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ARMY AIR FORCES HISTORICAL STUDIES: No. 48

PREFLIGHT TRAINING

in the

AAF

1939 - 1944

The original of this monograph and the documents from which it was written are in the USAF Historical Division, Archives Branch, Bldg. 914, Maxwell Air Force Base, Alabama.

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PREFLIGHT TRAINING IN THE AAF, 1939-1944

AAF Historical Office
Headquarters, Army Air Forces
November 1946

FOREWORD

This account of preflight training was prepared in the Historical Section of the AAF Training Command Headquarters. It is based upon an earlier study by Capt. Norman H. Caldwell, which covers the period from 1 January 1939 to 30 June 1944. The present work, written by Capt. Thomas H. Greer, extends the period of the study to 31 December 1944.

The history contains discussions of the general development of the preflight program, curricular changes, instructors and teaching methods, and students. It deals both with the academic phases of preflight and with military and physical training. In this connection, there is pertinent information on the academic view versus the military view. Several documents providing elaboration on topics treated briefly in the narrative have been attached as an appendix to the No. 1 copy of this study, AAF Historical Studies: No. 48, on file in the AAF Historical Office.

Readers familiar with the subject matter are invited to contribute additional facts, interpretations, and suggestions. For this purpose, perforated sheets have been placed at the back of the study.

C O N T E N T S

Preflight Training in the AAF, 1939-1944

Chapter I

GENERAL DEVELOPMENT OF THE PROGRAM

The realization of the need for "preflight" training goes back to experience in the first World War when the American training program, based upon that used by the Canadians, included an eight-week course in "ground schools" before cadets were sent to "flying schools." These ground schools were established at institutions of higher learning in convenient locations throughout the country.[1] In the postwar period, however, the Army Air Corps relied chiefly upon high educational requirements to insure a sound background for aviation cadets, military indoctrination being given at the flying schools.

Origin of the Preflight Idea

The expansion of pilot training and the lowering of educational requirements for flying recruits during World War II made it desirable to institute some form of preflight instruction in order to assure a common level of academic background and to give newly recruited cadets the fundamentals of military discipline.[2] The man who took the lead

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1. Col. Edgar S. Gorrell, The Measure of America's World War Aeronautical Effort, p. 16. See also Maj. Charles W. Bowman, "Outline of Heavier-than-Air Training," pp. 12, 14, prepared at ACTC, 1 June 1937, in AFTRC Historical Sec. files.
2. Maj. Gen. B. K. Yount, "Building the AAF: Part I, Pre-Flight Toughens 'Em," in Aviation, Aug. 1943, p. 124.

in advocating the preflight schools was Brig. Gen. Walter R. Weaver. General Weaver's ideas were undoubtedly based upon the system then being used by the Canadians, under which trainees were sent to "manning depots" immediately after recruitment for inoculations, the issue of uniforms and equipment, and lectures on sanitation, hygiene, and other basic subjects. The remainder of the time was devoted to intensive physical training and drill. This program covered a period of from two to four weeks, after which trainees were sent to "initial training schools" for a four-week course in Mathematics, Armament, Hygiene and Sanitation, Link Training, Drill, and Physical Training. There is evidence that higher headquarters were not easily convinced of the desirability of the Canadian plan, partly because the establishment of some system of preliminary training, then under consideration for the civilian elementary flying schools, would supplant the need for that plan.[3] On 8 November 1940 the Chief of the Air Corps announced the adoption of a plan for a four-week preflight program to be set up in the civilian schools, but this was abandoned a month later in favor of military reception centers. Such a reception center for flying cadets was to be established in each training center area.[4]

Such, in brief, is the story of the birth of the preflight program. General Weaver, at least, had a very clear conception of the aims of

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3. Memo for Gen. H. H. Arnold by Maj. R. N. Webster, 12 Aug. 1940, in AFTRC Central files; interview with Maj. Gen. Walter R. Weaver (Retired) by Capt. Anson Beard, New York, N. Y., 14-15 Dec. 1943, in History of Eastern Flying Training Command, 7 Dec. 1941-1 Jan. 1943, vol. VI, app. [cited as EFTC History].
4. EFTC History, 1 Jan. 1939-7 Dec. 1941, vol. II, p. 318.

such a program. In his view, cadets, after preflight training, would arrive at primary schools, not only with proper equipment and inoculations but also with a thorough indoctrination in ground training and a well-rounded academic background. Finally, they would have received the degree of physical conditioning and toughening requisite for the difficult period of flying training ahead.[5]

Establishment of Preflight Schools

On 21 February 1941 authorization was given for the establishment of three "replacement training centers," to be located at Maxwell Field, Ala., Kelly Field, Texas, and Moffett Field, Calif.[6] After the necessary construction work, preflight training started at Maxwell Field on 6 September 1941. At Kelly Field classes began on 21 November 1941, but the preflight activity there was moved to the adjacent, newly created San Antonio Aviation Cadet Center (SAACC) on 4 July 1942. Plans to establish a replacement training center at Moffett Field were canceled in favor of a site near Santa Ana, Calif. Preflight training at Santa Ana was started soon after 23 February 1942. The official designation "Preflight School" was authorized on 30 April 1942, when the term "replacement training center" was dropped.[7]

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5. Interview with Maj. Gen. Walter R. Weaver (Retired) by Capt. Anson Beard, New York, N. Y., 14-15 Dec. 1943, in ibid., 7 Dec. 1941-1 Jan. 1943, vol. VI, app.
6. AG 320.2 (1-16-41) M (Ret.) M-C, 21 Feb. 1941 (Doc. 1). The documents referred to in parentheses in this study will be found attached to the No. 1 copy of AAF Historical Studies: No. 48, which is on file in the AAF Historical Office.
7. History of Maxwell Field, 1 Jan. 1939-7 Dec. 1941, p. 263; Hq. SAACC to CG, GCTC, 7 July 1942, in CFTC Central files, 323.3; History of SAACC, 4 July 1942-1 March 1944, p. 60; WCTC History, 7 Dec. 1941-31 Dec. 1942, vol. II, pp. 259-60; AG 320.2 (3-24-42) MR-M-AF, 30 April 1942; History of SAAAB, activation-31 Dec. 1942, p. 122.

Although it was intended at first to give the same preflight training to pilot and nonpilot aircrew candidates, a later decision caused the establishment of separate schools. At the Gulf Coast Training Center only pilot candidates were assigned to the preflight school at Kelly Field (later at SAACC). A separate school for bombardiers and navigators was activated at Ellington Field, Texas, on 20 September 1941. The Southeast Training Center likewise differentiated training by establishing an independent bombardier-navigator preflight school at Maxwell Field on 18 May 1942. This organization was moved to Selman Field, La., on 14 August 1942. The West Coast Training Center set up separate schools at the Santa Ana Army Air Base on 15 June 1942.[8]

Proposal to Abolish Preflight

The peak of development of the preflight schools was reached in the summer of 1943. The college training program (pre-preflight) reached its height at about the same time. It appeared to some observers in Headquarters, AAF that college training obviated the need for preflight schools, and the question of discontinuing them was put squarely before the Commanding General of the Flying Training Command on 29 May 1943.[9] The merits of the preflight schools and the reciprocal relations of preflight and college training were set forth by Maj. Gen. Barton K. Yount in his reply, dated 4 September 1943. The points emphasized

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8. History of the AAFPS (B-N), Ellington Field, Texas, 30 Sep. 1941-1 March 1944, pp. 1-2; History of Selman Field, Monroe, La., 15 June-31 Dec. 1942, pp. 1-3; WCTC History, 7 Dec. 1941-31 Dec. 1942, vol. II, p. 283.
9. Hq. AFFTC, Stat. Div., Daily Diary, 7 June 1943, 29 June 1943, 5 Oct. 1943; T.X, CG, AAF to CG, AFFTC, 29 May 1943, in AFTRC 353, College Training.

were the preparatory and supplementary character of the college training program, the inadequacy of the staffs and equipment of the colleges to do the work accomplished by the preflight schools, and the difficulty of obtaining standardization among so many college training detachments.[10] The upshot of such considerations was the decision to discontinue the college training program and to consolidate preflight training in an expanded 10-week program.[11]

Reorganization of Training

During 1944 the trend in numbers of trainees was downward, and the organization of training was adapted to fit the trend. In April 1944 Training Command Headquarters directed that pilot and bombardier-navigator schools be combined; shortly thereafter a unified curriculum was issued for all preflight students. The school for bombardiers and navigators at Ellington Field was accordingly absorbed by the preflight school at the San Antonio Aviation Cadet Center, and the pilot and bombardier-navigator organizations at the Santa Ana Army Air Base were combined. The new preflight schools offered identical courses to all aircrew candidates. Each school was divided into a "General Preflight" section covering the first five weeks of training and an "Advanced Preflight" section covering the second five weeks.[12] The principal advantages resulting from consolidation of the preflight schools were

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10. Hq. AFTRC to CG, AAF, 4 Sep. 1943, in AFTRC 353, Preflight (Doc. 2, this study).
11. TC Memo No. 50-23-1, 23 May 1944 (Doc. 9, this study).
12. TC Memos Nos. 35-17, 14 April 1944; 50-23-1, 23 May 1944 (Doc. 9, this study); and 50-27-1, 12 May 1944.

administrative economy, uniform indoctrination of all aircrew members, and greater flexibility in assignment procedure. After the combination, students were not assigned finally as pilots, bombardiers, or navigators until the latter part of the preflight course.

The culmination of the above steps was a union of the consolidated schools themselves. This occurred in the autumn of 1944. Early in October it was learned that no further aircrew trainees would be entered into the preflight schools at Santa Ana and Maxwell fields and that all preflight training would in the future be provided at the AAF Preflight School at San Antonio Aviation Cadet Center. Selected personnel from the training departments of the inactivated schools were transferred to San Antonio.[13]

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13. WFTC History, 1 Sep.-31 Oct. 1944, vol. I, p. 182; EFTC History, 1 Sep.-31 Oct. 1944, vol. I, p. 73.

Chapter II

CURRICULA

At the time the decision was made to establish the "replacement training centers" there seem to have been no definite ideas concerning an instructional program. Mention was made, however, of instruction in "physical training, military training, supervised athletics and the complete processing of assigned students."[1] A later letter refers to such "additional instruction and training as may be practicable during the period allotted (4 weeks) that will serve to further qualify trainees for instruction as pilots, bombardiers or navigators."[2]

Initial Proposals and Programs

In response to a request from the Chief of the Air Corps, the Southeast Air Corps Training Center submitted a proposed curriculum on 27 June 1941.[3] As finally approved the program called for the following hours of training:[4]

Reception and Processing (including six hours of tests)	30

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1. OCAC to CO's, SETC, GCTC, and WCTC, 1 Oct. 1940, in AFTRC Historical Sec. files.
2. OCAC to CO's, SETC, GCTC, and WCTC, 2 Oct. 1940 (Doc. 5, this study), in ibid.
3. Hq. SETC to OCAC, 27 June 1941, in ibid.
4. Program of Instruction, sent to SETC by OCAC, 2 Sep. 1941 (Doc. 6, this study), in ibid.

Academic Preparation	
Military Law	11
Citizenship	2
Mathematics	20
Military Hygiene and First Aid	5
Chemical Warfare Defense	2
Current Events	2
Administrative Indoctrination	
Customs and Courtesies of the Service	5
Squadron Administration and Command	10
Organization Lectures	8
Basic Military Indoctrination	
Manual of Pistol	6
Interior Guard Duty	4
Infantry Drill	20
Ceremonies and Inspections	6
Physical Training	32
TOTAL	163

While the above program of instruction was being drawn up, consideration was being given to the establishment of a longer period of preflight training. At a conference in August 1941 attended by the senior generals of the Army Air Forces, the question was raised as to whether the program at the cadet replacement training centers should not be increased from five to 10 weeks. The commanders of the three training centers agreed that such an extension would be advantageous. The chief difficulty at the moment was in the shortage of housing space, though it was suggested that tents might be used to alleviate this shortage. Considerations for increasing the length of time in preflight training were based upon the desire to put more emphasis upon the military indoctrination of trainees.[5] This proposal was eventually refused,

5. R&R, Chief, T&O Div., OCAC, to Chief, Training Sec., T&O Div., 28 Aug. 1941, in AAG 352.11H, Courses of Instruction; Hq. SETC to OCAC, 26 Aug. 1941, in AFTRC Historical Sec. files.

however, because it was felt that there had been inadequate opportunity to test the results of the four-week program and also because a number of military personnel believed a longer program would interfere with the progress of training in the event of mobilization for war.

General Weaver continued to recommend the longer period of training, submitting a program of instruction for such a course. His proposal had two objectives: (1) the preparation of aviation cadets physically and mentally for future intensive training, and (2) the indoctrination of cadets in the duties of junior officers. To a considerable extent this program represented the ideas of the "military school" as to the content and scope of preflight training; its subject matter including processing, academic training, and military indoctrination, and the course extended over a period of 10 weeks. The allotment of hours was as follows:[6]

Basic and Military Indoctrination (including eight hours of processing)	188
General Academic Preparation	144
Basic Duties of Junior Officers	39

In the meantime the preflight schools at Maxwell and Kelly fields had begun to function. Just how closely the program of instruction as approved by the Chief of the Air Corps was being followed is not clear, but at the end of 1941 the 10-week experimental course was initiated at Maxwell Field according to the suggestions of General Weaver, the

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6. Program of Instruction for Aviation Cadet Replacement Centers (Pilot), 17 Sep. 1941, in AAG 352.11H, Courses of Instruction.

program having been given tentative approval. It was planned to have similar programs established in the other centers immediately,[7] but because of developments resulting from American entry into the war this plan never went into effect.

Early in 1942 conferences were held to discuss problems concerning the preflight program and to make suggestions for revision. The first of these conferences was held at Maxwell Field on 2 January 1942 and was attended by representatives of the three training centers. At this meeting a proposal for a nine-week program was made. Although the Gulf Coast Training Center was opposed to the abandonment of the 10-week schedule, it was dropped in favor of the shorter one.[8] Additional conferences dealing with the whole training program were held at Randolph Field on 12-13 January and 9-12 February 1942. The first undertook revision of the flying curricula and the second the revision of the ground school program. Out of these conferences came the nine-week pilot preflight program, which appeared officially on 15 March 1942, and the outline for a nonpilot preflight course. These programs became the foundation for subsequent curricular development.

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7. R&R, Training Div. to Military Personnel Div., 31 Dec. 1941, in AAG 353.9I, Training in Aviation-Pilot Training; CCAC to CG, SETC, 1 Jan. 1942, in AFTRC Historical Sec. files.
8. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 265-66.

Pilot Preflight

The pilot course published on 15 March 1942 was broken down into hours as follows:[9]

	Hours	Total hours
Academic Instruction		160
Safeguarding Military Information and Cryptography	3	
War Department Publications	2	
Military Customs and Courtesies	3	
Air Forces	10	
Chemical Warfare Defense	2	
Naval Forces	10	
Ground Forces	6	
Aircraft Identification	8	
Code	50	
Communications	1	
Maps, Charts, and Aerial Photos	12	
Mathematics	20	
Physics	20	
First Aid	13	
Basic Military Indoctrination		45
Manual of Pistol	6	
Interior Guard Duty	4	
Infantry Drill	26	
Ceremonies and Inspections	9	
Physical Training		45
		250

Academic Training (General). This program of instruction represented a definite trend toward "academics" as opposed to General Weaver's "military" program, which had been tentatively approved. It not only increased the hours given to academic subjects from 144 to 160, but the introduction of such courses as Maps and Charts and Physics and the

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9. Air Corps Replacement Training Center (Aircrew), Program of Instruction, Pilot Trainees, Hq. AFFTC, 15 March 1942 (Doc. 7, this study), in AFTRC Historical Sec. files.

increasing emphasis upon Code and Aircraft Identification are noteworthy. Then, too, whereas General Weaver's program had allowed a total of 180 hours for Physical and Military Training, the new one allowed only 90 hours for those subjects. Some classroom courses of a military nature, however, were included under "academic instruction."

Though the nine-week program was to be initiated "as soon as practicable," it did not take effect until the last classes of cadets scheduled under the old program had finished preflight. Even after that time the full course was not always given because of unforeseen demands for students in order to meet primary school quotas; many were withdrawn from preflight after they had completed only a fractional part of the course. The individual preflight schools, furthermore, exercised their own discretion in modifying the official curriculum. Santa Ana, for example, departed from the official program by giving extra hours to the subject of Air Forces, bringing it up to a maximum of 24 hours instead of the 10 allotted. The course in Maps and Charts was also increased from 12 to 18 hours.[10]

Proposals were made to de-emphasize the academic phase of the nine-week program. Lt. Col. Louis A. Guenther, Commandant of the Maxwell Field pilot school, made a strong plea for reduction of academic instruction in favor of increasing stress upon military training. He particularly opposed the teaching of aircraft identification, contending that it could be more effectively taught in the theaters of operations. He believed fewer hours should be devoted to instruction in Code and

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10. WCTC History, 7 Dec. 1941-31 Dec. 1942, vol. II, pp. 276-77.

[redacted]

questioned the value of the courses in Physics and Mathematics as then taught. In fact, Colonel Guenther held that "Every other academic course might be subjected to the same careful scrutiny." What he urged, of course, was more emphasis upon military training.[11] "There has been some apprehension," he said, "as to whether or not the cadets are in a fighting spirit, and therefore the benefits in fighting spirit which might accrue from bayonet drill warrant consideration of making this a part of the training program."

On the other hand, other officers were quite as thoroughly convinced that an increasing emphasis should be put upon the academic phase of the program. This feeling was accentuated by the recommendations of two Maxwell Field officers, Lt. P. P. Dawson and Lt. D. E. Ellett, who visited the Eighth Air Force in England in the autumn of 1942. They recommended that instruction be given in sending code as well as in code reception, and that increasing emphasis be put upon the teaching of recognition, both of naval vessels and of aircraft. This report had a great influence upon future trends in the pilot preflight school program. In December 1942 a conference of representatives from the training centers was held at Fort Worth, and a new preflight program was formulated.[12] The standardized program thus created showed that the hours for "academic" subjects were maintained and expanded as follows:[13]

Identification and Tactical Functions of Aircraft	18

11. CO, AAFPS (P), Maxwell Field, to CG, SETC, 26 Sep. 1942 (Doc. 8, this study), in AFTRC Historical Sec. files.
12. This was first published in FTC Memo No. 1, 15 Jan. 1943, and was reissued as FTC Memo No. 50-1-1 on 21 April 1943.
13. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, p. 351; FTC Memo No. 50-1-1, 21 April 1943.

Identification and Tactical Functions of Naval Vessels	12
Code	48
Physics	24
Mathematics	20
Maps, Charts, and Aerial Photos	18

This program, ordered to be taught to both pilot and bombardier-navigator cadets,[14] marks the increasing stress upon naval and aircraft recognition, Physics, and Maps and Charts.

