocycles, to put it in some other place, that is a different story, but just to throw it out the window and give it no place to light, I do not think is entirely fair to yourselves because it is doing a necessary job.

MR. CURRY: Then, as I understand it, it would be all right to attempt to move that experimental frequency some place else if we could find a place for it, but the three government frequencies are stuck there and there is no chance of moving them.

COLONEL WHITE: I do not think there is a chance in the world of moving them the way things are now. You would have to have an awfully strong story to move them. Now in moving those other frequencies, the Geophysics frequency, the experimental frequency, etc., put on their hat and try to figure out how much it is going to cost in dollars and trouble and service and everything else and what hope you are going to have of talking them out of them, because the harder it is going to be to talk them out of them, the stronger you must be of the absolute necessity for doing it.

CHAIRMAN BATTS: Colonel White, you were speaking, I believe, of the relay broadcast, Geophysical, and so on. I think that the general opinion of the committee is that the licensees are not using that equipment even though they have it. We all know of several cases that that is true.

COLONEL WHITE: That is why I suggested that if you could get an NAB man he would probably know more about what the broadcast people really are doing than any individual broadcaster knows.

CHAIRMAN BATTS: It is our opinion that ultra high frequency probably won't answer those particular jobs.

COLONEL WHITE: Not for the jobs those are for. They are using ultra high a great deal and drawing it out for short distance work, but they still have a great deal of long distance work that they are doing. As an example of one of the long distance broadcasts, the last one that I looked at was the time the President reviewed the fleet coming into New York harbor. They had additional frequencies temporarily in addition to all the relay broadcasts. They had all four networks represented there. They had the NBC,

the Columbia, the Mutual, and a temporary network of the independents, they had order wires and everything else, and relay stations on Navy ships, they had them in balloons and aircraft and on the shore. If you ever get a chance to listen to one of those things, listen on the order wires instead of on the broadcast wires. It is a lot more interesting.

CHAIRMAN BATTS: Well, we must be mistaken then as you point out, but, on the other hand, in nearly every large city, or even some of the smaller cities, the local broadcast stations have equipment in trucks along about those frequencies and they are not using them. They attempted to use them, but they found that it is not practical, I think primarily from the standpoint of noise. Their pickup was so noisy they couldn't put it on the air.

COLONEL WHITE: You may find they may not be able to put it on the air, but they can perhaps use it for an order wire. They always have to set up two circuits, one that they call the order wire and the other is the broadcast circuit, and many times they will use one frequency for an order wire that they could not possibly put a broadcast on, whether it is a radio or wire circuit. But the broadcast people can tell you more about that, and they can tell you about the possibility of using midchannels, etc. I think that your best bet is to drag into your little conference somebody from one of the broadcast associations rather than an individual, because the individual may not have the whole picture.

CHAIRMAN BATTS: I have in mind the situation of a large, high-powered station which is licensed to use such equipment and does have such equipment, but their argument for not using it is that they have all their time sold and have no occasion to use it.

COLONEL WHITE: Well, they may tell you those things, but if you propose to take away that frequency entirely they sing a very different tune, and they say, "Well, it is true that we do not use it very much and we sell all of our time, but supposing we had something like the Lindbergh kidnapping here, where would we be if we did not have this?" That is the sort of story they tell you. It is sometimes pretty hard to talk away; it is better not to have to argue.

CHAIRMAN BATTS: I think that is enough on that unless someone has something else to say.

It seems to me that we have about arrived at the point where it is necessary that we decide on what plan of action and preparation we are going to take in the next several weeks, or several months, in preparation for this informal meeting before the Commission jointly with the IACP, and to decide when we are going to have that meeting. Several of us on the committee had tentatively set some time in April, or rather estimated that some time in April might be satisfactory. The way it looks to me now April is too soon. Let's have some discussion on that, when you think the meeting should be held.

MR. SMITH: I wonder if it might be satisfactory or desirable to leave the time of the meeting somewhat indefinite until such time as we can get enough of our problem thrashed out to be able to see light at the end of it.

CHAIRMAN BATTS: Is there any further discussion?

SECRETARY MORROW: If we set a time here now, while we figure now we can all be there, or a certain group can be there, there will be the problem of whether or not the representatives of the various other services will be free at that particular time, particularly in Colonel White's position.

MR. SMITH: Any time we should want to set now will have to be purely tentative at the best.

SECRETARY MORROW: Perhaps something might be done as to the matter of the maximum time to be expended, that is, to hurry the process along to completion.

CHAIRMAN BATTS: Shall we suggest a tentative month or a tentative date? Mr. Wareing, have you something to say on that--the date for this meeting in Washington?

PRESIDENT WAREING: It depends on when the committees get this plan worked up, just how much work will be involved in getting all this down in the form of maps which will be satisfactory to the other parties.

MR. SMITH: May I suggest that we take this ap-

proach to it: That we set ourselves the task of attempting to prepare our case by, say, April, but we make no further setting of a tentative date even at this time, that we simply set that as our desired task to try to get through by that time and then later we will determine if we are going to get through?

CHAIRMAN BATTS: I think that will be perfectly all right, because if we aren't ready in April, we will have to change it and do the best we can.

MR. SMITH: That is just our own dead line between us to make us push a little harder.

MR. WHERRITT: How long it will be will depend entirely on whether the committee members work with you.

CHAIRMAN BATTS: Shall we leave it that way?

PRESIDENT WAREING: The committee was instructed by the convention to proceed as rapidly as possible and I think that they ought to set themselves a dead line when the results must be accomplished. When the results are accomplished and they have been well gone over and everybody knows about them, then decide on the date for the meeting.

MR. LOWE: I believe that we would find it expedient to set a tentative date for further consideration in group attendance in April, at which time we could go over the findings that have been turned over between now and that time. I do not believe that we can fully prepare ourselves between now and April without going over this thing with a fine-tooth comb before we proceed to Washington. In other words, let's make sure that we have left no stones unturned before we go down there and take up their time and our time with a job poorly done. I would recommend that we meet again in April to consider our findings and see if we have left any stones unturned, and at that time set a definite date or attempt to set a definite date after contacting the NAB representatives and the Commission.

SECRETARY MORROW: I agree with Ted's idea, that we should not go down there without again going over the problem. I think, however, that the date for that meeting should be arranged when we are at a point in the program when we have at least the majority of our material at hand;

in other words, that it should not be set now as a definite date.

MR. LOVE: Merely setting a dead line, Frank, for the gathering of the material for consideration.

SECRETARY MORROW: That is right. I am thoroughly in accord with that idea.

CHAIRMAN BATTS: There is no point in discussing it to any great extent as I see it, because the committee will have to get the thing together as quickly as possible and it may be necessary to have two or three meetings between now and April, which brings me to the point of mentioning several things as chairman of the committee. If we are going to do this job, it is going to take a lot of hard work and it is going to take a lot more cooperation from the committee members than we have been getting; in fact, than most committee chairmen are able to get from their committee members. It is very hard to get--regardless of what committee it is--various members even to answer letters let alone to take an active part in some of the work, and that active part consists of offering criticisms and suggestions and actually digging in and doing some of the work.

I intend to prepare something along the line of a request of the various states for complete information on their interference problems, with suggestions and criticisms, in order to get some more maps and to go at it in as thorough a manner as possible and at the same time keep every member of this committee posted on what information I collect and what my ideas are, and I should like to suggest that each of you members do the same thing. If you write me a letter making suggestions, send a copy of it to all of the other members of the committee. That will save a great deal of time in getting your ideas around and it will save a lot of rehashing of those ideas and perhaps losing a lot of the meat.

As to preparing this final map that we are going to have to take to Washington, some suggestions have been made. I think that every member of the committee--and anyone else who is interested in it--is welcome to work with us on it. We will be glad to get your suggestions whether you are on this committee or not, or we can get you appointed to the committee, I am quite sure, if it is desirable. Every

member of the committee, and anyone else who is definitely interested in state police radiotelephone, obtain for himself a map--and it should be large enough to take in the whole thing, in order that you can grasp the situation--and get his own tacks and colored cards or whatever he wishes to use and try hard to work out this system for himself--I mean this allocation picture for himself. There again is an opportunity of keeping all the other committee members informed on what you accomplish or where you are stuck, for example. You might do this: Get all those frequencies on the map in the best order you can, take a snap shot of it, and have enough pictures made of it to distribute to all the other committee members and let them see what you are doing. In that way I will know what each of the rest of you are doing and each of you what the other is doing. If we work in some such manner we can get something together and have a meeting much sooner than we otherwise could; also if you do that much work you are going to have a lot of that all thrashed out in your own minds and it will make it possible for you to do better work and we can accomplish a lot more in the same length of time at our meetings. I think that it is definitely going to be necessary to have more than one meeting before we are ready to go to Washington.

MR. CURRY: As a suggestion, as I see the picture there are at least three or four problems involved. One problem is to investigate each one of the assignments as to the amount of use that is made and where it might be applied. Then there is the job of this allocation, trying to spot your frequencies according to a set-up like that. I would think that the thing could be accomplished much more rapidly if those jobs were divided and definite responsibility assigned to a particular person for accomplishing one thing rather than having everybody work on everything. As Chairman of the Engineering Committee, and since a large number of my committee are also on the Frequency Allocations Committee, I think that one job that would be good for the Engineering Committee would be to take a certain part of this problem and work on it.

CHAIRMAN BATTS: I think that is fine.

MR. WHERRITT: I would suggest even going so far as to rather standardize on the maps that you use, that the chairman even state or outline in a letter to the committee members the exact test. For instance, you are to take a map

of such and such a size and prepare a proposed reallocation, taking into consideration the fact that it might be possible to use ultra high frequency modulation for state us, and have another man assigned to take the present frequencies assigned for states, with the others possibly available in the intermediate, and make the allocation on that basis.

COLONEL WHITE: Along that line, Bob, I may be able to figure a way to supply you with a hundred maps or so.

CHAIRMAN BATTS: Fairly large ones?

COLONEL WHITE: Eighteen by twenty-four. That is the largest we can reproduce in our own factory.

MR. SMITH: That would be a big help.

COLONEL WHITE: As far as the big map is concerned, you can take any large wall map and play with that with your tacks, and when you come to a solution, take one of those little maps and write down the numbers and then take the cards off and start over again.

MR. SMITH: It seems to me that something we need to decide now is unless we can break it up that way into several very definite problems of spotting, based on several assumed numbers of channels--unless we can do that I say it seems to me that before we can do much with the spotting of the assignments on the map, we are going to have to find out just how many frequencies we think we can get out of the group that is more or less available.

CHAIRMAN BATTS: That is the first job we have to do, and after hearing Colonel White today as he went down the list, by the time he got down to about the sixth or seventh frequency we had already lost about three. So I think that is the first job to be done.

MR. SMITH: Then when we get that narrowed down somewhat, perhaps we will be left with three or four or maybe five or six possibilities and we will have to make maps on the basis of those different possibilities.

CHAIRMAN BATTS: It would be possible to break this thing up into subcommittees, if we might call them

that, and get it broken up so much that we could never get everything correlated. I think even if we do decide to break it down quite a bit the various committee members, or subcommittees, should still keep everybody posted all the time as to what they are accomplishing, so that we can all understand the whole picture because it is a pretty tough picture, and that the first problem for all of us to do at once, in order to get a common base point from which to start, is to decide what frequencies we have a chance of getting and, therefore, how many channels we have with which to work.

MR. WHERRITT: That is what I was thinking of when I said that the Committee Chairman would supply the Committee members with advice on just what phase they should concentrate before the next meeting.

CHAIRMAN BATTS: We can call on the Engineering Reports and Research Committee quite a lot, because we are right together, and I know that I can depend on Arnet and his committee to get in there and help us plenty. I think that we can get something started, but we are going to have to have the cooperation of the entire committee--I might say "committees"--or we are not going to get very far quickly.

PRESIDENT WAREING: Mr. Batts, if the general membership is kept informed through the Bulletin, you can get still wider expressions of opinion, I think, and eliminate any possibility of anyone feeling that he was left out or had something slipped over on him.

CHAIRMAN BATTS: Frank Morrow, being Secretary and being right there in Indianapolis, might be a good man to see that that is done.

PRESIDENT WAREING: I think that it is up to the Chairman of the Committee to furnish the Editor of the Bulletin with a report.

CHAIRMAN BATTS: Do you mean a policy of submitting regular reports?

PRESIDENT WAREING: Every committee should report every month.

CHAIRMAN BATTS: I have heard that before.

(Laughter)

Is there further discussion along these lines?

PRESIDENT WAREING: Well, what is the present decision, that the Engineering Committee will pick out the channels which are most likely to be obtained and that the Frequency Allocations Committee will then make up the allocation plans from those channels?

CHAIRMAN BATTS: I think that we should work together. No decision was made on it because, as I said, if it is broken up too much or if the work is divided too much, then it will be very difficult to correlate the findings and judgments of all the little subcommittees or even of two committees.

MR. CURRY: Might I suggest that there is no doubt that somebody is going to have to guide the workings of the plan and correlate the different things, and since you are Chairman of the Committee, I would suggest that you take over that responsibility and assign to my committee points that you want investigated in order to fit into your plan.

CHAIRMAN BATTS: And I might suggest that you make suggestions as to what your committee would like to handle or would be willing to handle.

MR. CURRY: I think just whatever you care to assign, we will be glad to tackle the problem. Whatever phase of it you need studied at the moment, we will try to tackle.

CHAIRMAN BATTS: We can work that out in Indianapolis and we will keep the rest of the committee members posted.

SECRETARY MORROW: In view of the importance of the problem, it seems to me that a committee of the whole of the two committees is probably your better channel.

MR. SMITH: It seems to me that we must at least start out on that basis and that possibly it can be split up later.

CHAIRMAN BATTS: The first job is to determine what frequencies we think we will have available and, as you suggested, have more than one possibility, maybe of the minimum number of frequencies that we think will be available and work that out, and then with one more frequency, and one more, and so on, and after we start to make our maps we may find that we can show the Commission and others that if we had just one more frequency we could change this whole picture. It is going to be worse than a jig-saw puzzle.

MR. SMITH: For myself I should like to say that I am going to do any amount of work I possibly can, but I do not know how many meetings I am going to be able to attend. At the end of the postal service, I am going to be available twenty-four hours a day.

CHAIRMAN BATTS: O. K. that is fine. Is there further discussion?

PRESIDENT WAREING: Mr. Batts, I think that you would be quite safe in attempting to make everyone here present contribute his efforts to this work. I think that by being here today they show their definite interest in it and you might include them on the committee list for a while.

MR. SMITH: I think that is a good suggestion.

CHAIRMAN BATTS: I think that is a very good idea.

SECRETARY MORROW: In other words, if the whole group here were considered as a committee of the whole on this problem, it probably would be your best solution.

MR. SMITH: It will help to iron out those little rough spots that may be overlooked.

PRESIDENT WAREING: But I do feel that it should be in the Bulletin, pretty well detailed before any formal action is taken on it.

CHAIRMAN BATTS: I will promise you to do my best, and I know that Arnet will help to get something into the Bulletin and to you first, as the President, just as rapidly and as often as possible and definitely every month. We will consider you, of course, it goes without saying, as a member of these committees or at least of the one committee.

Is there further discussion?

MR. BROWN: Mr. Chairman, is there information available to the committee showing the present degree of interference that exists?

CHAIRMAN BATTS: In the various states?

MR. BROWN: Yes, similar to what Michigan has submitted showing the Arkansas interference.

CHAIRMAN BATTS: Yes, sir, for several states. We have information in the file here on what the situation was last October.

MR. BROWN: Don't you think that information should be made available to the committee immediately before any work is done in the preparation of the map?

CHAIRMAN BATTS: It isn't complete enough as yet to give a good picture. Do you mean mailed to you or--

MR. BROWN: Well, available to the committee.

MR. SMITH: So that they know what spots need attention.

SECRETARY MORROW: Gene, don't you believe, acting on Bob's suggestion, that he can make up this quiz document and send it to these states, and when the returns are all in that can be referred here?

MR. BROWN: Yes. Now, as far as interference is concerned, I do not believe that interference that is being caused by a difference of eight kilocycles should be considered, since we can get equipment to eliminate that.

CHAIRMAN BATTS: I think it should be considered, but properly considered.

SECRETARY MORROW: In other words, your action is not to be based on an 8-kilocycle separation any more but on other factors.

MR. BROWN: Where two stations are occupying the same channels, as in the case of Michigan and Arkansas.

CHAIRMAN BATTS: As to making these maps available to every member of the committee, we should try to find some way to do that. However, when I asked for them, I asked for three copies, one for Captain Leonard, one for APCO use in Kansas City and turning over to the Secretary, and one for my committee files, and three is the maximum number that I received from anybody. The number is limited. I will say Michigan's is one of the best.

MR. SMITH: I believe that for the information of the committee members a brief description by you of the conditions that exist, as you see fit to describe them from the information you have available, will be enough without necessarily copies of the maps. In other words, I do not believe that the maps in most cases are based on enough research work to make them that accurate.

CHAIRMAN BATTS: It would be rather difficult to distribute those maps, but it would be quite easy to make copies of the data and information that they submit with it.

Is there anything else?

SECRETARY MORROW: In connection with the question of ultra high frequencies that was discussed prior to this latter problem, a number of statements have been made, both at conventions of the APCO and at meetings between conventions, to the effect that there are certain phases of police communications that are not covered as far as the allocation of ultra high frequencies are concerned. This statement that I have here is an attempt at compiling those suggestions into something concrete. With your permission I will read it and then your discussion on it can determine whether or not it shall become the expression of the committee.

CHAIRMAN BATTS: May I interrupt? Several of you gentlemen will no doubt recall that in Kansas City Lieutenant Murnane and Lieutenant Joyce were both rather insistent that the APCO do something on the assignment or allocation of additional ultra high frequency channels for state police use. I think those two demands are what prompts this proposal that Frank has.

SECRETARY MORROW: This is a tentative draft:

That it is the general opinion of the Executive Council that one day there will be a need for a reconsideration of the allocation of those frequencies lying in the 30 to 40-megacycle band with a view to providing for the respective requirements of state and municipal departments as two separate types of service.

It is, therefore, our general opinion that a study of these problems, as projected in the light of present developments and future needs, is necessary to prepare for such reconsideration in fairness to the efficiency of all services involved.

That in all probability there will be under such reconsideration plan a necessity for additional frequencies for these services.

That in such reconsideration plan would be included the allocation of municipal frequencies for both fixed and mobile service, both from a frequency modulation and an amplitude modulation standpoint, and state police frequencies, fixed and mobile, with the same attention to the problem of the two types of modulation service.

That such consideration also include the possibility of adaptations or advantages of certain other portions of the spectrum above the 40-megacycle band for future uses.

Is that what you want or is it not what you want?

MR. LOWE: I think that covers it very completely. We are definitely going to have to face that problem in the not too far distant future. In other words, it may be ninety days from now when this same group is going to have to go through the same procedure that we are going to have to go through on the state police problem on the intermediate and low frequencies.

SECRETARY MORROW: I do not believe that it is the opinion of anyone here, or of anyone in the field, that we have sufficient knowledge at the present time as to the specific properties of certain frequencies that we could specify any particular group of frequencies as being those desirable or necessary, but that the devotion of close attention to those points will better prepare us to discuss them when the time does arrive.

MR. LOWE: We must protect ourselves by being on record that we are going to apply for those frequencies.

SECRETARY MORROW: That is right.

CHAIRMAN BATTS: I should like to make the suggestion that you add to the last paragraph, where you say "for future use"--is that what you say--or "future uses"---

SECRETARY MORROW: That is right.

CHAIRMAN BATTS: --"including facsimile and television."

SECRETARY MORROW: I think that is a very good point. I know it is from our standpoint.

CHAIRMAN BATTS: It has been pointed out by the FCC two or three times in the last couple of years that the police have never made any mention of facsimile or television.

PRESIDENT WAREING: You had better add "printers" in there, too, then.

Mr. Chairman, I wonder if everybody here is familiar with the request of the Eastern States Police Radio League, the formal request of the APCO.

CHAIRMAN BATTS: I am sure they are not. I, for one, am not.

PRESIDENT WAREING: Will someone read it?

SECRETARY MORROW: Do you have a copy of it?

PRESIDENT WAREING: I sent a copy to you a couple of months ago.

CHAIRMAN BATTS: What is it?

PRESIDENT WAREING: The Eastern States Police Radio League.

SECRETARY MORROW: I was thinking of the teletype request.

PRESIDENT WAREING: That is the one I mean.

SECRETARY MORROW: The teletype conference?

PRESIDENT WAREING: They are very insistent that something be done about that, particularly on the basis of the Connecticut station that is now going in on municipal police channels.

SECRETARY MORROW: That is right. It is just as fair to one type of service as it is the other that we give it consideration. The more we discuss any one phase of this thing, the more apparent become the highly intricate interlocking types of service with respect to almost every point that we discuss. There are several items in connection with this report, which was submitted by the Chairman of the Teletype Supervisors Conference. The points that are of chief interest right now, however, are as follows:

"Lieutenant Murnane again called attention to the fact that the only ultra high frequencies available to state police are those for the use of mobile units only. The Lieutenant stated that with state police using ultra high frequency transmission, it is very possible that the state and municipal police will interfere with each other if they must work on the same frequency.

"Chief Inspector Moore pointed out the necessity for members of the International Association of Chiefs of Police to support that organization and to interest themselves in its communication committee.

"Lieutenant Joyce explained the ultra high frequency allocations with regard to state police, and recommended that consideration be given them by the conference.

