ARMY AIR FORCES NAVIGATION SCHOOL
San Marcos Army Air Field
San Marcos, Texas JMR/da

210.48 10 September 1943

SUBJECT: Report on Temporary Assignment.

THRU : Commanding General, AAF Central Flying Training Command, Randolph Field, Texas.

TO : Commanding General, AAF Training Command, Fort Worth, Texas.

1. In compliance with Special Order No. 165, Paragraph 4, published this station 12 July 1943 (Auth: TWX Hq AAFCCTC RF Tex ICM1306 dtd 9 Jul 43 & ICM1768 dtd 10 Jul 43), the following report of the observations and recommendations of this officer while on temporary duty at Geiger Field at Spokane, Washington (July 15 to July 30) and at the Army Air Base at Casper, Wyoming (July 31 to August 13) is hereby submitted.

a. Graduate navigators from schools in the training centers are not the finished products for combat duty that they might be.

(1) They seem to lack the over-all picture of all the "types" of navigation blending together to make a good flight. They are often still in the problem phase of their training, segregating in the "types" of navigation to be flown on any one flight.

(2) They seem to lack confidence in their own work, often not trusting their "lines of position" and "fixes".

(3) They must be impressed with the responsibilities of a navigator and strive for better pilot-navigator relationship.

(4) Good judgment in the air is often lacking in the graduate navigator just out of school. They often lack knowledge to interpret properly their own work, especially celestial LOP's and fixes.

(5) While a definite attempt at standardization has been made at the various schools, there is still much uniformity lacking.

(6) There is a slight tendency in the schools to get away from the basic knowledge of navigation and to substitute "current wrinkles" from various war theatres. These "current wrinkles" depend a great deal upon the combat theatre in which they are used and the individual navigator's experience.

b. The Overseas Training Units and Replacement Training Units are attempting to bridge the gap between training and combat planes, but no standard course can be given for the following reasons:

(1) The length of time in the various O.T.U. and R.T.U.'s is not standard, and, it is likely, the navigators' training will not have been completed when crew requirements have been met and the crew sent to combat.

(2) Navigators from the various schools are not equally trained. At the O.T.U.'s, each navigator must be analyzed individually and brought up to the standard of the O.T.U.

(3) The celestial navi-trainers in some of the O.T.U.'s are a definite aid to the newly graduated navigator, but only a few of the O.T.U.'s have them at present. These C.N.T.'s greatly aid the navigator in gaining confidence in his own work.

2. The following are, in this officer's opinion, specific improvements that can be accomplished in the training centers.

a. Students should be impressed with the fact that their fixes can be accurate, and that navigating from fix to fix is often more practical on long flights than by constantly using average track procedure. The students are often not impressed with the fact that average track procedure is only used for the last few hundred miles of a long flight. The students attempt to use average track procedure on all celestial missions. As a consequence, they often get great distances off the desired course while attempting to get the required number of fixes, thereby wasting time and fuel.

b. Use of the B-5 driftmeter should be stressed to a greater extent since the B-2 and B-3 driftmeters are being, or already have been replaced by B-5's in the B-17 and B-24 airplanes, because of the following reasons:

(1) There is less chance of breakage, and repair and maintenance are simplified. Combat stations often lack facilities for repair, and expert instrument men are few.

(2) Less costly throughout.

(3) It is easy to get ground speed by timing, using the simplified computer on the face of the B-5 driftmeter.

(4) Eventually all driftmeters will be removed from most planes because of weight restrictions and increased bomb loads. The navigator will use the bombardier's bombsight for obtaining drift.

c. Combat log procedure should be stressed during the latter part of the course so that the O.T.U.'s do not need to waste precious time in the change-over from school log books to combat log books.

d. Students should be impressed with the value of weather observations and accurate recording of same on every flight. They should be given a list of all weather symbols they may be called upon to use, for ready reference in combat.

e. The five-minute log entry should not be stressed, except in very early phases of the course, because students often become too occupied with repetitious book work and have little time for the real navigation problem. On combat flights the amount of log entries is unimportant provided all salient facts of the flight are recorded accurately and completely. Mercator chart work should also be kept up-to-date and complete.

f. Radio procedure in flight has often not been mastered before leaving navigation schools. Students often have the erroneous idea, given, perhaps, by new instructors, that radio work is not to be trusted due to errors introduced. The truth is that radio can be used accurately in combat if stations are properly selected and bearings are properly interpreted.

g. Navigators should be impressed with the fact that they are important members of the crew and that they are officers just as the pilots are. They should feel free to correct the pilot whenever necessary. The accuracy of the mission is the responsibility of the navigator, and the respect of the crew for him hinges on his accuracy. The dangerous situation whereby the navigator depends upon the pilot to get the plane to destination should never arise. Pilots should be taught the value of a navigator from the very start of their transition training. Navigators often are not appreciated by their pilots until they fly their first long over-water flight.

h. Over-water flights should be incorporated in the course to a greater extent than they are at present. Several hours should be devoted in the course to methods of obtaining drift over water and using wave indications of wind and velocity. Navy training films are available on the above subjects.

i. Stars are not readily identified by many navigators at latitudes and during seasons other than those encountered in training.

j. All students should be required to construct a Mercator chart, showing all navigational stars, and incorporate their own pointer system of identification. Also they should be required to do problems involving crossing the International Date Line.

k. All available short cuts to obtaining deviation on course should be taught in the schools since the driftmasters are being removed from combat planes. Deviation by gyro methods, B-5 driftmaster, master compass, and shadow pin should be taught in addition to the principal method of using the astro-compass. Less stress should be laid upon the tedious, often inaccurate terrestrial swinging of compass over RR, on 24 headings, except as training for other more important methods.

l. Air-plot methods and use should be elaborated on in the schools.

m. There are indications that the astrograph is being removed from combat planes because of weight and maintenance difficulties; therefore, it is questionable whether the astrograph should be taught to any great extent in the schools.

n. The navigator's permanent celestial kit should be given early enough in the course so that the students can properly calibrate and master their octants before leaving school. Also the navigators can rate their watches at the school where the instrument men and rating equipment are available. A short lecture on the maintenance of their celestial kit equipment should be given to the navigators, incorporating such subjects as shipping (delay, breakage, loss) and storage precautions.

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