Toward the close of 1943 consideration was given to the problem of the future of preflight training, with reference to the relationship between the preflight and college training programs. Proposals emanating from the Santa Ana Army Air Base recommended that the courses in Code and Recognition be begun in the colleges and continued in preflight. It was also proposed that the elementary phases of Physics, Mathematics, Maps and Charts, and Military Hygiene be included in the college program. According to these proposals, preflight would handle the advanced phases of instruction, as, for example, the 10 hours of instruction on the E-6B computer which was advocated.[15] These proposals did not receive favorable action.

In the spring of 1944 a major revision of the preflight program was put into effect. The course was lengthened from nine to 10 weeks and was designed for the consolidated preflight schools, in which pilots, bombardiers, and navigators were to receive identical training. The principal change was the addition of a course in Aircraft and Principles

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14. FTC Memo No. 50-23-1, 19 Feb. 1943; WFTC History, 1 Jan. 1943-31 Dec. 1943, vol. I, pp. 170, 189.
15. Hq. SAAAB to CG, WFTC, 9 Oct. 1943, in WFTC History, 1 Jan. 1943-31 Dec. 1943, vol. VI, app.

of Flight. This subject, formerly taught at primary, was put into preflight largely to ease the ground school burden at the flying schools.[16] Preflight academic subjects were allotted hours as follows:[17]

Aural and Visual Code	48
Aircraft Recognition	30
Applied Aero Mathematics	28
Maps, Charts, and Aerial Photos	24
Applied Aero Physics	20
Naval Vessel Recognition	12
Aircraft and Principles of Flight	12

This curriculum, dated 23 May 1944, remained standard until the end of the war.

Mathematics and Physics. The course in Mathematics was one of the most stable of all the academic subjects. It stressed fundamentals rather than advanced problems. The revised curriculum of May 1944 added instruction on the E-6B computer to the Mathematics course. The subject matter in Physics was likewise on the level of basic principles. In spite of simplicity and sound instruction, however, the failure rate in each of these courses was higher than that of any other academic subject. Many students were obviously deficient in the "fundamentals." One suggestion for the improvement of this situation was that high schools be encouraged to intensify the training of students "in mathematics courses to include arithmetic, algebra and trigonometry, also physics." The introduction of the college training program in 1943

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16. Interview with Capt. T. H. Greer, formerly Supervisor of Instruction, Preflight School, SMAAB by Capt. Wm. Habberton, Historical Officer, 15 July 1945, in AFTRC Historical Sec. files.
17. TC Memo No. 50-23-1, 23 May 1944 (Doc. 9, this study).

offered hopes of improvement in the background of trainees in Mathematics and Physics, but results were inconclusive.[18]

Maps and Charts. The course in Maps and Charts, like that in Physics, was introduced into the program as an afterthought, appearing first in 1942. At first it was only a minor course of 10 hours, but it gradually emerged as a significant subject. It was difficult to teach, especially in the beginning. Few instructors knew much about it, and equipment was almost nonexistent. Many training aids, even such things as the D-4 computer, had to be fabricated by the instructors themselves, though better ones became available in time.[19]

The curriculum of May 1944 increased to 24 the number of hours allotted to Maps, Charts, and Aerial Photos. The course became increasingly functional, and more "practical exercises" were introduced, such as problems to be worked out on designated maps and aeronautical charts. At the beginning of the course each cadet was issued a folder containing a number of such charts, which he kept throughout the course. The system of handling aeronautical charts and making calculations on them represented a great improvement over the relatively academic approach which had characterized the course in earlier days. The issuance of Weems plotters also provided for more realism in the work done by trainees and added to the success with which the teaching was done.[20]

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18. History of SAAAB, activation-31 Dec. 1942; EFTC History, 1 Jan. 1943-31 Dec. 1943, vol. I, pp. 225, 232; Hq. AFTRC to Lt. Col. John J. Riley, Brighton High School, Brighton, Mass., 27 June 1943, in AFTRC A-3 Div. files; interview with Capt. T. H. Greer by Capt. Wm. Habberton, 15 July 1945, in AFTRC Historical Sec. files.
19. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 245, 361.
20. History of SAACC, 1 May-30 June 1944, p. 18.

Code. Code instruction, introduced in 1942, presented numerous special problems. There were the usual difficulties during the early period of getting instructors. "Occasionally, qualified cadets had to be drafted as instructors." The grading system gave trouble at first; however, a minimum proficiency of eight words per minute for aural reception and six words per minute for visual reception was established as standard. The standard was ultimately fixed at six words per minute for aural sending and receiving and five words per minute for visual sending and receiving.[21]

Code classes were generally large and there were many difficulties in instruction. The basic problem seemed to be the limited number of hours that were given to the subject, mastery of which depended upon repeated practice rather than general intelligence. In most cases shortage of equipment was also serious at the beginning. One expedient used at Santa Ana for a brief period was that of collecting old phonographs and using them to play recordings of code to classes which were then being held in barracks.

Various experiments were tried in an attempt to facilitate code learning, although the conventional system of learning through repetition was continued. Better equipment, extra practice, and the reduction of proficiency standards to six words per minute for aural receiving and sending were responsible for marked reduction in failures in code.[22]

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21. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, p. 360; History of SAAAB, activation-31 Dec. 1942, p. 210; ibid., 1 Jan.-29 Feb. 1944, pp. 38-39.
22. Ibid., activation-31 Dec. 1942, pp. 145-46; ibid., 1 Jan.-29 Feb. 1944, p. 51.

Aircraft and Naval Recognition. The program of the early replacement training centers gave no time to instruction in Recognition, and when the subject appeared it was bound up with the courses in Air Forces and Naval Forces. It began to come into its own early in 1942, although there was considerable skepticism concerning the course. Soon the quality of instruction was improved, but the early courses were too ambitious in scope. Instructors showed ingenuity in the collection of materials and the fabrication of models. In spite of obsolete field manuals, it was possible to keep information fairly up-to-date through the use of current magazines. The program of 21 April 1943 gave prominence to both Aircraft Recognition and Naval Recognition, with the chief emphasis upon the former. Reports from the combat theaters continued to emphasize the need for more and better instruction in identification, and a recognition section was set up under the Assistant Chief of Air Staff, Training. In July 1943 the Training Command ordered the Aircraft Recognition course increased to 30 hours.[23]

The trend was toward emphasizing British and American planes, thus limiting the scope of the course. There was a strong tendency, however, toward extending recognition training at that time. One request was made that work in "air-ground recognition" be given to include air-ground

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23. Hq. AAFPS (P), Maxwell Field to CG, SETC, 26 Sep. 1942 (Doc. 8, this study), in AFTRC Historical Sec. files; memo for Gen. B. K. Yount by Col. K. P. McNaughton, 16 Nov. 1942, in ibid.; EFTC History, 1942, vol. I, pp. 357-58, 392; T.M., CG, AFTRC to CG's, Training Centers, 13 July 1943, in AFTRC A-3 Div. files; CG, AAF to CG, AFTRC, 30 Aug. 1943, in ibid.

visual signals, but this suggestion was disapproved by Training Command Headquarters.[24]

Naval officers were originally brought in to give instruction in Naval Identification, and significant contributions were made by these men. In November 1943 the Naval Recognition course was expanded to include instruction in merchant vessels and landing craft as well as in ships of the line. Early in 1944 teaching by general type and nationality of ships, rather than by the former method of identifying individual classes, was instituted.[25]

The methods of teaching recognition went through a veritable revolution. In the beginning, the English WEFT system was followed in the courses in Aircraft Recognition, instructors using such teaching aids as pictures, silhouettes, and handmade models. Later, standard models became available, and by late 1942 these represented the customary teaching aid. English methods were studied carefully in 1942 by officers sent to England to attend the No. 3 School of General Reconnaissance at Blackpool. Late in 1942 selected instructors were sent to Ohio State University to study the Renshaw system of "flash recognition." The West Coast Air Corps Training Center ordered this system into use early in 1943, but delays necessarily followed because of lack of equipment. It was not until late 1943 that sufficient projectors,

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24. Lt. Col. F. C. Potter, Director of Ground Training, Hq. AFFTC to Capt. Gene Raymond, 9 June 1943, in AFTRC A-3 Div. files; 1st ind. (Hq. AAF to CG, AFTRC [undated]), Hq. AFTRC to CG, AAF, 19 July 1943, in ibid.
25. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 390-91; TC Memo No. 50-26-3, 30 Nov. 1943; History of SAAAB, 1 Jan. 1943-31 Dec. 1943, pp. 135-36; CFTC History, 1 Jan. 1944-30 June 1944, vol. II, p. 236.

shutters, screens, and slides were avilable to institute the Renshaw system in all schools.[26] In the meantime many instructors had been or were being trained in recognition at the Central Instructors School at Randolph Field.

A serious problem in connection with the teaching of the flash system was that of darkening and ventilating classrooms. During the hot weather when windows had to be closed and shades drawn (if the windows were left up, the shades would blow back and forth, allowing light to enter), excessive heat and lack of ventilation made these classrooms almost unendurable. "Both the instructors and the cadets left the classes literally soaked with perspiration."[27] The use of shutters in place of shades at Santa Ana greatly improved ventilation.

The necessity of blacking out classrooms created not only a problem of ventilation, but also one of visibility, for students needed to be able to write as well as to see the screen. At Santa Ana an arrangement was worked out whereby low-watt bulbs were inserted in ceiling sockets. These provided sufficient illumination for students to write what was necessary but did not blur the image on the screen. Various types of screens were devised to improve visibility and to obviate the blackout, considerable difference of opinion existing as to the efficacy of these devices.[28]

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26. Hq. AAF to personnel involved, 22 Aug. 1943, in AFTRC Historical Sec. files; WFTC History, 1 Jan.-31 Dec. 1943, vol. I, pp. 177-78; WCTC Training Memo 4, 25 Jan. 1943, in ibid., vol. VI, app.; TWX, AFTAD to Lt. Col. Frederick C. Carr, AFTAD Liaison Officer, 14 July 1943, in AFTRC A-3 Div. files; TWX, CG, EFTC to CG, AFTRC, 20 Sep. 1943, in ibid.; TWX, CG, CFTC to CG, AFTRC, 20 Sep. 1943, in ibid.
27. EFTC History, 1 Jan.-31 Dec. 1943, vol. I, p. 235.
28. History of SAAAB, 1 May-30 June 1944, pp. 189-90.

Military Training. The course of instruction in military training remained one of the most important and most controversial of the entire preflight program. Both military and physical training were stressed from the beginning. Although the official program for the cadet replacement training centers as set up in September 1941 called for only 20 hours of Infantry Drill, there were numerous other courses in related subjects which more than doubled the total hours spent in military training. As a matter of fact the schools from the start probably exceeded the number of hours prescribed for military training.[29]

The standard program of 21 April 1943 provided the following hours of military instruction:[30]

	Hours
Basic Military and Officer Training	
Close Order Drill	45
Ceremonies	9
Inspections	9
Customs and Courtesies of Military Service	4
Honor Indoctrination	1
Interior Guard	4
Chemical Warfare	8
War Department Publications	3
Safeguarding Military Information	2
Ground Forces	5
Thompson Sub-Machine Gun, .45-caliber	4
Rifle, .22-caliber	4
Pistol, .45-caliber	4
Browning Machine Gun, .30-caliber	8
TOTAL	110

The allotment of hours to the basic military subjects remained practically unchanged when an integrated military program, covering all phases of aircrew training, was published on 12 May 1944. No important revision followed this publication.[31]

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29. WCTC History, 7 Dec. 1941-31 Dec. 1942, vol. II, pp. 275-76.
30. FTC Memo No. 50-1-1, 21 April 1943.
31. TC Memo No. 50-27-1, 12 May 1944, 13 April 1945.

From the beginning cadets not only were given the regular military drill and course instruction, but marched to and from classes, and military formality was maintained in the classrooms. Between classes academic instructors patrolled the classroom areas to enforce discipline. Section marchers were rotated daily at the Santa Ana pilot school to give individual cadets practice and experience in command. At this school officers had also been required to give "conduct grades" on class formations. Among other methods of inculcating military discipline was that of emphasizing parades. At Santa Ana, retreat, formal guard mount, and the Sunday parade were steadily emphasized and improved, and cadet bands were organized to encourage such exercises. An "E-flag" was given to improve competitive spirit.[32] Other schools used similar practices.

In general the system of granting demerits sufficed to enforce discipline. Violations of regulations not involving honor were handled by this method. Punishment under demerits consisted of admonition, reprimand, restriction to limits, deprivation of privileges, punishment tours, or loss of leaves. "A tour consisted of walking, on open post, at attention on a prescribed course for one hour, in the uniform of the day plus gloves, field belt and bayonet scabbard." In 1942 the Flying Training Command ordered the training centers to refer cases involving "breach of moral or disciplinary codes of sufficient magnitude as to cause cessation of flying training" to court-martial prior to referring

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32. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 368-69; History of SAAAB, activation-31 Dec. 1942, pp. 138, 162, 202.

such cases to an elimination board.[33] Usually, however, it seems to have been the policy to avoid courts-martial if possible.

The general discipline of preflight graduates was subject to criticism from many quarters. "It was apparent trainees had not been sufficiently impressed with the necessity of becoming officers as well as pilots." This situation was due in the main to the rapid expansion of the program and the limitation of time. In July 1944, however, Brig. Gen. K. P. McNaughton, Chief of Staff of the Training Command, expressed the belief that "responsibility for disciplinary failure can be directed toward senior officers who fail to require proper military courtesy from junior officers," who, in turn, "allow breaches of discipline and courtesy from enlisted personnel." As a remedy for this condition, it was recommended that carefully selected combat officers "be utilized at preflight schools to present military discipline and leadership orientation lectures."[34] Evidence is lacking concerning the extent to which the recommendation was implemented or the success which it achieved.

Although the military training of aviation cadets during the war did not produce officers in the West Point and Randolph Field tradition, it is hardly sound to judge results by those standards. Training during the war was on a mass basis, without the high degree of selection prevailing in peacetime. Furthermore, the war objective was relatively

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33. CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1251-52; 3d ind. (Cadet Landis M. Smith to CG, AAF, 12 Sep. 1942, thru channels), Hq. AFFTC to CG, AAF, 29 Sep. 1942, in AFTRC Historical Sec. files.
34. CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1219-20; WFTC History, 1 Jan.-31 Dec. 1943, vol. III, pp. 605-06; Report on Conference on Preflight Training, Hq. AFTRC, Fort Worth, Texas, 10-11 July 1944, in AFTRC Historical Sec. files.

narrow and specific. Young civilians had to be trained by the hundreds of thousands to fly and fight. The military training they received sufficed for the accomplishment of that mission; the fact that many of the war-trained flyers were not well-rounded officers is perhaps a little beside the point.

Physical Training. The physical training program was at first under the direct jurisdiction of the station commanding officer; in 1942 it was designated as a function of special services. A few months later it was removed from the jurisdiction of special services, and a new comprehensive program was outlined. Physical training units were set up under appropriate personnel in each air force and in each command.[35]

In the early replacement training centers three or four hours of calisthenics were given weekly with about four hours weekly in team games and the same amount of time in individual sports. The tendency toward cross-country running, obstacle-course work, and other special exercises became marked in 1942. AAF Regulation 50-14, 23 September 1943, made a minimum of six hours of physical training mandatory for all trainees.[36]

At Maxwell Field notable experimentation was carried on in physical training instruction. As Capt. Lex W. Fullbright, who was largely responsible for the program there, described the situation: "We could do most anything with the cadets as long as we didn't kill them and

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35. CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1181-82.
36. AAF Reg. No. 50-14, 23 Sep. 1943. The previous AAF Reg. No. 50-14, 15 Aug. 1942, had required eight hours of training weekly distributed over a minimum of six days per week, but this had rarely been met.

it's a wonder we didn't kill some in the beginning." Emphasis was put upon the competitive features of games, many of which were altered without regard to standard rules in order to accentuate competition. Coordination drills, designed to develop "peripheral vision," were also stressed. In the Gulf Coast Air Corps Training Center, softball rules were modified so as to allow greater individual participation in the game. Another significant innovation was the development of the "continuity system" in the conduct of calisthenic exercises.

Maxwell Field's "Burma Road" was an important development. General Weaver early had favored strenuous road work, ordering a four- or five-mile hike per day for five days weekly with a large amount of running. This proved impractical and unpopular. The "Burma Road" idea was conceived as a modification "not only to give the cadets a run, but to give them one with natural obstacles such as climbing hills, descending hills and turning and twisting." "Burma Road" got some unfavorable publicity, but generally it seems to have been a success.[37]

Intramural programs were encouraged, the Santa Ana schools having had the best developed program in this respect. In general the authorities frowned upon contests outside the field or station, but emphasized intramural track, basketball, and softball.[38]

Aquatic training was also encouraged by General Weaver, who asked for the construction of a swimming pool at the time of the establishment

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37. Interview with Capt. Lex W. Fullbright by It. John E. Fagg and Sgt. Milton Sacks, in EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. VI, app.; EFTC History, 1 Jan.-31 Dec. 1943, vol. I, p. 264; CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1149-52; EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. III, pp. 1199, 1205. TC Memo No. 50-21-2, 27 Aug. 1943, stressed cross-country work as well as obstacle courses.

38. History of SAAAB, 1 Jan.-31 Dec. 1943, pp. 146, 200-01.

of the replacement training center at Maxwell Field, and, beginning with Class 41-E, required a swimming test for graduation. Santa Ana, because it had excellent facilities near at hand, pioneered in swimming tests, inflation of clothing, swimming through burning oil, and exercises in artificial respiration. Great concern over the lack of aquatic training arose in 1943 as a result of news reports from the Pacific theaters indicating the great need for such instruction. Surveys were made of facilities, and suggestions made for construction priorities at such posts as Ellington Field and the San Antonio Aviation Cadet Center. In June 1943 aquatic tests and remedial training were required by the West Coast Training Center.[39]

Record keeping on the results of physical training was begun at Maxwell Field but was later abandoned, partly because of the labor involved, but also because such knowledge was not so important after the program was established. In the Gulf Coast Training Center, the so-called "J.C.R." tests (tests in jumping, chinning, and running) were given in 1941-1942, but were discontinued on 15 May 1942. It was not until 1943, however, that the testing program really got under way. Tests for "motivation and interest" were provided for by the Gulf Coast Training Center in January 1943. Then came AAF Regulation 50-10, 28 April 1943, providing for periodic tests designed to measure physical

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39. Hq. SETC to CCAC, 23 May 1941, in AFTRC Historical Sec. files; History of AAFPS (P), SAAAB, 15 June 1942-1 Jan. 1943, pp. 52-53; CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1157-59; History of SAAAB, 1 Jan.-31 Dec. 1943, pp. 144-45. Eventually excellent facilities were to be provided at SAACC. Nothing was done at Ellington Field.

fitness improvement. Preflight cadets were required to take those tests during the last two weeks of their course.[40]

TC Memo 50-21-10, published in November 1944, outlined in detail the athletic training for preflight. This memorandum was one of a series which standardized physical exercise at every phase of aircrew training. It directed that every effort be made to attain the following proficiency standards by the time of completion of preflight:[41]

1. Ability to run 880 yards in 2 minutes and 45 seconds or less and to sprint 300 yards in 45 seconds or less.

2. Ability to accomplish the prescribed performance standard of as many of the survival aquatic skills listed in AAF Letter 50-57 as practicable within the limits of the twelve periods allotted to this phase of training.