"Lieutenant Murnane suggested that the conference communicate with the President of the APCO, and request that the APCO include in their program a request that the state police should be allotted a sufficient number of high frequencies.

"The following resolution was offered by Lieutenant Joyce:

"Whereas, It is apparent that much difficulty will

arise if state and local police departments are assigned to the same ultra high frequency bands; and

"Whereas, Under the present assignment schedule, state police departments must accept fixed station assignments in groups B and C, and, at this time, all ultra high frequency assignments in the Eastern States are shared by two and as many as four different municipal police departments, with the resultant mutual interference; and

"Whereas, If state police departments are assigned to ultra high frequencies used by local police forces, the effect will be confusion, delay and interference which will greatly hamper and impair the efficiency of the various police units assigned to the same band; and

"Whereas, When a serious crime or disaster occurs, such confusion and interference might well cause a delay which would provoke criticism of the existing system; and

"Whereas, State police departments require the use of several fixed stations due to the nature of such organizations, and inasmuch as state-wide coverage is only possible by means of state police communications systems using special assignments in the ultra high frequency bands; therefore be it

"RESOLVED, That the Chairman of the Interstate Police Teletype Supervisors Conference be instructed to communicate with the President of the Associated Police Communication Officers, Inc., and request that the frequency committee of the APCO give full consideration and study to the matter of the assignment of additional ultra high frequencies to State Police in order that State Police may have the sole and exclusive use of such frequencies for fixed State Police stations.

"It was regularly moved and seconded that the resolution be adopted; carried and so ordered."

With regard to that, we might state for the record that you will note that the suggestion that we have made here goes even farther than the request under Lieutenant Joyce's resolution, in that we do foresee the probability of a reconsideration of all of the frequencies in that 30 to 40-megacycle group together with the fact that additional

frequencies will possibly be required. So I think that will thoroughly cover the Teletype Supervisors' request.

PRESIDENT WAREING: Perhaps they want us to take some definite action at this time.

SECRETARY MORROW: The thought was in preparing this statement that it might be placed in the form of a motion and the Frequency Allocations Committee be instructed to proceed along that line as a part of their program; in other words, that we make it a permanent part of the agenda of the organization meeting. Now that is, I believe, a matter that can be deferred in preference to this other problem that is before the committee, however.

MR. CURRY: I believe that it would be a good thing to hear from Colonel White at this time.

SECRETARY MORROW: That is the idea that I got from Colonel White in talking to him.

COLONEL WHITE: Well, if you will go back to June, 1936, you will remember that at that time the state police did not think they were going to have any use for ultra high, except possibly for some little special work with cars and working parts. That is why there isn't any state police frequencies specifically in that band. They were not requested. Again, in a proposition of this kind, sending a resolution, such as Martin has prepared, to the Commission without any suggested solution would be a waste of paper. It is perfectly all right to put it on your agenda to think about it, but it is just as much a job as to figure out this other allocation.

SECRETARY MORROW: It was not our intention to send this to the Commission. The idea was that it be placed on the program of the Allocations Committee, but before anything goes down there the work will have to be done. We realize it would be a tremendous job.

COLONEL WHITE: The reason I mentioned that is that I have run across people in other fields from time to time who seem to love to send in resolutions, and usually they do not get anywhere just for the reason--well, here is a proposition, "Well, if you think so much of it, why don't you come around with a solution?" Do you get the point?

SECRETARY MORROW: The point that we are trying to make is principally this: There have been criticisms in the past to the effect that these things have been suggested to the APCO and nothing has been done about them, and this is one way to get started on clearing up that slate and actually trying to do something about them.

COLONEL WHITE: I think that your Frequency Allocations Committee in general ought to keep its eyes on developments and when problems come up, be as ready as possible to prepare a solution. As I see it, that proposition that they put up there may be materially affected by what happens in frequency modulation and it is something that your Frequency Allocations Committee should be aware of and work out.

PRESIDENT WAREING: Colonel White, would it in any way be possible for the Commission to assign one ultra high channel to state police stations at this time, to permit them to proceed with the developments of that system unhampered by municipal stations?

COLONEL WHITE: They have one frequency down there, but there are already three municipalities down there and they have no place to go, so they just have to get along together. With eighty-five systems in that part of the district, you can see what the congestion is bound to be and they are lucky to find one frequency with only three on it and geographically so spaced that there is some hope that they can work without any interference.

SECRETARY MORROW: That is principally the thought, that the situation exists now, and with the development there has been recently and that promises to be with these new frequency modulation programs that are under way, that the situation will probably be much worse than it is today.

COLONEL WHITE: It may be worse and it may be better, but at any rate, with the request to assign an individual frequency to the state police, what are you going to do with the people who are already using them, that is, the second phase of your request must be suggestions as to what to do, and if you want that thing to go through promptly, the next step is to make these particular fellows willing to do what you suggest. If, for instance, you could get everybody on 39.1 to agree that they will vacate that frequency so that it can be assigned exclusively to state

police, and you came in and recommended that, backed up by all the fellows who have it saying, "That is all right with us," I do not think there would be a chance in a thousand that the Commission would turn you down. If you came in with 500 cities on a frequency and said, "Well, let's take that frequency for the state police," there would be quite a dog fight.

SECRETARY MORROW: This whole proposition here is to do away with these after-meeting situations and long discussions that have been held, and it is to pin the thing down to one point and say, "Now, this is the problem, we will hand it to the Frequency Allocations Committee," and where they go from there, of course, is the battle.

PRESIDENT WAREING: Is there no hope of obtaining one additional in the 30 to 40-megacycle?

COLONEL WHITE: From whom are you going to take it away and where are you going to put him when you take it away?

PRESIDENT WAREING: They are all occupied, not just allocated?

COLONEL WHITE: They are all occupied.

CHAIRMAN BATTS: Is there anything further on the ultra high frequency?

... Discussion off the record ...

MR. SCHNELL: If frequency modulation shows up as well as the tests I saw, I do not see that there is going to be a great deal of difficulty, because on the basis of the lack of interference, when you must have one signal that is twice as great as the other, it knocks out the weaker signal. We have fifty communities immediately surrounding Chicago operating two-way on ultra high. Except for the transmitter on top of the Field Building, which is 565 feet in the air, and maybe one other, all of these communities could operate on about five frequencies, providing an even better service than we have now.

Operating on different frequencies now, we will take the case of a car in Lake Forest and we will assume

a hot chase---we have them quite often--in order for the Lake Forest automobile to get wide and quick distribution of that message, it must go into one of the stations using 1712 kilocycles, that is, either Oak Park, the city of Chicago, or Waukegan, and then there is immediate and quick distribution by means of contact with the state police station which is located within the city limits of Chicago. So that in a matter of minutes that information from the car in Lake Forest that is out on the highway is in possession of the personnel of about 690 cars. Information of that kind is of immediate importance to mobile units, not to the headquarters stations because you cannot move the stations around to chase this hot car.

Now, let's change the picture and say that we have, instead of the 29 frequencies which are now being occupied and in some cases by two and more communities, 4 frequencies, in which case all of the North Shore operates on one frequency, and perhaps Park Ridge and Des Plaines operate on the same frequency. That car, which is now operating in Lake Forest, may go through all that community itself without feeling that it is going to be without communication because they are all tied in together.

I have been turning this over for days and days and turning to believe, on the basis of what I have already seen, that the picture on ultra high is going to be much less complicated, that it is going to be simpler, and it is going to provide better service than we now have. Of course, that whole picture may change when we have a chance to make some tests.

SECRETARY MORROW: Isn't just that sort of information or that sort of reasoning requisite in any program, such as was suggested here? In other words, that is one way of attempting to solve the problem that has been put to us by these men in the East?

MR. SCHNELL: Absolutely. The point has been made with respect to frequency modulation as against amplitude modulation: We, for example, propose to put 100 cars on a frequency and we will have 200 cars on the street. If that service is used, as we now use it and have always used it, for emergency communication, there isn't going to be a great deal of interference because it can very well be likened to something like this: You have 100 men under your detail,

and you have a telephone and you say, "Don't call me unless it is an emergency." How many times in the course of a month or a year is that telephone going to be bothered with an interfering call from some officer?

Emergency communication, the way we operate here at least, is boiled down to the very essentials of the things into which a patrolling car may run during the course of a day. We have only 20 cars on the street. We have not yet had a single case of interference, because two accidents or two holdups or two infractions of the law do not occur at exactly the same time. It hasn't shown up that way. Well, the point was raised then in the East, "If you operate these cars with frequency modulation and you do have an occasion that two cars call at the same time, assuming that one car is a little farther from the receiver than the other car, in which case the signal is more than twice as great as the minimum signal, you won't know that the other car is calling." What difference does it make? In the other case of amplitude modulation, you would have the interference of the other signal, in which case the interference might be so bad that you could not understand the car anyhow. So what difference does it make?

It boils down to this: At the present time we are operating with one receiver to cover the whole city. That is purely on a basis of extended experimental work with 20 cars. Under no circumstances will we use one receiving location, because if that receiver goes out we are out of communication; therefore, we will probably use four to six pick-up points and so overlap that in the event of failure of any one of these single places, we can still rely on the Field Building, which, of course, is a high receiving antenna.

I cannot yield to the arguments and the discussions of what is going to happen to us if we go to frequency modulation. Our sole objective is to work with a receiver that has a much lower noise level. I have checked the noise level on the Field Building for days and it has run from 25 to 35 microvolts constantly, not counting the peaks. If we can get a reduction of noise and use a smaller signal, we will provide for the men who have to do the communicating a better signal and more intelligibility. We are not interested in high quality or high fidelity, but better intelligibility and interference does not seem to enter into the picture, but that was one which was thrown in by K. D. Warner of Hartford.

He, of course, has had a great deal of experience in radio, and I regard him as a very dear and close friend. I said I wanted it laid right on the line. He said, "Well, I do not know much about police communications, but in the terms of communication, these are some of the things I have thought about: I think, as to the picture in the future, that the ultra high is not going to be nearly as complicated as the present situation on amplitude modulation, if what I have seen and heard is any indication of what we can expect here." I do not know how you can arrive at the business of picking up frequencies and saying that we will provide this frequency for that state on ultra high, until the definite answer is obtained on frequency modulation versus amplitude modulation on the ultra highs.

MR. CURRY: From that particular angle, I think there is no doubt that the answer to that problem looks like it is going to be frequency modulation, and all that the committee can do at the present time is to put it on their program to keep pace with the developments.

SECRETARY MORROW: That is exactly what we want to get at.

COLONEL WHITE: One thing has come to my mind that might be of interest to consider in this frequency modulation problem. It looks to me as though if you are going to go to frequency modulation, you are going to have to go to a different frequency for your cars than your station frequency. Suppose that with frequency modulation, Chicago here on the Marshall Field Building was using the same frequency to transmit from their cars to this receiver that Waukegan was using to transmit to their cars. Waukegan has a pretty good antenna. Suppose they put too strong a signal into the Marshall Field Building. It might be that if Waukegan was talking and they put in a sufficient signal to block out the receiver on the Marshall Field Building, you would not know that a car was calling, while a car in Waukegan, transmitting on the same frequency as a car in Chicago, wouldn't block out your receiver. That is a problem of long-distance interference between municipalities.

MR. SCHNELL: That is only because of the altitude of this thing. If they were all the same type of antenna, the same height and the same power, then it would be pie, as Armstrong says.

COLONEL WHITE: There is this about it, though: Your fixed stations are going to perforce have high receiving antennas and high transmitting antennas to give good coverage to the cars. If Chicago is transmitting to their cars on the same frequency as Waukegan, Chicago will talk to their cars and it won't bother the Waukegan communications at all, because, looked at from the point of view of the car in Chicago, the signal from Chicago will be much stronger than the signal from Waukegan, and looked at from the point of view of Waukegan, the signal from Waukegan will be much stronger than the signal from Chicago. So you can use the same frequency going out. The cars coming back from Waukegan to Chicago can use the same signal but different frequencies and still operate without interference, because a signal from a car in Chicago will reach the Marshall Field Building much stronger than from a car in Waukegan. If a transmitter in the air is the same frequency as a transmitter low on the ground in Chicago, it might block out the receiver of the car in Waukegan and you would never hear the car in Chicago. So I think you are going to be forced to go to a two-frequency job for that reason.

MR. WILT: I have been on two frequencies now for one year and I haven't heard another station since being on the two frequencies. I can still broadcast. I haven't lost my car-to-car either. I have retransmitted and I have gained on it, because before I could get car-to-car only on adjacent cars. Now, if a car wants to talk to another car we rebroadcast that he talks to every car that is on the air.

SECRETARY MORROW: I am glad that Lieutenant Wilt mentioned that because we have a case in Indiana where a city is applying for a construction permit on ultra high and they have been instructed to apply for a single frequency for cars and station. We took the position that there should be one frequency for the station and a different frequency for the cars.

MR. CHATTERTON: If it is a small city, I think they should say on the same frequency.

MR. WILT: We have a case that has come up in the last week. St. Joseph, Missouri, is fifty-four miles from Kansas City. They are on 33.1, both their main station and cars. When we put in our new transmitter, we are interfering with them. They are receiving our signals over their

main station receiver. They want to know what they can do. The only thing they can do is to take another frequency for their car transmitters and eliminate any interference not only from our station but any of these other 33.1 main stations, because they are going to get a lot of interference in the spring from the West Coast.

MR. CHATTERTON: Remember that several years ago when this was still in the experimental status you had some 46 per cent of the equipment in the United States that was manufactured equipment, crystal controlled, and sold on 33.1 by Western Electric who advocated simplex voice operated control. All of those people were still in operation when the frequencies became permanent, and for economic reasons they refused to change. You have that situation all over the United States, but I think that the smaller communities that have only one or two or three cars operating should be left on one frequency. On a large system you cannot operate with one frequency.

SECRETARY MORROW: Mr. Chatterton, the idea I had in mind as far as this Indiana city is concerned would probably be true with others from the standpoint of new construction going in, that they adopt the other policy.

MR. CHATTERTON: No, why should they? If they are operating only two or three cars, why take up another spot in the air when you are already complaining about the lack of facilities?

MR. WILT: That other spot on the air won't interfere with anyone.

COLONEL WHITE: There is too much squawk about lack of frequencies in the class 3, that is, frequencies restricted to cars alone, because the car is close to the ground and the duplication is so much that the car doesn't get long distance interference. Your troubles have been in the A and B groups, your fixed station frequencies, and, as Jack said, those fellows who are using the same frequency in different cars are the ones who are getting complaints of long-distance sky waves busting up their reception from cars.

MR. CHATTERTON: That is primarily 33.1, but others are coming up as the other frequencies are being

more and more occupied.

MR. ZINDARS: We run into that same condition in Wisconsin in operating our cars, and the Commission authorized us to operate our cars on 31.5. However, at Madison and Waukesha they foresaw the troubles that they were going to have and they went on the class C frequency with 30.58, and we run into that same condition all the time. They get out 20 or 25 miles and Alameda, or some of those other stations come in there, and you never know that our cars are on the air. So if I had it to do all over again I would have a separate frequency for my cars and transmitters. Of course, we use the intermediate outgoing, but at the same time it means the same thing.

MR. CHATTERTON: Get on one of those high-powered channels and you are licked.

MR. ZINDARS: You get that 50-watt Alameda station, or whatever it is, out there.

PRESIDENT WAREING: I should like to disagree with Fred for a minute, lest our Frequency Allocations Committee feel that we can hand back about twenty of our frequencies to somebody else. I do not think that five channels will ever cover the ultra high, for the simple reason that attenuation of a signal is not uniformly distant. I have seen field strengths on these frequency modulated jobs vary 1000:1 in a couple of feet, and some town may lay down a much stronger signal, more than 72:1, only a few blocks a way, over your own transmitter.

MR. SCHNELL: Did you get the impression that I was going to give frequencies away?

PRESIDENT WAREING: You said five would be enough.

MR. SCHNELL: I just want five in the Chicago area.

PRESIDENT WAREING: Five for the city of Chicago?

MR. SCHNELL: For the surrounding area here.

PRESIDENT WAREING: You have one of the biggest

areas in the country. If five will do here, it is enough for the whole United States. (Laughter)

COLONEL WHITE: I think that Fred is probably being a little optimistic, but I do think some relief in pressure may be possible due to allocation, that you can chisel off a couple or three frequencies the states can use and get the cities to agree to shift around a little. I think that Fred's remarks along that line are positively justified, but I do not think that he intended to give them away to another service.

CHAIRMAN BATTIS: I do not think he necessarily meant specifically five frequencies, but was using that as an example. Isn't that right?

MR. SCHNELL: Yes, in other words, at the present time we are using 29 frequencies in this area. No provision is made as we now stand for the state of Wisconsin or the state of Illinois or the state of Indiana to use a frequency without interfering with what is going on, but on the basis of frequency modulation, we might do very well with 5 frequencies what we are now doing or I mean what we now demand of 29, thereby being able to turn over to the states that want ultra high and also providing the two channels which some of these places should have to get away from the interference from the long sky wave. But don't get the idea that the thought was to turn the frequencies over to another service.

... Discussion off the record ...

SECRETARY MORROW: In view of what exploded here after I read that statement, what are we going to do about it?

I will move that it is the general opinion of the Executive Council that one day there will be a need for a reconsideration of the allocation of those frequencies lying in the 30 to 40-megacycle band with a view to providing for the respective requirements of state and municipal departments as two separate types of service.

It is, therefore, our general opinion that a study of these problems, as projected in the light of present developments and future needs, is necessary to prepare for

such reconsideration in fairness to the efficiency of all services involved.

That in all probability there will be under such reconsideration plan a necessity for additional frequencies for these services.

That in such reconsideration plan would be included the allocation of municipal frequencies for both fixed and mobile service, both from a frequency modulation and from an amplitude modulation standpoint, and state police frequencies, fixed and mobile, with the same attention to the problem of the two types of modulation service.

That such consideration also include the possibility of adaptations or advantages of certain other portions of the spectrum above the 40-megacycle band for future uses, including facsimile, television or printers.

MR. WILT: I will second the motion.

COLONEL WHITE: Before you adjourn your meeting, a question was asked about this long-range international interference with other nations on ultra high. That is a very difficult problem to handle. There are hundreds of sidelights on it. The first thing is above 30,000, the international allocation as it stood before Santiago--I do not know what it is going to be now--was to be used as a guide. It was not necessarily mandatory. So the South Americans, for instance, can say, "Well, this is a guide; it is not mandatory. We are all right. What are you squawking about?"

As far as the Cairo regulations are concerned, they are also only a guide and they apply only to the Western Hemisphere, so the Australian interference that you are getting on the West Coast from the point of view of Australia is entirely legal. They can use those frequencies for whatever seems best.

Going one step farther, if we won't buy Argentine beef, they do not feel so happy about talking to us about a little thing like frequencies. "We are busy talking about beef. We will talk about frequencies afterwards." So it is a slow process. In the first place with most of those countries our relations are such that we take it up with

the State Department and they write to our ambassador, and he puts on his striped-candy pants and tail coat and tall hat and goes over and talks about it. They say, "We are glad to hear about it. We will look into it," and that is about all that happens for quite a while. So, if you give us a squawk, which may be entirely justified, of international interference, we are going to take it up and do what we can for you, but do not expect over-night action like you are likely to get if it is a case with Canada. From Canada we can get a solution very quickly. As I say, we have very friendly relations and we can do pretty well.

CHAIRMAN BATTS: Gentlemen, there is a motion before the house. It has been moved and seconded. To refresh your memories, it is the proposal that certain frequencies be earmarked, etc., as read by Frank Morrow, and if there are no more questions, we will take a vote on it, so that it may be entered in the record of this meeting. All those in favor make it known by saying "aye"; contrary "no." The motion is carried.

Now, gentlemen, it is getting near six o'clock.

We have just received this telegram from Bob Franklin:

"As chairman city marshals and chiefs of police union of Texas and member APCO Committee protest any effort to permit radiophone relays. Relaying now being done where radiotelegraph could be used. Some stations discontinuing radiotelegraph because of contemplated radiotelephone relays. Conditions on phone bands now intolerable because of point-to-point transmissions. Urge you not to undo that which has taken APCO several years to do. Preserve our radiotelegraph network. Need frequency 10-megacycle.

"Robert E. Franklin,
Supervisor, Police Radio KHTP"

... Discussion off the record ...

SECRETARY MORROW: This telegram will be entered in the record and referred to Ted Lowe, as Chairman of the State Systems Standards Committee to be considered in conjunction with the FCC proposed change or amendment of the ruling covering this situation.

... Chairman Batts will correspond with Mr. Franklin regarding that part of his telegram which refers to a 10-megacycle frequency ...

... Announcement by the Chairman regarding the Third Annual Broadcast Engineering Conference February 12-23, 1940 ...

CHAIRMAN BATTIS: Now, Ted Lowe has a telegram that he wishes to read. Ted, if you will do that, I will turn the meeting over to Mr. Wareing.

MR. LOWE: I do not have the telegram. This is more or less by remote control. Colonel Williams, in Springfield, advises that he received a telegram from Colonel Black of the Ohio State Police, regretting that Mr. Kinsey could not be here on account of extenuating circumstances and his work which has kept him there at this time; however, that he would remain in accord with the recommendations of this body, engineering recommendations and others, and go along and support that policy. I think that is worthy of note, because his state is going to be involved in this move, and we should like to have it in the record.

... President Wareing assumed the chair ...

... Discussion as to time of adjournment and reconvening ...

