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AVIATION EDUCATION

FLOYD E. EVANS*

Of the several aviation promotional programs that have been sponsored by the State Aeronautics Department in Michigan during recent years, I feel, one of the most interesting and effective programs is that known as the F. E. R. A. Aviation Ground School Program conducted during the past winter.

We are very pleased with the results of this program and sincerely hope that such a program will be adopted by the several national aviation organizations and conducted in every state, making it possible for every person from the model airplane age to adults to secure fundamental knowledge of the subject of aviation.

The lack of complete and thorough understanding of the possibilities and limitations of the airplane cannot exist if this new vehicle of transportation is ever to become popular either for pleasure or business use. The mystery of the art of flying must be entirely eliminated. A person who knows how an airplane is supported in the air, knows the fundamental principles of aerodynamics, knows generally the construction of an airplane and the reason or excuse of its many parts will not be reluctant to use aircraft for travel.

I feel we have every reason for entertaining optimistic opinions on the future outlook of the airplane industry at this time. We are coming out of a period of industrial activity. Employment is on the upgrade. Manufacturers are again generally increasing their production. We have seen the private flying activity decrease year by year now for four years, but there is every evidence that we have reached a period where this activity is showing definite indications of increasing.

During the so-called "Depression" many of our small aircraft manufacturers have passed out of existence. There remains now only those companies that have an exceptionally good product and whose finances are such that they are in a position to meet the demands of production when warranted.

The inexpensive, economical and reliable airplane awaits now only a demand. I believe this demand will come as the result of a nation-wide educational movement. From our experience in

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Michigan during the past year we know there are thousands of young men and women anxious and willing to devote time and study in improving their knowledge of this aviation business. Our aviation ground schools were established during the past winter in forty cities with an enrollment in excess of two thousand students. We are convinced that we can double this enrollment during the coming year and have a considerably higher type of student enrolled. I believe this same thing can be done in every state if the program is conscientiously pursued.

Probably the first thing that comes to your minds in considering the conduct of so-called "Relief Organization" schools is the competition that might be created with existing private ground schools. In our state there are not more than two or three organizations that give any semblance of a ground school course. All organizations now in the so-called "Flying School" business are conducted primarily for the purpose of giving actual flight instruction. They give only such ground school instruction as is absolutely necessary for the student pilot to qualify as a licensed pilot. Of the many students that were enrolled in our free ground school courses a very small percentage of them would have interested themselves to the extent of spending any material amount of funds for taking the course. After pursuing this ground school course for a short period, however, we have definite advice that a fair percentage of these students, who were at first just lukewarm students, have become very active students, so active in fact that they have later enrolled in commercial schools to pursue the subject of aviation more thoroughly than could possibly be done during our short course program.

From data we secured from the ground school instructors during the summer we are definitely certain that in the vicinity of two hundred of the ground school students are actually taking flight instruction with prospects of almost an equal number being added to this list either during the present summer or coming year. We are also advised that approximately fifty planes will be sold to these students sometime during the coming two years. If this program is again conducted this coming winter with double the enrollment of the last winter courses, and the same program conducted in other states, it can readily be seen that we will be doing no small part in educating a relatively large percentage of the youth of the country in the construction and operation of the airplane and incidentally encouraging the use of the airplane as transportation.

As a guide to those State Aviation Officials who contemplate the establishment of so-called "Relief Ground Schools" financed through the Works Progress Administration I will outline briefly the procedure followed in Michigan in getting these ground schools successfully established in a short period of time during the latter part of 1934.

First a letter was directed to the school superintendents from the Aeronautics Department supplemented with a letter from the State Work Relief Educational Director, asking the superintendents to consider the establishment of an aviation ground school. These letters were so timed that a personal interview by a so-called "local contact man" (generally the local airport manager), requested by the Board of Aeronautics to call on the superintendent and endeavor to convince him that the establishment of a ground school might have an influence in increasing local aviation interest. These letters and this personal contact were scheduled simultaneously with a State-wide news release outlining the general program. The result was that demands for ground school courses began coming to school superintendents at once from interested prospective students. This demand influenced most of the superintendents to submit a project request for a school at once, for within three weeks all but four of the original thirty-six cities selected for the establishment of a school had submitted applications and subsequently six other cities requested approval for projects without solicitation. Since that time we have had a number of other requests for the establishment of schools, however, in most cases it was found necessary to refuse requests due to the fact that it would be impossible to complete the course until long after the close of the regular school year.

Instructors were selected who were so-called "needy unemployed" by school superintendents after consultation with the local contact man selected by the Board of Aeronautics. This instructor's qualifications insofar as being needy of employment were determined by the local Relief Administration. Instructors selected generally were pilots and, where possible, also aeronautical engineers. The wage scale during the past winter was \$1.00 per hour for actual classroom work with \$15.00 per week as a maximum salary. We feel that this wage scale is extremely low and are hoping that same will be raised considerably during the coming winter.