3. Completion of the parachute landing training program prescribed in T. C. Memorandum 50-21-7, "with adequate skills and knowledge essential for landing following emergency parachute escape."

Bombardier-Navigator Preflight

From the beginning there was controversy over the question of whether pilot and nonpilot students should receive the same preflight course. Variations were permitted in the curricula of the pilot and bombardier-navigator preflight schools until 21 April 1943, when the prescribed program for all trainees was made the same. Even after that date, however, the bombardier-navigator schools recommended differentiation, and they modified the subject emphasis in their courses to suit the needs of their students.[42]

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40. Fullbright interview; CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1144-45, 1175-76.
41. TC Memo No. 50-21-10, 9 Nov. 1944.
42. FTC Memos Nos. 50-1-1, 21 April 1943, and 50-23-1, 19 Feb. 1943; interview with Capt. T. H. Greer by Capt. Wm. Habberton, Historical Officer, 15 July 1945, in AFTRC Historical Sec. files.

The first standard program for bombardier-navigator preflight schools, as distinguished from pilot preflight, was approved in the special ground school revision conference at Randolph Field on 12 February 1942. It called for the following hours of instruction:[43]

	Hours
Military Training	
Infantry Drill and Inspection	48
Athletics	54
Chemical Warfare	6
Military Discipline and Customs and Courtesies	3
Safeguarding Military Information	2
War Department Publications	2
Academic Training	
Maps and Charts	8
Photography	6
International Morse Code (Aural and Visual)	48
Communications Procedure	10
Target Identification	10
Naval Forces and Ship Recognition	14
Ground Forces	15
Air Forces, Aerial Reconnaissance, and Aircraft Identification	25
Cryptography	5
Flags of all Nations, Insignia	2
Mathematics	34
Physics	18
Meteorology	34
Practical Exercises in Synthetic Training	10
TOTAL	354

This program was similar to the one specified for pilot preflight, but the emphasis was slightly different. Subjects given greater stress were Air Forces, Naval Forces, Ground Forces, Mathematics, and Communications. Photography, Target Identification, Meteorology, and Synthetic Training were not included at all in the pilot curriculum. The total

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43. Air Corps Replacement Center (Aircrew) Program of Instruction, Course for Aircraft Observer Candidates, in ibid.

number of training hours scheduled was considerably greater for the bombardier-navigator program, which was increased to a total of 422 hours in the revised program of 30 September 1942.[44] The latter program marked the high point of difference between pilot and bombardier-navigator curricula. It remained in effect until 21 April 1943, when all preflight instruction was made to follow the same outline.

44. WCTC History, 7 Dec. 1941-31 Dec. 1942, vol. II, p. 285.

Chapter III

INSTRUCTORS AND TEACHING METHODS

Among the chief problems in launching the preflight schools was that of procuring instructional staffs adequate to conduct the academic program. From the beginning it was realized that dependence could not be placed upon available military personnel for all the instructors needed. Even had their numbers been adequate, the qualifications of these men as teachers, especially with respect to teaching experience, were so low that their exclusive use would not have been justified. The only answer to the problem seemed to be that of calling in civilian personnel.[1]

Procurement of Civilians

Authority to hire civilians was requested by General Weaver on 1 July 1941. After approval had been granted, civilian personnel were at first selected by school commandants or directors of training. Most of the teachers were hired as junior instructors at $2,000 a year, although some, in particular those with Civil Service ratings, were hired as assistant instructors at $2,600. Men were contacted through interviews held at the post and through trips to schools. At Santa Ana the

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1. History of Maxwell Field, 1 Jan. 1939-7 Dec. 1941, pp. 264-66.

general rule was followed that men procured must have a college degree and at least three years of teaching experience. It was indicated that men brought in as junior instructors would be promoted to the grade of assistant instructor as soon as possible. At Maxwell Field some 30 civilian instructors, most of whom were college or high school teachers, were engaged before the opening of the pilot preflight school. They were given a two-week course in Infantry Drill and in Customs and Courtesies of the Service and left largely to themselves in the matter of drawing up lesson materials.[2] Under conditions then prevailing at Maxwell Field, instructors taught five to six classes daily for three weeks and then were free for a week and a half. As new instructors arrived the teaching load gradually fell until it averaged no more than two classes a day. Civilian instructors were given no duties other than meeting classes and grading papers, though extra duties were soon assigned to military instructors.

Although the morale of civilian instructors was at first high (many men who came in as civilian instructors at salaries of $2,000 or $2,600 were better off financially than they had been in civilian positions), discontent gradually developed. This was true particularly among late arrivals. They found themselves under the supervision of men hired earlier, whose qualifications were in some instances inferior to theirs. When commissioning of civilians began, there were long delays and uncertainties which were not conducive to good morale.[3]

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2. SETC to C/AC, 1 July 1941, in AAG 353.9C1, Training, General; History of SAAAB, activation-31 Dec. 1942, pp. 124, 172-74; EFTC History, 1 Jan. 1939-7 Dec. 1941, vol. II, p. 325.
3. History of Maxwell Field, 8 Dec. 1941-31 Dec. 1942, p. 576.

The course of development of the preflight schools was such as to make the use of military personnel for instructors increasingly advisable. This situation was a result of the militarization of the schools and not necessarily a reflection upon civilian instructors as such. Consequently, nearly all civilian instructors were eventually to obtain commissions, to enter the military or naval service as enlisted men, or to return to positions in civil life. Some schools, however, continued to employ limited numbers of civilian instructors. At the San Antonio Aviation Cadet Center most of the remaining civilian instructors were in the code department. In the Santa Ana schools, however, civilian instructors were never employed to teach code, but a few were retained in some of the other ground school departments.[4]

Civilian instructors were eventually authorized to wear the regulation army officer's uniform (shirt and trousers only), without military insignia. A badge of identification was usually worn on the shirt. By a sort of fiction the civilian instructor became a soldier, submitting voluntarily to the regime of military discipline along with the military personnel. He also acted under orders in much the same manner.[5]

Militarization of Instructor Personnel

As mentioned above, the militarization of instructor personnel became the natural tendency in the course of development of the preflight

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4. CFTC History, 7 Dec. 1941-31 Dec. 1942, vol. III, p. 356; MFTC History, 1 Jan.-31 Dec. 1943, vol. I, pp. 170-71.
5. History of SAAAB, activation-31 Dec. 1942, p. 175; Conference, Office of the Commanding General, AFFTC, 8 Dec. 1942, in AFTRC Historical Sec. files; reminiscences of 1st Lt. [illegible] H. Dusenberry and Capt. A. R. Kooker, former instructors, SAAAB, 27 Sep. 1944, in AFTRC Historical Sec. files.

schools. It was believed preferable to have officers instruct cadets wherever practicable. At the conference on preflight training held at Fort Worth, Texas, on 10-11 July 1944 the situation was summed up as follows:[6]

> Officers are more desirable as academic instructors than enlisted men or civilians. Civilians now giving satisfactory service should not be released, but replacements for them should be officers. Enlisted instructors are being utilized satisfactorily in Code classes, but it is desirable to have an officer in charge of such classes.

General Procurement Policy. With the outbreak of war on 7 December 1941, the need of all branches of the service for officers of special qualifications was far out of proportion to the number of military personnel available. Consequently, the War Department decided that qualified individuals would have to be procured from civilian occupations.[7] The general policy which evolved to govern the appointment of officers from civil life was based upon the following principles: (1) no appointment would be considered unless it was under an approved procurement objective; (2) no civilian was to be appointed if his induction had already been ordered under the Selective Service Act; (3) no appointment was to be given to a man who was not a graduate of a school or course of instruction qualifying him for a commission "unless evidence is furnished that the individual has special qualifications for duty as an officer in the particular assignment for which recommended"; and (4) no man would be

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6. Report on Conference on Preflight Training, 10-11 July 1944, Hq. AFTRC, Ft. Worth, Texas, in AFTRC Historical Sec. files.
7. Memo for C/AS by AC/AS, A-1, 19 Dec. 1941, in AAG 210.11-1, Appointment.

appointed who was under 30 years of age "unless he has extraordinary professional or technical qualifications for the particular assignment for which recommended." It was further stipulated that a commission should not be granted in any case in which the "proposed duty is being or can be adequately performed in a civilian capacity."[8]

The principle that direct commissions were not to be granted to men under 30 years of age caused considerable difficulty so far as the preflight schools were concerned, especially in view of the fact that the Navy was offering commissions to such individuals, and so attracting them from the Army schools. In reply to a request by the Southeast Air Corps Training Center that this provision be removed, higher headquarters granted authorization to send such instructors to the Officer Candidate School regardless of the time which a man had served as an enlisted man. In other words, such men could be enlisted and sent immediately to OCS. Furthermore, it was possible "to have the recommended candidates" enroll in OCS and be commissioned without completing the course. Thus there was established a short cut by which men under 30 years of age might be enlisted, assigned to a command, and then sent immediately to OCS to be commissioned. This policy was shortly abolished, but not before a substantial number of the instructors at Maxwell Field had been commissioned under it. Restrictions upon commissioning of younger instructors, together with other difficulties, retarded commissioning to such a degree that by the end of the year 1942 only about 55 per cent

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8. AG 201.1 (21 Jan. 1942), RB-A, 26 Jan. 1942.

of the total preflight instructor personnel was commissioned. Eventually, most of the men under 30 received their commissions after taking the regular officer candidate course at Miami Beach, Fla. In the case of older men the emphasis was put upon direct commissioning, followed by the six-week course of training in the OCS at Miami Beach. Some instructors, regardless of age, who were ineligible for commission (generally for physical reasons) were enlisted and retained in that status.[9]

Officer Procurement Boards. The War Department allowed the training centers to contact candidates for commissions and to present their own recommendations concerning appointments. The country was divided into zones for this purpose, and the training centers created special procurement boards to seek out applicants.[10] A good example was the so-called Snyder Board established in the Gulf Coast Training Center.[11] This board operated mainly in the midwestern and southwestern states. In its campaign for officer procurement the Snyder Board faced keen

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9. Memo for Chief, Personnel Div., SOS by AC/AS, A-1, 8 June 1942, in AAG 210.1K-1, Appointments; AC/AS, A-1 to CG, AFFTC, 31 July 1942, in AAG 210.1K-2, Appointments; memo for AC/S, G-1 by S/W, 29 Aug. 1942, in AAG 210.1L, Appointments; EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, p. 366; interview with Capt. T. H. Greer by Capt. Wm. Habberton, Historical Officer, 18 April 1945, in AFTRC Historical Sec. files.
10. Interview with Maj. A. B. House, A-1 Div., AFTRC by Capt. A. V. House, Jr., Historical Sec., A-2 Div., AFTRC, 21 Aug. 1943, in AFTRC Historical Sec. files.
11. The first Snyder Board was created 25 April 1942 by SO No. 93, par. 13, Hq. GCTC. It was headed by Lt. Col. Alva W. Snyder, who was assisted by two other members. This first board remained in power for 90 days and was succeeded by a second board, also headed by Colonel Snyder, which had power for 60 days. CFTC History, 1 Jan.-31 Dec. 1943, vol. I, p. 174.

competition from the Navy as well as considerable competition from the various college training programs which were absorbing additional manpower.[12] Any attempt to evaluate the work of the board must be made with consideration for the handicaps under which it worked. Undoubtedly, the men who did the field work, faced with vigorous competition, were tempted to make their own proposition somewhat more attractive than the facts warranted, particularly in regard to assurances concerning rank and promotions, not to mention assignments. It has also been charged that the board was not careful enough in its investigations and interviews and that it "allowed the propinquity of Texas to consciously sway its selection of a large number of small town high school and some grade school teachers." But even more serious were the charges brought against the board with respect to its policies in recommending men for commissions. "How the men were chosen for commissions in the first place, and how the Board decided to commission a man as a second or a first lieutenant remains a mystery."[13] On the other hand, the fact remains that the Snyder Board (and similar boards in the other training centers) did procure the necessary personnel to accomplish the ground school training mission.

In the Southeast Training Center two procurement boards were created. These boards traveled chiefly in the northeastern area, visiting schools

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12. History of Ellington Field, April 1940-1 March 1944, vol. I, pp. 61-68; CFTC History, 1 Jan.-31 Dec. 1943, vol. I, pp. 175-76; Hq. AFFTC, Daily Diary, A-1 Div., 15 Dec. 1942.
13. Memo for Chief, A-1 Div. by Chief, Appointment and Procurement Div., A-1, 23 May 1942, in AAG 210.1K-1, Appointments; reminiscences of Lt. G. B. Manhart, former instructor, Ellington Field B-N School, 28 Sep. 1944; CFTC History, 7 Dec. 1941-31 Dec. 1942, vol. III, p. 367; ibid., 1 Jan.-31 Dec. 1943, vol. I, p. 181.

in the vicinity of New York, Boston, and Washington, D. C. The West Coast Training Center likewise set up two boards, which had jurisdiction over the far western states, with the addition of Ohio to compensate for the smaller number of schools in the western area.[14]

The program of physical training was more generally concerned with the procurement of enlisted men than as instructors of officers. Previous to the outbreak of the war civilians had been used exclusively in the physical training program. In the subsequent militarization of personnel most of these men were enlisted with grades of staff sergeant or master sergeant and subsequently were sent to OCS. Competition with the Navy for the commissioning of physical training instructors was probably more keen than in the case of other instructors.[15] Although civilian instructors in physical training were eventually replaced entirely by military personnel, the use of enlisted men instead of officers as instructors continued to a greater extent than in other branches of instruction, particularly at certain schools such as that at the San Antonio Aviation Cadet Center.

Qualifications of Instructors

Whatever may be said regarding the procurement methods and policies, the fact remains that the personnel needed to conduct the preflight training programs were obtained. From the standpoint of formal educational

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14. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 16-17; WCTC History, 7 Dec. 1941-31 Dec. 1942, vol. IV, pp. 739-41, 749.
15. CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, p. 1180; Hq. AFFTC, A-1 Div., Daily Diary, 23 Oct. 1942; EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, p. 374, vol. III, p. 1217; interview with Maj. A. B. House, A-1 Div., AFTRC, by Capt. A. V. House, Jr., 21 Aug. 1943, in AFTRC Historical Sec. files.

attainment the academic instructors were outstanding in the history of American military training programs. A comparative table of the educational status of ground school instructors in the three training centers, as of July 1943, is given below:[16]

Training Center	Instructors with Doctoral Degree	Instructors with Masters' Degree	Instructors with Baccalaureate Degree
Gulf Coast	96	140	123[a]
West Coast	41	129	122[b]
Southeast	15	103	154[c]
TOTALS	152	372	399

a Includes a few men without degrees.
b WCTC reported only 16 instructors without college degrees.
c Does not include men without degrees.

A study of the above data reveals that the men procured by the Gulf Coast Training Center had a considerably higher level of formal education than those of the other two training centers. This situation seems to have been due to the following factors, which affected instructor procurement. (1) The West Coast Training Center had fewer schools to draw from than the other two centers. (2) In the case of the Southeast Training Center there was probably a greater potential of trained instructors than in any other; but in New England, and to a certain extent in the Middle Atlantic states, prevailing higher salaries kept most instructors from being attracted to the military training program, the result being that Southeast Training Center was obliged to draw most of its personnel from

16. Information compiled from the following: TWX, CG, CGTC to CG, AFTRC; 12 July 1943, in AFTRC A-3 Div. files; TWX, CG, WCTC to CG, SETC and to CG, AFTRC, 10 July 1943, in ibid.; TWX, CG, SETC to CG, AFTRC, 10 July 1943, in ibid.

the southern and southeastern states, where educational levels were lowest. (3) Not only did the Gulf Coast Center have a large potential of trained men, but the salary levels prevalent in most of the states of that area were low enough to favor procurement of instructors by the Army.

Teachers with the highest academic degrees did not necessarily prove to be the most successful in preflight training. Experience, especially on the secondary level, appeared to be the most important factor. Lack of information precludes an adequate study of the level of experience of instructors, though some facts are available. At the Maxwell Field school in July 1943 all except 10 of a total of 119 instructors were professional teachers, and of 220 men procured by the Snyder Board only 21 had no previous teaching experience. Of these Snyder Board men only 15 had been elementary teachers, while 153 had been high school teachers, 28 had been vocational teachers, and 78 had been college or university teachers.[17] From this fragmentary evidence it can be concluded that the vast majority of the preflight instructors were experienced teachers of high school and college levels.

Instructor Training

Although most of the instructors were well qualified in educational methods, generally they had little prior knowledge of the subject content they were called upon to teach. This fact frequently resulted in

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17. Interview with Capt. T. H. Greer by Capt. Wm. Habberton, Historical Officer, 18 April 1945, in AFTRC Historical Sec. files; EFTC History, 1 Jan.-31 Dec. 1943, vol. I, p. 239; CFTC History, 1 Jan.-31 Dec. 1943, vol. I, pp. 178-79.

considerable apprehension on the part of instructors when they faced their first classes of cadets. In order to meet the problem, practical in-service training was established for new instructos at the schools. Observing in classrooms, individual study of books, outlines, and equipment, in addition to conferences with "experienced" preflight teachers helped to familiarize them with their new work. While attention was at first concentrated on orienting each instructor to one subject field, "cross-training" was later required in order to increase versatility and prevent "over-specialization and narrowness" in teachers. The principal deficiency in the training at the preflight schools was the lack of contact with flying and airplanes. Instructors continually expressed the need for such contact. Some visits to flying schools were ultimately arranged, but in general the preflight teachers remained isolated from aircraft operations.[18]

Local training continued, but it was supplemented in the summer of 1943 by the work of the Central Instructors School at Randolph Field. Provision was made there for training ground school instructors for the entire Training Command. Selected civilians who remained on the preflight staffs, as well as officers, were given an eight-week course, the main purposes of which were to broaden knowledge of the whole ground training program, to standardize content within each subject field, and to improve teaching techniques. While there was considerable criticism of the execution of this program, the basic idea was sound and many instructors were benefited. After its main purpose had been accmmplished, the course was discontinued in January 1944.[19]

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18. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 363-64; WFTC History, 1 Jan. 1943-31 Dec. 1943, vol. III, pp. 597-98, 651, 657.
19. Hq. SETC to CG, AFFTC, 17 Oct. 1942, in AFTRC Historical Sec. files; Historical Report for 1943, in A-3 files, WFTC; History of Randolph Field, 1931-1944, p. 235.