MR. RENNER: I make this in the form of a motion, that we meet at nine o'clock and convene and go to work.

MR. WILT: I will second the motion.

... The motion was put to a vote and carried, and the meeting adjourned at six o'clock to reconvene at nine o'clock Sunday morning ...

State Systems Standards Committee
ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.
Sunday Morning, February 11, 1940
Hotel Sherman
Chicago, Illinois

The meeting convened at nine-fifteen o'clock, Mr. Ted Lowe, Chairman of the Committee, presiding.

CHAIRMAN LOWE: The State Systems Standards Committee met informally in Kirkwood some thirty or forty days ago and discussed matters pertaining to uniform signals for telephone use. Those have been published for the information of the entire membership and we are now awaiting their reaction. I do not believe that this committee should take any action on them until we have received the reaction of the various departments.

We do, however, have before us this morning a problem that is one of large magnitude on which there is much to say on both sides. I am referring to Mr. Franklin's telegram received yesterday. It is evident that there have been some changes in what we should do and how we should interpret various communications which we have received in regard to radiotelephone relay. I should like to open the meeting at this time for discussion, and I believe that we should call on Colonel White for a few remarks.

COLONEL WHITE: Well, I think the situation from our point of view is expressed in the letter that we wrote and that has been passed around and printed in the Bulletin. We did not feel, in looking over the situation, that we could work out anything in the way of a blanket permissive rule that would not be subject to very dangerous abuses in some places. If we made one relay, for instance, Fred Smith could relay everything by voice through Raleigh. He would not need a telegraph and would never use a telegraph. He could load his own system up with voice if he wanted to. The same thing is true of Fred Avery, up in Richmond, and George Kendrey, down in Ohio, and Ted Lowe, over in Illinois--he could relay everything through Springfield with just one voice relay. We did not think that was a good idea, because in some cases, as you know, where a system has just got their feet wet in telegraph and are beginning to get traffic with accuracy, they just welcome the excuse to drop it. You probably know of cases of that kind; yet there are cases

where the prohibition against relaying has worked an injustice. Take around Denver, for instance, two or three little towns there that normally are tributary to Denver. They do not have enough business to justify in anybody's mind a telegraph installation. They may have three or four telegraph messages a year, maybe a few less or a few more. Because of the relay rule, they cannot exchange messages with each other because they are too far on opposite sides of Denver. They both can relay to Denver but Denver cannot relay between them. So they can talk to anybody in the country except the fellow on the other side of Denver.

So we finally, after a lot of going around and around, hit on this proposition, that if there were cases where the relay prohibition was working a hardship, the people involved should ask for authority to relay and give their reasons they feel that the relay prohibition is working a hardship, and if it looks all right, then the specific circuit will be authorized. For instance, Denver might be authorized to relay messages between Cheyenne and some other place, say, Pueblo, a specific circuit. That is the thought behind it. Apparently, Bob Franklin doesn't even like that,

MR. GROENIER: Mr. Chairman, I think that 337-A has worked about as much of a hardship in the state of Wisconsin as it has anywhere that I know of. We do not have any state police up there. The only zone station we have is in our largest city, which is Milwaukee. There we sit in the capital of the state. We haven't the funds available for CW and probably won't have for some time to come the way the way things look. The result is that most municipalities, counties, and so on, are putting in their own small ultra high outfits. Now, as I said, we haven't any state police. We all know that probably 90 per cent of the crimes committed have automobiles involved in them and that you must get accurate checks on these cars to trace them.

We finally persuaded our Motor Vehicle Division up there to remain open twenty-four hours a day and to take all of the stolen car reports and drivers' license suspensions. The other stations throughout the state, no matter where they be, the minute a crime is committed, want to know from Madison whether or not the car has been reported stolen, etc., and, of course, that is the reason they have their radio systems. I am convinced that had 337-A gone into effect before Madison put in their system they would not have

put in their system when they did, because when I came back from Chicago and told the Chief about 337-A, I thought I was done right there, I thought my radio system and all were going out, but we have tried to work it out the best we could with the help of Elkhorn and they are putting in CW now.

What I am getting at is this: I know that 337-A is going to be awfully hard to change, that is, to change it in its entirety, and I would not hope, no matter how strongly Wisconsin fought for it, to get it through for some time to come because of the many abuses you have had in the past, and we hear them now, especially on intermediate frequency, but wouldn't it be feasible--I am raising this as a question--to raise the restrictions on frequencies above 30,000, and then if we find that it is necessary for us to have a definite route by which we can apply to the Commission and have the rule suspended, we can do that later, but I think in Wisconsin particularly--as an illustration, West Bend put in a little ultra high outfit. They are 80 miles away. There is Racine, with an ultra high outfit, 70 miles from Madison. We work on four frequencies at the present time. We monitor two intermediates and this one ultra high. We cannot monitor any more and it would not do us any good if we could because we could not do a good job of monitoring any of them, but now if Racine wants a license checked, why can't they give it to Jefferson and from Jefferson into Madison and we in turn send it back to them that way? It is all ultra high frequency. That would not interfere with any service that I can see.

I should like to hear from the Colonel on that, because we in Wisconsin aren't going to die very easily on 337-A, I will warn you on that right now.

MR. SCHNELL: Nor are we.

COLONEL WHITE: Just as an example of the kinds of abuses--they really sound asinine--I was talking to Smith this morning and we recalled a case where a message originated somewhere in Florida and was transmitted by voice relay about five or ten times to get to Washington. It gave a fingerprint classification and requested identification on the basis of his multiple relay. Washington would not touch it. They said that after it had been relayed that many times they could not be sure what the numbers were originally. Sometime get a group together and try whispering from one

to another--put a message in the ear of a person at one end of a chain of fifteen people and have it passed from one to another and see what you get out of the other end.

MR. GROENIER: I will grant you that you can recite some few exceptions and probably quite a few, Colonel White, but, on the other hand, I think we would be in a worse position and we could sit down and take a map and cite a good many cases where our radio system isn't doing the job it should do.

COLONEL WHITE: Give us a concrete proposal of a concrete case and it will be considered as an individual case on its merits.

MR. GROENIER: As I understand what you want, it is that if West Bend wants a license checked, and that can be routed through Juneau ~~on~~ to Madison, they have to go through Juneau. If they have to go through Watertown and not Juneau, then they cannot send it through.

COLONEL WHITE: I do not see any possibility of getting any blanket change. We have been around and around on that situation. After we got the APCO and we had so much trouble and so many complaints and squawks on voice relay on the point-to-point, the personnel in the Commission, aside from engineering, did not want to touch it for fear it would get back to the same shape it was. It would never have been adopted if it had not been for the complaints.

MR. GROENIER: You don't think that making a difference in frequency there is advisable?

COLONEL WHITE: I do not think so, particularly with this long-range sky transmission. We have had fellows try to deliver by 30 megacycles between the East and the West Coasts, and some of them had schedules set up between such places as Huntington, California, and, say, Akron, Ohio.

MR. GROENIER: As I understand it now, that is not a violation of 337-A, is it? If I have ultra high and I want a license checked in Alameda, California, that is, just a book check, and I can work them during the day, it is not a violation.

COLONEL WHITE: If it is just like a local telephone, yes.

MR. GROENIER: Of course, you cannot say 30-megacycle sky wave is good service.

COLONEL WHITE: You would not depend on it, and as far as a circuit is concerned, it is foolish to make a schedule or to try it. The sort of thing that is valuable to the police is a circuit that is just as reliable as Western Union or the telephone. If it isn't that good, it isn't worth anything to the police department, because if you get some failures in identifications and things of that sort, your judges will refuse to give you warrants. Mistake an "s" for an "x" or a "c" for an "e" and pick up the wrong guy and throw him in the pen and do that about twice and he won't give you a warrant on information on the radio. He will say, "You get a telegram from the Western Union." So there is another reason for being ultra cautious.

PRESIDENT WAREING: Mr. Groenier's station was not in service at the time the unlimited relaying went on, and I think all those stations that were in service at that time remember that it was very severe interference to our local service to mobile units. Our own cars were not getting our signals, in many cases due to sky wave interference from other stations relaying in other zones, and I think that any department which would take a step which would reduce the reliability of its contact with its mobile units would be making a very severe mistake. That is what the unlimited relay removal amounts to.

MR. GROENIER: I do not believe it would on ultra high.

PRESIDENT WAREING: I think it certainly very definitely would when the band is open. If you had those call stations chinning all day long you would never get through in Wisconsin on 31.5.

MR. GROENIER: Then we will cut out some of that ten and fifteen-hour testing that they are doing on car 7 going under the bridge. "How am I doing in there, Harry? Is that better than when I was up on the hill?" If they can cut out some of that and put in a few relays, we will get better service out of it.

MR. SCHNELL: I should like to have everyone disregard anything I say with respect to the medium frequencies.

They are out of this picture, but primarily with respect to the region 30 to 40 megacycles in which, under the present circumstances the Association for Police Communications in the Chicago Area, which involves fifty communities, cannot function properly if this rule 10,125 is observed or under the terms, we will say, of 337-A, which involves telephone relays and for the very obvious reason that all of it is ultra high two-way communication, and by no stretch of the imagination could we make those people change over and use CW and telegraph. They just won't do it. The question of testing and the so-called personal impression of what emergency communication is are not matters that apply in this area. These people stick strictly to the business of emergency communication. There is involved the matter of license checking, particularly during the summer, with Madison, Wisconsin, and Springfield, Illinois, or those places where they may up-to-date books. It is not possible, without two relays, on the basis of the 30 to 40-megacycle range, to get a message, for example, from Evanston, Illinois, which is on one frequency, to Waukegan, Wisconsin, on still another frequency, and then to the capital of Wisconsin, which is on another frequency. There is little likelihood that any of those stations will ever consider telegraph. They have no need for a duplicate service and their primary interest is in the community mobile units on the streets of that community and cooperate with the nearby communities.

Waukegan is capable of CW telegraph operation in so far as that frequency is concerned and as it applies to incoming signals, but telegraph on 1712 is out because none of these North Shore communities, or any of the others in this area, would be capable of monitoring that station on CW, and it seems to me that there could be devised a satisfactory way of permitting two telephone relays without relaxing this rule too much and as it may apply to the 30 to 40-megacycle region. It is the desire of the APCCA to stand solidly behind the APCO to do whatever is necessary and desirable to permit, under emergency communication, two telephone relays in the 30 to 40-megacycle band.

COLONEL WHITE: Fred, don't you think that proposed change would work?

MR. SCHNELL: This proposed change in here would do quite adequately in our cases.

COLONEL WHITE: In other words, our thought is that in cases such as you mentioned, where the relay prohibition is working a hardship and making it difficult, it is up to the APCCA and the rest of the alphabet to establish a channel of communications that everybody will know and ask the Commission to authorize that channel of communications. They can involve two, three, or four relays if necessary, according to the language of that rule, but it will be an established channel that is a necessary channel and everybody will know it and there will be no question about it.

MR. GROENIER: Would it be possible to have an alternate channel?

MR. SCHNELL: What I want to prevent is a blanket rule that will completely stagnate our activities. I know that there have been some abuses because I have listened on those frequencies and much of that truck could go by seventh-class mail, if there was such a service, but, as I said, I do not want a blanket rule that will completely stagnate our activities. I am not thinking locally but nationally. This rule is entirely satisfactory as far as we are concerned, and we will establish those points of communication and it will not be from the Chicago area to the West Coast. Heaven knows that is not communication.

MR. GROENIER: If Waukegan wants a license checked out of Madison, you propose to establish a route, then, where-
by they can get it from Racine either from Milwaukee or Elkhorn?

MR. SCHNELL: That is right.

MR. GROENIER: And if for some reason or other that channel is busy?

MR. SCHNELL: They will just have to wait or use the wire.

MR. GROENIER: They could not have an alternate channel?

MR. SCHNELL: Oh, yes, we propose to establish this sort of scheme. Most of these communities operate very much on the basis of twenty-four hours, but there are certain hours during the day when they are short-handed. I mean that

we cannot tell them that they must keep men at a station just because there is a possibility that somebody may relay a message through, but where we know that we have sure-fire communication, we propose to set up a chain of communication and alternate stations to provide the maximum service, with the minimum of relays and minimum of stations and for the greatest period of a twenty-four hour day, sure-fire circuits, not West Coast by guess and by gosh.

COLONEL WHITE: This is one of the bad things about the uncontrolled business: A fellow would get a message and his chief would give him a message to some place or other. Well, he would look around and he would listen in a little and maybe hear somebody down in Tennessee. He would give Tennessee a call, "Hey, can you handle the message to Oshkosh?"

Tennessee would say, "No, but I can give it to So-And-So and maybe he can get the message there."

"All right, here goes," and he gives the message to him. Tennessee will shoot it around and it will be garbled and you don't know who the operators were and have no idea that the message is right.

Under this scheme you set up a communication channel. If the APCCA sets up a communication channel by agreement, as Fred says, the proposal is that they will select their stations, the stations will assume responsibility for handling those communications; assuming the responsibility, they will assume personal responsibility to keep people on there who can take the message by voice and retransmit it by voice and not introduce changes of phraseology or anything else. It will be just as much a straight repetition as if it were telegraph.

In one of the last Bulletins--I do not know who wrote the article--a fellow wrote a message that was re-phrased in a relay, and when it got through it wasn't anywhere near like it was when it started. The order was different and the emphasis and everything else was wrong. If you are going to have uncontrolled relays, regardless of interference, from the straight communication engineering standpoint, it isn't good engineering.

MR. GROENIER: I realize that it has its disad-

vantages, but here is an illustration: In Wisconsin we cater a lot to our tourist industry. Next to dairying it is one of our most important industries. In the summertime we get requests to locate people. They come into Madison. In a way, that is not emergency service, but I recall that a message came in requesting us to locate a certain person whose father had been killed in an automobile accident.

COLONEL WHITE: Humanitarian emergency.

MR. GROENIER: That is right. He is touring in Wisconsin, probably near the Dells. What are you going to do with a message like that? Tear it up and say, "No, we do not do that kind of business"? The only thing you can do is give the message out. We can say, "We will give it to Columbia County." In this particular case we called them up, but Columbia is now putting in radio. All right, they checked out of the hotel that morning and the bell hop thought or the yardman thought they were going to St. Paul. What are you going to do with it then? We know that maybe he can be located in St. Paul. Are we going to spend telephone money to call St. Paul?

COLONEL WHITE: As I see the problem here, you take any individual city, how is that city going to deliver its traffic? Normally, you would say, "Put in your CW and go to your zone control station."

"Well, we have only two cars in the main station. We do not originate all together five messages a day, and probably not two messages a month that go anywhere. It would be foolish for us to put in CW."

All right, you have a problem there. He can deliver by voice to this city. Then we propose that this city relay from him to Milwaukee and from here to this place. All right, that goes in everybody's books. If this town has a message to go somewhere, it has a definite channel. It knows it is going to give it to this town, and this town will pass it over to this fellow, and he will put it into the hopper or telegraph system and it will go where it belongs. If somebody down in North Carolina wants to send a message, he will know where to send it. It will come up to Buffalo on the teletype. It will go from Buffalo to Cleveland to what have you, until it gets to that intercity network, the telegraph network that feeds this circuit that ends at New

Town. New Town will know where his message is going and everybody else will know where to put it.

MR. GROENIER: If your idea of this revision could be broad enough so that every county surrounding Madison could work into Madison, that is, to give us a message and we in turn relay it to Milwaukee or Elkhart to get out on CW then it would be adequate.

COLONEL WHITE: It isn't a case there of trying to cut them down, but it is a case of trying to see that circuits that are established involving voice relays are established where they are necessary and some control is given over them, so that you can be assured that when they are put in they will be workable and not another amateur network.

MR. SCHNELL: I think this takes care of your situation exactly the same as it does in our case here.

MR. GROENIER: Yes, that is practically throwing it open. If you are going to draw your routes on a map to have lines running from Janesville to Madison and from Monroe to Madison--

MR. SCHNELL: That is perfectly all right, but what this contemplates is that there shall not be promiscuous point-to-point telephone relay, catch-as-catch-can and that you must establish definite, sure-fire communication routes.

CHAIRMAN LOWE: I should like to call at this time on Captain Leonard, Vice President of the IACP for an expression of his interpretation and needs from the viewpoint of the police department.

CAPTAIN LEONARD: First of all, let me apologize for not being here yesterday, I had every intention of being here. Bad weather canceled planes out of Detroit. I waited around the airport for three or four cancellations and finally got on a train and got here last night.

I know at the time we had our meeting in Detroit, the representatives of your Association, meeting in my office, went into this matter quite thoroughly and were of the opinion at that time that there should be some relaxation of 337-A, which would permit more than one relay in certain

types of cases. I fully appreciate what the Commission has been up against in the past, and if it were not for abuse of the old procedure, 337-A would never have been put into effect. So we can start out by agreeing that we cannot return to the old days. We thought at the time that if some relaxed rule were placed in operation, plus an honest attempt to police the service by the communication men, the Commission might go for an idea along that line. I do not know whether that field has been entirely exhausted, whether or not they have given up the idea and feel that the men in the communication field are not capable of policing the field.

Strictly from a police standpoint, I can visualize the problems you have in Wisconsin, and I think that Bob will bear me out that the same condition has been true in some respects in Michigan. John Citizen cannot always appreciate why you cannot do certain things for him when you have radio apparatus there, all supported by the taxpayer. It is rather difficult to explain why you cannot push messages around just the way he would like to have them pushed.

Mr. Schnell was talking about the situation here in Chicago. I will quote the proposed change: "Provided, however, that after proper showing and in unusual circumstances, the Commission may in specific instances authorize communication routes involving such relay." I question what "proper showing" means, what "unusual circumstances" would mean, and what your "specific instances" would mean there. Will "proper showing" entail any kind of formal hearing in Washington to show that? I am asking this for information. I do not know just what it means, and then how unusual do the circumstances have to be? You take your death message type. Someone involved in an accident. A member of the family killed.

COLONEL WHITE: I do think that "unusual circumstances" was not in any way intended to apply to the classification of the message. Take, for instance, Madison. Madison would have to show why they cannot justify a telegraph station in Madison, and usually you would think that a state capital where the records are would have enough important business to justify a telegraph station with its attendant accuracy. Now, what is the unusual circumstance in the Wisconsin case that Madison can't put in a telegraph station, but Elkhorn and Milwaukee can?

PRESIDENT WAREING: And also Racine and Janesville are putting in CW.

MR. GROENIER: Are they putting in reliable service? They have one man down there. Janesville is a smaller town. To tell you what the unusual circumstance is, Janesville has one chief operator. He has three or four cars to take care of, I believe, and another remote amplifier, and he happens to be a CW man. Personally, I do not call myself a CW man, although I do not think I am so dumb I cannot make a CW man out of myself if I want to, but I have 350 cars and motorcycles to take care, all equipped with two-ways, besides remote operation points, and so on. I have my hands full. I go before the City Council, and I do not feel that I want to put in CW, as a city. I do not want to put it in unless I can have three CW operators.

COLONEL WHITE: Another thing is it isn't fair to the citizens of the city of Madison to take over a responsibility that is really a state responsibility. Your unusual circumstance there is that you have no state police and are not able to get the legislation through to establish state police. I am not saying that you do not have the unusual circumstances, but I would say generally speaking it is unusual nowadays for a state not to have its own radio station.

MR. GROENIER: That is why I am explaining why Madison can't have WX when Janesville and Milwaukee can.

CAPTAIN LEONARD: At the same time, even with a state system involving multiple transmitters, each transmitter is a licensee and you are not going to be able just to hit the system. Sometimes there are jumps in the system itself, isn't that correct?

COLONEL WHITE: Sometimes.

MR. ZINDARS: In our case, at Elkhorn we have CW and we would still have to request relays.

COLONEL WHITE: You might. For instance, Madison did have CW and had seventeen satellites, you might say. Well, you would have to request authority to relay messages between your satellites.

CAPTAIN LEONARD: Taking a situation in a police

system having multiple transmitters, some smaller community, working, we will say, on an ultra high, will want to jump into the state station. Then it is necessary for that one state station to come back into a central location, such as your state capital. There is where your difficulty comes in.

MR. SCHNELL: That is exactly the situation we have. Our unusual case is the unusual message. We will take any of the North Shore communities, their paramount service is to the community. They have a fixed station, a headquarters station, and maybe two to seven mobile units. A mobile unit may have an occasion to stop a car in which identity is required. That message goes from the car to the headquarters station by voice. From the headquarters station on ultra high it goes by relay to Waukegan or to Oak Park, and from there to the state police which is also located in Chicago. Many times Waukegan is able to get an identity out of Rockford where they have the late books. It is not a case where that community could justify putting in WX communication, as White mentions for two or three messages a month. It just could not be justified, and that is the unusual condition which prevails in 48 of the 50 communities that are tied in this communication network.

CAPTAIN LEONARD: Do you feel that this proposal that is contained in the FCC letter would take care of that case?

MR. SCHNELL: Absolutely, because we propose to work out a communication system that will be as reliable as the wire service.

CAPTAIN LEONARD: That comes back to the point I am just asking here. I am at a loss to know just what will be authorized. Are you going to attempt to have us work out a detailed plan covering all the cases we think may arise and ask for authorization there? Taking your illustration and applying it to the state of Michigan, Traverse City might want to talk to Houghton Lake and Houghton Lake to Lansing, putting in more than one relay or so. You might work it out for Traverse City and after you have authorization for that you might find that Alpena wants to do the same thing and the plan wasn't worked in advance for Alpena. Are you going to set up sort of a blanket plan and say, "If you do this in accordance with this procedure, any of the

municipalities in the northern part of the state may engage in this sort of traffic or are we going to have to set it up in advance?

