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THE STATES AND THE AIR SAFETY BOARD

By SUMPTER SMITH*

The other day I overheard a conversation between a couple of messengers who were attempting to fathom the meaning of N.A.S.A.O. Much to my amusement one of the boys ventured the suggestion that the initials might stand for National Association of Select Aviation Optimists.

Although amused at this fictitious definition of the Association which qualified it as a select group of aviation optimists, I could not help but feel that the name was somewhat fitting. As I look back upon the years during which I worked with the Association for common causes, I realize that all of us had been optimists — that we had to be optimists of a practical nature in order to succeed in our work. We expended a great deal of effort for each achievement, always prophesying a tremendous aviation development. Yes, and during the last few years we have seen some of our fondest anticipations realized.

I am firmly convinced that the optimistic attitude maintained by members of this organization — sometimes even in the face of discouraging circumstances — has done much to bring about some of the major developments in aviation. The optimism expressed by the members of the N.A.S.A.O. in the past was optimism because they knew aviation and were men of practical vision. Your last three presidents, Charles Morris, Floyd Evans and Gill Robb Wilson, truly have been modern oracles. In fact, I could go right down the list of membership naming practically every member of the organization since its inception and point out individual prognostications they have made that we are seeing materialize today. Some of these prophesies, if you please, were considered as extremely optimistic at the time they were made and in some instances were even classified as dreams of the distant future — yet today we see them take shape.

Our work, however, is far from complete and we shall have to continue to develop and protect the growth of this "Babe" aviation that we have fostered to its present state of adolescence. In continuing the task before us, our optimism and practical vision must continue — even to the extent that some day all of us might obtain 100 percent of the appropriations we believe necessary to carry on our work.

During the last few years my work has kept me in close touch with you and your work, and the deep personal regard and respect I have always had for your members has continued to grow. Today, as a member of the Air Safety Board, I am glad that I have had this close contact with your organization in the past, and I anticipate an even closer contact with its members in the future; for State Aviation Officials can render an aid of inestimable value in the promotion of air safety in their respective states. We want and need your cooperation.

The Civil Aeronautics Act of 1938 created a new type of three-unit agency consisting of a five-man Authority, an Administrator, and a three-man Air Safety Board. Among their duties, each was charged with some phase of the promotion of air safety. The five-man Authority was vested with the quasi-legislative power to promulgate safety regulations and policies, and to enforce them through

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its Bureau of Safety Regulation. The Administrator was given the task of safeguarding flights by maintaining airway facilities, and by conducting safety research. The Air Safety Board was charged with the investigation of accidents and the responsibility of reporting its findings to the Civil Aeronautics Authority and to the public. Each accident was to be analyzed by the Board, the probable cause determined and then the Board was to make such recommendations as it believed would tend to prevent recurrence of similar accidents.

It is well to point out the fact that the Air Safety Board is not a regulatory body. It only investigates and recommends. The Civil Aeronautics Authority promulgates the safety regulations and directs their enforcement.

Most of the work of the Air Safety Board is carried on by a small compact group located in Washington. However, in order to economize on funds and save time in reaching the scene of accidents, the Board has opened four branch offices. These offices are located at Chicago, Fort Worth, Los Angeles, and New York, and their establishment has been for the convenience of the public and the aviation industry, in addition to their being desirable to effect a more efficient handling of Air Safety Board duties.

The Air Safety Board closed its first year of operation on the 22nd of August with a record of more than 1,000 aircraft accidents investigated and analyzed, and 80 recommendations made to the Civil Aeronautics Authority with a view toward preventing recurrence of similar accidents. Extensive group studies have been initiated in connection with several hundred additional accidents and should be completed in the near future.

Five public hearings were conducted during accident investigations. Information disclosed during these hearings has been received with interest by the airlines and has caused every major scheduled operator in the United States to reexamine and improve, to a greater or lesser degree, their policies with regard to aircraft operation. At least one model of aircraft designed for scheduled air carrier operation has been modified in a manner to insure greater safety, and another model drastically revised in structure. Most of these revisions have been made voluntarily by the airlines and manufacturers as a result of the findings of the Board.

Much of the work of the Board has involved group analysis and detailed study of numerous minor and major accidents occurring in private and miscellaneous flying. These studies have not only resulted in improved structural design of certain aircraft, but have instigated certain changes in flight practices and procedures which will insure greater safety.

As applied to major scheduled air carrier accidents, the study of two or more accidents in a group analysis has afforded results at times impossible to obtain from the study of a single accident. The value of correlating the facts, conditions and circumstances relating to two different accidents is exemplified in a case recently coming before the Board. The evidence concerning the accident being investigated was incomplete and the Board was doubtful about the probable cause. While attempting to obtain more conclusive evidence, the investigators learned of a similar case on another airline in which an accident was narrowly averted. They followed this information to its source and through the testimony of the pilot involved were able to solve the cause and reconstruct the sequence of events in the accident under investigation. Consequently, knowledge was obtained upon which to base a recommendation that probably will bring about a structural modification of one or more types of aircraft now in scheduled air carrier service. As a result, the recurrence of accidents similar to one that cost eight lives may be prevented.