Morale

In general the ground school instructor found it difficult to keep up what Col. K. P. McNaughton called "The willingness and determination to do the job at hand with everything one has--whether it be behind a desk, instructing, or leading a group to combat."[20] In the first place, the remoteness from conflict made it difficult for many of those concerned with the training program to grasp this spirit. Many men were dissatisfied with their assignments and worked under a considerable handicap in trying to adjust themselves.[21] Worst of all was the situation regarding promotions in respect to preflight school instructors. Not only had many men been disappointed with the rank they received upon being commissioned, but failure to be promoted in many cases after as much as two years' service in grade was even more discouraging. During 1942 the situation regarding promotions for preflight instructors was fairly encouraging, but early in 1943 promotions began to dwindle. This was due primarily to the fact that large numbers became eligible at about the same time and that ground school instructors did not generally share equal recognition with administrative and military training officers.[22]

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20. Memo for Gen. Yount by Col. K. P. McNaughton, AC/S, A-3, in AFTRC Historical Sec. files.
21. For these difficulties, see interview with Maj. Louis E. Dreyer, CO, 882d Preflight Training Sq., SAACC, by Asst. Historical Officer, SAACC, 4 March 1944 (Doc. 10, this study), in ibid.
22. WFTC History, 1 Jan.-31 Dec. 1943, vol. III, pp. 649-50; EFTC History, 1 Jan.-31 Dec. 1943, vol. I, pp. 240-41.

Instructional Methods

Classroom techniques were adapted to the nature of individual subjects. In the recognition courses and code, visual or aural drill of one type or another was the basic method. In Mathematics, Physics, and Maps and Charts, the technique included explanation and practical exercises. Theory was held to a minimum and applications were stressed. The lecture method was avoided, and student participation in each lesson was encouraged.[23]

Materials. Textbooks, workbooks, and similar materials were almost nonexistent at first. Requisitions were sometimes so long in being filled that the materials were out of date upon arrival. In one case, at least, the course itself had been discontinued when the materials for it arrived. The instructors took the initiative in writing textbooks and in making and procuring training aids. Beginning in 1943, guides and workbooks were centrally prepared and were furnished by the Flying Training Command. The fabrication of teaching aids included such things as the preparation of logarithmic and other reference tables for the Mathematics course and the building of airplane models and other pieces of equipment. By 1943 adequate training aids were coming in from outside sources, and the standardization of courses and instruction limited to freedom of instructors to develop original ideas.[24]

Testing. Examinations were at first left up to the individual instructor. One writer says that under this system "most of the cadets

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23. Interview with Capt. T. H. Greer by Capt. Wm. Habberton, Historical Officer, 15 July 1945, in AFTRC Historical Sec. files.
24. Interview with Maj. Louis E. Dreyer, SAACC by Asst. Historical Officer, SAACC, 4 March 1944 (Doc. 10, this study), in ibid.

made perfect grades." Maj. Henry Reis-El Bara, Director of Training at Maxwell Field, turned to grade curves to establish a more normal situation, directing that grades should be made to conform generally to a graph he drew up. "This meant that examinations had to be more difficult and, in practice, more ambiguous." Grade levels soon fell off to an average of about 90. In many cases, it seems, "quizzes and examinations were used less as a method of teaching than as a device to obtain the distribution of grades in conformation with the major's wishes."[25] This system was abandoned in 1943 and a type of grading for each course was prescribed in the various instructors' guides.[26] At Santa Ana as early as October 1942 a memorandum was issued requiring each department to use carefully constructed tests and ruling out true-false tests.[27]

The year 1943 saw the culmination of the development of centralization in testing. The Southeast Training Center had already put into operation a system of standardized examinations. These were drawn up by headquarters personnel, issued to the stations, and then returned to headquarters for machine grading. It was recommended that this system be extended to include the entire Flying Training Command and that control be exercised from the Central Instructors School at Randolph Field; later in the year this plan was put into effect. Standardized

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25. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 370-71.
26. Ibid., 1 Jan.-31 Dec. 1943, vol. I, pp. 247-48. EFTC Memo No. 50-1-8, 18 Oct. 1943, prescribed seating arrangements and checking of absentees.
27. History of SAAAB, activation-31 Dec. 1942, p. 134. On 11 February 1943 a central committee on testing was set up at the Santa Ana pilot school. Ibid., p. 115.

tests, based on standardized instructional guides, were drawn up and put into use in May 1943, but the general reaction to these tests was unfavorable. Permission was given to modify them at Santa Ana in July, and they were soon dropped from use altogether. The deluge of criticisms against the "Fort Worth" guides, workbooks, and examinations is to be partially explained in the tendencies toward autonomy prevalent in each training center and lower down in the stations; but there were also valid criticisms against the materials themselves. In general the examinations were said to be too easy, and a study made at Santa Ana in the bombardier-navigator school, with particular reference to the examinations sent out for Mathematics and Physics, concluded "that these examinations were not excellent enough to warrant the administrative difficulties involved in procuring, housing, issuing, and storing them."[28]

Supervision

Close supervision and inspection of classroom instruction was not present when preflight training started. The first several classes at Kelly Field were taught entirely without classroom inspection. Then the Director of Ground School Training insisted upon the appointment of inspectors, four being named on a full-time basis. The introduction of supervision was a necessary incident to the preparation and standardization of course materials for cadets and instructors. Standardization of instruction required classroom inspection.[29] The system first

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28. Ibid., pp. 120-21, 194-95; memo for Capt. L. L. Reynolds, Air Insp., SETC by Lt. S. W. Garrigues, Asst. Air Insp. (Training), 5 Aug. 1943, in AFTRC A-3 Div. files.
29. Interview with Maj. Louis E. Dreyer, SAACC by Asst. Historical Officer, SAACC, 4 March 1944 (Doc. 10, this study), in AFTRC Historical Sec. files; CFTC History, 7 Dec. 1941-31 Dec. 1942, vol. III, p. 345.

used at the San Antonio Aviation Cadet Center was rather irregular in its operation. It soon became the practice to send in reports without the inspections having been made. Then, too, "spot" checking and the deputizing of assistants to do the inspecting came to be the order of the day. Periodic inspections were next introduced, this system being referred to by the instructors as "the Gestapo" or "the undersea forces." It was widely believed that inspectors looked for all sorts of things other than good teaching. Inspections, however, did have the effect of standardizing instruction. Eventually supervision developed into an organization generally referred to as "Ground School" at the San Antonio Aviation Cadet Center. The staff of this organization assumed such duties as the preparation of lectures, study outlines, and examinations, and the procurement of teaching aids and texts. Toward the close of the year 1942 the Gulf Coast Training Center began to issue directives concerning instructor training and to make certain rules regarding classroom instruction. Rating of instructors followed as a result of these developments.[30] At the Santa Ana pilot school, wing supervisors of instruction were appointed as early as December 1942, and there was a coordinating supervisor for the whole school. The wing supervisors were later removed, and supervision was concentrated in the subject department heads. Instructors were given formal ratings, but improvement of teaching, not "inspection," was stressed. At the Maxwell Field pilot school a "department of academic inspection" was established in

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30. Ibid., vol. III, pp. 348-49; interview with Maj. Louis E. Dreyer, SAACC, by Asst. Historical Officer, SAACC, 4 March 1944 (Doc. 10, this study), in AFTRC Historical Sec. files.

1942. The officers of this department visited classes and rated instructors as to "voice, appearance, apportionment of time, speed, force, clarity and knowledge, discipline and interest." After the commissioning of instructors the military rating system was introduced. Inspections at the Maxwell Field school seem to have become "picayune enough," as one writer put it, resulting in such elementary practices as putting placards outside classroom doors before each study period "proclaiming the name of the course," and listing the name of the instructor on the blackboard in front of each class. Even the exact time of passing out outlines, tests, etc. was carefully scheduled and checked. In July 1943 the Maxwell Field pilot school abolished the office of teacher inspection and returned to a system of supervision within the departments. This achieved better harmony and resulted in closer cooperation with the individual instructor.[31]

A preflight conference held at Fort Worth on 10-11 July 1944 discussed the idea of supervision as it had evolved up to that time. The conference took the position that the main objective of supervision should be the improvement of instruction, not the mere rating of individual instructors. "To accomplish this objective," it was held, "supervision needs to be distinguished from 'snoopervision' of the inspectorial type." It was recommended that regular visits to classes be made and that supervisors remain throughout the entire class periods. It was also recommended that after a class inspection was made, a report

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31. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 367-68; ibid., 1 Jan.-31 Dec. 1943, vol. I, pp. 218-19.

should be prepared and discussed with the instructor observed. Above all, it was pointed out, inspections should be made by subject rather than by organization. "It is felt that confining the report to one training subject will expedite corrective action from the responsible department head."[32]

32. Report on Conference on Preflight Training, Hq. AFTRC, Fort Worth, Texas, 10-11 July 1944, in AFTRC Historical Sec. files.

Chapter IV

STUDENTS

Classification and Morale

The three types of students trained at preflight were potential pilots, bombardiers, and navigators. The former group was far more numerous than the latter two combined. For the greater part of the time, students were classified and separated before starting preflight school. After April 1944, however, the plan was modified. All students remained "unclassified" and within one group during the first five weeks of instruction; at the end of that period they were assigned and segregated, although the curriculum remained the same for all.[1]

Students classified as pilots were usually "eager" and presented no general morale problem. Morale among bombardier-navigator preflight trainees tended to be lower than among pilot trainees, especially during the period when many of them were eliminees from pilot training. Eliminated pilot candidates presented a morale problem wherever they were entered into bombardier-navigator preflight training. In the opinion of one observer, these trainees not only were "unduly alarming cadets in the replacement center," but were "further destroying morale by

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1. TC Memo No. 35-17, 14 April 1944.

causing cadets to come to primary schools apprehensive and nervous." This observer made the suggestion that such trainees should be segregated into a special program to re-establish their morale.[2] The suggestion appears to have represented an intelligent approach to the problem, though it was never carried out. The problem was finally solved during 1943, after a uniform curriculum was established for all preflight schools. It was decided that an eliminee from one phase of aircrew training, who had completed preflight, would not be required to repeat that phase. Thereafter the preflight schools were no longer troubled with pilot eliminees in training as bombardiers or navigators.[3]

Organization

Student organization varied slightly at the different schools. At Maxwell Field the early organization was based on two wings with nine groups of four squadrons each. Cadet officers were appointed from the rank of wing commader down through group commander, lieutenant, sergeant, and corporal. This system seems to have worked well, relieving the commissioned "tactical" officers of much of the burden and at the same time affording valuable training to the cadet officers. A similar organization grew up at Santa Ana pilot school and at the San Antonio Aviation Cadet Center, both of these schools being so large that decentralization was advisable.[4] The smaller schools such as the Ellington Field and Santa Ana bombardier-navigator schools had no need for such

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2. TWX, C. C. Moseley, Civilian Contractor, Cal-Aero Flying School, Ontario, Calif. to C/AS, [12?] Sep. 1942, in AAG 211F, Cadets.
3. WFTC Training Memo No. 26, 24 March 1943.
4. History of SAAAB, activation-31 Dec. 1942, p. 165.

elaborate organization. At Ellington, for instance, bombardiers and navigators were put into separate wings, but the "group" was not used. At the San Antonio Aviation Cadet Center the men were organized into two wings, the group being the important tactical unit. Under the consolidated program of 1944 men were assigned to Wing II for the first five weeks and then transferred to Wing I for the remainder of the preflight training period.

In the beginning the class system was introduced along with hazing and related practices. Maj. Gen. Walter Weaver was a strong advocate of the class system. In fact, one of the main reasons for his advocating the 10-week program in 1941 was that a shorter program left no opportunity for the introduction of the class system. He said concerning this point:[5]

> A very real and serious fault lies in the lack of an upper class to supervise and direct the lower classmen, such as obtains at West Point, V.M.I. and other essentially military colleges. Without an upper class it is almost impossible to transmit traditions and customs of the Service, and to inculcate that sense of obedience to orders which is so essential to air discipline.

The class system was established at Maxwell Field and at the San Antonio Aviation Cadet Center. At Maxwell Field the worst features of hazing such as "Rat Racing" and "Sound Off" were instituted and encouraged by the tactical officers. At San Antonio Aviation Cadet Center under the nine-week program upper classmen and lower classmen were housed in the same barracks, the upper classmen being upstairs. Cadet officers were furnished by the upper class, and they "supervised" the lower classmen.[6]

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5. 1st ind. (OCAC to CG, SETC, 4 Sep. 1941), Hq. SETC to OCAC, 17 Sep. 1941, in AFTRC Historical Sec. files.
6. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, p. 378; CFTC History, 7 Dec. 1941-31 Dec. 1942, vol. III, pp. 350-51.

The class system and hazing eventually came under severe attack. Students who entered as veterans from combat found it "a bit absurd in some respects for them to accept discipline (which at times bordered on hazing) from seventeen and eighteen year olds who had been in the Army only two or three months." As early as August 1942 the Gulf Coast Training Center had abolished the class system in all except preflight schools and had nominally forbidden hazing of all sorts.[7] On 12 December 1942 Liberty Magazine published a letter written by a cadet at the San Antonio Aviation Cadet Center which exposed hazing as then practiced at that school. This resulted in an official investigation which revealed conditions to be essentially those of which the cadet had complained. The school sought to defend itself by complaining of the shortage of tactical officers which had made it necessary to employ student officers in many ways. Shortly afterward there followed an investigation by the Acting Inspector General of the Gulf Coast Training Center. Maj. Gen. G. C. Brant tried to shield the San Antonio Aviation Cadet Center somewhat by supporting its plea for more tactical officers, but the matter of hazing had now been brought to public attention. Consequently the Flying Training Command issued Training Memo 50-0-2, 15 May 1943, which finally abolished hazing, though the limited class system was left intact. Commanding officers permitting hazing were to be relieved ("Those who require hazing to obtain proper discipline are not competent to command").[8] The authorities at Maxwell Field contended that the class

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7. EFTC History, 1 Jan.-31 Dec. 1943, vol. I, p. 255; CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, p. 1238.
8. CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1241-50.

system was popular with the cadets, and a poll taken there in May 1943 would seem to justify this. The evidence indicates, however, that the cadets as a whole agreed with the opinion of the public that such practices were not necessary to the winning of the war nor were they in keeping with the best American traditions.[9]

Honor System

In theory the West Point ideas of military honor were adopted in the preflight schools. Honor councils in group or wing were organized, composed entirely of cadets. A typical organization, such as that established at the San Antonio Aviation Cadet Center, consisted of a wing council composed of cadet commandants who were ex-officio executive officers of the group honor councils. Group councils were representative of the squadrons. The group councils reported conditions, made suggestions to higher authority, and undertook indoctrination of the lower classmen. The system does not seem to have worked successfully, as the councils were generally unwilling to convict their fellows even when guilt was clear. Then, too, there was considerable inconsistency in meting out punishments; in many cases leniency was carried to the extreme. The failure of the honor councils to meet the problems generally resulted in the adoption of other types of control measures which, while well intended, nonetheless undermined the honor system. Typical of such measures were those employed at Maxwell Field, where Major Reis-El Bara ordered that three different tests be used in each

9. EFTC History, 1 Jan.-31 Dec. 1943, vol. I, pp. 254-55.

examination and that these "be passed out in such a fashion that no cadet could profitably examine the paper next to him."[10]

One writer mentions that student officers were the worst offenders in regard to the breaking of the honor code. This raised a question concerning the whole basis of honor in the Army. The argument for honor which was most commonly stressed was that of trying to convince the trainee that his future safety as an aircrew member might depend to a large extent upon the honor of the individuals comprising the crew. Almost never was emphasis put upon the more fundamental point that being honorable is being right and that the whole thing is bound up with one's character. Too often men who preached honor were not themselves honorable. The cadet had ways of discovering these things for himself. It was all very well for a commanding officer to say, "No aviation cadet who has passed through the Pre-Flight School (Pilot) at Maxwell Field, Alabama, can be unaware of the standards of honor set up, whether or not he accepts them fully for his own."[11] The cadet was made aware of the honor standards; he was not properly motivated toward adopting them.

In an attempt to correct this situation a number of officers from the Flying Training Command were sent to West Point in 1943 to attend a special course in honor indoctrination. The recommendations of these men resulted in changes being made in the honor councils looking toward

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10. CFTC History, 7 Dec. 1941-31 Dec. 1942, vol. III, pp. 362-64; ibid., 1 Jan.-31 Dec. 1943, vol. VI, pp. 1251, 1254-56; EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 370-71.
11. Ibid., pp. 378-79; 2d ind. (Cadet Landis W. Smith to CG, AAF, 12 Sep. 1942), Hq. SETC to CG, AAF, 18 Sep. 1942, in AFTRC Historical Sec. files.

representation by election rather than by appointment. This resulted in the issuance of a memorandum which stressed the necessity of honor indoctrination and urged the commands to tighten upon eliminations for those who failed to meet the honor code. That the new system worked hardly any better than the previous one was to be expected. What finally resulted was that the honor system was left nominally in operation, but the schools took whatever measures they deemed necessary to prevent cheating and other forms of dishonesty. Proctoring of examinations, for example, was commonly practiced.[12]

Eliminations and Holdovers

Eliminations from preflight were for numerous causes. The most important were academic, physical, and disciplinary. The over-all elimination rate for each class fluctuated from 1 to 15 per cent. The ups and downs in academic failure often reflected the demands of flow, because the preflight schools had to furnish the quotas required for more advanced phases of training.[13]

Academic eliminations were at first based upon a policy dating from 21 June 1934, which read as follows: "In the future students who are making satisfactory progress in flying training will not be recommended for elimination unless they have failed in two major subjects (ground school)."[14] Certain difficulties arose as to what the term "major subjects" included, though it came to be understood to mean

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12. CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1253 ff.; EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 370-71.
13. Interview with Capt. T. H. Greer by Capt. Lm. Habberton, Historical Officer, 15 July 1945, in AFTRC Historical Sec. files; History of SAAAB, activation-31 Dec. 1942, p. 207.
14. Hq. GCTC to CG, AFFTC, 6 April 1942, in AFTRC 352.15.

any subject to which 20 or more hours had been allotted in the program, excepting mathematics and radio code which were always considered to be major subjects regardless of the amount of instruction given in them. The attitude of the cadet toward eliminations came to be a rather indifferent one, because he realized he would not be eliminated except in the most extreme case. From the beginning, the courses in mathematics and physics gave the most trouble. At Maxwell Field various measures were taken to cope with this situation. "As a matter of policy the most promising and qualified instructors were detailed to mathematics and physics." Then, too, the system of outside help and instruction developed. If a cadet failed, he was given a re-examination; and make-up examinations were given to absentees. In all the schools some form of special help was given.[15] These lenient policies plus the fact that instructors often went out of their way to make tests easy, particularly in the early days when there were no standardized tests, seriously impaired the standards of preflight training. Consequently on 6 April 1942 it was recommended by the Gulf Coast Training Center that a new policy on eliminations be adopted. The following standards were approved by the Flying Training Command:[16]

a. Standard of proficiency

(1) Radio and visual code. The standard of proficiency is established by the program of instruction.
(2) For all other courses a minimum proficiency standard of 70% is established.