COLONEL WHITE: As I see the thing, at least to start with, I think you would have to put up to the Commission specific communication routes and you might have to modify those as the picture changed. It may be that, as in the case of ship exemptions, going to another field, on the basis of experience it may be that we will find that, say, as this circuit exists you will be given authority automatically provided you merely notify the Commission. Any vessel that carries more than 12 passengers, unless it is exempted, has to have a complete radiotelegraph system aboard with a complete emergency installation aboard and three operators to maintain twenty-four hour watch if they are going to be out all day. It is physically impossible for a forty-foot sport fishing vessel that carries about 50 people out for about twenty miles to do that. It is just asinine to expect it. So the Commission has made this sort of a proposition: In those cases a blanket exemption that all vessels, 100-ton or under capacity vessels, that do not go more than twenty miles off shore, or do not go beyond whatever their certificate is will be given exemption by the Bureau of Navigation Inspection, provided they fill out an application for it and file it with the Commission's inspectors. That is forwarded to us. It gives us a record that here is a vessel that is exempt and we have the record of the vessel but it comes under the blanket clause.

It may be that after we gain experience on this relay movement we can find cases that we can say that when a fellow comes in under these circumstances, all he has to do is to write out a request for authority to enter a voice relay in certain communication, make a feeder out of a certain communication channel involving voice relay, and that may be all that we will require, but the present feeling in the office of the Commission is that we want to go awfully slow on this thing. It is better to make a straight authorization for specific circuits at the time, until we find out how the thing is going to work out. We have been burned once and we do not want to be burned again.

CAPTAIN LEONARD: Will you answer this question for my own information? On your point-to-point communication, how would that effect your death messages that the

gentlemen from Wisconsin was speaking about?

COLONEL WHITE: There would be no difference in classification of message.

CAPTAIN LEONARD: What I have in mind is: You do not know where the car is. You cannot put it over all the routes that have been O.K.'d in advance and you want to put out to all stations, "Please repeat."

MR. SCHNELL: That is an intercept.

COLONEL WHITE: One thing that should not get messed up in this picture is the so-called "hot chase" stuff. If you have a bank robber fleeing in a car in an unknown direction, you put that on your voice, and every fellow who is around there will put it out to his car and the next group and it goes out just like the ripples in a pond, but suppose that in this particular case you are looking for a man whom you believe to be in the vicinity of the Dells. Maybe that message originated in New York. It would come along as a straight message for the information of all the stations within a certain area. Then it would come whooping up to Milwaukee on the telegraph. Milwaukee then would know just exactly the channel to use. It might be telephoned or it might be telegraphed to Elkhorn or it might be telephoned to Madison or whatever the channel that is set up, but everybody would know it and get it to Madison and Madison would put it out to its satellites and there you have the area covered. That is a multiple addressed message, not by name but by area.

MR. GROENIER: That is legal then?

COLONEL WHITE: That would be legal.

CAPTAIN LEONARD: That takes care of that one phase.

MR. GROENIER: As another illustration: A fellow in Janesville committed two murders. One of them was done at Dodgeville about ten o'clock one night and the other we knew was right across the tracks. We had one car out there with a two-way radio and he was 44 miles from any station. It happened to be a Janesville car. He radioed in for help. So we dispatched other Janesville cars, and I think Walworth County and Jefferson County volunteered to send cars, and

we had eleven cars equipped with two-way radio down there in an hour and a half. The point I am getting at is that some of these cars were on 31.5 and the only way they could get any information back to another car would be to come into Madison with it and Madison relayed it, because maybe the other car that was on the other side of the bridge that they were blocking had a 2382 receiver and they were on 31.5 both ways.

MR. SCHNELL: But you have adequate coverage there because when a message or information is of immediate importance to mobile units you can handle it any way that will expedite the information.

MR. GROENIER: Janesville car 54 can give it to Elkhorn car 7 and Elkhorn car 7 can give it to Madison, and we can give it to Janesville car 53?

MR. SCHNELL: It says so in the rules and regulations.

CAPTAIN LEONARD: I think that under this proposal here the Commission has gone more than half-way on our original request and it is likely to work out, as Schnell says, very properly here.

MR. SMITH: It seems to me there are two extreme views now. There are those who feel that we need a great deal of radiotelephone relays for one reason or another, and those with that view are inclined to fear that the Commission's proposed change in the rule will be interpreted strictly enough not to give what they want. The other extreme view is that the interference caused by relaying would be so serious that none of it should be permitted in any circumstance, or practically none, and that faction of us believes that the Commission may be too lenient in interpreting its proposed change in the rule and allow too much of it. It seems to me that the proposal of the Commission itself is the nearest middle ground, and that we will do well to accept their offer of that proposed change and go along with them on it.

MR. GROENIER: My idea of the thing is this, that the Commission or the APCO has put in 337-A in the first place to clear up the channels, but I think that there are other things that we can do. Can't we relax these 337-A

rules and then to keep all this other junk off the air, put in some more stringent rules that are going to do us more good. For instance, say these night relays for one thing, especially on intermediate frequencies, and let's clamp down on this ultra high testing. I think that if anybody wants to test whether a signal is going to get out from this hill or that bridge he can do it in a lot less time than they are doing it. We hear it all the time. That was the point I was getting at.

MR. ZINDARS: Not only from our immediate vicinity, but you hear it from California. "I am going under a bridge now", or "I am going by some studio."

MR. GROENIER: The carrier will be on from fifteen minutes to a half-hour, with a terrible sky wave coming in there. Certainly we should clean it up.

COLONEL WHITE: Let's get after that after you get some decision on this other thing. There is difficulty in selling the personnel of the Commission the idea of relaxing the rule any farther than our proposal. We went around and around on this APCO resolution for about two days with the Intracommission Committee that handles things of that sort on which all departments are represented. We were getting nowhere fast until finally one of the men made the suggestion, "Well, if we could handle it this way, we might work out something." So we said, "All right, son, you go ahead and see what you can work out in the way of language and he brought something back. As a result we wrote this letter proposing this change in language.

I think if you will give approval to this rule, it will go right on through, but I do not think that you have much chance of getting a blanket relaxation through at all. There was so much trouble had when 337-A was adopted we do not want to get into it again.

... Discussion off the record ...

MR. WILLIAMS: Speaking from the standpoint of the intermediate frequencies--most of this discussion has been on the ultra highs-- in Colorado all the stations, with one exception, are on intermediate, and as I see the story, this plan as proposed by the Commission is the only logical and sensible answer, at this time at least, to the situation.

I feel that we should go ahead and take action on it.

MR. GROENIER: Mr. Chairman, then as a member of the State Systems Standards Committee and to bring this to a head, I believe we need a motion and I seem to be the biggest thorn in the 337-A. I will make a motion that we accept the proposal of the FCC in regard to establishing definite routes for relaying radiotelephone messages and that each community that establishes such route, send a copy of the route to Captain Wherritt for publication in the Bulletin and a report thirty days prior to the convention at Orlando to the Chairman of the State Systems Standards Committee and that the State Systems Standards Committee report at that convention the results, successes or failures, that have been obtained by these routes. I think that will settle it.

CHAIRMAN LOWE: You have heard the motion presented by Mr. Groenier. Is there a second to that motion?

MR. SCHNELL: I will second it. I wonder if you will accept just a wee bit of a tail on the end of it, that in the case of failure, where these communication networks have been set up, why they failed?

MR. GROENIER: Yes, I will accept that. My whole idea is that at Orlando we are going to go all over 337-A again, and in this way we will have something concrete to report on what the FCC suggestion has done for us. That is what I am trying to get at.

SECRETARY MORROW: Might there be just this one item appended to that motion in order that it be in perfect order with everything that we have done in the past, that that report be furnished to the International Association of Chiefs of Police for their forwarding to the Commission for its study?

MR. GROENIER: It is O.K. with me.

CHAIRMAN LOWE: You have heard the motion as amended. All in favor signify by the usual sign; contrary. So ordered.

MR. GROENIER: Well, that is one thing I had on my chest and I have one more thing, and that is the night

summaries. I came to Chicago for 337-A and the night summaries. I do not believe that comes under our State Systems Standards Committee.

PRESIDENT WAREING: Yes, it does. It is a phone procedure matter.

MR. GROENIER: I do not want to take too much time on that, but I should like to see some action taken to abolish night summaries on intermediate frequencies.

COLONEL WHITE: May I sound off a second? We had a complaint from one area against a state police station in another area of interfering, due to what the complainant considered unwarranted occupancy of the frequency, the unwarranted occupancy being the transmission of a summary of everything that happened during the day, and so, having received a complaint which we considered justified, we dumped a ton of bricks on the offending station and told him that we did not see how that class of traffic came within the meaning of the rule of emergency traffic to go over those circuits. He came back with the cry that that was something he had to put out for the benefit of the sheriffs in the communities. Our answer to that was, "Well, it costs only a cent and a half to mail out a mimeographed list. The delay of waiting until next morning and putting out a mimeographed list won't be any worse than the delay of waiting until night." Is our conclusion correct?

CHAIRMAN LOWE: I should like to answer as far as Illinois is concerned. When I came to the state I found that many hours were being consumed of the twenty-four hour period with long summaries, and after some discussion we finally boiled that down to the bare essentials and the remainder goes into a printed bulletin which we mail out daily. That bulletin is costing the state of Illinois better than \$6,000 a year. We feel that it is money well spent, because it gives us an opportunity to unload our circuits and to keep them open for emergency traffic. I do believe that the benefit has been appreciated by everybody. It has made our circuit more efficient, there is no question of that, because we can handle more emergency traffic, which is what we are there for. Our summaries now seldom exceed four or five minutes, and we find that that is plenty of time.

COLONEL WHITE: Frank, you have a bulletin, too?

SECRETARY MORROW: That is right. In connection with that particular problem, the problem of the summary on the air, unlike the municipal department, a state police department has--I do not want, by the way, to interject any question of the relation of the two types of departments; this is merely from the standpoint of an explanation--in the first place we are limited as to man power in comparison with the area that we must cover. The departments are on the road in relays, you might say. We have to split into different groups the man power that is on patrol in order to have twenty-four hour coverage in the state.

For a long time we followed practically the same thing that Illinois did prior to Ted's coming in, and we found that all in the world the man on the road is interested in--incidentally, we learned that about four years ago--is the license number of the wanted car, the color of that car and the make. He does not care how many fenders are dented or what color the wheels are painted inside the left front spokes, and for that reason our summaries on the air were cut down considerably. Incidentally, they go on the air in the early morning and are to take care of the group of men coming on at nine o'clock in the morning. We then have another group of men who are known as the night patrol cars in the various post areas, who go to work at midnight; therefore, at one o'clock in the morning our stations transmit a summary of information for those cars, on wanted cars and plates, and that has been cut down so that it requires pretty close to the time that Ted explained. I think probably four minutes, if we have had an unusual run of wanted motor vehicle equipment in the state during the day.

I think that any restriction of material that is transmitted for the attention of cruiser cars should be very carefully considered. I do not believe that it is necessary to transmit on a broadcast summary at any time information regarding the B and E of a farm home in which butter patties and salad forks were stolen and other material of that type. In other words, I think that by the use of just a little police sense, we can cut any summary down to where it won't be a hazard to communications; yet, essentially the information that goes out in that summary is of importance to mobile units.

COLONEL WHITE: That wasn't true in this particular summary, because we had some observations and traffic

records on what it was.

MR. WILLIAMS: Mr. Chairman, I am not just entirely familiar with the exact interpretation of the term "summary" as you gentlemen have been using it. In our case we put out what we call a "revised list" three times each twenty-four hours and that revised list has two purposes: To keep up to date the actual license numbers and colors of stolen cars, such as you were mentioning a moment ago, and it also acts as an automatic check on recoveries. We do not want any officer picking up some individual who has been returned his stolen car, because that number is still listed as stolen. We do not want that officer to pick up that car and be sued for false arrest. In many cases our revised list will consist maybe of two or three cars. In some cases there is no revised list at all. The dispatcher merely goes on the air and says there is no revised list. In some cases it will last as long as three or four minutes, but I do believe that is of very great benefit to us in Colorado. The other municipal stations in the state pick that list up and keep it up to date, as we put out these revisions every eight hours, and in our case I believe that the curtailment of that service would very materially reduce the efficiency of our communication system.

COLONEL WHITE: Of course, that very thing has been abused. We had one case--I think you perhaps know of it--in which one city was transmitting a summary of every stolen car they picked up, by mail or radio or what have you, in the entire United States. That really was asinine but it was done. I think it would be well worth while if somebody would make a study on summaries, their uses and abuses, and what is proper to go on the air and what should go on the mimeograph alone, and it be printed in the Bulletin. I should like to have it myself.

MR. BROWN: Referring to the condition of which Colonel White has spoken, I know the specific instance, the state that was cited, and it would be my opinion that the Commission had every justification in the world to make the citation they did. I do not think that anyone will raise any objection to what many of the state departments have termed summaries on automobile reports or the situation that Sergeant Morrow has brought up, where their personnel on the road has changed and it is necessary for them to transmit automobile license information to those men.

As far as any summaries are concerned for a police department or sheriff's office from a state police station, it has always been my contention that that merely defeats the purpose of the emergency circuits, because if they know that that summary is going to be available, they will probably switch their equipment off in the daytime and wait for it.

For some time we have carried summaries at eight o'clock from our Des Moines station. We have shortened them up and we are going to discontinue them entirely. I, frankly, do not believe there are a half dozen police departments or sheriffs' offices in the state that listen to them and besides they can get the material in the daytime when they should get it when it comes out and when it is of an emergency nature. But I do not believe that anyone will raise a question as far as automobile reports are concerned, because very seldom does it necessitate occupancy of the band for more than maybe five minutes.

CHAIRMAN LOWE: You can realize in the state of Illinois alone that were we to summarize on the air all of the stolen cars in the state of Illinois, those coming out of Chicago alone would take considerable time because there is quite a bit of activity. Thanks to Mr. Schnell and his staff, they have not swamped us with an undo number of that type of message. They prefer to patrol their own area first and then to turn the report over to the state and we carry on from there. We have had very pleasant relations with the Chicago area in that matter. We get their bulletin daily and I hope and trust that they get ours daily. There is an interchange of information. In Springfield we have one clerk who does nothing except keep a filed record of these incoming bulletins, and I am glad to say that we are now the recipients of 39 bulletins daily from various departments and states. It is quite a change from what it was a year ago.

We hope to be able to curtail our summaries on the air, which I believe is essentially the same information to which you had reference, Mr. Williams, and I believe that it is a move that is well worth while, in view of the fact that we must always keep in mind that these are emergency communications for mobile units.

Mr. Morrow, you have some remarks to make?

SECRETARY MORROW: Regarding summaries, I do know, referring again to Mr. Williams' remarks, that we have been able to help the situation regarding stolen cars and wanted plates in Indiana through this medium, that each two weeks heretofore, and now it will be monthly, we publish a complete list of all of the item numbers or message numbers, as we term them, in which license plates and cars have been involved that are of record in our file, that is, active in our file as of that date. We find that in numerous cases the minute that list reaches the local department, they will go down that list and find 12 or 15 cars that they reported to us as stolen that have been reported to them as recovered and have never been canceled with us. Our officers carry those lists. The minute they hear a message number cancellation on the air they check their lists. If that number appears on their lists they strike it off.

We have had two cases in which people have been picked up by our officers, driving cars that were reported stolen but had been returned to them and they were the rightful owners. In one case there was an effort to prove a false arrest, and the ruling of the court in that case was that the responsibility fell upon the owner of the car for not having reported the recovery of that car to the police authorities who in turn reported to us.

... Discussion off the record ...

SECRETARY MORROW: I think this one thing can be done in connection with that item of checking on cancellations on stolen car reports, that each department can do a little educational work within its own ranks--I know that we have been guilty just the same as other departments--and at the same time we can notify persons reporting thefts of motor vehicles that it is as imperative that they report the recovery of those cars as the theft.

MR. WILLIAMS: We publish a daily bulletin in Denver. About 375 copies of that bulletin are mailed out, and recoveries on both automobiles and missing persons--wanted persons of any kind--in that bulletin are specifically listed and reference is made in that recovery to the date of publication of the original want. In some cases we will publish a want two or three times in a bulletin. If that recovery is made, be it a car or an individual, when the recovery is carried in the bulletin it refers to each

specific listing by date of that particular car or person.

SECRETARY MORROW: Our state bulletin, that is, what we term our record summary, is essentially that. In other words, all traffic handled over the system is published by item number in that daily summary. Six hundred and fifty-four copies leave our office every day and they go to departments all over the country.

Another thing in regard to summaries, we are coming to the season or will come shortly into the season when this particular evil exists, the question of missing persons, and it is one that we have had to handle very drastically. The minute the sun begins to shine, swimming pools open up, and fishing is good, you have ten thousand youngsters missing. We set up very stringent rules in Indiana about the transmission of information regarding a missing person. We showed very clearly why we had to do it. If a youngster is under 12 years old or a person is more than 65, then we will transmit it within the post area in which the occurrence happens, unless there are circumstances tending to indicate possible foul play or unless competent authorities tell us the person is mentally unbalanced or physically unable to care for himself or to know what he is doing.

That is one thing that we found was just murder on these summaries because in spring months we would have, from 30 to 60 days prior to the expiration of the school term until long after the school term reopened in the fall, an average of from 10 to 15 reports a day of missing persons between the ages of 15 and 19. They are not missing; they are runaways. I think, too, that if we remember this from the standpoint of anything that we transmit, that the man out there in the car isn't going to copy a lot of information, that he is going to take down essential facts, and if in any summarization that we make on the air we cut to the essential facts that a man driving along the highway can get, we are not going to go very far amiss on summaries. I do not know how many of you have ever been out in a car or have ever been out on a patrol like that and worked day in and day out. You have to do it for a little while before you realize that about 85 per cent of what we formerly thought was essential information does not mean a thing.

COLONEL WHITE: After all this discussion, I think that my conclusion is that our rules are adequate to

handle the situation if we need to intervene. The Commission has announced, and I am very strongly in sympathy with the policy, that they hesitate to define what is an emergency communication. It is hard to sit behind a desk and look at a message and say it is or is not an emergency, and I think that it would be very bad if we endeavored to try to say what should be in and what should be out of a summary or anything of that sort. I think the situation can best be controlled if an educational campaign is worked out. If some fellow is observed putting on a windy summary, see if you cannot take it up with him as one policeman talking to another policeman. If you get into a jam and make a complaint to the Commission, we will take what action appears to be necessary, as we did in this one case, telling the fellow that he just has to quit, that it isn't according to the book, but I do not like to do that myself and I do not think the Commission likes to do it. I do not think that you would want us to do it if we could help it.

MR. WHERRITT: I think that we ought to kind of look at this from the chief's viewpoint a little. This summary proposition is something that we would like to eliminate, and I think that we do too much of it ourselves, but I know that if your state system is like ours, a great deal of your information is received a good many hours after the crime has actually happened. You cannot get the public, the sheriffs and the police to report things on time. Some of it is 12 to 14 hours old when you get it, and yet the percentage of pick-ups we make from information that is 12 to 14 hours old will run as high as 25 or 30 per cent. You cannot say that it is not emergency traffic. If we did not put it out by radio they probably would not get it in time to do any good. A lot of those recoveries or apprehensions are made within four or five hours after we put them out.

Then if we talk about eliminating a summary my chief will say, for example, "Well, Wherritt, if we mimeograph this summary the mail service is such that our southeast and southwest officers do not get it in some cases for two and one-half days after it is mailed. Why can't you use radio for that; otherwise, it gets to them two and one-half days late. If you put it out on a summary, they can all copy it and have it within a few hours at least after you get it and it is a great deal more valuable to them than it is two and one-half days later." That is the case in Missouri, in southeast Missouri and southwest Missouri where the mail

service is terrible. I imagine that the states farther west have a much worse situation in getting out mail bulletins.

Another thing that they will say is that this bulletin costs us \$5,000 a year to put out, and that same chief will say, "I have checked into a number of the departments personally and I have found out what they do with that printed bulletin." I know that is true. I know what a great many of them do with it. I have seen them throw it into a waste basket, and a great many of them have said to me, "Well, we don't copy all of that information and we don't file it," but we have checked on our radio summaries and know that a great many more of them copy that information than even the sheriffs pay any attention to that written summary. When they get it through the mail they throw it into a waste basket, but many of them actually sit down and copy that information down.

MR. BROWN: Is that at night?

MR. WHERRITT: That is right.

MR. BROWN: Do you have very many sheriffs' offices that are open at night?

MR. WHERRITT: We have some. We have 33 now that are radio-equipped.

MR. BROWN: Are they actually open at night?

MR. WHERRITT: Yes, they have somebody in the office. What is done in some cases is that the sheriff and the police department work together on that. They equip themselves with a radio and either the police department copies the information when only the police department is available or the sheriff's force.

MR. BROWN: Is there any reason it cannot be copied during the day when the dispatch originates? It has always been my thought on it that that is the time they should copy it, because if they know that it is coming out later on in a summary, they are certainly going to get lazy as far as monitoring the circuits in the day time is concerned when they should be monitored.

MR. WHERRITT: The sheriffs have to work during the daytime. They aren't always there. They claim that they need that summary and, knowing that they will get it at a certain time, they will make an effort to get it, but they don't sit in their offices all day to get it and they won't get it in some cases until two and one-half days by mail.