The Ground School classes were held two nights a week generally and in some cases three nights, in public school classrooms

where there were available suitable desks, tables, chairs, blackboards, etc. The course required thirty classroom periods for completion. We feel that the holding of these classes in public schools has a material advantage in bringing the subject of aviation very close to the attention of the local school superintendent, who appreciating the general interest in this subject by the public will give serious consideration to the establishment of aviation instruction as a part of the regular high school work in the near future.

Classes are open to all adepts over the age of sixteen years of age who are not enrolled in any public school. The average age during our past program was approximately twenty-seven years. Students came from all walks of life, from unemployed to engineers, professional men and executives with salaries in excess of \$6,000.00 per year. In a number of instances fathers and sons, and mothers and daughters attended the classes regularly. In one instance a father, mother and twin sons were enrolled. A number of ladies were enrolled in the classes and in Detroit one very splendid class of ladies only was organized.

In setting up this ground school project it was felt that the demand for enrollment might exceed our supply of instructors unless some obligation and financial barrier was set up to eliminate those who would take the course primarily because it was free. Consequently, all instructors were requested to require their students to secure a standard text at a price of \$5.25 each. It is sincerely felt that students must have a text for home study in order to get the maximum benefit from such a course. Further, the text is always a ready reference and after completion of the course probably would be read and discussed by the students with their family and friends, with the result that many more than the actual number enrolled in these classes were benefitting from same.

The course of instruction included the subjects of nomenclature, airplane construction, fuel systems, aircraft engines, minor repairing, theory of flight, elementary aerodynamics, U. S. Bureau of Air Commerce Regulations, Air Traffic Rules and State Regulations. Periodic examinations were given during the period of the course and a final examination at the completion. The course is so designed that any student who diligently pursues same and has written a satisfactory examination during the periodic tests and a satisfactory final examination possesses sufficient knowledge to pass the regular Bureau of Air Commerce written test for any type of pilot's license with the exception of a transport license, which requires Meteorology and Navigation. An Advanced course

was given in a number of communities which included the latter two subjects thereby qualifying the graduates to pass all types of Department of Commerce pilots examinations.

We now have very definite assurance that the program as conducted during the past year will be authorized again during the coming winter season and we are contemplating starting same about November 15th in order to have most of the classes complete their work by the start of the flying season in the spring. It is quite possible that some State Relief Administrators will not see the benefit derived from the relief standpoint in the conduct of these ground schools because of the relatively small number of persons actually employed. As we see the picture the results are indirect but surely are positive, for if a fair percentage of the students who enroll in these courses pursue flight instruction and again if a small percentage of them carry on still further and acquire an airplane of their own, the manufacture and the maintenance of this airplane gives employment. During the period of flight instruction employment will be given to the pilot instructor and to mechanics in the maintenance of the airplane. Every new plane purchased will give employment to aircraft craftsmen in their regular profession. It was ascertained during the past winter that the approximate fifty instructors who carried on our ground school work were needy unemployed and were in many cases destitute and would have had to resort to relief rolls had it not been possible for them to pick up some funds by carrying on this ground school course. As you all know the income to a pilot endeavoring to carry on flight instruction even during the productive summer months is very limited, and during the winter months, especially in our colder states, their income is practically nil.

Those of us gathered at this meeting are all, I believe, of one mind—namely, the promotion of aviation in the hope of permanently establishing the aviation industry. We are all endeavoring to develop more and better airports in our respective states, carry on extensive town marking programs, and develop other navigation aids. We should all supplement this work with an educational program if we expect these newly developed landing fields to continue in existence and not grow up to grass. I believe now is the proper time for this organization to inaugurate a nation-wide educational program which will comprise the sponsoring of model airplane activity, encouragement of aviation instruction in public schools, the establishment of adult aviation educational classes in all our larger communities, encourage actual flight instruction in

our major colleges and sponsor airplane clubs. The personnel that will be enrolled in these ground school classes are of just the proper type generally to aid us in this broad educational program. I therefore believe that the first move in order to accomplish the major program is to pursue a so-called "Work Relief" Ground School Program that will in itself have beneficial results and will build up for us a nucleus of an organization of aviation enthusiasts that could not be acquired in any other manner.

I heartily recommend that this organization go on record at this meeting favoring the inauguration of work relief ground schools in all states and solicit the support of the Bureau of Air Commerce, National Aeronautic Association, Aeronautical Chamber of Commerce, the American Legion and such other aviation minded organizations as are in existence in furthering this program.