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15. EFTC History, 7 Dec. 1941-1 Jan. 1943, vol. I, pp. 353-54, 369; ibid., 1 Jan.-31 Dec. 1943, vol. I, pp. 246-47; History of SAAAB, activation-31 Dec. 1942, p. 197.
16. 1st ind. (Hq. GCTC to CG, AFFTC, 6 April 1942), Hq. AFFTC to CG, GCTC, 14 April 1942, in AFTRC 352.15.

b. Eliminations

(1) Any cadet who, at the time of graduation of his class from any phase of ground training, is deficient in any ground school subject, will be held over to the next class. If still deficient at the end of 4 1/2 additional weeks of instruction, he will be eliminated.

(2) A cadet who, having once been held over as in (1) above, subsequently becomes deficient at some other school in any subject, will not again be held over to the next class but will, if deficient at the time of advancement or graduation of his class, be eliminated.

The above standards remained in effect for two years. Early in 1944, with the reduction in demand for pilots, consideration was given to the establishment of a more severe policy on eliminations. It was proposed that any cadet who failed a subject and who did not pass a comprehensive re-examination in that subject within five days should be considered to have failed the course and should be eliminated. This proposal was made a matter of policy by the Training Command in April 1944. At the same time the standard of proficiency in aural code was fixed at six words per minute receiving and sending and in visual code at five words per minute receiving and sending. For other academic courses the minimum satisfactory grade remained 70 per cent. In all courses of instruction of seven or more hours' duration, failure to pass the course or the re-examination was considered cause for elimination, though academic or faculty boards were authorized to consider "extenuating and mitigating circumstances" in cases wherein academic failure could be attributed to illness, emergency furloughs, or other circumstances "beyond the control of the individual student."[17]

17. TC Memo No. 50-26-11, 8 April 1944.

Academic failures gave rise to the problem of "holdovers." Until April 1944 students who were deficient in any ground school subject were held over for an additional period of instruction. They were given a regular schedule of classes, including the subject or subjects which they had failed. Holdovers were eliminated only if they were unable to make passing grades at the end of the extra period. The policy toward these academic holdovers was not consistent. The Santa Ana pilot school, for example, at first gave them special help and guidance, but later the holdover program there was regarded as simply "a second trial of proficiency," without "coaching" or leniency. The "hard" and "soft" policies alternated until retention for academic failure was abandoned in 1944.

In the first six classes at Maxwell Field there were no academic holdovers. This is explained by the fact that the primary schools were taking all preflight graduates (indeed during these early classes in order to meet quotas for the primary schools men were often taken out of preflight before they had completed the course), while the academic standards at the preflight schools were also comparatively lower than was the case later. Then, too, the quality of the trainees was higher during the early classes than was the case several months later.

The year 1942 brought increasingly higher academic standards while at the same time the quality of the individual trainee was decreasing. This situation resulted in considerable numbers of academic holdovers. At the same time the number of students held over for reasons other than academic began to grow. These reasons included hospitalization, emergency furlough, and disciplinary action. In addition, graduates

were sometimes retained at preflight schools because the primary schools could not absorb them. During 1943 the total number of holdovers ran into the thousands. This situation was due largely to the inability of the primary schools to absorb the great numbers of graduates being turned out by the preflight schools. During 1944 the contraction of the pilot program left still larger pools of preflight graduates in spite of reductions in the number of entering students.[18]

Evaluation of the Training Program

By the end of 1944 nearly a third of a million American aviation cadets and students had graduated from preflight schools.[19] Whatever the shortcomings of the program may have been, the trainees had at least learned many things which were fundamental both for the technical aspects of subsequent aviation instruction and for their participation as junior officers in a military organization. The two chief aspects of preflight training--military indoctrination and academic instruction--were at times opposing forces; the necessity for training men quickly in the essentials of flying, however, meant that peacetime officer standards had to be compromised somewhat. The academic-versus-military argument was reflected not only in curricular changes but also in the attitudes of the two groups of instructors, neither of which, it would seem, was fully sympathetic to the training offered by the other. Low morale among the academic teachers probably impaired the quality of

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18. CFTC History, 1 Jan.-31 Dec. 1943, vol. VI, pp. 1277-78; ibid., 1 Nov.-31 Dec. 1944, vol. I, pp. 103-05, 109, 111.
19. AFMSC, "[Statistical] History of Flying Training, 1 July 1939 through 31 Dec. 1944," in AFSHO files.

their instruction. The contribution of these civilians, in and out of uniform, however, was a notable one and provides a good illustration of the way the Army can marshal civilian skills rapidly to meet specific military needs.

GLOSSARY

AAFPS	AAF Preflight School
AAG	Air Adjutant General
AC/AS	Assistant Chief of Air Staff
ACTC	Air Corps Training Center
AFFTC	AAF Flying Training Command
AFMSC	Statistical Control Division, Office of Management Control
AFTAD	AAF Training Aids Division
AFTRC	AAF Training Command
B-N	Bombardier-Navigator
C/AC	Chief of Air Corps
CFTC	Central Flying Training Command
EFTC	Eastern Flying Training Command
FTC	Flying Training Command
GCTC	Gulf Coast Training Center
J.C.R.	Jumping, chinning, and running
OCAC	Office of Chief of Air Corps
OCS	Officer Candidate School
P	Pilot
SAAAB	Santa Ana Army Air Base
SAACC	San Antonio Aviation Cadet Center
SETC	Southeast Training Center
S/W	Secretary of War
T&O	Training and Operations
TC	Training Command
WCTC	West Coast Training Center
WEFT	Wing-Engine-Fuselage-Tail
WFTC	Western Flying Training Command

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A-3 Division Files, AAF Training Command

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Maj. Kenneth B. Chase, SAACC, San Antonio, Texas
Maj. Louis E. Dreyer, CO, 882d Preflight Training Squadron, SAACC
Prof. R. Bliss Edgar, AAF Preflight School (P), Maxwell Field, Ala.
Capt. D. E. Ellett, Student Section, Aircrew Preflight Unit, AFTRC
Capt. Lex W. Fullbright, Director of Physical Training, AAF Preflight School, Maxwell Field, Ala.
Brig. Gen. Charles R. Glenn, Surgeon, AFTRC
Maj. A. B. House, Officers' Section, A-1 Division, AFTRC
Brig. Gen. Walter F. Kraus, CG, CFTC
Maj. Gen. Walter R. Weaver (Retired), CG, EFTC
Brig. Gen. W. W. Welsh, Deputy Chief of Staff, AFTRC
1st Lt. George E. Wheeler, Physical Training Instructor, AAF Preflight School (P), Maxwell Field, Ala.

Reminiscences by:
Maj. C. H. Dabezies, A-3 Division, AFTRC
1st Lt. W. H. Dusenberry, Historical Section, A-2 Division, AFTRC
Col. O. E. Henderson, A-4 Division, AFTRC
Capt. A. R. Kooker, Historical Section, A-2 Division, AFTRC
2d Lt. George B. Manhart, former instructor, B-N School, Ellington Field, Texas

D O C U M E N T S

RESTRICTED

WAR DEPARTMENT
The Adjutant General's Office
Washington

AG 320.2 (1-16-41)
M (Ret) M-C

February 21, 1941.

SUBJECT: Air Corps Replacement Centers.

TO: Chief of Air Corps.

1. The establishment of the following Air Corps Replacement Centers is announced:

a. Air Corps Replacement Center (Technician), Jefferson Barracks, Missouri. This Replacement Center is placed under the control of the Commandant, The Air Corps Technical School, and is exempt from Corps Area control. Jefferson Barracks, itself, will remain a non-exempt station under the control of the Seventh Corps Area Commander.

b. Air Corps Replacement Center (Pilot), Maxwell Field, Alabama. This Replacement Center is placed under the control of the Commanding General, Southeast Air Corps Training Center, and is exempt from Corps Area control.

c. Air Corps Replacement Center (Pilot), Kelly Field, Texas. This Replacement Center is placed under the control of the Commanding General, Gulf Coast Air Corps Training Center, and is exempt from Corps Area control.

d. Air Corps Replacement Center (Pilot), Moffett Field, California. This Replacement Center is placed under the control of the Commanding General, West Coast Air Corps Training Center, and is exempt from Corps Area control.

2. Training - As prescribed by Chief of Air Corps.

3. Organization - Such troops as may be assigned thereto by the War Department.

4. The Chief of Air Corps will submit recommendations as to the organization, strength, and equipment of these Air Corps Replacement Centers.

By order of the Secretary of War:

Copies furnished:

Commanding Generals of all Corps Areas;
Commanding General, GHQ Air Force;
Chiefs of Arms and Services, and
Commanding Officers of Exempted Stations.

Adjutant General.

RESTRICTED

353 Pre-flight

RESTRICTED

SUBJECT: Preflight Training for Aviation Cadets (Aircrew)

TO: Commanding General, Army Air Forces, Washington [illegible] D.C.
Attention: Assistant Chief of Air Staff, Training.

1. Reference is made to a letter from Headquarters, Army Air Forces, dated 30 July 1943, subject: "Reorganization Plan for Classification of Army Air Forces Personnel."

2. With respect to paragraphs 1 and 2 of the letter mentioned above, present plans for effecting classification in the [illegible] Training Centers embody, in essence, those features [illegible] to the [illegible] viously submitted plans, that of AAFTTC and that of Aircrew [illegible].

3. With respect to the question raised by paragraph 3 of the letter referred to in 1 above, careful consideration [illegible] the conclusion that the present preflight schools should be continued [illegible] that transportation problems arising from the institution of [illegible] lege training detachments can be otherwise alleviated [illegible] reasons (see Tab [illegible] for a detailed exposition):

a. The college training detachments were [illegible] prepare aviation cadets for preflight training, and to [illegible]

b. The colleges do not possess at this time [illegible] prepared to teach the specialized courses offered in preflight [illegible].

c. Standardization of preflight instruction [illegible] more difficult to accomplish in 151 colleges than in [illegible] flight schools.

d. Specialized equipment for instruction in [illegible] is now very inadequate in colleges and future procurement [illegible] equipment is a very dubious matter.

e. The preflight schools are offering types of [illegible] training, such as low pressure chamber indoctrination, [illegible] ing, and physical hardening which could not be duplicated [illegible] colleges.

f. The future classification and assignment to [illegible] ing would be entirely unsatisfactory if conducted in 151 colleges.

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MAGAZINE ARTICLE

Maj. Gen. B. K. Yount, "Building the AAF: Part I, Pre-Flight Toughens 'Em," in Aviation, August 1943

LIST OF DOCUMENTS

(Filed with No. 1 copy of AAF Historical Studies: No. 48, in AAF Historical Office)

1. AG 320.2 (1-16-41) M (Ret.) M-C, 21 Feb. 1941.

2. Hq. AFTRC to CG, AAF (with appended documents), 4 Sep. 1943. Original in 353 Preflight, Central Files, AFTRC.

3. Flow Charts prepared by Statistical Control Unit, AFTRC, 25 Sep. 1944.

4. OCAC to CO, WCACTC (with appended documents), 1 Oct. 1940. Original in Historical Section Files, AFTRC.

5. OCAC to CO's, SEACTC, GCACTC, and WCACTC (with appended documents), 2 Oct. 1940. Original in Historical Section Files, AFTRC.

6. Program of Instruction [sent to SEACTC by OCAC, 2 Sep. 1941]. Original in Historical Section Files, AFTRC.

7. Program of Instruction, Air Corps Replacement Training Center (Aircrew), Pilot Trainees, Hq. AAFTC, 15 March 1942. Original in Historical Section Files, AFTRC.

8. CO, AAFPS (P), Maxwell Fld., Ala., to CG, SEAAFTC, 26 Sep. 1942. Original in Historical Section Files, AFTRC.

9. TC Memo 50-23-1, 23 May 1944.

10. Interview with Maj. Louis E. Dreyer, CO, 882d Preflight Training Squadron, SAACC, by Asst. Historical Officer, SAACC. Original in Historical Section Files, AFTRC.

I N D E X

Tab A

Details Concerning the New
Medical and Psychological Examining Units

1. It has been necessary to establish Medical and Psychological Examining Units in seven Basic Training Centers: Greensboro, Miami, Keesler Field, Jefferson Barracks, Sheppard Field, Amarillo, and Buckley Field, and planning is well advanced to accomplish aircrew examining and processing at these locations. The choice of locations for Basic Training Centers has been limited by: (1) the necessity of using present installations and minimizing alterations of buildings, (2) capacities of existing installations, (3) availability in the light of requirements of other Commands for the same facilities, and (4) prior commitments as to the use of existing stations. Within these limitations locations were selected so as to minimize rail travel. The decision to use the seven Centers named reflects all these considerations. From some points of view better locations could have been selected. For example: Kearns, Utah, would appear to be a desirable location, but was more urgently needed for other purposes; Miami is poorly situated with respect to rail transportation, but this Command was directed by Headquarters, Army Air Forces, to maintain a large capacity there.

2. Owing to directives previously issued and housing commitments over which this Headquarters had no control, medical examining [illegible] cannot begin in these Centers until 1 September 1943, and testing [illegible] aircrew aptitudes until 15 October 1943. The greater delay in the latter instance is occasioned by the necessity of procuring apparatus; critical materials are involved and, even with the highest obtainable priorities, deliveries cannot be expected much before 15 October in any case. These functions will continue to be performed in the present Classification Centers at Nashville, San Antonio, and Santa Ana, until such time as pre-tested trainees arrive from the colleges, at which time the Classification Centers as they now exist will be discontinued. There will thus be no interruption of the process of classification. It is realized, of course, that [illegible] the new flow can be established, the earlier will be the attainment savings in transportation and in unnecessary college training [illegible] the quicker will combat crew candidates enter upon training for their specialties.

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Tab B

Reasons for Continuation of the
Present Preflight Schools

1. The chief excuse for the college training program, from the point of view of aircrew training, was to better prepare the students for preflight training.

a. It will be recalled that at the beginning of the present classification system all educational requirements for aircrew trainees were removed. The Army Air Forces has constantly stressed the fact that the standard of training must not be lowered. Where formerly all Aviation Cadets had two years of college education or the equivalent, now very large numbers have had no college training whatever. It has been recognized in the preflight schools for some time that many Cadets are unprepared to absorb the academic training prescribed by the preflight curriculum. Besides the men who had never attended college, there were others who had been out of school for some time and so had forgotten much of what they had learned and also how to study. Others had failed to take the courses, such as mathematics and physics, which are most essential in preparation for preflight schools.

b. It was important therefore in order to assure more uniform success in the preflight school to give this preparatory period in college. In other words, this program was not intended to replace the present program of instruction given at preflight school, but better to prepare present day applicants who are physically and psychologically qualified but who are short on the academic side.

c. A coordination is being worked out between the college training curriculum and the preflight school curriculum which will tend to minimize duplications and to integrate the two stages of training into a more functional whole.

2. The colleges are unprepared to take on the entire preflight training for several reasons.

a. The chief reason is that the teaching staff is at present not properly adapted to this type of instruction. The Training Commands have gone to considerable trouble and expense to collect and to train teachers of the specialties in preflight school. Some 1200 instructors have been procured, commissioned, and trained for their particular tasks. The college teachers are not at present similarly prepared to undertake instruction in such subjects as aircraft identification, radio code, maps and charts, etc., without further training and experience. Such courses and others given in preflight schools require techniques and methods which are unknown to most college teachers.

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b. If the present teachers in preflight school were to be distributed among the colleges, this would create several problems. One of these is that the supply of these teachers would be inadequate when apportioned among the very great number of colleges to be staffed. Another is their military status. It is questionable whether colleges would submit to being militarized to this extent.

3. Coordination and standardization of preflight instruction in the colleges would be highly unsatisfactory. It has been an extremely difficult problem to attain the standardization and coordination now existant in only a few preflight installations. It is obvious that this can be much more easily accomplished in preflight schools than in 151 scattered colleges. Furthermore any attempts to coordinate and standardize training in the colleges, if they are to be successful to any useful degree, would require militarizing the supervising and teaching in the colleges. The attainment of present standards in the preflight schools has been difficult to accomplish. The schools are now operating at a higher level of efficiency and enthusiasm than at any time in the past and it is considered unwise to take any step which would nullify these important gains.

4. The equipment required for preflight courses is now entirely inadequate in the colleges, and the possibility of future procurement of equipment is extremely dubious.

a. Certain subjects, such as aircraft identification, radio code, maps and charts, etc., require special equipment in quantities sufficient for use in the teaching of many groups and so those subjects could not possibly be given in the colleges at this time.

b. The preflight schools have developed methods of visual education on a scale never before realized in public or private educational institutions. One example is the flash system of teaching aircraft identification. This procedure requires a supply of projectors, camera shutters, and large numbers of slides.

c. On 14 July 1943, this Headquarters was advised by [illegible] that no new equipment for instruction in aircraft identification would be immediately forthcoming. On that date only 60 of 802 units requisitioned by this Command had been delivered, not enough to supply the preflight schools, let alone distribution to the many colleges. A comparable situation prevails with respect to equipment for radio code instruction.

5. In addition to the subjects to which the preceding discussion pertains, the preflight schools administer types of training which could not be duplicated in the colleges.

a. One of these is the low pressure chamber indoctrination. At the present locations, relatively small number of chambers made

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to serve very large numbers of trainees. It is out of the question to attempt to perform this service in the colleges owing to the lack of equipment and personnel. While it is not regarded as entirely impracticable to attempt such indoctrination in Basic Training Centers, there are definite advantages to maintaining the present locations of this training. The experience of the Cadets with simulated high altitude conditions and the testing for high altitude classification should come nearer to the time of flight training. Furthermore, a movement of this function to the Basic Training Centers would require a duplication of equipment and personnel for the purpose during the period of transition, similar to the duplication of provisions for classification examining.

b. Another type of training possible in preflight schools but of doubtful effectiveness in the colleges is a continuation of military training. The course in basic training received before entering college is admittedly rather brief. The colleges are not military institutions, and very few are equipped to offer serious military training. The preflight schools on the other hand are military installations in a military atmosphere. They are equipped with facilities, such as obstacle courses, and they continue to review and to extend military training absorbed in the Basic Training Centers and to continue the physical hardening processes so desirable for preparing the men for combat flying. The possibility for coordinating and standardizing such training in a few preflight schools as compared with 151 colleges cannot be seriously questioned.

c. Furthermore, preflight schools have made serious attempts to indoctrinate Aviation Cadets with the attitudes desirable in future A.A.F. officers, with enthusiasm for their training and with a combat spirit which would be difficult to bring about in the colleges.

d. The superiority of the facilities and teaching personnel at the preflight schools as compared with those in the colleges is so great that if there were any question of eliminating one stage or the other, this Headquarters is forced to the conclusion that the preflight schools should not only be permitted to continue to function but that any instruction preparatory for preflight might better be conducted in three Centers such as the present preflight installations rather than in 151 civilian colleges.