The chief will argue with me, "Well, we are paying \$5,000 a year to put out a bulletin and I know what they do with it. Why not put it out by radio and save those \$5,000 a year."

We have cut our summaries as much as possible. On the other hand, cases like this have arisen when we have failed to put out summaries or when we have cut down on summaries: An officer in the field did not get his cancellation on his written bulletin. He was off duty, on leave, or changing shifts, etc., and he did not receive a cancellation, and he apprehended a man again after he had made a bond. He would not believe his story and threw him in jail and checked back and found out that it was canceled on the air but not on the summary. Maybe we did not run a summary or we didn't cancel it, and he did not know it was canceled. That happens every once in a while.

... Discussion off the record ...

CAPTAIN LEONARD: In line with this discussion here, the International Association of Chiefs of Police publish a monthly bulletin. It is known as the Police Chiefs' News Letter. I know that it actually goes to the chiefs of the departments, and in talking with a number of them I find, believe it or not, that they read it from cover to cover. They are quite interested in that publication. If your group here would care to have us get something in that News Letter to hit the chief, that is, draw to his attention the abuse of summaries and whatever other abuses or whatever other recommendations that should come to him, compile whatever you want and send it to me and I will be glad to see that it gets in.

MR. WHERRITT: That is what I am getting at. I should like to see the chief understand our situation a little better.

CAPTAIN LEONARD: On that point, although it is a

little aside from the particular subject, in our International Association as short a period as three years ago the Association comprised only the heads of the departments, the executive heads of the departments, with certain relaxation of that rule, too, but we had a situation, for example, in Detroit, where the deputy superintendent of police actually had 3500 men under him, but he wasn't a superintendent and he wasn't a commissioner and he was ineligible for membership, whereas the chief of police of a little town like St. Clair, having one night marshal under him, he being the day marshal, was eligible for full membership. It was a ridiculous situation and so we amended our constitution, redrafted it in its entirety, and provided that the executive heads of departments would be eligible for membership providing they were approved by the chief of police, if he were actually a member, and if not, by any active member in that district. We also provided that division heads, bureau heads, etc., would be eligible for membership.

I know that there are a lot of you fellows here in the radio field who are actually heads of radio divisions and as such are eligible for active membership in the International Association. I know that O'Neil belongs in New Orleans and Lowe's application was approved at the Tuesday meeting here, and I know that many of the heads of departments would be glad to have you fellows come in if you showed an interest in doing it, and I think if you would it would make for a better cooperative spirit between the two Associations. I say that, too, because we recently added a section in Toronto a year ago, a state police and provincial police chiefs section of the IACP. We have brought in all the state heads in that way, although they have a separate section in the IACP. So the whole subject-matter is growing and our problems are increasing and with that increase we are going to need to have very fine working arrangements.

I think that we have that firmly established now. At our meeting Tuesday I tried to draw them a picture of the situation throughout the country. Ed White touched on it a little while ago when he used the term "heterogeneous." It is a good term. We have 50,000 separate police units in the United States, and there is no head of the police forces of the country. J. Edgar Hoover has the FBI, but he is not the chief of all the police units of the country. I think that because of that and because of our inability to point in one direction and say, "When you are talking about police

services or radio in the police services, contact that man," as you can in ship fields and aviation and broadcasting, we have to coordinate ourselves into as fine a working manner as possible and present a united front.

In all of these different angles, such as interlocking efforts in our News Letters and all that, I know that we would be glad to work along any suggested lines that way. I think, coming right down to cases, taking your abuses of summaries and all that, a little article on that and another one on stolen cars would be helpful. Another thing is that your radio men who are pushing out messages know of things that are going on inside the department that are bad procedure; yet because of another order in the department that says that the detective bureau shall be the controlling factor, you push out what they say and sometimes you are not able to get above that detective division chief and into the chief's office and have a correction made, but there is always a back door, and if we can provide the back door and call that to the attention of the chief, I think it is something that we might well take up.

CHAIRMAN LOWE: I think that is a most welcome and beautiful suggestion, Captain Leonard. We are going to accept that offer, and I should like to instruct our Editor to issue an invitation in our Bulletin for those who are eligible to become affiliated with the International Association.

PRESIDENT WAREING: Most of the discussion on summaries has been from the state police standpoint. Nobody cares what the states do, because they have their own channels practically. The complaint Groenier brought up is of the municipal station which shares a channel with thirty to forty other stations and completely blocks out everyone in its zone, even to transmission to their own local cars, sometimes for an hour at a time, with these ridiculous summaries. Our station serves thirteen departments with 1500 men and we have never transmitted any kind of a summary, so evidently there is no need for doing that. Everything we transmit is hot stuff, and if we get a cancellation it is put on the air immediately. The organization of the department is such that every man, before he goes on a patrol, has all the information that has come out up to that time. It is not necessary to clutter up the air with that.

MR. GROENIER: We put out only one summary a day,

and that is at nine-thirty in the morning. I refuse to put any out at night. I personally wanted to eliminate that summary because it takes time from our detective bureau. Our Bureau of Identification man puts it out because our desk sergeant hasn't the time. We would like to eliminate it, but I polled the other operators throughout the state, and the consensus was that the summary is valuable to them, because their sheriff's office would open in the morning and wonder what had happened in the night and that is the way they got the information. We have cut our summaries down to where I do not think they take more than five or ten minutes, and we are willing to continue them if they want them, which apparently they do.

PRESIDENT WAREING: We have secured a decided improvement in that situation through cooperation in the Wisconsin Chapter.

... Discussion off the record ...

MR. GROENIER: Mr. Lowe, don't you think, in order again to bring things to a head, that it would be a good idea if you would accept the authority or delegate the authority to some individual to accept complaints on intermediate frequency summaries and report at the Orlando convention and publish that action in the bulletin? In other words, it will give those of us who have complaints a means of doing something about it other than sitting up here in a room discussing it. If we had somebody like yourself or a member of your committee--I would not say that you would want to do it--to whom I could write, for instance, and say, "Well, now let's take this matter up. This is what I have done: I have written Birmingham, Oshkosh, and so on. These are the results." Then we compile that information and have a report on it at Orlando. Don't you think we ought to have a motion to that effect to bring the thing to a head?

CHAIRMAN LOWE: Do you wish to make that in the form of a motion?

MR. GROENIER: Yes, I will.

MR. RENNER: I will second it.

CHAIRMAN LOWE: Seconded by Captain Renner. All in favor signify by saying "aye"; contrary.

... The motion carried ...

CAPTAIN LEONARD: Mr. Chairman, the point under discussion is interesting to me because in 1929, at the hearing that we had before the then Federal Radio Commission, the question came up of emergency messages versus non-emergency messages. The subject of dog bites came up at that time and it was pointed out that there are dog bites and dog bites. I say this merely because if some chief should question that you cannot make your line of demarcation too drawn and make too set a rule, one of the members of the Commission at that time, as I recall, turned around and said, "Well, I presume that the father of a four-year old child who has been bitten by a dog would have one viewpoint whereas a bachelor might have another viewpoint. I think that a great truth was expressed then. Visualize a child having been bitten by a dog and the parent running to the telephone to get the police. To that parent the arrival of the police is perhaps the most important thing in the world. Some outsider looking in from a distance with an abstract viewpoint might say, "Why is there an emergency there?" If the dog is mad, suffering from rabies, and it is a stray dog, the arrival of the police in a hurry may result in getting the dog and keeping it under observation or killing it and sending its head to a laboratory and finding out whether it was rabid or not. If it were, of course, it would necessitate immediate treatment of the child.

If the police waited until, as you say, the man on the beat was contacted through the call box, and he got there twenty minutes later or an hour later, and the dog was in the meantime on its route of biting in another locality and you could not find him, the child might not be given the right treatment and die as a result. So it is just a little homely example to show that you cannot really knock it right down the line. Of course, your hamburger cases are out of the question, but a dog bite can be a dog bite or it can be a dog bite, as I say.

MR. SCHNELL: My reference was to a dog bite report and not to a dog bite.

MR. CHATTERTON: I disagree with you because we broadcast dog bite reports. As you say, the report is not important. The report can be taken three days later, if necessary, but if a dog bites one girl he may go out and

bite someone else. It is necessary for a car to get out there and it gets out there. We picked up 1800 stray dogs in Cleveland last year.

MR. BATTIS: We not only have to handle every one as an emergency but we also have to turn in a daily report, a part of which is "How many dog bites?" I think that Captain Leonard has entirely stated the case and has stated it very well. That is exactly our situation. We have to treat those things as emergency, and our dispatchers may get a dog bite report--

MR. SCHNELL: In the case of the report, it is after it has happened and maybe two hours prior to that time the car was sent to that vicinity because there was a mad dog. I mean that is taken care of in the case of a mad dog in the vicinity of so and so.

CAPTAIN LEONARD: Nobody knows that he is a mad dog. The parent says, "My child has been bitten by a dog." Then you send your officer the dog bite report, but the officer doesn't know whether he is going to find a mad dog that has bitten the child, and if it is a mad dog, treatment must be started immediately. They cannot tell whether it is a mad dog until they have the dog.

MR. RENNER: I am supposed to be a radio man; I am not. I am a cub and I feel the same way as Captain Leonard does about this matter. I am from a small town. We have no beat officers; we have nothing but the patrol cars. We have one man in the business district, who is on foot to help the ladies across the street. The university is there. They have made dog catchers out of us, and our orders are that all dogs must be taken to the university to be observed. We get a call on a dog. We cannot get hold of anybody except the man in the car. I think you will find that is true very often in small communities. You have to get that information to him somehow and the radio is the only way you can get it to him. You cannot wait an hour for him to call in. You have to get that dog to the laboratory and get him under observation, and if you have to kill the dog to get him, which you do in many cases, you have to be careful how you shoot him because you do not dare to shoot him in the head. Pathologists will tell you that they do not want them to be shot in the head, that they must be shot in the body. So you have to get that dog over there and to get him

over there right now, so you have to get your cars out there, and I feel that that information of a dog bite is of importance.

MR. SCHNELL: I think it depends upon your local set-up. Our police department has nothing to do with the business of catching dogs, because we have a department that is set up for the purpose of picking up stray dogs. If there is a dog that appears to be mad, a car is sent to that vicinity immediately. It may not be a police department car that picks up the dog. It may be the dog catcher's wagon that will come around and pick him up, but I think it is a question purely of your local conditions. In our case a report does not mean a thing. We have to have the dog, as you stated, to find out whether the dog has rabies.

As another example, you take the case of a hospital report of an accident, as soon as the accident occurs the information goes to the Central Complaint Room and an accident prevention car and one other car is detailed. Maybe the cars arrive after the victims have been removed, in which case the reports used to go on the air, "Get an accident report at such and such a hospital." Now, if an accident has occurred, the report comes into the police station. It is only necessary then for the man in the Central Complaint Room to call the district in which the accident has occurred to send a man over to get the accident report. It does not mean that a car has to be detailed to do that kind of work.

CAPTAIN LEONARD: Then you come into competition with the plan that Kreml is working all over the country, which sets up accident prevention bureaus, and they take over the whole matter of policing and getting over and interrogating the injured at the hospital, and that whole set-up, all on radio equipment on APP' cars. As you see, it is very involved and there is much interlocking.

MR. GROENIER: Now you are getting away from summaries and you are talking about original calls. The question that was brought up was relative to summaries. Am I correct?

CHAIRMAN LOWE: That is absolutely correct.

COLONEL WHITE: I think that this very well illustrates one problem and that is the heterogeneous problem that

you have in police.

MR. BATTS: Again referring to summaries, I believe that there was some discussion on missing persons, which often make up a good part of the summaries. Captain Leonard suggested that we might take advantage of the Police Chiefs' Monthly News Letter in bringing that matter to the attention of the chiefs. I should like to recommend that that offer be taken advantage of, and that along with summaries particular emphasis be put on the question of the handling of missing persons. Frank Morrow mentioned what the state of Indiana is doing. That is the state, it is not the Indianapolis police department and it is not the other departments, and we need some assistance to help us out down there. I am sure that that is true of other departments throughout the country. By "assistance" I mean primarily assistance in educating the public, because we have to handle the case of every missing person and put it on the air, regardless of what the age is and what the conditions are, as is true in almost any city.

The men in the Radio Division and our dispatchers know of dozens of boys and girls who make a habit of running away as much as twelve or fifteen times a year perhaps. We send radiograms and pick them up, etc., and all that. The reason we have to put them on the air is that when these parents report their children missing they immediately, if not before, turn their radios on and sit there and listen to check whether we do put that on the air and how many times we put it on the air, and if we don't put it on the air, the chief or the mayor gets a letter and a fuss is raised. We need some education along that line. I believe that if the whole situation could be brought before the chiefs a more or less universal move might be brought about to limit such cases outside the ages of 12 to 60 or 65.

PRESIDENT WAREING: Mr. Chairman, all these matters are directly the province of the State Systems Standards Committee involving radiotelephone procedure, and I think it is up to the chairman of the committee to contact all of his members and accumulate sufficient information and from that furnish Captain Leonard with items for the Police Chiefs' News Letter.

CHAIRMAN LOWE: That will be done.

MR. GROENIER: We have that in the form of a motion, I believe. Isn't there a motion before the house?

MR. RENNER: I believe there is and it has never been voted on.

SECRETARY MORROW: That motion did not cover that,

CHAIRMAN LOWE: That motion did not cover that, if you want to place that in the form of a motion, Mr. Batts.

MR. BATTS: Yes, I will.

MR. RENNER: I will second it.

CHAIRMAN LOWE: All in favor. The motion is carried.

COLONEL WHITE: There is just one other item. That is the mention of the interference produced by people doing a lot of testing and experimental work. Obviously, it is absolutely against the rules to conduct field strength surveys with police facilities. You should have a class 1 experimental station and a class 2 experimental station to do that, but I do not think that any of you would want that rule enforced absolutely 100 per cent. If you have evidence that you think there is a dead spot in a certain block, you like to know how to get the limits of that dead spot in a hurry in order to have your cars patrolled. It would be kind of asinine to have to get another license and another frequency to locate that dead spot. Strictly speaking, that is what you are supposed to do. Again it is a case of abusing something that is a reasonable privilege.

We have climbed on to people as we have run across them. One fellow was using his transmitter for lining up his receiver. He did not have a service oscillator. He would throw the carrier out of line with the receiver up. Really, it is a waste of electricity to do that. The difference in his power bill would probably have bought him a service oscillator, but he could get his power bill paid and he could not talk his chief into O.K.'ing a service oscillator. We talked with him about it and got it cleared up. So if you have any cases that you cannot get fixed up in a friendly manner, bring them to our attention and we will drop an intercept call and see what we can do about it. I do not think we need further discussion. The situation is very much like

these other things.

MR. BROWN: There is a matter that I should like to mention at this time. I do not know whether or not you are familiar with this situation, Colonel White, but there is a state police phone transmitter that operates around 1682 and the Missouri Patrol Station is on 1674. This particular station has quite a habit of coming on the air and either keying their carrier with a tone or they key it with a bug or something and over-modulate the thing tremendously. In Iowa at night it even goes so far as to spread 16 kilocycles and produces interference in Missouri.

COLONEL WHITE: What are they trying to do?

MR. BROWN: Well, that is their method of putting in a warning tone when they get ready to make a dispatch.

MR. WHERRITT: I have counted as many as 18 dashes.

MR. BROWN: They key with a bug and make a standby announcement, they say, "All cars stand by," and then in three or four minutes they will give their station identity and sign off.

COLONEL WHITE: Let me know about that and we will drop an intercept on them and take it up with them.

MR. BROWN: It does create a tremendous amount of interference in Iowa and Missouri.

COLONEL WHITE: Have you tried writing to them?

MR. BROWN: No, we haven't. With the new receivers we have done a pretty good job of eliminating it, but, after all, we still have a lot of equipment that doesn't have that selectivity.

COLONEL WHITE: As a matter of policy, I think that it would be a whole lot better for all concerned if you wrote a friendly letter to that person who is in charge of that station and said to him, "Cut down the percentage of modulation on that attention zone of yours. It is spreading all over the lot and you are just raising the devil with us. We are 8 kilocycles away." If he comes back with a snooty

letter and says, "I am running my business, you run yours," then turn him in.

I have found in other services that I get complaints from one service against another service. I had one the other day in which an aviation service was squawking about some interference and profane and other language that was being transmitted by the CCC. Well, the aviation man brought it over to me. He brought it to my desk instead of mailing it in. I called up Mack, who works for the CCC, and I said, "Mack, come over. I have something on the fire here." Mack came over and I said, "What do you think about that?" He looked at it and he said, "That will be fixed this afternoon and the general was called on the pan in the War Department and it was fixed that afternoon. Most of them appreciate its being handled informally and not as a formal complaint to the Commission, to the Secretary of War, etc.

MR. WHERRITT: I think that is the way it ought to be. Of course, you are a little more fortunate in getting that cooperation.

COLONEL WHITE: Well, try it and if it doesn't work then we will drop an intercept on it.

... Discussion off the record ...

CHAIRMAN LOWE: We are getting away from the subject at hand and time is drawing rather short. Let's curtail our remarks as much as possible.

CAPTAIN LEONARD: Mr. Chairman, there is one point that I think is very vital. I wonder if you will permit me to give my explanation of it, and that is the question he just raised here as to the responsibility of an operator. Even though your chief gives you an illegal order, having received that order from your superior or chief does not absolve you of the responsibility of transmitting an illegal order. The licensee has a certain legal conduct that he must maintain. If the operator violates a rule of the Commission or violates the law, we will say to make it a criminal matter, he cannot defend himself on the ground that his chief told him to do thus and so.

Bear this in mind. It is an illustration that we used to use in our training school. "An officer is supposed

to obey every order of his superior?" Ninety-nine out of a hundred would say, "Yes, that is all right." "You are sworn to enforce the law and as far as the department is concerned, to obey the orders of your superior officers?" They would say, "Yes."

"All right, your desk sergeant or lieutenant comes to you and says, 'I have been having trouble with my mother-in-law, I would like for you to drop by the house and shoot her.' Isn't that an order from your superior and did not you just say that you would obey all orders from your superior? The catch is that you are to obey all lawful orders of your superior. If the chief tells you to do something which you know is unlawful or a violation, you can say, 'No, I cannot do that.' You have a right to refuse to do it, and if you decide to obey the order, knowing it is unlawful, you are the one who will have to pay the penalty.'

CHAIRMAN LOWE: As a matter of clarification of our records, I note that in the case which you mentioned, Mr. Brown, of interference coming from 1690 kilocycles, our list shows that that is not assigned to state police. I should like to have some clarification, so that we can either correct our record of the allocations or our record here in the minutes.

MR. BROWN: I believe that it is Mississippi.

CHAIRMAN LOWE: Mississippi?

MR. BROWN: I believe that is the correct frequency.

COLONEL WHITE: I left the list with the Frequency Allocations Committee yesterday, and Mississippi is shown on it.

SECRETARY MORROW: It probably has been assigned since this listing was made.

COLONEL WHITE: That list that I left yesterday has Mississippi's assignment on it.

SECRETARY MORROW: This is a prior list, I believe.

CHAIRMAN LOWE: Are there any other matters to come before this committee at this time?

MR. WILLIAMS: Mr. Chairman, I am not certain whether this is the correct committee to bring this up before. President Wareing tells me that it is, although I thought it was in the Procedure Committee, but before the committee adjourns I should like an opportunity to bring up this matter of radiotelephone log requirements for general discussion. Do you think that it had better be put over until after lunch?

CHAIRMAN LOWE: What is the pleasure of the body here this morning? Do you wish to adjourn early and return or do you wish to continue with our deliberations at this time?

PRESIDENT WAREING: I think that we might as well clean up the State Systems Standards Committee's work this morning.

SECRETARY MORROW: President Wareing, I believe that some of the men are not familiar with the duties of the State Systems Standards Committee, and the name "States Systems Standards Committee" is rather a misnomer in this case, in that it was decided, in order that matters might be properly allocated to committees, that the State Systems Standards Committee would handle matters pertaining to radiotelephone operations; therefore, this matter of procedure falls under that committee's proper jurisdiction and matters of telegraph operations are handled by the Telegraph Procedure Committee.

MR. WILLIAMS: The point that I should like to bring up is to discuss the advisability of requesting the FCC to alter the regulation which provides for keeping a record of the nature of each individual call. I recall reading in the regulations somewhere that the purpose of the log is to show the occupancy of the frequency. In the case of a municipal station, or a state station, I presume, which has a great deal of traffic, particularly if it has a number of mobile units, in some cases it is a physical impossibility to keep an accurate record of the nature of all of those calls, and as a result of attempts to keep a record of the nature of calls, in some cases a number of calls will actually go on the air of which there will be no record whatsoever of transmissions having been made.

I spoke briefly of this to Colonel White yesterday

afternoon, and he clarified part of the situation, stating that if a call is given to a car and the car O.K.'s it, that is one transmission and can be handled as such, but in our case in many instances the transmission goes much farther than that. The car having been initially sent on a call will have a number of communications back to headquarters before that initial call and case is cleaned up, finally ending up with a report back in service on that call. In some instances they will call for additional assistance. In other instances they want additional instructions. In some cases there will be a half dozen different transmissions, all pertaining to that same case before it is finally completed.

Other types of somewhat similar transmissions are officers in cars calling back in to see if they have missed anything. In the residence districts in the daytime we operate some one-man cars. If the officer gets out of his car to issue a traffic ticket, it is then his duty to call in and learn if he has missed anything during the time he was out of the car. There are literally hundreds of cases similar to that, and we find that it is practically impossible under normal conditions to keep a really accurate log of both the time and nature of the call, and that under emergency conditions when things are breaking hot and heavy, it is a physical and an actual impossibility to keep accurate records.