The safety of airline transportation increased approximately 300 percent during the 12 months ending June 30, 1939. I believe that it is reasonable to assume that there will be a continued improvement in safety of airline operations during the next 12 months. Although I am certain that the safety of air transportation will show a marked increase, it is possible that the number of accidents also will increase. During the first six months of 1939, the airlines carried 41 percent more passengers than they did during the similar period in 1938, and during July 1939, they carried approximately 65 percent more than they did during the same month in 1938. Therefore, if we base estimates on past statistics, and allow for a moderate gain in safety, it still is reasonable to expect an increase in the number of accidents during the forthcoming season. This is possible, but I do not believe it is probable. On the other hand, it is impossible to believe that aircraft accidents will disappear entirely. We certainly have not seen the total disappearance of accidents in connection with other kinds of transportation.

The safety of non-airline operations has shown excellent improvement, but it still falls short of the safety of scheduled air carrier operations. This class of flying includes student pilots and pilots engaged in numerous kinds of hazardous operations, such as crop dusting, testing, and exhibition flying, in addition to pilots engaged in charter, sight-seeing and sportsman flying. The promotion of safety among this group primarily deals with overcoming personnel error, and in this respect is similar to the problems confronted by automobile safety engineers. During 1938, over 50 percent of the total number of accidents occurring in non-airline flying involved personnel error. The dangers of personnel errors are further exemplified by their increased predominance as causes of fatal accidents. Approximately 75 percent of the fatal accidents which occurred during this 1938 period involved failure of the human factor.

The elimination of personnel errors affords one of the greatest problems found in the promotion of air safety. The immediate answer probably is to be found in safety education and in enforcement of safety regulations governing aircraft operation. The ultimate solution of a great deal of the trouble, however, extends beyond these first measures. Aircraft and engines have inherent safety characteristics. So long as the pilot is vigilant in his maintenance and operations he can expect these safety characteristics to protect him. When he relaxes his vigilance and does not stay within the operating limitations of his equipment, he invites trouble. Undoubtedly, the expansion of these operating limits will offer the final solution whereby many of the accidents now charged to personnel errors can be eliminated. In this connection, the first few errors of a certain type might be qualified as personnel errors, but a continuation of similar personnel errors indicates possible errors in design.

In nearly all cases the elimination of design characteristics which invite personnel errors will have to begin with new aircraft. This still leaves us with about 12,000 aircraft of past manufacture that are flying today. Of course, many of these planes have excellent inherent safety features, but others, safe enough if held within their limitations, have characteristics that fall short of desirable standards. Probably the most beneficial improvement that could be made to the majority of these planes would be the installation of devices or the incorporation of slight changes in design that would offer protection against inadvertent stalls and spins. In some instances this improvement can be made to aircraft now in service by installation of wing slots or modifications in control surfaces. Even this remedy, which would take time to install on all aircraft

that might be benefited thereby, will not improve the other limitations found in some of the aircraft now being flown such as poor visibility, narrow landing gear tread, and under-powering. Therefore, our first duty is to attempt to restrain operators from exceeding the safe limitations of the equipment in all cases. In the meantime, we can bend every effort toward making detailed studies of aircraft accidents to ascertain improvements in engineering which if made to aircraft will require less vigilance and skill on the part of the operator and thus reduce the likelihood of personnel error.

In undertaking the task before us, we can recommend changes in airplane design that we know can be carried out by regulations promulgated by the Civil Aeronautics Authority because the Civil Aeronautics Authority has control of the manufacturer through issuance of certificates of airworthiness. On the other hand, however, when we recommend that the Civil Aeronautics Authority make regulations dealing with the upkeep and operation of aircraft, we know that its successful execution demands cooperation of the operator and the entire civilian population of the country. It is economically impossible to place Federal inspectors and airway control personnel at every one of the approximately 2,500 airports throughout the nation. In fact, I do not believe that this type of government control is desirable or should be necessary in a nation operating under our democratic form of government.

The States and even the local communities can do much to assist in safety regulation and enforcement in the various localities — especially off-airways. This problem, however, is chiefly a problem of the Authority's and you should hear more about it from other speakers present at this conference. In this connection, however, I have five suggestions to make concerning action that can be taken by states in furtherance of air safety. Although the first two are made as the result of studies conducted by the Air Safety Board, their execution of necessity involves cooperation with Civil Aeronautics Authority personnel relative to regulations and the enforcement of regulations.