6. If the present preflight schools were to be discontinued, a serious question arises as to the location of classification.

a. The plan projected for the future calls for the assignment of aircrewmen to particular types of training while they are at preflight schools. The plan is committed to the principle that actual assignment of the Cadet should be as late in his training as the curriculum will permit in order that changing quotas may be more easily

met. According to plan, the preflight curriculum will not be specialized so that assignments can be delayed almost to the point when shipments are made up for flight schools.

b. It would be highly undesirable to have specific assignments made in some [illegible] colleges. This would require a very large number of assignment boards in place of three at the preflight schools. The process of assigning Cadets to Pilot, Bombardier, and Navigator training can be handled most effectively by a preflight school board especially selected for its skill in the interpretation of aptitude ratings, physical examination results, and other pertinent data.

c. Aside from the much enlarged personnel that would be required if assignments are made in the colleges, coordination of assignments in order to meet the training quotas, would be next to impossible.

7. Concerning the transportation problem, it can be said that the College Training Program is to a large degree responsible for the present state of affairs. It can also be said that in spite of the existing distribution of students to scattered colleges, there are aspects which tend to alleviate the situation.

a. The preflight schools are, as was originally planned, centrally located with respect to the flight schools which they supply. The routing of students from colleges to the flight schools through preflight is therefore not as serious a matter as theoretically it would seem.

b. Under existing circumstances there are many steps being taken to reduce transportation. For example, students eliminated in the Classification Centers, in preflight and in flight schools now proceed directly to certain technical schools without returning to Basic Training Centers. This procedure is admittedly a temporary expediency during the transition to the new classification examining procedure in the Basic Training Centers. Under the plan soon to go into effect (see attached Proposed Flow Chart), aircrew students will have been examined and qualified for different types of technical training before going to college. Such students upon later elimination from flying training can be more wisely assigned to technical training and shipped immediately to technical schools.

c. In addition, studies at this Headquarters are continuing on the question of distribution of students with a view to reducing transportation requirements. As one instance of the result of such a study, a recent movement of students in the Southeast, by proper coordination, was reduced to approximately one-third of previous requirements, notwithstanding the fact that numbers in classes had been increased.

d. The present preflight schools have served to some extent as aids to the regulation of flow of cadets in the meeting of training quotas. Under the new plan for classification they can serve this function to a marked degree by maintaining very large unassigned pools of cadets.

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CONSOLIDATION OF U. S. WHITE STUDENTS BY CLASS YEARS

	CLASS YEAR	NEW STUDENTS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED
PILOT						
Maxwell Field, Ala.	42	10802	10721	298	2.8	10423
San Antonio, Tex.	42	13248	13130	561	4.3	12569
Santa Ana, Calif.	42	1622	1263	3	.2	1260
TOTAL	42	25672	25114	862	3.4	24252
Maxwell Field, Ala.	43	37746	37425	595	1.6	36830
San Antonio, Tex.	43	40235	39910	911	2.3	38999
Santa Ana, Calif.	43	33966	33800	855	2.5	32945
TOTAL	43	111947	111135	2361	2.1	108774
Maxwell Field, Ala.	44	43941	44189	796	1.8	43393
San Antonio, Tex.	44	43930	43301	2056	4.7	41245
Santa Ana, Calif.	44	38547	38852	1343	3.5	37509
TOTAL	44	126418	126342	4195	3.3	122147
GRAND TOTAL PILOT		264037	262591	7418	2.8	255173
BOMBARDIER						
Maxwell Field, Ala.	42	247	247	13	5.3	234
Ellington Field, Tex.	42	2333	2229	49	2.2	2180
Santa Ana, Calif.	42	2856	2768	128	4.6	2640
TOTAL	42	5436	5244	190	3.6	5054
Ellington Field, Tex.	43	11206	11287	383	3.4	10904
Santa Ana, Calif.	43	9725	10416	915	8.8	9501
TOTAL	43	20931	21703	1298	6.0	20405

CONSOLIDATION OF U. S. WHITE STUDENTS
BY CLASS YEARS

	CLASS YEAR	NEW STUDENTS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED
Maxwell Field, Ala.	44	2235	2070	25	1.2	2045
San Antonio, Tex.	44	3337	3348	140	4.2	3208
Santa Ana, Calif.	44	6457	6445	293	4.5	6152
TOTAL	44	12029	11863	458	3.9	11405
GRAND TOTAL BOMBARDIER		38396	38810	1946	5.0	36864
NAVIGATOR						
Selman Field, La.	42	859	853	39	4.6	814
Ellington Field, Tex.	42	2049	2027	29	1.4	1998
Santa Ana, Calif.	42	939	867	27	3.1	840
TOTAL	42	3847	3747	95	2.5	3652
Selman Field, La.	43	7192	7145	220	3.1	6925
Ellington Field, Tex.	43	10393	10399	210	2.0	10189
Santa Ana, Calif.	43	2307	2238	142	6.3	2096
TOTAL	43	19892	19782	572	3.0	19210
Maxwell Field, Ala.	44	2780	1887	19	1.0	1868
Selman Field, La.	44	1153	1172	86	7.3	1086
San Antonio, Tex.	44	3676	3703	36	1.0	3667
Santa Ana, Calif.	44	5940	6067	76	1.3	5991
TOTAL	44	13549	12829	217	1.7	12612
GRAND TOTAL NAVIGATOR		37288	36358	884	2.4	35474
AIRCREW						
Maxwell Field, Ala.	45*	9855	10827	464	4.3	10363
San Antonio, Tex.	45*	8253	7891	946	12.0	6945
Santa Ana, Calif.	45*	8069	7765	514	6.62	7251
TOTAL	45*	26177	26483	1924	7.3	24559

*Thru class which graduated 4 August 1944.

FOREIGN PREFLIGHT STUDENTS

PREFLIGHT PILOT — BRAZILIAN — SAN ANTONIO, TEXAS

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
44-A	24 Apr 43	26 June 43	50		2	48	0		48	48
44-B	26 May 43	28 July 43	50	2	8	44	3	6.8	41	89
44-C	28 June 43	28 Aug 43	49	8	12	45	1	2.2	44	133
44-D	30 July 43	1 Oct 43	50	12	11	51	3	5.9	48	181
44-E	1 Sep 43	3 Nov 43	49	11	15	45	1	2.2	44	225
44-F	3 Oct 43	5 Dec 43	43	15	14	44	2	4.5	42	267
44-G	5 Nov 43	7 Jan 44	0	14	7	7	2	28.6	5	272
44-H		8 Feb 44	0	7	0	7	0		7	279

PREFLIGHT PILOT — TURKISH — SAN ANTONIO, TEXAS

45-B	10 Apr 44	4 Aug 44	47		3	44	3	6.8	41	41

PREFLIGHT BOMBARDIER — YUGOSLAV — ELLINGTON FIELD, TEXAS

43-8		10 Mar 43	5			5	0		5	5

PREFLIGHT BOMBARDIER — BRAZILIAN — ELLINGTON FIELD, TEXAS

44-2	4 Dec 43	5 Feb 44	6			6	0		6	6

PREFLIGHT NAVIGATION — YUGOSLAV — ELLINGTON FIELD, TEXAS

43-9		10 Mar 43	5			5	0		5	5

PREFLIGHT NAVIGATION — BRAZILIAN — ELLINGTON FIELD, TEXAS

44-2	4 Dec 43	5 Feb 44	2			2	0		2	2

U. S. COLORED STUDENTS

PREFLIGHT PILOT — TUSKEGEE, ALABAMA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-I	24 Jan 42	28 March 42	20			20	0		20	20
42-J	25 Feb 42	29 April 42	20			20	0		20	40
42-K	30 March 42	1 June 42	20		1	19	0		19	59
43-A	1 May 42	30 June 42	20	1	1	20	0		20	79
43-B	28 May 42	3 Aug 42	21	1		22	2	9.1	20	99
43-C	10 July 42	11 Sep 42	37		2	35	0		35	134
43-D	17 Aug 42	20 Oct 42	54	2	2	54	2	3.7	52	186
43-E	21 Sep 42	23 Nov 42	59	2	2	59	7	11.9	52	238
43-F	22 Oct 42	26 Dec 42	54	2		56	4	6.3	52	290
43-G	27 Nov 42	24 Jan 43	52			52	0		52	342
43-H	25 Dec 42	26 Feb 43	56			56	4	7.1	52	394
43-I	26 Jan 43	30 Mar 43	69		16	53	1	1.9	52	446
43-J	28 Feb 43	3 May 43	67	17	29	55	3	5.5	52	498
43-K	1 Apr 43	28 May 43	51	29	23	57	5	8.8	52	550
44-A	3 May 43	30 June 43	50	23	18	55	3	5.5	52	602
44-B	30 May 43	28 July 43	47	18	10	55	3	5.5	52	654
44-C	2 July 43	30 Aug 43	51	10	9	52	1	1.9	51	705
44-D	30 July 43	1 Oct 43	50	9	8	51	3	5.9	48	753
44-E	1 Sept 43	3 Nov 43	61	20	14	67	5	7.5	62	815
44-F	3 Oct 43	5 Dec 43	71	18	25	64	2	3.1	62	877
44-G	5 Nov 43	7 Jan 44	70	17	13	74	4	5.4	70	947
44-H	7 Dec 43	8 Feb 44	61	28	18	71	1	1.4	70	1017
44-I	9 Jan 44	12 Mar 44	90	17	34	73	3	4.1	70	1087
44-J	10 Feb 44	15 Apr 44	69	17	11	75	5	6.7	70	1157
44-K	12 Mar 44	23 May 44	88	11	23	76	6	7.9	70	1227

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PREFLIGHT BOMBARDIER — TUSKEGEE, ALABAMA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
44-7	14 Mar 44	23 May 44	38	0	4	34	4	11.8	30	30

PREFLIGHT BOMBARDIER-NAVIGATOR — TUSKEGEE, ALABAMA

44-I	12 Jan 44	22 Mar 44	37	0	2	35	2	5.7	33	33
44-J	2 Mar 44	15 Apr 44	108	2	23	87	0		87	120
44-K	14 Mar 44	18 May 44	2	24	4	22	0		22	142

PREFLIGHT AIRCREW — TUSKEGEE, ALABAMA

45-A	18 Apr 44	26 June 44	204	0	52	152	5	3.3	147	147
45-B	26 May 44	4 Aug 44	126	52	34	144	8	5.6	136	283

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PREFLIGHT PILOT — U. S. WHITE STUDENTS — MAXWELL FIELD, ALABAMA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-D	1 Sep 41	2 Oct 41	658			658	5	.8	653	653
42-E	4 Oct 41	6 Nov 41	651			651	14	2.2	637	1290
42-F	21 Nov 41	18 Dec 41	1132			1132	20	1.8	1112	2402
42-G	22 Dec 41	13 Jan 42	1373			1373	27	2.0	1346	3748
42-H	24 Jan 42	21 Feb 42	1602			1602	13	.8	1589	5337
42-I	24 Jan 42	28 Mar 42	1770			1770	134	7.6	1636	6973
42-J	25 Feb 42	29 Apr 42	1245		10	1235	46	3.7	1189	8162
42-K	30 Mar 42	1 June 42	2371	10	81	2300	39	1.7	2261	10423
43-A	1 May 42	30 June 42	1707	81	82	1706	49	2.9	1657	12080
43-B	28 May 42	3 Aug 42	2383	82	90	2375	46	1.9	2329	14409
43-C	10 July 42	11 Sep 42	2884	90	109	2865	54	1.9	2811	17220
43-D	17 Aug 42	20 Oct 42	3959	109	144	3924	100	2.5	3824	21044
43-E	21 Sep 42	23 Nov 42	3303	144	116	3331	26	.8	3305	24349
43-F	22 Oct 42	26 Dec 42	3830	116	143	3803	94	2.5	3709	28058
43-G	23 Nov 42	30 Jan 43	3349	144	321	3172	21	.7	3151	31209
43-H	28 Dec 42	22 Feb 43	3802	321	402	3721	34	.9	3687	34896
43-I	1 Feb 43	1 Apr 43	3934	402	455	3881	43	1.1	3838	38734
43-J	1 Mar 43	3 May 43	4112	455	437	4130	63	1.5	4067	42801
43-K	5 Apr 43	1 June 43	4483	437	403	4517	65	1.4	4452	47253
44-A	6 May 43	2 July 43	4677	403	385	4695	94	2.0	4601	51854
44-B	1 June 43	30 July 43	4748	385	428	4705	87	1.8	4618	56472
44-C	5 July 43	30 Aug 43	4961	428	313	5076	122	2.4	4954	61426
44-D	30 July 43	1 Oct 43	5287	313	398	5202	90	1.7	5112	66538
44-E	1 Sep 43	3 Nov 43	5387	398	931	4854	84	1.7	4770	71308
44-F	3 Oct 43	5 Dec 43	5411	931	3075	3267	64	2.0	3203	74511
44-G	5 Nov 43	7 Jan 44	3923	3075	2950	4048	47	1.2	4001	78512
44-H	7 Dec 43	12 Feb 44	2750	2950	2459	3241	36	1.1	3205	81717
44-I	15 Jan 44	24 Mar 44	1210	2459	756	2913	71	2.4	2842	84559
44-J	10 Feb 44	15 Apr 44	2819	756	138	3437	56	1.6	3381	87940
44-K	12 Mar 44	23 May 44	2768	138	155	2751	45	1.6	2706	90646

PREFLIGHT PILOT — U. S. WHITE STUDENTS — SAN ANTONIO, TEXAS

CLASS -NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-F	21 Nov 41	18 Dec 41	2063			2063	15	.7	2048	2048
42-G	22 Dec 41	13 Jan 42	1903			1903	1	.1	1902	3950
42-H	24 Jan 42	21 Feb 42	2440			2440	4	.2	2436	6386
42-I	24 Jan 42	28 Mar 42	2279		123	2156	101	4.7	2055	8441
42-J	25 Feb 42	29 Apr 42	2435	123	185	2373	343	14.5	2030	10471
42-K	30 Mar 42	1 June 42	2128	185	118	2195	97	4.4	2098	12569
43-A	1 May 42	30 June 42	2425	118	144	2399	46	1.9	2353	14922
43-B	28 May 42	3 Aug 42	3102	144	236	3010	47	1.6	2963	17885
43-C	10 July 42	8 Sep 42	3215	236	200	3251	73	2.2	3178	21063
43-D	10 Sep 42	11 Oct 42	3540	250	230	3560	28	.8	3532	24595
43-E	10 Sep 42	10 Nov 42	3529	360	342	3547	60	1.7	3487	28082
43-F	11 Oct 42	13 Dec 42	3759	308	514	3553	75	2.1	3478	31560
43-G	12 Nov 42	14 Jan 43	3969	419	513	3875	101	2.6	3774	35334
43-H	15 Dec 42	16 Feb 43	3968	473	432	3959	83	2.1	3876	39210
43-I	16 Jan 43	30 Mar 43	3787	932	523	4196	113	2.7	4083	43293
43-J	18 Feb 43	22 Apr 43	4358	723	1032	4049	117	2.9	3932	47225
43-K	22 Mar 43	24 May 43	4583	703	775	4511	168	3.7	4343	51568
44-A	24 Apr 43	26 June 43	4352	564	665	4251	107	2.5	4144	55712
44-B	26 May 43	30 July 43	4540	1080	877	4743	189	4.0	4554	60266
44-C	30 June 43	30 Aug 43	5235	691	1312	4614	124	2.7	4490	64756
44-D	30 July 43	1 Oct 43	5678	1001	2053	4626	88	1.9	4538	69294
44-E	1 Sep 43	3 Nov 43	4263	2030	2079	4214	138	3.3	4076	73370
44-F	3 Oct 43	5 Dec 43	4482	2013	2201	4294	162	3.8	4132	77502
44-G	5 Nov 43	7 Jan 44	3725	2335	1912	4148	286	6.9	3862	81364
44-H	7 Dec 43	8 Feb 44	3697	1777	2032	3842	273	7.9	3169	84533
44-I	9 Jan 44	12 Mar 44	2527	1839	1220	3146	262	8.3	2884	87417
44-J	10 Feb 44	15 Apr 44	2698	1211	980	2929	225	7.7	2704	90121
44-K	12 Mar 44	23 May 44	2733	1050	889	2894	202	7.0	2692	92813

NOTE: Holdovers from one class to another do not balance because of fact students were advanced and graduated with preceeding classes and they are accounted for in the Holdover columns.

PREFLIGHT PILOT — U. S. WHITE STUDENTS — SANTA ANA, CALIF

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-K	29 Apr 42	28 May 42	1622	0	359	1263	3	.2	1260	1260
43-A	1 May 42	26 June 42	2239	362	339	2262	27	1.2	2235	3495
43-B	1 June 42	24 July 42	1986	322	239	2069	45	2.2	2024	5519
43-C	29 June 42	27 Aug 42	3455	239	446	3248	60	1.8	3188	8707
43-D	27 July 42	1 Oct 42	2353	446	194	2605	72	2.8	2533	11240
43-E	29 Aug 42	31 Oct 42	3827	194	286	3735	53	1.4	3682	14922
43-F	1 Oct 42	4 Dec 42	3432	287	549	3170	71	2.2	3099	18021
43-G	2 Nov 42	4 Jan 43	3275	603	640	3238	136	4.2	3102	21123
43-H	30 Nov 42	7 Feb 43	3130	642	514	3308	91	2.8	3217	24340
43-I	4 Jan 43	11 Mar 43	3363	515	599	3279	62	1.9	3217	27557
43-J	9 Feb 43	15 Apr 43	3225	621	427	3419	120	3.5	3299	30856
43-K	15 Mar 43	20 May 43	3631	427	591	3467	118	3.4	3349	34205
44-A	19 Apr 43	22 June 43	3932	591	290	4233	108	2.6	4125	38330
44-B	22 May 43	28 July 43	4641	290	643	4288	114	3.4	4144	42474
44-C	24 June 43	30 Aug 43	4376	643	768	4251	124	2.9	4127	46601
44-D	30 July 43	1 Oct 43	4445	768	805	4408	88	2.0	4320	50921
44-E	1 Sep 43	3 Nov 43	4281	805	792	4294	169	3.9	4125	55046
44-F	3 Oct 43	5 Dec 43	4473	792	1187	4078	178	4.4	3900	58946
44-G	5 Nov 43	7 Jan 44	3945	1187	1615	3517	197	5.6	3320	62266
44-H	7 Dec 43	8 Feb 44	3217	1615	1960	2872	127	4.4	2745	65011
44-I	9 Jan 44	12 Mar 44	649	1960	294	2315	46	2.0	2269	67280
44-J	10 Feb 44	15 Apr 44	2412	294	429	2277	98	4.3	2179	69459
44-K	12 Mar 44	23 May 44	2176	429	286	2319	64	2.8	2255	71714

PREFLIGHT BOMBARDIER — U. S. WHITE STUDENTS — ELLINGTON FIELD, TEXAS AND SAN ANTONIO, TEXAS

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
Thru 42-10*		17 Apr 42	733	0	17	716	19	2.7	697	697
42-11	14 Mar 42	15 May 42	199	17	15	201	0		201	898
42-12	4 Apr 42	5 June 42	124	15	22	117	4	3.4	113	1011
42-13	25 Apr 42	26 June 42	265	22	12	275	5	1.8	270	1281
42-14	16 May 42	17 July 42	240	12	18	234	0		234	1515
42-15	6 June 42	7 Aug 42	140	18	43	115	5	4.4	110	1625
42-16	27 June 42	29 Aug 42	234	43	59	218	9	4.1	209	1834
42-17	18 July 42	19 Sep 42	398	59	104	353	7	2.0	346	2180
43-1	8 Aug 42	10 Oct 42	514	104	147	471	27	5.7	444	2624
43-2	31 Aug 42	31 Oct 42	423	149	140	432	39	9.0	393	3017
43-3	19 Sep 42	26 Nov 42	431	140	177	394	23	5.8	371	3388
43-4	10 Oct 42	12 Dec 42	460	175	105	530	20	3.8	510	3898
43-5	31 Oct 42	2 Jan 43	439	105	86	458	11	2.4	447	4345
43-6	26 Nov 42	27 Jan 43	434	89	73	450	12	2.7	438	4783
43-7	17 Dec 42	17 Feb 43	566	74	86	554	9	1.6	545	5328
43-8	7 Jan 43	10 Mar 43	685	84	104	665	18	2.7	647	5975
43-9	28 Jan 43	31 Mar 43	531	107	118	520	13	2.5	507	6482
43-10	18 Feb 43	21 Apr 43	579	124	93	610	8	1.3	602	7084
43-11	11 Mar 43	12 May 43	657	94	138	613	7	1.1	606	7690
43-12	1 Apr 43	2 June 43	650	131	126	655	13	2.0	642	8332
43-13	22 Apr 43	23 June 43	598	128	82	644	13	2.0	631	8963
43-17	13 May 43	14 July 43	660	87	68	679	22	3.2	657	9620
43-18	30 May 43	2 Aug 43	659	67	73	653	33	5.1	620	10240
43-19	20 June 43	28 Aug 43	320	73	52	341	24	7.0	317	10557
43-20	10 July 43	11 Sep 43	290	61	34	317	15	4.7	302	10859

*Breakdown by class not available.