In view of the fact that the Commission's purpose, as I recall their statement in the regulations, in requiring us to keep a log is to show the occupancy of the frequency, it would be very easily possible to keep an accurate record of the occupancy of the frequency by means of automatic devices, whereas I think that at present a great many of us are unintentionally and unavoidably violators. I would appreciate hearing some comments from some of the others who are present.

MR. BATTIS: I think that Mr. Williams has brought up a very timely subject. You are probably all familiar with what we have attempted to do at Indianapolis, to help in the solution of that problem, in making up automatic time-recording devices which record the time of all transmissions automatically, of both station and car, which is far more accurate than any log kept entirely by hand can possibly be. As Mr. Williams says, it is a physical im-

possibility for a municipal radio operator--and undoubtedly the same thing is true of state police operations--to keep every word nor even a brief context of each transmission. It is absolutely a physical impossibility. The automatic time stamp method is accurate, more accurate than it can be done any other way, but it is not the real solution. I should like to see something done about this, so that we can reduce this log keeping and make it more practical and still serve the purpose of meeting the rules of the Commission. The automatic time stamp definitely is not the proper answer.

MR. SCHNELL: Mr. Chairman, I politely want to disagree with Mr. Batts about the impossibility of keeping a record of every word that is said on the air. Of course, you cannot do it with pins and buttons. It costs money, but, as an example, Oak Park, apparently because of some prior difficulty, has installed a recording system, so that when the transmission goes on the air everything the operator says is recorded; likewise when anything comes back and there is occasion to record it, it is recorded. Much after the fashion in which formal hearings are held in Washington, everything is recorded as is being done here. A transcript may be made from that recording which will comply with the requirements of the Commission in so far as an adequate log is concerned, but it can be done.

COLONEL WHITE: Along that line I should like to interpose, if I may just a moment, if you are using a record--and you can get ones that cost about a cent and a half an hour to run, that is, for the material--the record itself is a smooth log and your transcript is the index to the record. The record itself is the rough log. The transcript or index to the record is the smooth log. I saw one just the other day that the Gray Telephone people are putting on for recording, which uses a very thin celluloid about like 16-millimeter film. They were not showing a production model; it was a laboratory model which was being gotten ready for production. It was very simple, with automatic level and everything else. I guess it ran about fifteen minutes embossed on this film, and you could file a month's recordings in a file cabinet without any trouble, the actual words that are said.

There is another company out on the West Coast, Monox or something like that, that has developed one for

airlines which has an automatic shifting arrangement. They have two recorders that automatically shift one to the other. They run about twenty minutes to a side, and those are the ones that they say cost, roughly, about a cent and a half an hour.

Others are coming out. RCA has a new one that they are figuring on, which uses 35-millimeter film for recording. The proposition that they are talking to us about is to rent the machines to you, including all the service, replacement of tubes and everything else, just the same as you rent a telephone. It records on 35-millimeter film, and you can stow your film away and that takes care of it. That is approximately \$45 a month rental on the machine, and it has carrier control, so that it will start and stop and you use it only when you are actually recording. I do not remember how much an hour it is, but it is quite cheap as far as recording the material is concerned.

Another man is working on a piano wire scheme that has some hopes, but it is still very much in the laboratory stage.

The Western Electric tape recorder so far as I know has never been put on anything except for specialized jobs. Nothing is available for recording purposes.

As I see your problem, as Bob is talking about it, two things are involved. As far as we are concerned, if your log shows what happened, that is all that is necessary. An airport control tower is probably the busiest place there is. When they get any hot stuff they say, "Took off trip 16. Landed trip 10," and that takes care of a whole sequence of communications. The whole procedure is standard. They start with something and go the whole way, but for their own protection they go so far beyond our requirements, they do not have to worry about our rules and regulations at all. They are the ones who want it recorded because if anything happens when a ship is landing, if the ship cracks, they want to be able to relieve themselves of any responsibility of having given false information to that aircraft.

Now, you have somewhat the same problem but not to the same degree, that if anything happens to a car you have to protect yourself that you have given that car no misinfor-

mation. It does not happen very often, but it could easily happen that you had given a car misinformation and had caused the death of an officer or the wreck of a car or the death of somebody else, and for your own information, it seems to me that you are required for your own protection to have a lot more in your own records somewhere than we require. If you have it in your records, you can keep it in any way that is convenient for police purposes, as long as it is so correlated with your transmission that if somebody comes along and says, "This fellow transmitted a message that was absurd; he sent Officer Murphy to get his lunch," you can tie that right down: Did that happen at this station at this time or was there misidentity of station? That is all we want to know. Where you keep your records and how you keep them is your business as long as we can find them if we have to find them.

MR. WILLIAMS: The load that is bothering us, Colonel, is on these thousands of small information calls that are of no great value in themselves, but the aggregate of them that is necessary to the completion of a case.

COLONEL WHITE: Take, for instance, the one that you mentioned. The fellow has been out on call. He has come back into service and he wants to know if anything has happened. If he checks back into service wouldn't the notice, "Car 28 in service" at the time take care of all of that communication? It should be assumed that when he came back he reported in service and he asked questions, and then if you have to repeat item No. 5, or something of that sort, just "In service. Item No. 5 repeated."

MR. BATTS: That is the kind of thing that we want to cut out.

MR. WILLIAMS: We haven't sent him on a call, Colonel. He has been in a one-man car and he got out of the car to serve a traffic ticket. We did not know he was out of service and he is checking back.

COLONEL WHITE: Doesn't he have to check out of service?

MR. BATTS: He has to check out, but this may be an emergency. That is the kind of log entry that we want to eliminate.

MR. WILLIAMS: We keep plenty of records pertaining to any kind of a major case, all kinds of records, but it is these hundreds of calls that are incidental to the proper administration of a department.

COLONEL WHITE: We do not want our records to be unduly restrictive. We have a purpose and I think that any reasonable solution that you arrive at will be acceptable. I do not think that you yourselves have reached what you can recommend to us as a reasonable solution, have you?

MR. WILLIAMS: What do you think about requiring that an accurate entry be kept of time of transmission and leaving it to the discretion of the particular department as to the nature of these transmissions?

COLONEL WHITE: No, there would be something of a general nature that you would not be able to identify. I think that it would be entirely proper perhaps to bulk a lot of that stuff. For instance, if you send car 28 on some mission and he comes back and asks you to repeat a couple of words or asks you to verify the address, just throw it with the other entry and don't consider it.

MR. BATTS: That may be five minutes later. In the meanwhile we have eight or ten other entries.

COLONEL WHITE: How are you going to identify that for your own purposes?

MR. BATTS: We cannot do it except with the permission of the Commission. With the time stamp we can put a checkmark there showing that it applied to some other transmission and not make any entry on our log, but even if we try to do that the Commission's requirement is still too strict to make it practical.

COLONEL WHITE: I do not see how you can put a check there. That won't do it.

MR. BATTS: That shows that during that five-minute period there were eleven transmissions, although you have only nine.

COLONEL WHITE: Eleven transmissions in one communication?

MR. BATTS: No, in maybe seven different communications.

COLONEL WHITE: It depends on what you mean by "communication." If by "communication" you mean to carry it to an absurdity--Ed talks to me. That is one communication. Then I answer him and ask him a question. That is another communication. Then he answers my question and asks another. That is an absurdity.

MR. BATTS: This would be a communication: You call Ted and he answers you and you hang up.

COLONEL WHITE: He calls back and says, "What did you say about that?" That is still the same communication. That is another call, but it is the same communication.

PRESIDENT WAREING: I thought it was each transmission, Colonel. Those are on different frequencies.

COLONEL WHITE: I know that we have ruled in aviation that a series of transmissions, involving the same subject, such as the landing of trip 6, for our purpose can be logged as "Landing trip 6" and that includes giving the initial call to the aircraft, giving him ground wind, telling him to get his wheels down, getting him down, bringing him to the runway and dismissing him. That can all be bulked as one communication in aviation service. If you can work out some similar sort of scheme for the police, I see no reason it could not be approved.

MR. BATTS: With my time stamp and automatic recording device I can fix that log.

MR. WHERRITT: In connection with Colonel White's remarks, there seems to be a different interpretation placed on it by a lot of inspectors. That question came up at the Kansas City convention. I mean countless times just among men talking on the outside of the convention. "How do you keep your log?"

"Well, the inspector in my district won't permit that. He says that you must keep it this way."

Then another fellow joins in the conversation, and he says, "Well now, the inspector in the southern part of the

country doesn't approve of that. He interprets it to mean so-and-so. We have to keep our records this way." We found that there were a half a dozen different ways of having to keep the logs.

MR. BATTIS: Taking a more or less specific type of log entry, here is a time entry, car number, and address of the complainant. Then there are several other communications, dog bites, and so on. A half hour later, we will say, this car has completed that run and it is marked back in service, giving disposition. That means that we have to make a record of it down here and also we indicate up here, in our case, the time that the car checked back in service. Off-hand would you say that we could consider those two separate transmissions a half-hour apart one communication?

COLONEL WHITE: I should think that it would be entirely complete. You probably want to enter when the car goes back into service in any event. When he reports back in service instead of making an additional entry, go back up there and mark, "In service at such-and-such a time." That takes care of our requirements because if he is back in service he must report. He reports either by telephone or radio. If he reports by radio you will find your time stamp message at that time, and if he reports by telephone, it is unnecessary.

MR. WILLIAMS: In this case that Bob is speaking of, this car is presumed to have occupied thirty minutes on a call. Suppose that during that period of time they have called in two or three times for additional instructions or information transmitted back to headquarters. Must an additional entry be made on each of those calls.

COLONEL WHITE: No, I do not think any more than there would have to be for your own protection. As far as we are concerned, I do not think that it would be necessary.

MR. BATTIS: Whether or not we have any recording device?

COLONEL WHITE: That is why I say there is apparently a divergence of interpretation. I think that it would be very fine if a standard law could be adopted, but again you come back to your heterogeneous police systems and a log that is satisfactory to Wilmington may not be

satisfactory to Bob. It may not be satisfactory to Denver. Each fellow has his own peculiar problem. Unless you have standardization you cannot have standardized records. So if you haven't standardized records you haven't standardized treatment of your material, and just think of the job that it puts up to us to give every inspector enough information so that he can look at a thousand. We have thirty inspectors looking at a thousand police systems and getting identical interpretations of application of rules of a thousand different methods of keeping records.

MR. WILLIAMS: Colonel, that is right along the line of my reasoning, that every police department has a different administrative set-up and manner of handling its internal organization. Do we not comply with the spirit of the Commission's regulations covering showing the occupancy of the frequency by showing the time of all of our transmissions and then keeping such records as the department deems necessary for its own use?

COLONEL WHITE: Generally, that will take care of everything, but if your own records do not indicate the nature of what you said, then they are defective from your point of view. Suppose that a man charges you, as an individual, with telling Officer Murphy, in car 83, to go by the Sergeant's house and bring him his lunch. He forgot it. He charges you with that message. If your log doesn't show the nature of the transmission you cannot defend yourself against that charge.

Just as an example of what happened in another service, in a special emergency station. An inspector checked them and found that forty-five times in one day they used radio to send cars to private homes to replace fuses and light bulbs--forty-five times in one day. On the basis of that log we cleared that situation up. Before that time we had heard rumors and we had had suspicions that this fellow wasn't being fair to the rest of the people on the same frequency, but we could not prove it on him until we got the records. In that case they were to his disadvantage. They might easily have been to his advantage because he might have been charged with that and somebody else have been guilty. Do you see our point of view of the picture?

MR. BATTIS: The rule states that you must show the nature of the communication.

COLONEL WHITE: Maybe we ought to change the words "the nature of the communication." Think it over, and if you have a proposition to make, make it.

... Discussion off the record ...

MR. SCHNELL: I have here a copy of a log which I think you can see. I want to call your attention to this space, which is to provide for location or the contents of a message. There is the matter that we have under discussion. It is inconceivable to me how anybody could, by any stretch of the imagination, use that as a complete log that would satisfy the records of their police department let alone the Commission. It seems that there is the opportunity to make the suggestion that this committee take the logs that are available and work up a suggested standardized form, based on the rules and regulations of the Commission. I realize that is a big task, Ted, but we are talking over the things necessary to comply with the rules and regulations of the Commission and each one brings up a problem. I think that it is our job to solve those problems.

We use a single message form for every transmission. It is about this size. That message form contains all the information that provides the record for the Police Department as well as an adequate log for the Federal Communications Commission, and this is the story: If you cannot put it down on paper you cannot put it on the air. In the case of two-way communication, a white form is used for messages going from any one of the central stations and incoming messages are on green blanks. The same system is used in the Park District except that they use different colors, green and salmon. There is a complete record, filed not only day by day but for every transmission. In the case of two-way communication, involving a hot chase, I think that you comply with the requirements of the Commission not by putting down everything that the man in the car may say to the man at the central station, because the responsibility is not the Commission's to see that this crime is cleared up but it is the responsibility of the two officers using the communication system. As long as they know what is going on that is all that is necessary, and as long as your time shows that during this period of time this communication or transmission took place, I think you satisfy the rules of the Commission.

It seems to me, if I recall correctly, there was a

case in Oak Park of a message being put on the air and it later involved some, "Well, I will sue you" or "You are going to be sued" or something of the sort, and to prevent any recurrence of it, I think now you can go to Oak Park and they can dig back and put a record on. If you say, "I heard on WQFL about November 23, between twelve and one o'clock, one of your officers use profanity," they can go back and dig out the records and say, "Here is everything from November 15 to the 26. If you want to sit down and listen to them, see if you can find where the officer used profanity. I mean that they have that sort of a record.

But this kind of a log would not satisfy our demands because we would fill that thing up in a matter of twenty minutes. Suppose that you wanted to refer to one particular case on a line. You would have to take the whole sheet if you had to take it down to a court room or some place else.

It seems to me that it might be in order to suggest--well, this belongs to Captain Leonard.

... Discussion off the record ...

MR. SCHNELL: Now, when a car goes out of service, we just do not permit him to use radio. If he is out of service for some reason, such as having been on a case--remember that we do not carry prisoners around in our squad cars because that is what we have patrol wagons for, but if he goes some place to make an investigation, he does not call back by radio, because that is the purpose for which he has a pole box and that is the purpose of the telephone in the station, but he calls back and says, "I am in service again,"

I believe that it is possible and not too difficult to set up a scheme that can be followed nationally to take care of every kind of a whim that anybody may have. We won't permit a car to stand on the street except in an extreme emergency, such as happened about two or three weeks ago. A live wire was down. Two officers who were in a car pulled up to the scene, and in their efforts to keep the people back, both of them left the car. What happened is that somebody came along and saw this vacant car and he drove away with it and when the officers returned to where they had left the car it was gone. You can imagine what a

peculiar thing it is to hear over your police system, "Pick up car 119 which was stolen at such-and-such a place."

CAPTAIN LEONARD: I think that there are several points involved in this discussion. Sometime last spring we had a meeting in Washington with Jett and the Assistant Director of the Federal Budget also came over. We were trying to work out a plan of having, as White said a while ago, someone in the Commission who would look after police work, a federal coordinator within the Commission regardless of what he was hired for, so that there would be at least one person who would specialize in the police field. There is no central depository for information for police service. Obviously, the Chairman of the Radio Committee of the International Association of Chiefs of Police is in no position to send out questionnaires and to compile a lot of data and keep it there for year after year and neither is the Secretary of your Association. There is a lack of financial help and clerical help and a number of other obstacles. Just as he became familiar with the whole thing and had it licked, he might quit his job and you would have to elect a new Secretary and start from scratch again.

The farmer can write to the Department of Agriculture and find out the effect of illumination in chicken coops on the egg-laying ability of hens, and anybody in the rubber industry who wants to find out the effect of alkali may get a document on that subject; yet those in the police radio field have no place to write for information that they might be interested in from an engineering standpoint or from a practical standpoint. I think that there is a field there. For instance, we ought to have a place where we could go for several different logs. What might fit a city like Chicago might not work for a small place in Wisconsin, we will say. Why could not three or four or a half dozen of them be typed, and when somebody is preparing to install a transmitter in some locality, instead of going through all the spade work that all of us have gone through, he ought to be able to write to this coordinator in Washington and say, "What have you in the way of radio logs?" Washington would send six copies that have been sort of approved as to form and let him pick out what he needs for his own particular needs. I think that a lot could be done there to help the boys out.

This log is from Wilmington, Delaware. The Chief

over there wrote and said, "We are having quite a time trying to find out whether our log meets the requirements. We have to draw up a new log. Do you have anything on file?" I got one from Detroit and a couple of others and sent them over there. They finally sent this one back and said that they figured that it would meet their requirements and also satisfy the requirements of the FCC.

I think there is a lot that the group can do in the way of getting some of these forms out and O.K.'ing them and then having them available in case somebody writes in.

SECRETARY MORROW: Colonel White, and Captain Leonard, too, in other words, those logs would meet the minimum requirements of the Commission and any amplification of the records kept by the department in addition to those logs would be their own business?

CAPTAIN LEONARD: Their own business.

COLONEL WHITE: I think that it would be very well for this committee, if they can do it, to make suggestions as to the best way to keep records so that they will be of the maximum utility for police departments. Many of these people who install police communications really run into the danger of trying to bend the radio system to fit an 1850 police department instead of making the changes that are desirable in their police department to make the most effective use of this communication, this new tool. That has happened all too frequently. You could say, "Well, if you put in radio you are going to find a demand for this type of information and this type of information, and you are probably going to have calls on your radio for this type and this type. If you set up your police records, not only your log records but your police records, in this way and maintain a file of this information, and do this, that and the other thing, you will not only meet the Commission's regulations but you will also be of the greatest help to your department.

I mentioned aviation a while ago. At one time there were a thousand different message forms and procedures that were used in various places to meet the ideas of the various airlines that were using the facilities of ground stations. They have all been ironed out, so that there is

one standard message form and one standard procedure throughout the airlines.

PRESIDENT WAREING: I cannot understand why Colonel White says that the actual voice records should be kept for a longer period than is required by the Commission. It is inconsistent because at the present time we can put down the time and the letter "A" which means a hold-up, for instance. If the front page of the log says that "A" means holdup, that is all we have to enter in the log to meet the requirements. Why should we have to keep a verbatim record of the words that are spoken?

COLONEL WHITE: That is written at the time it happens. If you make a bundle of notes and things of that sort and write them up afterwards, then you have to keep not only the notes but the smooth logs. If you used phonograph records, that would be your record, practically your whole record, and the only thing that you would have in addition would be more or less an index to what that record was. Perhaps merely the period of time covered would be sufficient. In the aviation service that record would have to have the ship because that is the important thing. In your police service, generally that can be tied down definitely to certain hours and certain minutes within a latitude, say, of ten or fifteen minutes one way or the other. If you have your records indexed, "This is a record that covers from 8:55 a.m. to 9:10 or 9:20," or something along that line, that is all you need to have in the way of a smooth record.

PRESIDENT WAREING: But still if one wanted to keep a written record for purposes of reference, which is almost necessary in police work, he could have someone sit down for four or five hours every day, perhaps, and take the whole twenty-four hours' log off even on a busy system like Chicago.

COLONEL WHITE: If it is an actual transcription.

PRESIDENT WAREING: And could get a much more accurate copy of what went out than the operator when he makes a note and you are recording on cylinders, for instance, and using telegraphone.

COLONEL WHITE: I do not think that anybody ever considered cylinders for log purposes.

MR. BATTIS: It should be a twenty-four hour device whatever it is.

COLONEL WHITE: It should be, but the record made on the Gray machine and also the Monox isn't as thick as the outside of this file. It is cellulose acetate. The Gray Telephone Company's is actually the same thickness as a heavy projection film.

PRESIDENT WAREING: The problem with the voice records is always to get the time on them, unless you read it in.

MR. SMITH: WQFL says, for example, "WQFL 5:07 p.m."

PRESIDENT WAREING: That is unnecessary transmission over the air.

COLONEL WHITE: This is one way that is being done and it is a possible way. The thing starts up and records. Then when you finish it always hangs over and just before it quits a coated tone signal goes in there and that will give you your time. They are put in automatically and you can just forget about timing. If anything goes on there, the actual time is put on as soon as it quits.

PRESIDENT WAREING: I know that our operators spend the major portion of their time writing logs, because we have both radiotelephone and radiotelegraph, and anything that we can do to free those operators from that objectionable burden and permit them to do useful communication work will be helpful.

MR. BATTIS: It will be necessary for this recording device to be automatic in recording the cars, if it is actually to record everything, because maybe one-third of the communications by two-way with the cars are where the car calls the radio operator or the dispatcher. That has taken place before the operator takes any action or throws any switches to answer him, and so on.

COLONEL WHITE: Your circuits that you are using for your time stamp are substantially the circuits that are used for turning this thing off. It is your micro line or receiver line. It automatically puts it on the record.

That is the way they have it set up.

MR. BATTS: It, however, is a very complicated and expensive thing, which would make it prohibitive to many small departments.

MR. SCHNELL: But, on the other hand, many small departments have plenty of time to keep their logs.

COLONEL WHITE: I do not know how much this Monox thing is going to cost. I haven't any idea.

MR. WHERRITT: A man in Kansas City is working on a paper tape recorder, which is a modulated paper tape and costs a cent and a half for one hundred feet. I forget for what he figured you could run it twenty-four hours.