The first suggestion is that foolhardy flying be condemned and every effort be exerted to report all violations. Regardless of improvements made to aircraft and regulations made to control the reckless pilot we can always expect to be faced with the problems involving foolhardy flying. The majority of this type of flying is done by individuals who seek the praise of their friends relative to their fearlessness and ability to fly an airplane. Therefore, a general condemnation of this type of flying strikes at the source and should do much to assist in controlling it. The severe punishment of pilots breaking regulations designed to promote sane flying is the only other method by which we can hope to control it. As was previously stated, however, Federal personnel is limited and unless each violation is brought to the attention of the proper authorities, it will be impossible to completely enforce the regulations by prosecution. Therefore, a general educational program undertaken by the various States and cooperation of all local law enforcement agencies in reporting violations will do much toward eliminating this cause of accidents.

The second suggestion is that State Aviation Officials take action to assure themselves that local airports have adequate safety regulations and that the regulations are properly enforced. As was previously stated, it is economically impossible for the Federal government to place enforcement agencies on every airport. Therefore, it becomes the duty of the airport manager or some other individual appointed by the community or State to regulate flying with a firm hand on the local airport. In cases of municipal airports, this problem is somewhat alleviated. On privately-owned airports we find a little different situation.

It might be possible, however, to deputize the airport manager and exercise some control over the situation by local ordinances or State laws. You will probably find that different localities will have certain individual problems, but you must remember that an airport receives numerous visits from strangers and standardization of rules is important. Most of the regulations necessary to safely operate an airport can be found in the Civil Air Regulations and but few additions, if any, will have to be made in the majority of cases. Enforcement is the important item.

The third suggestion involves the immediate notification of Air Safety Board or Civil Aeronautics Authority personnel concerning the occurrence of major aircraft accidents and cooperation in establishing an appropriate guard around the wreckage until the arrival of Federal authorities. Although recently a regulation was promulgated relating to this subject, its importance can not be over-stressed. The adoption of the suggestion is of tremendous importance to investigating personnel of the Air Safety Board, and I believe that in many instances the local civil authorities are not apprised of the value of preserving every detail of the wreckage. In several instances the work of pilfering souvenir hunters has made it difficult to ascertain the cause of the accident. In one case, particularly, did we meet with this problem and the loss of vital evidence became a loss that was felt by the entire aviation industry. Usually local or State civil authorities are the first law enforcement representatives at the scene of a disaster, and we have to depend upon them to preserve the remains of the aircraft intact and in many instances to report the occurrence of the accident. State Aviation Officials can assist us tremendously by further developing this cooperation with law enforcement agencies in their respective States.

Even very minor accidents prove of the utmost significance. The fourth suggestion, therefore, is that State Aviation Officials take whatever steps they can to assure the reporting of each aircraft accident, no matter how small, to Federal authorities. As was previously pointed out, the cause of a major aircraft accident was solved as the result of the analysis of an accident that did not result in a serious accident and had not been reported, but which was uncovered by Air Safety Board investigators at the time of the investigation of a major accident. Similarly, many times the indication of trouble in a minor accident will lead to the prevention of the recurrence of a similar accident with tragic consequences.

The first suggestion is that State Aviation Officials assist in stimulating a public demand for aircraft with maximum safety characteristics. It is realized that the average layman can not set himself up as a technical expert to judge the safety characteristics of the airplane in which he is going to take a flight, or possibly learn how to fly. For this reason, the Civil Aeronautics Authority has tested each type of aircraft and certificated it as to its airworthiness. However, a great deal can be done to stimulate manufacturers to include and further develop safety features even beyond the present requirements of the Civil Aeronautics Authority. An aircraft may be perfectly safe to operate if operated within its limitations, and if it is given vigilant maintenance. On the other hand, if the airplane is designed to be safer than most against stalling and spinning, if it is designed to give an extra ease of maintenance, offers the pilot in the cockpit exceptional visibility and is equipped with brakes and other auxiliary equipment that makes it easier to taxi and fly, it should be demanded in preference to aircraft not having these facilities and characteristics.

By following the foregoing suggestions, State Aviation Officials can be of inestimable value to the Federal agencies. State and Federal aviation agencies

have much to do without creating an uneconomical overlapping of duties and complete cooperation will offer both classes of agencies the most effective way to meet their common problems. Each of you is interested in developing aviation in your respective State. The promotion of safety is a key to this development. With your individual cooperation the Air Safety Board can assist you in attaining a good safety record for your State and at the same time assist other States to control accident recurrence by what we learn in your State.

In closing I would like to stress the fact that we welcome suggestions from you at all times and want you to feel free to call on us when we can be of assistance. The Federal agencies can *not* successfully carry out their functions without the hearty cooperation of the State agencies, and we in turn feel that by working closely with you, we can together accomplish the greatest possible advance in aviation.