PREFLIGHT BOMBARDIER — U. S. WHITE STUDENTS — ELLINGTON FIELD, TEXAS AND SAN ANTONIO, TEXAS

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
43-21	2 Aug 43	2 Oct 43	309	34	35	308	10	3.2	298	11157
43-22	21 Aug 43	23 Oct 43	457	35	44	448	13	2.9	435	11592
43-23	11 Sep 43	13 Nov 43	455	44	36	463	17	3.7	446	12038
43-24	2 Oct 43	4 Dec 43	536	36	51	521	13	2.5	508	12546
43-25	23 Oct 43	25 Dec 43	553	51	43	561	23	4.1	538	13084
44-1	13 Nov 43	22 Jan 44	578	43	45	576	35	6.1	541	13625
44-2	4 Dec 43	5 Feb 44	335	45	30	350	19	5.4	331	13956
44-3	25 Dec 43	26 Feb 44	468	30	18	480	20	4.2	460	14416
44-4	17 Jan 44	18 Mar 44	443	18	18	443	15	3.4	428	14844
44-5	7 Feb 44	8 Apr 44	431	18	13	436	13	3.0	423	15267
44-5**	7 Feb 44	8 Apr 44	0	11	0	11	0		11	15278
44-6	28 Feb 44	29 Apr 44	454	0	24	430	18	4.2	412	15690
44-7	20 Mar 44	23 May 44	628	24	30	622	20	3.2	602	16292

**First class at San Antonio, Texas

PREFLIGHT NAVIGATION — U. S. WHITE STUDENTS — ELLINGTON FIELD, TEXAS / SAN ANTONIO, TEXAS

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
Thru 42-11*		25 Apr 42	946	3	11	938	10	1.1	928	928
42-12	14 Mar 42	15 May 42	259	11	13	257	2	.8	255	1183
42-13	4 Apr 42	5 June 42	180	13	11	182	4	2.2	178	1361
42-14	25 Apr 42	26 June 42	287	8	12	283	7	2.5	276	1637
42-15	16 May 42	17 July 42	138	12	13	137	2	1.5	135	1772
42-16	6 June 42	7 Aug 42	113	13	23	103	3	2.9	100	1872
42-17	27 June 42	29 Aug 42	126	23	22	127	1	.8	126	1998
43-1	18 July 42	19 Sep 42	567	22	89	500	17	3.4	483	2481
43-2	8 Aug 42	10 Oct 42	427	90	110	407	14	3.4	393	2874
43-3	29 Aug 42	31 Oct 42	413	111	94	430	19	4.4	411	3285
43-4	19 Sep 42	26 Nov 42	414	94	140	368	27	7.3	341	3626
43-5	10 Oct 42	12 Dec 42	197	145	36	306	34	11.1	272	3898
43-6	31 Oct 42	2 Jan 43	0	35	11	24	1	4.2	23	3921
43-7	26 Nov 42	27 Jan 43	6	12	4	14	3	21.4	11	3932
43-8	17 Dec 42	17 Feb 43	274	7	15	266	0		266	4198
43-9	7 Jan 43	10 March 43	512	17	32	497	4	.8	493	4691
43-10	28 Jan 43	31 Mar 43	786	37	128	695	4	.6	691	5382
43-12	18 Feb 43	21 Apr 43	768	137	81	824	3	.4	821	6203
43-13	11 Mar 43	12 May 43	768	82	102	748	9	1.2	739	6942
43-14	1 Apr 43	2 June 43	781	95	85	791	11	1.4	780	7722
43-15	22 Apr 43	23 June 43	501	76	42	535	5	.9	530	8252
43-17	13 May 43	14 July 43	796	41	54	783	8	1.0	775	9027
43-18	30 May 43	7 Aug 43	415	54	23	446	11	2.5	435	9462

*Breakdown by class not available.

PREFLIGHT NAVIGATION — U. S. WHITE STUDENTS — ELLINGTON FIELD, TEXAS SAN ANTONIO, TEXAS

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
43-19	20 June 43	21 Aug 43	303	25	23	305	2	.7	303	9765
43-20	10 July 43	11 Sep 43	298	32	29	301	5	1.7	296	10061
43-21	2 Aug 43	2 Oct 43	304	29	26	307	0		307	10368
43-22	21 Aug 43	23 Oct 43	304	26	18	312	7	2.2	305	10673
43-23	11 Sep 43	13 Nov 43	460	18	19	459	4	.9	455	11128
43-24	2 Oct 43	4 Dec 43	543	19	47	515	12	2.3	503	11631
43-25	23 Oct 43	25 Dec 43	556	47	37	566	10	1.8	556	12187
44-1	13 Nov 43	22 Jan 44	573	37	42	568	7	1.2	561	12748
44-2	4 Dec 43	5 Feb 44	504	42	39	507	6	1.2	501	13249
44-3	25 Dec 43	26 Feb 44	317	39	20	336	2	.6	334	13583
44-4	17 Jan 44	18 Mar 44	315	20	11	324	5	1.5	319	13902
44-5	7 Feb 44	8 Apr 44	567	11	8	570	6	1.1	564	14466
44-5**	7 Feb 44	8 Apr 44	0	19	0	19	0		19	14485
44-6	28 Feb 44	29 Apr 44	714	0	27	717	5	.7	712	15197
44-7	20 Mar 44	23 May 44	656	27	21	662	5	.8	657	15854

**First class at San Antonio, Texas.

PREFLIGHT NAVIGATION — U. S. WHITE STUDENTS — SANTA ANA, CALIFORNIA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-11	1 Apr 42	25 Apr 42	120	11	8	123	3	2.4	120	120
42-12	10 Apr 42	18 May 42	126	14	11	129	9	7.0	120	240
42-13	14 Apr 42	6 June 42	180	0	60	120	0		120	360
42-14	28 Apr 42	27 June 42	129	54	59	124	4	3.2	120	480
42-15	18 May 42	18 July 42	131	59	66	124	4	3.2	120	600
42-16	10 June 42	8 Aug 42	138	66	79	125	5	4.0	120	720
42-17	29 June 42	29 Aug 42	115	79	72	122	2	1.6	120	840
43-1	18 July 42	12 Sept 42	382	72	320	134	14	10.5	120	960
43-2	18 July 42	3 Oct 42	0	320	164	156	1	.6	155	1115
43-3	22 Aug 42	24 Oct 42	62	164	89	137	5	3.6	132	1247
43-4	19 Sep 42	14 Nov 42	166	89	130	125	16	12.8	109	1356
43-5	3 Oct 42	5 Dec 42	98	130	89	139	7	5.0	132	1488
43-6	24 Oct 42	26 Dec 42	173	89	82	180	8	4.4	172	1660
43-7	14 Nov 42	16 Jan 43	196	84	172	108	5	4.6	103	1763
43-8	5 Dec 42	6 Feb 43	2	172	79	95	0		95	1858
43-9	26 Dec 42	27 Feb 43	142	79	89	132	0		132	1990
43-10	6 Jan 43	20 Mar 43	287	89	114	262	10	3.8	252	2242
43-12	6 Feb 43	10 April 43	154	114	117	151	39	25.8	112	2354
43-13	27 Feb 43	1 May 43	66	122	77	111	11	9.9	100	2454
43-16	10 Apr 43	15 May 43	67	77	11	133	8	6.0	125	2579
43-14	20 Mar 43	22 May 43	211	11	88	134	10	7.5	124	2703
43-17	19 Apr 43	5 June 43	125	88	82	131	6	4.6	125	2828
43-15	10 Apr 43	12 June 43	176	82	148	110	2	1.8	108	2936
44-1	22 May 43	10 July 43	46	148	83	111	1	.9	110	3046
44-2	5 June 43	31 July 43	221	83	169	135	4	3.0	131	3177
44-3	19 June 43	21 Aug 43	79	169	116	132	2	1.5	130	3307
44-1	3 July 43	4 Sep 43	0	116	81	35	0		35	3342
44-4	10 July 43	11 Sep 43	53	81	1	133	3	2.3	130	3472

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PREFLIGHT NAVIGATION — U. S. WHITE STUDENTS — SANTA ANA, CALIFORNIA

CLASS NUMBER	DATE STARTED	LATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
44-5	31 July 43	2 Oct 43	139	1	0	140	0		140	3612
44-3	14 Aug 43	16 Oct 43	80	0	0	80	0		80	3692
44-6	21 Aug 43	23 Oct 43	140	0	0	140	0		140	3832
44-4	4 Sep 43	6 Nov 43	133	0	0	133	0		133	3965
44-7	11 Sep 43	13 Nov 43	439	0	26	413	3	.7	410	4375
44-5	25 Sep 43	27 Nov 43	86	26	0	112	0		112	4487
44-8	2 Oct 43	4 Dec 43	202	0	49	153	3	2.0	150	4637
44-6	16 Oct 43	18 Dec 43	71	49	0	120	0		120	4757
44-9	23 Oct 43	25 Dec 43	207	0	53	154	4	2.6	150	4907
44-10	13 Nov 43	15 Jan 44	381	53	15	419	9	2.2	410	5317
44-11	4 Dec 43	5 Feb 44	358	15	32	341	11	3.2	330	5647
44-12	25 Dec 43	26 Feb 44	402	32	11	423	8	1.9	415	6062
44-13	15 Jan 44	11 Mar 44	492	11	21	482	8	1.7	474	6536
44-14	5 Feb 44	8 Apr 44	942	21	81	882	3	.4	879	7415
44-15	26 Feb 44	29 Apr 44	908	81	78	911	4	.4	907	8322
44-16	14 Mar 44	18 May 44	561	78	21	618	13	2.1	605	8927

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PREFLIGHT BOMBARDIER — U. S. WHITE STUDENTS — SANTA ANA, CALIFORNIA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-10	1 Apr 42	25 Apr 42	180	2	10	172	2	1.2	170	170
42-11	10 Apr 42	18 May 42	180	15	15	180	10	5.6	170	340
42-12	14 Apr 42	6 June 42	299	54	52	301	11	3.7	290	630
42-13	29 Apr 42	27 June 42	320	165	83	402	12	3.0	390	1020
42-14	18 May 42	18 July 42	331	42	162	211	21	10.0	190	1210
42-15	6 June 42	8 Aug 42	333	44	30	347	17	4.9	330	1540
42-16	29 June 42	29 Aug 42	513	139	42	610	20	3.3	590	2130
42-17	18 July 42	12 Sep 42	700	61	216	545	35	6.4	510	2640
43-1	1 Aug 42	3 Oct 42	646	107	221	532	42	7.9	490	3130
43-2	22 Aug 42	24 Oct 42	702	202	365	539	49	9.1	490	3620
43-3	12 Sep 42	14 Nov 42	839	365	579	625	135	21.6	490	4110
43-4	3 Oct 42	5 Dec 42	661	579	612	628	138	22.0	490	4600
43-5	24 Oct 42	26 Dec 42	761	612	632	741	131	17.7	610	5210
43-6	14 Nov 42	16 Jan 43	261	643	438	466	80	17.2	386	5596
43-7	5 Dec 42	6 Feb 43	161	535	110	586	10	1.7	576	6172
43-8	26 Dec 42	27 Feb 43	549	205	131	623	23	3.7	600	6772
43-9	16 Jan 43	20 Mar 43	484	295	144	635	35	5.5	600	7372
43-10	6 Feb 43	10 Apr 43	550	289	196	643	43	6.7	600	7972
43-11	27 Feb 43	1 May 43	513	287	150	650	50	7.7	600	8572
43-14	26 Apr 43	15 May 43	161	150	35	276	1	.4	275	8847
43-12	20 Mar 43	22 May 43	770	35	235	570	70	12.3	500	9347
43-15	22 May 43	5 June 43	73	235	31	277	2	.7	275	9622
43-13	10 Apr 43	12 June 43	807	31	309	529	29	5.5	500	10122
43-14	1 May 43	3 July 43	486	309	544	251	15	6.0	236	10358
43-17	17 May 43	10 July 43	176	544	189	531	1	.2	530	10888
43-15	22 May 43	24 July 43	474	189	333	330	36	10.9	294	11182

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PREFLIGHT BOMBARDIER — U. S. WHITE STUDENTS — SANTA ANA, CALIFORNIA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
43-18	5 June 43	31 July 43	347	333	152	528	18	3.4	510	11692
43-16	12 June 43	14 Aug 43	293	152	90	355	7	2.0	348	12040
43-17	3 July 43	4 Sep 43	11	90	0	101	0		101	12141
44-2	10 July 43	11 Sep 43	607	0	58	549	39	7.1	510	12651
44-3	31 July 43	2 Oct 43	572	58	106	524	24	4.6	500	13151
44-3	14 Aug 43	16 Oct 43	0	106	2	104	3	2.9	101	13252
44-6	21 Aug 43	23 Oct 43	710	2	176	536	37	6.9	499	13751
44-4	4 Sep 43	6 Nov 43	0	176	69	107	1	.9	106	13857
44-7	11 Sep 43	13 Nov 43	374	69	63	380	20	5.3	360	14217
44-5	25 Sep 43	27 Nov 43	21	63	0	84	0		84	14301
44-8	2 Oct 43	4 Dec 43	524	0	173	351	31	8.8	320	14621
44-9	23 Oct 43	25 Dec 43	416	173	130	459	26	3.5	433	15054
44-10	13 Nov 43	15 Jan 44	563	130	21	672	17	2.5	655	15709
44-11	4 Dec 43	5 Feb 44	643	21	65	599	19	3.2	580	16289
44-12	25 Dec 43	26 Feb 44	549	65	235	379	19	5.0	360	16649
44-13	15 Jan 44	18 Mar 44	303	235	257	281	18	6.4	263	16912
44-14	5 Feb 44	8 Apr 44	643	257	68	832	22	2.6	810	17722
44-15	26 Feb 44	29 Apr 44	271	68	30	309	5	1.6	304	18026
44-16	14 Mar 44	15 May 44	261	30	12	279	12	4.3	267	18293

PREFLIGHT NAVIGATION — U. S. WHITE STUDENTS — SELMAN FIELD, MONROE, LA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-12	23 Mar 42	22 May 42	7	0	0	7	5	71.4	2	2
42-13	13 Apr 42	11 June 42	75	0	3	72	12	16.7	60	62
42-14	1 May 42	3 July 42	211	3	10	204	7	3.4	197	259
42-15	22 May 42	24 July 42	289	10	9	290	8	2.8	282	541
42-16	12 June 42	14 Aug 42	204	9	8	205	7	3.4	198	739
42-17	6 July 42	5 Sep 42	73	9	7	75	0		75	814
43-1	27 July 42	2 Oct 42	607	7	17	597	11	1.8	586	1400
43-2	24 Aug 42	24 Oct 42	258	17	10	265	6	2.3	259	1659
43-3	10 Sep 42	12 Nov 42	304	11	11	304	4	1.3	300	1959
43-4	5 Oct 42	5 Dec 42	466	10	9	467	5	1.1	462	2421
43-5	26 Oct 42	26 Dec 42	254	8	14	248	5	2.0	243	2664
43-6	16 Nov 42	16 Jan 43	472	14	17	469	7	1.5	462	3126
43-7	7 Dec 42	6 Feb 43	257	16	14	259	5	1.9	254	3380
43-8	28 Dec 42	27 Feb 43	419	15	24	410	6	1.5	404	3784
43-10	18 Jan 43	20 Mar 43	662	24	57	629	5	.8	624	4408
43-11	8 Feb 43	10 Apr 43	385	58	56	387	6	1.6	381	4789
43-12	1 Mar 43	1 May 43	295	58	43	310	4	1.3	306	5095
43-13	22 Mar 43	22 May 43	619	42	51	610	8	1.3	602	5697
43-14	12 Apr 43	12 June 43	405	28	53	380	15	3.9	365	6062
43-15	1 May 43	26 June 43	393	53	55	391	10	2.6	381	6443
43-17	17 May 43	10 July 43	194	55	39	210	19	9.0	191	6634
43-18	31 May 43	2 Aug 43	380	39	50	369	24	6.5	345	6979
43-19	20 June 43	28 Aug 43	103	50	18	135	20	14.8	115	7094
43-20	10 July 43	9 Sep 43	167	18	28	157	3	1.9	154	7248
43-21	2 Aug 43	9 Oct 43	193	28	43	178	15	8.4	163	7411
43-22	30 Aug 43	31 Oct 43	102	43	32	113	15	13.3	98	7509
43-23	20 Sep 43	20 Nov 43	104	32	22	114	13	11.4	101	7610
43-24	11 Oct 43	11 Dec 43	153	22	32	143	14	9.8	129	7739
44-1	1 Nov 43	1 Jan 44	202	32	37	197	24	12.2	173	7912
44-2	22 Nov 43	22 Jan 44	199	37	38	198	16	8.1	182	8094
44-3	13 Dec 43	12 Feb 44	402	38	41	399	34	8.5	365	8459
44-4	3 Jan 44	4 Mar 44	133	41	12	162	5	3.1	157	8616
44-5	17 Jan 44	18 Mar 44	217	12	13	216	7	3.2	209	8825

PREFLIGHT NAVIGATION — U. S. WHITE STUDENTS — MAXWELL FIELD, ALA.