MR. SCHNELL: There is still another one that uses a strip that looks like cellophane, in the form of a drum that is about ten inches in diameter. You put this strip on, and I would say for your small town, for emergency communication, one of those strips ought to last a week. I mean for emergency communication. I am not talking about "Bring me in a Scotch and Soda" or "Pick up the coffee there." I do not remember what Verne Watson said--Oak Park is a reasonably busy system--about how long one of these records lasts, but it is an automatic starting device and automatic stopping with the carrier. It does not record the time automatically.

MR. BATTS: There is still another device, a film recording, which is a continuous film, where the film goes over and over and the cutting needle moves across the film, so that it goes through there time after time, until it makes so many entire rotations, making thirty or forty grooves across that film. I think that anything that is used is going to have to be a twenty-four hour device to be practical.

COLONEL WHITE: The RCA has certain advantages. I think that one full loading will run twenty-four hours continually. I am not certain about that, however. Another thing about it is that it cuts from one end of the film to the other, and if you want to take off six or eight hours, you can take a knife and cut it off and thread the rest of it and go on.

SECRETARY MORROW: There is one thing with regard

to state systems that we found out very early in the game. We tried dispensing with certain items of information in messages, in other words, hewing strictly to the letter of the law as far as the Commission's rule is concerned; As I think the Colonel will remember, during the flood we had some extra stations in the southern part of the state, and we kept what might have seemed to be insignificant information as far as our records were concerned, which later absolved us from having to pay for about 100 outboard motors. The situation was this: The Red Cross authority at Evansville sent a radio message to headquarters at Indianapolis asking that we rush 100 outboard motors to the Evansville Red Cross. It would have been perfectly logged had we simply put down the time of the transmission and the fact that it was a request from the Red Cross for motorboat motors, but the operator, under our system of operation, is instructed that every word that goes out from our station or that comes into our station must be logged on that log sheet and they do it twenty-four hours a day.

As a result we were able when this came up in the Federal Court in Indianapolis to take the log sheets and all the material pertaining to that transmission and on the strength of that the case was never even taken into court. The logs were viewed by attorneys for both parties, both the American Red Cross and the company that had furnished the motors, and the Red Cross attorney in Washington said, "All right, that is all we need. That is proof enough that our agent at Evansville actually ordered those motors." The agent at Evansville had sent the message and at the time he sent it had made no notation of it. The motors were shipped and were received down there, but the Red Cross agent at Evansville had no record of ever having made such a request, in the stress of the emergency. I do not recall the retail price of the motorboat motors, but 100 of them would have run into considerable money, so that we were more than ever certain that we wanted a verbatim log of transmissions.

CHAIRMAN LOWE: I believe the opinion has been expressed here that there is dire need for some clarification in the matter of material which shall be carried as a log. I believe it well for this committee to take into consideration the many points which have been discussed here and draw up a proposal to submit to the Commission at some future date relative to the subject. I should like to appoint a sub-committee to handle this and I should like to have Mr. Robert

Batts as acting chairman, Mr. Williams from Denver, Colorado--

MR. GROENIER: I suggest that you put a man from a small town on the committee.

CHAIRMAN LOWE: And Mr. Groenier. That will be the committee.

MR. GROENIER: Pardon me, I meant a smaller town than Madison. I was thinking of a town with a little ultra high outfit, of five or six thousand population.

PRESIDENT WAREING: Mr. Chairman, I should like to interject a remark, that your committee at present is representative of states, large cities, small cities, and sheriffs' departments, and it should not be necessary to overload Bob Batts, who is already completely tied up with his Frequency Allocations Committee Chairmanship and his membership on another committee. I think you can handle that within your own committee without going outside except where you want--

CHAIRMAN LOWE: I should like to delegate this responsibility, if I may, to others of the collection of the information and dissemination to the committee as a whole. It isn't that they shall take the full action. In other words, they are going to gather this information and bring it into this committee for our full consideration. They won't be required individually to act on it.

PRESIDENT WAREING: Mr. Chairman, I should like to point out that you have two vacancies on your committee and that Williams and Bouck can be appointed in those places and be members of your committee.

MR. BATTS: Mr. Chairman, I should like to point out that I am not a member of your committee and, therefore, I think that someone else should be appointed chairman.

CHAIRMAN LOWE: That is an oversight on my part, Mr. Batts. Then we will make Mr. Williams the chairman of that subcommittee. My idea in this matter, Mr. Wareing, is that a subcommittee can function a little easier. I, too, am on several committees besides this committee, and I think it is true in the majority of cases that those who are here belong to several committees, but if we can correlate the information which is acquired by a smaller group and then

bring it into the larger group, I believe that we can make much more rapid progress. The duty of that committee will be to gather the information for the State Systems Standards Committee as a whole and then we will take action on that information.

PRESIDENT WAREING: Then I at this time will appoint Howard Williams, of Denver, Colorado, Police Department, and William Bouck, the Chief Dispatcher of the Michigan State, to the State Systems Standards Committee.

CHAIRMAN LOWE: That is fine. That gives us a complete committee.

Are there any other subjects to come up at this time?

MR. WILLIAMS: What is the final decision on this subcommittee. Of whom is it actually to consist?

CHAIRMAN LOWE: Yourself as Chairman, Mr. Bouck from Michigan State, and Mr. Groenier from Madison, Wisconsin. Your duty will be to gather information and suggestions from the various members and transfer them to this committee as a whole, at which time we will attempt to take them under consideration.

PRESIDENT WAREING: I should like to suggest that Mr. Williams, as chairman of that subcommittee, make a report to the Bulletin as early as possible, outlining the problem of log keeping and what APCO is attempting to do, in order to get wider cooperation from the membership in collecting this information and to let them know that we are trying to do something for them.

CHAIRMAN LOWE: Do I hear a second to that motion?

... The motion was seconded ...

CHAIRMAN LOWE: It is moved and seconded that the chairman of the subcommittee be instructed to advise the Bulletin for publication of the action that is being taken and what progress has been made on the subject of log keeping and of what it shall consist. We are ready for the vote. All those in favor say "aye"; opposed. It is so ordered.

SECRETARY MORROW: Mr. Chairman, under the guise of

new business for the committee's attention, due to shortness of time and the fact that it would involve a great deal of detail, I should just like to mention, for the attention of all the members--I had better confine it to the committee--that we consider seriously the advisability of providing a radiotelephone procedure to do for the telephone service what the radiotelegraph procedure is intended to do for the telegraph service, not from a restrictive standpoint but from the standpoint of bringing about a certain standardization of our operations in the radiotelephone field, which I believe in turn will ultimately result in alleviating a number of our difficulties with regard to certain types of interference and inability to handle traffic properly, and will also care for the educational program that we all feel is necessary in the police field, and such study or thought should be crystallized to some sort of action at the next meeting of the State Systems Standards Committee, so that we can at least outline a plan or a proposal which can be taken up and discussed in detail at that time and, together with both the Commission and the International Association, arrive at something that will prove to be equitable for all concerned, and that will do for our phone service just exactly what the telegraph procedure is going to do for the telegraph service when it is entirely used by the service..

MR. BATTIS: Mr. Chairman, I am talking an awful lot this morning, but I think that Frank Morrow has a very good idea there and I also think that it is a fertile field, particularly in view of the fact that the state systems are so well coordinated and work in such a cooperative manner and since they cover such a wide area, you might say the whole United States. I would think that the development of such a uniform procedure would prove of great value, particularly in times of great disasters or emergencies such as floods. In 1937, for example, the police officers from Indiana could have moved into Illinois and the whole system of procedure would have been more or less uniform. They would have all understood radio dispatches and communications. I think it has a great deal of possibility.

MR. GROENIER: That is just a nice pep talk on what we are supposed to do in the first place.

SECRETARY MORROW: It is to this extent, Mr. Groenier, We have heard in this morning's session a number of items that rightfully belong under such a procedure, and the thing that I want to get at is this: For instance, we have set up a

series of interstate signals for use in radiotelephone operations. The question of uniform sequence of information in messages, the question of what items should be handled in radiotelephone service and other things of that type, instead of being just generalized as we have been doing, should be compounded into a concrete program and that is the thing that we should be able to do in skeleton form, at least, at the next meeting of this committee,

MR. BROWN: In other words, Mr. Morrow, all phone systems, especially state phone systems, would employ practically a uniform code of operation?

SECRETARY MORROW: That is right.

MR. GROENIER: In Wisconsin the wording of stolen car reports is all the same: "Stolen, 1939, color gray, Buick sedan, bearing Wisconsin license." We all use that and I thought everybody else did.

SECRETARY MORROW: The principal reason for the urgency of such a program at this time is the fact that we all recognize, I believe, and the International Association recognizes, at least through Captain Leonard and those who are familiar with the problem, that we need a definite program of education rather than one of restriction in police communications, and so far we have dealt with restrictions and removal of restrictions rather than that educational program which I think--and I think that opinion is shared by others who have given it any extended thought--will solve a large number of these problems that we argue about.

MR. BROWN: I believe that if such an outline were prepared it would be of extreme value to any new state department that is launching a radiotelephone system.

COLONEL WHITE: I do not think there is any question that if you do something of the sort the schools that are training operators will take it up. I know that one school has asked us to obtain a release on telegraph procedure so that it can be used in instructing prospective police telegraph operators.

MR. GROENIER: The FBI, who are holding schools throughout the country, are more than glad to do that. I talked with an FBI man up there and he even suggested that we

put somebody in their school.

MR. CURRY: There is one thing that comes up on the question of arguments, there are things on which you cannot standardize until you have had all of these arguments and have heard from various places, because no one department can set up a program until after this body and others have gotten together and argued their problems and correlated them and gotten the information together.

SECRETARY MORROW: I appreciate that, Mr. Curry, and that was my thought. Today here, for instance, we have talked of everything from hen coops to railroads. If we sit down with an agenda drawn up treating with the operating procedure of a phone system, it will be possible for us then to take item after item and get constructive information on it. Perhaps it will mean a matter of several meetings before it comes to us in a form that is acceptable even for suggested adoption, but we have to have that framework in order to do it.

MR. CURRY: I heartily agree that attempts should be made to outline our material and to get certain definite problems on which to work and try to reach a solution.

SECRETARY MORROW: There is no question that--and it is an accepted fact--the opinions of several are much better than those of one man and it is necessary that any problem or question be intelligently discussed. The point is we cannot go on having endless discussions month after month and get nowhere. We must set up a program and then work from that program, because everything that we mention in a meeting like this brings up other points that are associated with it and it just becomes a matter of conference after conference until we get to the point where some day we forget about them because there are new problems. I think it calls for definite, concrete action and at least a plan from which we can start.

MR. GROENIER: We do not need any motion with regard to that, do we?

SECRETARY MORROW: No, except from the standpoint of the general knowledge of the committee that such a plan should be devised or such a program outlined.

... The meeting adjourned at one o'clock ...

Engineering Reports and Research Committee
ASSOCIATED POLICE COMMUNICATION OFFICERS, INC.
Sunday Afternoon, February 11, 1940
Hotel Sherman
Chicago, Illinois

The meeting convened at two thirty-five o'clock, Mr. Arnet A. Curry, Chairman of the Committee, presiding.

CHAIRMAN CURRY: Well, I think that the Engineering Committee is going to make it sort of short and sweet. There are a number of problems that the committee feels that it could tackle, but we also feel that the most important problem to the APCO is this frequency allocation work; so therefore, as yesterday, we have offered our service to this committee to investigate any problems that they may wish to have investigated. A number of problems have been called to our attention. I will run through them very briefly, as a matter of floor discussion probably later on.

The first one is on frequency modulation. The committee feels that at the present time there isn't enough material that would be available to the committee that would make a study of it of any value to the membership as a whole, because all of the information has been presented to everybody through technical publications, and until a few of our own membership get their feet wet in it and until we get some data that applies only to our particular service, any study that we would make would only be a rehash of what has already been published. However, we do feel that we should keep awake on the situation, and as material does develop, we certainly will tackle it at that time.

On problems of ultra high frequency, President Wareing wrote me some time ago and brought up a number of problems that I will go over here in a hurry and then we can get some discussion on them later.

One is the band width of the present ultra high frequency receivers that are on the market. As all of you know, the band widths of most receivers are quite broad and a number of persons have been complaining that they have been getting adjacent channel interference, and the problem comes up as to whether at this time we can make recommendations to manufacturers as to cutting down on the band widths of the receivers.

Another problem that might be investigated is the propagation characteristics of the different ultra high frequencies that are available for police use in the 30 to 40-megacycle range, with a view to suggesting to some of the departments that they move to the higher frequency band if it seems that the lower frequencies are very crowded and the higher frequency ranges are less crowded, and if we could find facts showing that the higher ranges are just as suitable as the lower ranges, it might be an inducement for some of the departments to choose the higher ranges.

A question also comes up with regard to the nine channels in the ultra ultra high frequency range, you might put it, and the 132-megacycle band. The question has come up as to whether we should make recommendations or suggest to any of our membership that we try out some of these frequencies to see what they will do.

I think that covers the main problems on the ultra high frequency.

There is one other thing that I should like to bring up just as a matter of record, and that is that one of our committee members, representing the state of Ohio, is unable to be present, and since a telegram was received yesterday from Colonel Black confirming that whatever action is taken by this committee is O.K. with the state of Ohio, and since Colonel White brought up the fact that Ohio's frequency would probably be moved, I should like it to be a matter of record that the Engineering Committee has not made this recommendation and it is wholly a matter between the state of Ohio and the FCC on a previous agreement that they made.

I believe that finishes up the problems that I have before me, and I will open the meeting for discussion on any of these problems that I have mentioned.

MR. WILT: Mr. Curry, we have been working on 33000 and we have experimented up to the 37000 band. We do not find any material difference in the frequencies from 33000 up to 37000. They are practically the same.

CHAIRMAN CURRY: Since you are a member of this committee, I wonder if you would make it a point to fix up a little article in the Bulletin covering this particular point

and bringing out what results you have found on it.

MR. WILT: All right.

MR. BROWN: Mr. Curry, I think the question was settled yesterday as to the next meeting of the Frequency Allocations Committee with reference to proposed reallocations. Was the question brought up of the Engineering Reports and Research Committee sitting in at that meeting of the Frequency Allocations Committee?

CHAIRMAN CURRY: Not that I know of.

MR. BROWN: I would think it would be advisable. What do you think about that, Bob?

MR. BATTS: I assumed that you would meet with us. I know that we would have the hearty cooperation of your committee and it might be wise to take that action.

SECRETARY MORROW: Didn't the record here include this group of committees as the committee on the problem?

MR. BROWN: Not on any projected meeting of the Frequency Allocations Committee, I do not think, Frank.

SECRETARY MORROW: I was thinking in connection with that.

MR. BROWN: The proposed reallocation will be a definite engineering problem.

MR. BATTS: It was decided that the whole group would be treated as a committee of the whole.

SECRETARY MORROW: I think that is the way that read.

CHAIRMAN CURRY: Do I hear from anybody else any discussion on any of these problems? I think, President Wareing, that you had the particular problem of this wide band thing in your receivers. Do you have anything to bring up at this time with regard to that?

PRESIDENT WAREING: I should like to have the committee collect information on the necessity for the band

width that is used in present commercial receivers, I know that we had one commercial receiver on 31.5 and experienced considerable sky wave interference with it.

CHAIRMAN CURRY: I do not want to speak for the manufacturers, but I am of the opinion that most of them have made their receivers wide enough to take care of car transmissions back into the stations, and from the very nature of that service they have to make it broad enough to catch the frequency variation that sometimes occurs. I imagine that if there was enough demand by the APCO we could induce a manufacturer to bring out a receiver with the band widths that we desire. However, again you run into a stumbling block in that they say, "If we go to the expense of designing such a receiver and bringing it out, how many of them will junk the present receivers with which they are having trouble and buy the new receivers?" Will there be a large enough demand there to pay them for bringing out such a receiver? There is no doubt that such a receiver can be made for any band width that is desired.

PRESIDENT WAREING: I just wondered if the matter of adjacent channel interference is enough of a problem throughout the country that the committee could find that out for us.

CHAIRMAN CURRY: Do you mean as to whether there is enough interference at the present time with station monitoring to warrant asking the manufacturers to develop--

MR. GROENIER: Ask those present if they have had any interference.

CHAIRMAN CURRY: That is a good idea. Let's find out how many of those present know of such interference. How many have this problem? (None)

PRESIDENT WAREING: I know that Elkhorn gets it.

MR. ZINDARS: Less than 31.5 yes. That is what we sent the Commission a wire about.

MR. GROENIER: Do you mean that CW?

MR. ZINDARS: As soon as you get a receiver that is sharp enough to cut that out, you cut out half of your mobile

units.

PRESIDENT WAREING: We just go to double control--

MR. GROENIER: Of course, you do not have mobile units out to know whether it is too sharp to get your mobile units.

PRESIDENT WAREING: No, I do not know what the conditions are there.

CHAIRMAN CURRY: I am of the personal opinion that this is a problem that possibly could ride for a little, since the activity of the committee is going to be taken up with this other work and there is no doubt that as frequency modulation comes along, it is going to bring up other problems that may solve this one.

MR. WILT: I really believe, Mr. Curry, that the way the manufacturers are making receivers at this time and have been making them for the last six months, you will have no trouble from adjacent frequencies, because we have been using two makes of receivers and we have experienced no interference in the six months that we have been using them. They are crystal controlled.

MR. GROENIER: Personally, strange as it may seem, I would just as soon have the FCC give us closer tolerance on both ultra high and intermediate. Coming from an operator, I suppose that sounds screwy, but I think they have been very lenient in their tolerance widths, and I think we would have less interference in both intermediate and ultra high if we had to stick to a closer tolerance.

CHAIRMAN CURRY: That may be true. However, at the present time I believe that is one phase of it that we should skip and stick to more pressing problems.

PRESIDENT WAREING: On that point, I should like to ask Colonel White, if a station wanted to experiment with frequency modulation and was willing and able to maintain its carrier within a few cycles of the assignment, could it occupy a wider band?

COLONEL WHITE: You could occupy a wider swing. The band is limited. You cannot go any more than 40 kilocycles of

the band, but in figuring out what you are likely to have, you must take into account the maximum possible deviation of nominal carriers due to lack of frequency control plus the deliberate swinging. Below 2, you have 7000 kilocycles possible swing, due to your tolerance, plus 13000 deliberate, which gives you a maximum of 20000 kilocycles deviation from your nominal carrier.

PRESIDENT WAREING: That is about twice as much as you figured was usable.

COLONEL WHITE: That is all that you could possibly use without any guard band, so that in that case you would probably have to cut it back to about 12000 kilocycles maximum swing. The best way to do is to labor, say, at 13000 kilocycles or 15000 kilocycles, and if you squeeze your tolerance down to .01 then instead of having 7000 kilocycles possible deviation, have only 3500 and with 15000 you would have room enough.

MR. BATTS: That 12000 kc. deviation is one-half the width.

COLONEL WHITE: That will be the maximum swing to either side.

MR. BATTS: 24-kilocycle band.

COLONEL WHITE: Plus twice your tolerance for your possible deviation. There is a definite advantage in keeping your tolerance tight. The aviation people originally were willing to take the .01 tolerance, but they said that if they bought crystals by the hundred, probably about 10 per cent of them wouldn't hit the .01, and at the present stage of the art it did not seem necessary to pay the extra cost of the crystals for interference purposes and amplitude modulation, but it may be worth the cost in frequency modulation.

CHAIRMAN CURRY: If there is nothing further on this, one other problem has been brought up and I will let it up to the group as to whether any action should be taken at this time. That is with regard to recommending a general increase in power limits, both on CW and phone stations. I think that all of you know the pros and cons and I will just leave it open for discussion. Herb, do you have anything on that?

PRESIDENT WAREING: There are so many stations that are operating at more power than is fixed by the population limit, I was wondering if that should not be brought up, Colonel. It is a rule that is broken very often.

COLONEL WHITE: This is the situation: It is almost self-evident that if you are trying to cover a county, it is the area that counts rather than the population. That is why so many of them are extra powered. It is more than population. It might be worth while for your committee to look into the effects, say, of just doubling the present limitation.

PRESIDENT WAREING: That is what I had in mind-- a 100 per cent increase horizontally for all municipal police.

COLONEL WHITE: The thing you have to watch out for is whether the increase of power of the other fellows will destroy the service of some of the little boys. I do not think we have any more with less than 50. We used to have some less than 50. If they could not afford to go to 100, everybody else doubling their power would destroy their service. That is what your committee should look into. In the meantime look into adjacent channels.

PRESIDENT WAREING: Many other factors affect that interference situation more than power, the type of antenna and things like that. The power definitely is of value to the local station. We operate 1 kilowatt day and 500 night and we could give better service with a kilowatt at night. We have an antenna which does not cause undue sky wave interference, but another station operating at 50 kilowatts down in Oklahoma causes a lot more trouble than we would with a kilowatt in Milwaukee.

COLONEL WHITE: I know of a case just recently. One of the fellows got some money and with the WPA built himself a new building and some nice new radiators. Another fellow also got some new equipment, but he put in a different kind of antenna. There are some 800 miles separation, but actually the fellow with the heavier signal is heard in the other territory more than the local station.

PRESIDENT WAREING: You must be talking about Syracuse.

COLONEL WHITE: No, it isn't Syracuse.

CHAIRMAN CURRY: With regard to what Colonel White said about investigating, I would not know where the committee could go except to the FCC, because they probably have more material on that particular phase of it than anybody else.

