

The CHAIRMAN. Mr. Satterfield.

Mr. SATTERFIELD. Thank you, Mr. Chairman.

General McKee, I gather from what has been said this morning that what you are really saying is that safety in and of itself depends upon a lot of different components, and that radar as such is only one such component.

General McKee. That is correct.

Mr. SATTERFIELD. I would like to ask you some questions about radar, since it seems to have been a center of discussion.

The radar that normally is employed at airports for control, control of aircraft, exactly how good is it as a safety tool?

General McKee. I will let Mr. Thomas answer that question, because he is more familiar with it than I am. It is good.

Mr. THOMAS. Mr. Satterfield, we use the best radar that we can buy, and it still is not perfect. As you know, and I think everyone knows, there are some targets that are very difficult to see—T-33, head on, some light aircraft, because it is dependent upon the airplane reflecting energy back to the radar and being picked up on a receiver. In addition, precipitation, weather, also makes it extremely difficult to see on radar.

Mr. SATTERFIELD. Is it possible to determine the altitude of the indications on the type radar you use?

Mr. THOMAS. No, sir. We do not use the so-called height-finding radar, because it isn't of much value in air traffic control.

Mr. SATTERFIELD. In other words, if you had two indications close together, they could be at the same altitude, or they could be 20,000 feet apart?

Mr. THOMAS. Yes, sir; this is one of the major deficiencies in our radar system, and we give out lots of traffic that really is of little interest to the other pilot. From a climb position, that is, if you were up, looking down, the paths would cross or come near each other. They may be separated by 10,000 or 15,000 feet. This is the sole aim of our big effort on the automation of the airspace, to put a device in the airplane that will read the altimeter, and then transmit the reading to the radar, and show it on the scope, but we are some distance away from that.

Mr. SATTERFIELD. Of course, this radar is located in a tower. Is it right where the tower controllers can see it, or does it require an individual to monitor it at all times?

Mr. THOMAS. No, sir; due to the fact that we use a cathode ray tube we are normally limited as to the light we can have, so we have a separate IFR room. In recent years we have had some progress in developing a so-called bright tube, and do have one scope in the tower cab itself, but usually, it is a separate darkroom, separated from the tower cab.

Mr. SATTERFIELD. So there would have to be communication between this room and the controller in the tower?

Mr. THOMAS. Yes, sir.

Mr. SATTERFIELD. In order to work properly, would it require constant surveillance, and would it not also require that every aircraft in the area be under constant control at all times?

Mr. THOMAS. Yes, sir; in order to provide traffic control, this is so. Now, we do provide radar advisory service, and I believe you heard