COLONEL WHITE: We could possibly give you the information on adjacent channels, but I think that you would want to go right to the police officials of the little towns, and, going hand in hand with that, I think it would be necessary to make a thorough investigation of antennas, because perhaps a lot can be done without changing power as far as antennas are concerned. I think that it would be worth while to find out what Ed did in Detroit that gave him such a whale of a signal in Baltimore, and what Bill Taylor possibly failed to do in Baltimore that didn't give him what he might have expected of a high stick like he has. Something can be done about antennas. It may all be available from past performances.

MR. GROENIER: Both of those antennas were vertical.

COLONEL WHITE: Both are vertical, but there is a little difference in height. I think Ed's station is just short of 5/8ths and practically lake level. It is on Belle Isle, and the antenna foundations are actually right in what was the river. They put the antenna foundations in and then for counterpoise, they put the stuff on top of that. Bill Taylor's station in Baltimore is on top of the police headquarters building, which I think is a seven or eight-story building. Detroit puts in a stronger signal than Baltimore does. It way over-rides Baltimore.

MR. GROENIER: Does Baltimore put a strong signal around the Detroit area?

COLONEL WHITE: Ed hasn't been squawking, so I guess it is not enough to bother him. Apparently for some reason or other he is getting a high angle. He has put in some other antennas for his telegraph system and it may be that just accidentally he has gotten those in a reflection that gives him some high angle reflection.

MR. BATTS: I believe that Detroit has remedied that

by turning one of the other antennas masts into proper phase relation to reduce the trouble.

COLONEL WHITE: One time we had some trouble with long-range harmonic interference and found that it was coming off with the transmission line, getting high radiation of the transmission line and a number of other things that happened.

CHAIRMAN CURRY: There is no doubt that articles on matters of this kind would be very welcome to the Bulletin. The Engineering Committee has an award for the best technical article, and I think it would be well for all of you to get after the ones who have interesting technical articles of this nature, but I believe that it is beyond the scope of the committee, since they cannot get out and investigate these things, to make an engineering report on them only from the facts that we can gather together, and in this particular instance if we could get an article from the particular system on everything they have done--

COLONEL WHITE: My thought was to devil Ed until he puts it in. If you leave it to him to put it in, he will be just too busy to do it.

CHAIRMAN CURRY: I think that it would be a good idea for the Engineering Committee to write him and also the Editor of the Bulletin to try to get an article from him.

MR. WILLIAMS: Here is another problem along that same line. As an example, Cheyenne is figuring on putting in a radio system. To the best of my knowledge there are one or two supposedly radio men up there. I have never met them. I have met no one up there who is connected with it. A salesman for the Motorola Company, that is one of the concerns engaged in attempting to make a deal up there, contacted me the other day and wanted a lot of information of a general nature on police radio installation. Of course, I did my best to sell him on the idea of a vertical radiator and explained the whys and wherefors of it. The point I am making is that there is a community that is starting to install radio and they have no one to guide them as to what they should do in matters of that kind. In a case like that the Bulletin is of no value because they do not receive the Bulletin. I do not know what the answer to that would be unless we might get the FCC in the section entitled, "Instructions or General Remarks

on Police Radio" to include a few remarks to that effect for the benefit of the newcomers in radio.

CHAIRMAN CURRY: Is there any other way that we can reach those newcomers?

MR. WHERITT: The way to reach them is through the Chiefs' News Letter, I mean so that the chief himself will know where he can go for information, and recommend that he come to the Engineering Reports and Research Committee of the APCO for information. That is a job for you.

CHAIRMAN CURRY: That is true. The FCC do publish a pamphlet, "Good Engineering Practice." I wonder why they could not also include good engineering practice in police work and publish some of the facts so that they would be available to anybody.

COLONEL WHITE: We have a section in which we have good engineering practices; one is broadcasting and the other is marine. The marine applies only to certain ship stations in which it is compulsory. We probably would like eventually to have good engineering practice standards for everybody, but it really is a very difficult job and quite an undertaking. We have never felt that we could undertake it for most of the services.

SECRETARY MORROW: Colonel White has suggested on several occasions--and was talking about it just a little while ago--in connection with information for the use of departments that are already in service, having items on the benefits or, I should say perhaps, the good qualities and the questionable qualities of each type of service with regard to a department, speaking of the fact that possibly the APCO might be able to prepare some material of that type for publication in the Bulletin. If that were done from a purely unbiased standpoint, a fair comparison of the merits and questionable characteristics of each type of service, it is equally possible, I believe, that material along the lines of good practice from the standpoint of installation, generally speaking, might be added and the whole thing prepared in a monograph that might be sent to anyone who is coming into the field new. I am wondering if that might not help to solve that particular problem, although still bearing in mind the fact that the best way to make the initial contact would be through the Chiefs of Police, I believe.

COLONEL WHITE: I think there are certain tactical reasons you people could put out a more valuable document along that line than we could. You might be able to make comparisons whereas we could not very well do it. We could not very well come out, for instance, very strong for crystal control. You could. If we favored some man's particular baby it would not look so well. Also there are many things that you fellows know that we really aren't in a position to know all the details. Among other things there is the question of records that you are going into, our log records and your suggested police records, your coordination with the various types of departments, what would be a good way for a small department to start, a medium sized department and a large department, service policies, and a whole lot of things that, as a practical matter, you could write a monograph on, as Frank suggests, and I think passing the word out to the International Association of Chiefs of Police that there is such a thing would probably be very well received and get a rather wide distribution.

CHAIRMAN CURRY: There is another angle to this just as there is to the operating, that some of those questions are quite controversial, and on some of them we haven't come to any definite conclusion, even the departments using them haven't. Take, for instance, now this idea of radiators. I have thought for quite some time that possibly the vertical radiator for night use is not exactly the thing, because I know with ours we have a much stronger signal in New York City at night than we do twenty or thirty miles away from our station. On a trip to New York City a couple of years ago, we were able to copy our stations right under the Eighth Street Elevated; yet we have a vertical radiator. It may be that if you are getting very bad interference from a flat top, if you put in a vertical you won't get it at that particular point, but if you go to some other point you may get just as bad interference from the vertical radiator. In other words, it ties in again with trying to separate them, or allocation. So that there are a lot of those things for which the answers aren't available as yet.

SECRETARY MORROW: My thought was that rather than trying to tell them what to do you could tell them that there are certain schools of thought on particular items, so that they will know without going into this thing, this is one trouble that we have had in the police field, that we continue to have it, and it is an evil that grows as time goes on in-

stead of lessening, that these departments are forced to take the recommendations of councils and of representatives of manufacturing concerns that are primarily interested in selling equipment. They are not interested from the standpoint of efficiency of police operation, and unless the police officers who are in the game and know these things give this information to the people who aren't in it and do not know them but want to get into it, we are going to continue to have increasing instances of chaos.

Again from the standpoint of such a monograph as was proposed here a moment ago, it won't be from the standpoint of setting up a way of doing it and telling them, "This is the way it has to be done," but of giving them the full information on what exists in the field on the particular question and then they will know that they have something to face besides just paying out a check for the equipment.

MR. WILLIAMS: When newcomers write in and request information on radio matters that we might be able to answer, would it be out of order for the Commission to refer them to the Engineering Committee of the APCO?

COLONEL WHITE: I think if the APCO had a handbook or something of the sort, the Commission could refer them to it. When people write in about amateurs matters, we have no hesitancy in referring them to the AARL, which is a cooperative association of amateurs. It is not like referring them to a book that is published by Wiley or by anybody else. We are referring them to something that is put out by amateurs for amateurs. Now, if we referred them to something that is put out by police for police, I do not think we could possibly be criticized for that.

MR. BATTS: Speaking of the vertical radiator situation, it should be borne in mind, I think, that the two pictures, state police and municipal police, are entirely different, and in the case of the municipal station, the vertical radiator definitely gives a very good signal, at least in the majority of cases, in the local area, and we are not concerned with communicating over distances of more than ten miles ordinarily as distinguished from the state police communications of as much as 200 miles. We have had called to our attention the case of Baltimore and Detroit, which indicates some difference there.

CHAIRMAN CURRY: I think that Inspector Batts has brought up a point that is absolutely true, in this, as in others, the problem is very large and has a lot of angles, and any attempt to bring out such a handbook would require a lot of work. We cannot just sit down and bring out something in a hurry, but if it is the will of this group, I think that we can at least start in on the outline of such a handbook, as to what material is to be covered, and be in a position to present it at the Orlando meeting, and then at that time various sections of it can be assigned as the group so desires.

MR. WHERRITT: Mr. Chairman, are there any suggestions as to how to finance it? That is the main thing. If we can get the money, it is easy to do all the rest of it.

CHAIRMAN CURRY: That is the third problem. I disagree with you about the rest being easy. They are all major problems. Finance is our third problem. The financial stages, however, can be considered later, providing we feel that it will be forthcoming. Of course, there is no need of doing a lot of work, if we are not going to go through with it, but at the present stage there is a lot of work that can be done before financing becomes an important item, but it should be discussed at this time,

MR. WHERRITT: It always makes it a little easier to work toward putting out something like that if you know in advance that you have some place to get the money. It makes it just a little easier to know, "Well, when we have this material prepared we can go right to work and get it printed."

SECRETARY MORROW: From that standpoint, I believe that it would be possible either through one of the university presses or through the cooperation of the Chiefs' Association and their press set-up, which might be made available; in fact I feel, and I think Colonel White feels the same way, that a commercial publisher would be glad to handle the publication of a book of that type because of its intrinsic value to the whole field.

COLONEL WHITE: I think that it would be a lot better if you could publish it and sell it yourselves, like the AARL does, rather than have some publisher do it. They have their handbook printed and charge \$1 for it.

MR. WHERITT: If there is enough sale for it to make it worth while. We have the case now of the minutes, which probably 95 members were anxious to buy; yet we cannot sell them.

COLONEL WHITE: This will be something different from the minutes of the meeting.

MR. WHERITT: I mean that they said they wanted them.

COLONEL WHITE: You didn't get the money on the dotted line, but I think if you put out a good handbook, something comparable to the AARL handbook for amateurs, you would have no trouble getting your money back.

MR. WILLIAMS: Sell some advertising in it.

CHAIRMAN CURRY: I feel that a handbook, possibly outside of some advertising, should be kept to a minimum as regards advertising, because a handbook should be something that will hold over the periodical changes that come in equipment every year and your advertising would be just for current models. The main principles, etc., that are laid down in the handbook should be good for two or three years.

MR. WILLIAMS: Merely listing the manufacturers of equipment and the specific lines that they manufacture.

MR. WHERITT: If the advertisers think that there will be sufficient sale to warrant it. The Bulletin goes to 700 police departments. A great many manufacturers do not figure that a circulation of 700 is of any value to them, and if it is a handbook that you put out for police departments to advise them on radio equipment you probably won't sell more than 500 in a year.

SECRETARY MORROW: There is another factor there, too, Colonel; that book should not be confined to radio alone. It was suggested a while ago that it cover all phases of police communication available, all facilities available for police use. Captain Leonard stated this morning that there are 50,000 police departments in the United States. There is surely a market for more than 700 copies.

MR. WILLIAMS: A handbook of that kind would be kept

on file permanently, too, so that a prospective purchaser would always know where to look for listings.

MR. BATTS: Get it out in pamphlet form so that additions can be added.

COLONEL WHITE: The AARL is edited about every year, and once a year, with a subscription, you get a handbook for \$1 instead of \$1.50. You could make a cut price to members of the APCO.

MR. WHERRITT: Mr. Chairman, I think that ought to be done; I am not questioning that. I am questioning whether or not we will be able to do it within any reasonable length of time. We want to start a directory. It has been talked of and talked of and we haven't completed it. We cannot even get the states to submit material for it and we have been trying for months. Well, we should finish that, which is going to cost some money, and then after that is completed, go ahead with the other. I mean that you can start too many things at once with no way of financing any of them.

SECRETARY MORROW: Undoubtedly it will take longer to compile such a handbook than it will a directory, and for that reason there should be some effort started at the present time, again at least from the standpoint of an outline of what such a manual should contain, so that you have something concrete to work from and we can keep it in our minds.

COLONEL WHITE: There is one document, for the information of the committee, that you might be able to get a release on. Somebody in the A.T. and T. has put out two pamphlets on police and teletypers. You might be able to borrow from them and that would give you one chapter almost right away. You might want to edit it because it is written from the point of view of the teletype. You would probably want to treat it from a little different point of view, but that is one source of information.

MR. WILLIAMS: If we decide on such a handbook, I think that the directory should be included as a part of it.

MR. WHERRITT: I disagree with you, Frank, about the publication of this manual taking more time. It is a little simpler matter. I think you can appoint a committee to work on the handbook, say, the Engineering Committee with

some other committees could work on the handbook. They could get it out without going to every state to get the information you have to get for the directory. You have to write to the various states to get information for the directory, but a committee from their own knowledge can write a fairly decent handbook that will be valuable.

CHAIRMAN CURRY: Just one point as regards our own knowledge. It is likely to be biased unless we get information from various groups. We want to make this for police use, and most of the publications you can get hold of disregard the main problems we have to face in police use. Unless you get information that solves those particular problems, you might just as well go out and get hold of some of those old handbooks.

MR. WHERITT: You have a representative group from which to appoint the committee to work on it, representing the smaller cities, the larger cities, and the states.

CHAIRMAN CURRY: We have the same ones that are on all the other committees.

MR. WHERITT: That is right, too.

SECRETARY MORROW: From the standpoint of the larger cities, you would have Fred Schnell, Chatterton, Denstaedt and Jerry Morris, there is Bob, there is Lieutenant Teeter-- you have a dozen sources of information on the large city set-up. I think that it would take a good year or year and a half to prepare that book in any shape and probably two years to prepare it properly. I am judging that from this standpoint: We sent 1500 copies of this questionnaire on police communications from which we hoped to determine certain factors. To date we have had 80 replies.

MR. BATTS: How long ago, Frank?

SECRETARY MORROW: It has been just about a year now since they were mailed, about nine months, I would say. I do feel, however, that we can get some better action on that through the Chiefs' New Letter. The question of the state questionnaires, incidentally, is very easily explained. No questionnaires were sent to state systems, because of the fact that so many of them were engaged in construction programs that it would have made their information obsolete by

the time we completed the survey. We knew that it would take longer to get the municipal answers in. Only a few states are involved and, if necessary, we can fly and get the questionnaires in those states, but it would be a job to fly to 1500 departments. That is the reason the state questionnaires have not been mailed as yet. They will be mailed as soon as the other material is in in sufficient quantity.

MR. BATTIS: If this point is not out of order, I was thinking of the difficulties of obtaining proper equipment for measurements, such as signal strength measuring equipment, in all frequencies from the medium frequencies on down to and including the ultra high frequency, and it may be difficult to make a proper showing from an interference standpoint, for example, at our Frequency Allocations meeting in Washington, unless we do have some of that equipment in order to do it along the line that commercial companies or laboratories would do it in submitting information. Will that equipment be available to these various committees or, assuming that some individual in the organization were conducting special experiments, say, some city or state would set up equipment for conducting experiments on ultra high frequency modulation, run up all the equipment and all that to go ahead and make their tests and from a practical standpoint know what the answer is, but they would have no means of making signal strength measurements, and so on, with other necessary associated equipment really to make a good, sound report.

CHAIRMAN CURRY: I think that brings up a number of other things just in itself. One is that even if such equipment were available, the time would not be available for any of the members actually to carry out such work. If you depend upon getting your information from the various stations, it is not going to be worth very much, because from my own experience, even though we have control over five stations from which we can get information; yet after we get the information by asking the operators or the ones there for it and try to correlate it, it is no good. To give a concrete example: We have identical receiving set-ups at all of our stations. At one station the operator swore that it was directive in one direction and the other operators swore that it was directive in the other direction; yet it was identical all the way through. Unless you do take actual measurements in getting that information it is not worth very much from an engineering standpoint.

MR. BATTS: I was thinking that perhaps such equipment might be made available from commercial sources, that they might lend the equipment to the ACPO and perhaps the Engineering Committee would have charge of it, and if John Doe, in Podunk, is conducting some special experiments which your committee wants to know about, you can ship that equipment to him.

MR. SMITH: I would not trust John Doe. He might damage the equipment and you would have to pay for it.

CHAIRMAN CURRY: I believe that this would be a possible solution of that particular phase of the problem, that after the outline is drawn up to where we feel that certain information is necessary, we could put the responsibility for obtaining that information onto the FCC or somebody like that, because then they would not be sticking their necks out by recommending something. We are asking for definite information that they probably have in their files on other services. If they do have that information, they can send it to us or at least tell us how to get it, because I do not believe that it would be possible for the committee to obtain some of that information even if they had the equipment. As an example of trying to get information, if you have noticed in the last four Bulletins there was a request for engineers to send in certain cards with information so that we might use it in a certain set-up, and as a result of that I have gotten one card for each insertion in the Bulletin, so that now I have a big file of four names.

... Discussion off the record ...

COLONEL WHITE: Among other things our increased appropriation is for some field monitoring stations to make it possible for us to get information that we haven't got and that will go through the mill of our Technical Information Section, and we hope one of these days to be able to get a series of papers out covering behaviors in the 30 to 40-megacycle band.

SECRETARY MORROW: Would it be possible, Colonel, for one of these stations to be established in connection with the aeronautical station that we have at Indianapolis?

COLONEL WHITE: It has nothing to do with that.

MR. GROENIER: I thought when you started to talk about it that this was a manual that you were going to send to Chief Larsen, out here in Podunk, who is talking about putting in a radio. This is going to be a pretty highly technical bulletin for him to read, isn't it?

SECRETARY MORROW: Certain portions of it will be technical, but it won't do him any harm.

MR. GROENIER: No, but he won't read it.

SECRETARY MORROW: I think that things should follow in chronological order, that is, take up the various sections as it goes along: First, an explanation of what is police communication, what it is for, what they can do and what they cannot do, what facilities are available, what those facilities will do and will not do, and then the various types of equipment that are most generally used in towns of such a size, and in cities and counties of such a size, and then your technical information on that in such proportion as is warranted. I do not think that the amount of technical information that is in it needs to worry anybody, because there will be enough in it that is of a non-technical nature probably to influence them to get somebody who is technically minded to help them out on it.

MR. GROENIER: I think, along those lines, that throws something right into the lap of the Charter Committee. Isn't it true that if a community is thinking of putting in a radio system, one of the first things they do is to go to a neighboring community that has one. That has been true in Wisconsin. I know that representatives of Columbia County and I have appeared before a half dozen county boards to sell them on police radio. It isn't long ago that I went to Eau Claire. I gave them my own pet version of what type of equipment they ought to have, not sticking my neck out for any particular make. If it is a small community, I may recommend that they be on ultra high, or if it is a larger community, like Eau Claire, which is 150 miles from us and there is no other radio around there, I may recommend that they go on intermediate, as I did in the case of Eau Claire. It is often a local problem, and I do not see how you are going to cover it in a bulletin.

MR. SINDARS: As chapters are organized that situation takes care of itself.

MR. GROENIER: In other words, it is a good sales argument for you to sell chapter charters.

SECRETARY MORROW: In connection with that point, there are so many states where our activities as chapters have not even begun to be a dream, that you still have that problem of departments that have no touch of that kind.

MR. GROENIER: I will bet you that very few communities buy a radio without going over and looking at their neighboring community's.

SECRETARY MORROW: That is right and sometimes they look at some that should not exist.

CHAIRMAN CURRY: I think this has gone far enough. Let's draw it to a head one way or another. What is the will of the group? Shall the Engineering Committee take action or shall we let it ride for the present time until we can figure out the finances and one thing and another?

MR. WHERRITT: I suggest that the committee make a study of the possibilities of putting that out and the approximate cost and the manner in which it should be put out, and submit it to the next meeting of this committee.

CHAIRMAN CURRY: The cost and things like that I believe should come under some other committee, that is, mainly printing and things of that nature. I think that this committee should concern itself with the technical aspects of such a handbook, but other than that I believe it should come under other heads. So I should like to have the will of the group on whether the Technical Committee should undertake to outline which technical features should be in such a handbook.

SECRETARY MORROW: Just one final thought on it. Here is one thing that we have to face definitely in connection with this particular picture: Unless we, as police communications men, prepare such a manual, manuals are going to come on the market written and prepared by men who have very little contact with the field itself but have a lot of time and a lot of money and they will prepare manuals with the idea of selling pet ideas or particular types of equipment. I think that it will add to the future efficiency of our whole service, if we beat the gun on the thing and get the jump on that type of publication. It is coming. They have already

appeared and on reading them you find instantly that either the man who wrote the article had no practical knowledge, or very little practical knowledge, of what the game is. So from the standpoint of the importance of doing the job, I think that is of primary consideration.

MR. WILT: Frank, another thing comes to my mind about this publication: It can't be too long in the making because radio is changing too fast. Our first article will be obsolete within a year from the time it is written.

CHAIRMAN CURRY: I might make this suggestion, since I think that we should wind this up, that the Engineering Committee will undertake a study of it, and possibly in cooperation with the Secretary, since he has a number of ideas and is handy to get to, we will present before the Orlando convention recommendations as to what steps should be followed in going ahead with this work, if that is the will of this group. Do I hear any more questions on it?

MR. WILLIAMS: I second the motion.

CHAIRMAN CURRY: All in favor signify by the usual sign; contrary, It is so ordered.

I will turn the meeting over to the President then,

... The meeting adjourned at two-thirty o'clock ...