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
44-3	15 Jan 44	12 Feb 44	28	0	2	26	0		26	26
44-4	15 Jan 44	9 Mar 44	970	2	222	750	7	.9	743	769
44-5	12 Feb 44	12 Apr 44	832	222	558	496	6	1.2	490	1259
44-7	20 Mar 44	24 May 44	950	558	893	615	6	1.0	609	1868

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PREFLIGHT BOMBARDIER — U. S. WHITE STUDENTS — MAXWELL FIELD, ALABAMA

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
42-5	17 Nov 41	10 Jan 42	66	0	3	63	1	1.6	62	62
42-6	22 Nov 41	31 Jan 42	51	5	2	54	0		54	116
42-7	29 Dec 41	21 Feb 42	107	2	2	107	12	11.2	95	211
42-9	9 Feb 42	10 Apr 42	23	0	0	23	0		23	234
44-3	15 Jan 44	12 Feb 44	30	0	3	27	0		27	261
44-4	15 Jan 44	9 Mar 44	840	3	272	571	3	.5	568	829
44-5	12 Feb 44	12 Apr 44	792	272	435	629	11	1.6	618	1447
44-7	24 Mar 44	24 May 44	573	435	165	843	11	1.3	832	2279

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PREFLIGHT AIRCREW

U. S. WHITE STUDENTS

CLASS NUMBER	DATE STARTED	DATE GRADUATED	NEW STUDENTS ENTERED	H/O FROM PREV CLASS	H/O TO NEXT CLASS	NET CLASS	NUMBER ELIMINATED	PERCENT ELIMINATED	NUMBER GRADUATED	NUMBER GRADUATED TO DATE
									MAXWELL FIELD, ALABAMA	
45-A	25 Apr 44	26 June 44	4554	1131	430	5255	182	3.5	5073	5073
45-B	26 May 44	4 Aug 44	5301	430	159	5572	282	5.1	5290	10363
									SAN ANTONIO, TEXAS	
45-A	18 Apr 44	26 June 44	4300	522	908	3914	378	9.7	3536	3536
45-B	26 May 44	4 Aug 44	3953	908	884	3977	568	14.3	3409	6945
									SANTA ANA, CALIFORNIA	
45-A	18 April 44	26 June 44	3823	45	347	3521	162	4.6	3359	3359
45-B	26 May 44	4 Aug 44	4246	347	349	4244	352	8.3	3892	7251

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2. B & G Division   T A G   2/5/41   1. Noted.

2. Programs for construction at [illegible] Field and [illegible] Field have been prepared and that for Moffett Field will be submitted to the [illegible] General by February 8, 1941.

Incl: Basic ltr.
w/1 Incl.

F. M. K.
Chief, Bldgs. & Grnds. Div.

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RESTRICTED

Flying Cadet Reception Center plans for the West Coast Air Corps Training Center.
(Ltr fr OCAC(3-2) to CO, WCAOTC, 10/1/40, subj: Development of Flying Cadet Reception Centers; w/1st Ind.fr WCAOTC to OAC, 10/17/40, and 2 maps.)

RHA
(3-10 RHA)

1. T & O Buildings 2/4/41
A Grounds
Division

1. Transmitted herewith are plans submitted by General Harms covering the proposed construction of the Flying Cadet Reception Center at Moffett Field, California to accommodate a capacity of 750 trainees.

2. Subsequent to the formulation of these plans, the Flying Cadet Reception Center capacity of the Moffett Field Reception Center has been approved by the War Department to accommodate 900 trainees.

D.C.,
Brig.General, A.C.,
Chief, AAC Division.

RESTRICTED

600.1 1st Ind. MJH/rt

HEADQUARTERS, WEST COAST AIR CORPS TRAINING CENTER, Moffett Field, Calif. October 17, 1940. To: Chief of the Air Corps, Washington, D. C.

1. In compliance with basic letter, the following information is submitted relative to the contemplated Flying Cadet Reception Center, of approximately 780 Trainees capacity:

2. a. Number and Type Structures:

15 Barracks, 63-man series, 700-1165
1 Mess Hall, Type M-20
1 Post Exchange, Type X-2
2 Day Rooms, 30' x 75'
1 Recreation Bldg., Type RR-1
1 Administration Bldg. Type A-22
1 Recruit Examination Bldg., Type MM-1
6 School Bldgs., Type A-21
1 Service Club, Type SC-2
1 Theatre, Type TM-3
1 Hangar, Plan Number 895-401, for Gymnasium Building sufficient to house a minimum of thirty (30) Visual Link Trainers, if this phase of instruction is to be included in the course.

b. Additional Personnel:

(1) Commissioned:
16 Officers for Military Instruction, Drill, and Administration.
1 Dentist
3 Medical Officers
2 Flight Surgeons or F.S. Examiners

(2) Enlisted:
30 Medical
Hq. & Hq. Sq. W.C.A.C.T.C. will be able to furnish sufficient other enlisted personnel, estimated at approximately 25. It is believed Quartermaster personnel already allocated Moffett Field is sufficient to cover Quartermaster activities for this project.

(3) Civilian:
1 Director of Physical Training.
14 Instructors, Mathematics
4 Stenographers

-1-

[redacted]

a. Additional Equipment:

(1) Flight Surgeon's Examining Unit, complete.
(2) Visual Link Trainers - It is estimated that a minimum of 30 Visual Link Trainers will be required to give three (3) hours to each trainee. Since the floor space required for the Trainer with generator is unknown, no exact [illegible] estimate was made (see par. 3. a. above).
(3) Clothing: Individual Equipment: Dependant upon the decision as to how trainees are to be clothed and equipped and in what quantity this clothing and equipment should be issued.
(4) Athletic Equipment: Complete indoor gymnasium equipment. Gymnasium to contain a wooden floor, Squash and Hand-ball courts in addition to customary equipment. 6 Tennis Courts, Swimming Pool, Athletic Field, and outdoor athletic equipment.
(5) Ground School Equipment: To include desk type chairs and projectors for [illegible].

5. It is considered [illegible] in conformity with announced War Department policy, to establish the Induction Center at Moffett Field, blueprint of proposed layout is enclosed herewith. This is considered preferable to attempting to lease outside facilities since space is available.

2 Incl.
1. Map of Moffett Field
2. Proposed Location Plan Key
Cadet Reception Center

HENRY W. HARRIS
Brigadier General, U. S. A.
Commanding

[redacted] Oct 21 1940

[redacted]

"HA/ec

(3-B)

RESTRICTED

OFFICE OF THE CHIEF OF THE AIR CORPS

WASHINGTON October 1, 1940.

SUBJECT: Development of Flying Cadet Reception Centers:

TO: Commanding Officer, West Coast Air Corps Training Center, Moffett Field, California.

1. It is contemplated that authority and instructions to develop Flying Cadet Reception Centers will be published in the immediate future. It is anticipated that an adequate Reception Center for your training activity would require the accommodation of an average level of 750 trainees. The schedule under which Reception Center trainees will be actively initiated into training will be furnished you at the earliest practicable date. However, facilities thereat should include space to permit physical training, military training, supervised athletics and the complete processing of assigned students. In order to meet the contingency outlined above, it is requested that you submit the following information to this office, with the least practicable delay:

a. Number and type of structures required to meet this objective.

b. Additional personnel - commissioned, enlisted and civilian - required for the operation of the Reception Center.

c. Additional equipment required for the operation of the Reception Center.

2. It is requested that you submit recommendations covering the desirability of leasing facilities suitable for this Center, together with information as to the availability of installations that you consider adaptable to this purpose.

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X353. 1st Ind. 1-5[illegible]

Hq. Gulf Coast Air Corps Training Center, Randolph Field, Texas. Oct. 16, 1940.
To: The Chief of the Air Corps, Washington, D. C.

1. In compliance with instructions contained in paragraph 4, basic letter, it is recommended that the following subjects be included in the 4-weeks program of instruction of Flying Cadets in Reception Centers:

RECOMMENDED COURSE OF GROUND INSTRUCTION

Physical Training	12 hrs.
Drill	40 hrs.
Mathematics	18 hrs.
Hygiene and Sanitation	6 hrs.
Armament	8 hrs.
Articles of War, Customs of Service, etc.	5 hrs.
A.C. Administration and Organization	5 hrs.
Lectures on Air Corps and other Military Subjects	10 hrs.

NOTES:

(1) While schedules are based on the hours shown above, they are a guide for instruction and not mandatory, as to [illegible] of hours.

(2) The instruction in "Customs of the Service" is [illegible] continuing course of instruction carried through the [illegible] day of the Cadet's life, at mess, etc.

2. The above program is based on five (5) days per week, with Saturday mornings reserved for inspections, reviews and other extra-curricular activities. A copy of suggested weekly program is attached.

3. It is estimated that approximately forty (40) officers will be required to give the instruction in connection with this program. These officers will conduct all drill and physical training and give all lectures except those on Hygiene and Sanitation. They will also be available for administrative duties in connection with Cadet companies and for additional assignment in connection with Reception Center Administration. It is estimated that from 20 to 25 of these officers should be from the Air Corps or Air Corps Reserve, and the remainder to be Reserve Officers of other branches.

4. It is contemplated that ten (10) civilian instructors will be secured to conduct classes in mathematics. Each instructor will conduct three (3) classes daily, these classes to start as early as possible the first week and run to the end of the four-week period.

5. Requirements for flight surgeons will depend upon the scope of physical examinations given. At present all Cadets are given a flying examination check-up immediately after their arrival at elementary flying schools. It is believed advisable to have this check-up given at the reception center and

RESTRICTED

and thus lighten the present burden on the flight surgeons at the civilian schools. If this is approved, from eight (8) to ten (10) flight surgeons will be required and they will also give the scheduled lectures on Hygiene and Sanitation.

6. No instruction in the Visual Link Trainer has been included in the course of instruction as submitted. If and when it is decided to use Link Trainers and they become available, the course of instruction can be readily revised to make available approximately two and one-half (2½) hours per week for this purpose.

a. From the information available on the Visual Link Trainer, it seems somewhat questionable as to whether or not this device can be used as a means of positive elimination. It does appear, however, that a course of instruction on the Visual Link Trainer would in all probability tend to reduce the time devoted to dual instruction in the elementary schools.

b. A new mechanical trainer, being developed by the Materiel Division, is, according to information recently received, to be made available to this Training Center for test. There are reasons to believe that this device may prove of greater value in determining eliminations and in reducing the time necessary for dual instruction than the Visual Link Trainer. It is therefore recommended that a definite decision as to the use of the Visual Link Trainer in Cadet reception centers be suspended pending a determination of the efficiency and adaptability of this new device.

7. For information as to physical installations, additional personnel and equipment to establish and operate this reception center, see first Indorsement dated October 15, to letter from Chief of Air Corps, dated October 1, 1940, file 600.1, subject: "Development of Flying Cadet Reception Centers".

2 Incls. - 1 added
Incl. #2 - Prog. of Instr.

H. F. Harmon
Brig. Gen., Army of the U. S.
Commanding

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CONFIDENTIAL

PROGRAM OF INSTRUCTION
FOR
FLYING CADET RECEPTION CENTERS

The following program of instruction is recommended for the processing of Flying Cadets at the Flying Cadet Reception Centers.

1. First Week:

	Hours
a. Physical Examinations	
b. Issuing of uniforms and equipment	
c. Physical Training	2
d. Infantry Drill	7
e. Articles of War, Military Discipline and Courtesy	3
f. Rifle: Description, care and cleaning	2
g. Mathematics	3
	17

It is estimated that a and b will require approximately three (3) days' time, but that c, d and e will not be affected during this period of time by the irregularity occasioned by a and b.

2. Second Week:

a. Physical Training	10
b. Drill	11
c. Mathematics	3
d. Hygiene and Sanitation	3
e. Armament	4
f. Link Trainer	
	31

3. Third Week:

a. Physical Training	10
b. Drill	11
c. Mathematics	3

CONFIDENTIAL

d. Link Trainer	[illegible]
e. Armament	4
f. Air Corps Lectures	5
	35
Fourth Week:	
a. Physical Training	10
b. Drill	11
c. Mathematics	5
d. Administration and Organization	5
e. Armament	
f. Lectures, AC or other Military Subjects	5
	36

1st Ind.

HEADQUARTERS WEST COAST AIR CORPS TRAINING CENTER, Moffett Field, California, October 15, 1940. - TO: Chief of the Air Corps, War Department, Washington, D.C.

In compliance with paragraph 4, basic letter, the following recommendations are submitted:

1. Proposed curriculum based on 3 weeks of instruction:

(a) Physical Education:- 30 hours

To be supervised mass-calisthenics and athletics games in nature and designed to strengthen and alert the individual cadet without being too strenuous for any individual (Based on 2 hours per day, 5 days per week).

(b) Drill:- 21 hours

Based on 1 hour per day, 6 days per week with an additional hour Saturday morning for inspection.

(c) Academic:- 2 hours per day, 6 days per week 36 hours

(1) Review of Mathematics:- 20 hours

Course as taught at present in civil elementary schools appears adequate.

(2) Law, Discipline, Administration & Organization:- 8 hours

To include the following:
(a) Discipline, History, Background, Need and Reasons therefor - How to obtain - Types- - - - - - - - - - - - - - - 1 hour
(b) Military Courtesy & Customs of the Service:- A thorough course of at least - - - - - - - - - - - - - - - - - - 2 hours
(c) Law:- Articles of War - Courts-Martial and their application to an individual in the military service - - - - 2 hours
(d) Organization:- - - - - - - - - - 3 hours
To include a brief History, background of the reasons and basis for - Organization in general - Organization of the Army and of the Air Corps.
(3) Hygiene & Sanitation:- - - - - - - - 2 hours

A course comparable to that contained in the R.A.F. Syllabus is considered advisable.

(d) Link Trainer - Visual 3 hours

2. The above curriculum is adapted to the purpose as outlined in paragraph 1 of the basic letter with particular emphasis on physical training and development in preparation for the intensive course of instruction for which the cadet is being fitted. Physical and disciplinary exercises, Military Education and Close Order Drill comprise the largest part of the curriculum.

3. Instruction in the Visual Link Trainer during this processing period at the reception depot is believed worthy of trial. This instruction should be given only if complete facilities therefor, together with competent instructors are available. Elementary flying exercises given in a Visual Link Trainer, without cockpit enclosure, with proper surrounding panoramas, should be of value both in giving the student initial practice in muscular coordination and effect of controls and also as a morale factor at this early stage of training.

[redacted]
Brigadier General, U.S.A.

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SEP 2 1941

AIR CORPS REPLACEMENT CENTER
(Air Crew)

PROGRAM OF INSTRUCTION
for
Pilot Trainees

I. OBJECTIVE:

The preparation of Flying Cadets, both physically and mentally, for intensive flight training in the Air Corps.

II. SCOPE:

1. Reception and processing of new Aviation Cadets to the point at which they are completely equipped with uniforms, administrative records completed, and all medical requirements satisfied.

2. Academic preparation will be sufficient to fit Aviation Cadets for the successful completion of the ground school courses given in the flying schools.

3. Aviation Cadets will gain a fundamental knowledge of military customs and regulations, as well as the duties and responsibilities of junior officers.

4. Physical training will fit cadets to absorb future intensive training without undue fatigue or ill effects.

III. DURATION:

Four weeks.

IV. PROGRAM OF INSTRUCTION:

A. General Plan.

1. Reception and Processing. ..... 30 hours

2. Academic Preparation.

(a)	Military Law	11 hours
(b)	Citizenship	2 hours
(c)	Mathematics	20 hours
(d)	Military Hygiene and First Aid	5 hours
(e)	Chemical Warfare Defense	2 hours
(f)	Current Events	2 hours

3. Administrative Indoctrination.

(a)	Customs and Courtesies of Service	5 hours
(b)	Squadron Administration and Command	10 hours
(c)	Organization Lectures	8 hours

T-8124, AJ

Program of Instruction
Air Corps Replacement Center (Cont'd)

4. Basic Military Indoctrination.

(a)	Manual of Pistol	6 hours
(b)	Interior Guard Duty	4 hours
(c)	Infantry Drill	20 hours
(d)	Ceremonies and Inspections	6 hours

5. Physical Training ..... 32 hours

Total ..... 163 hours

B. Detailed Plan.

1. Reception and Processing

(a)	Reception, assignment, initial issue of clothing and equipment, etc.	7 hours
(b)	Same as (a) for late arrivals	2 hours
(c)	Vaccination, first inoculation, marking of articles of War for entire Reception Center	3 hours

NOTE: The fundamentals of military discipline and drill will be taught individuals during all available free periods, including reveille, retreat, etc.

(d) Psychological Examinations ..... 6 hours
Three periods of two hours each; examinations will be conducted under the program of the Research Section of the Medical Division, Office, Chief of Air Corps.

2. Academic Training

(a) Military Law ..... 11 hours

NOTE: All assignments are inclusive, and refer to indicated text.

1st hour: AC/S Paragraphs 1-17.
Articles of War 1-16, 74, and last paragraph of Articles of War 64.
Special Text No. 21 - Paragraphs 1-17.
FM 27-10 - Paragraphs 1-7.

2nd hour: MCM Paragraphs 13-35.
Articles of War 69, 70, and 105.
Appendix 3 and 4, pages 233-235.
FM 27-10 - Paragraphs 70-172 (reference only).

Program of Instruction
Air Corps Replacement Center (Cont'd)

3rd hour: MCM Paragraphs 36-62, 95-96.
Articles of War 17, 18-20, 31, 38, 111 and 114, 115-116.
Appendix 2 (reference only).
Appendix 5.
Appendix 6, page 260 - paragraph "continuance," page 263 (reference only).

4th hour: MCM Paragraphs 63-86.
Articles of War 21, 29-37, 39-40.
Appendix 6, Paragraph "Motion to Sever," page 263 - Paragraph "Explanation of plea of guilty," page 264 (reference only).
Appendix 6, Paragraph "Record of Matters," pages 264-270 (reference only).
Appendices 7, 8, and 9 (reference only).

5th hour: MCM Paragraphs 87-109.
Articles of War 22-27, 41-45, 104, 108, and 113.
Appendix 9 (reference only).
FM 27-10, Paragraphs 345-359 (reference only).

6th hour: MCM Paragraphs 110-126.

7th hour: MCM Paragraphs 127-133.
Articles of War 28, 54-68.
Appendix 4, page 238, Specification 37, middle of page 243 (reference only).

8th hour: MCM Paragraphs 139-146.
Articles of War 69-88.
Appendix 4, Specification 38, middle of page 243 - Specification 75, page 248 (reference only).

9th hour: MCM Paragraphs 147-149.
Articles of War 89-93.
Appendix 4, Specification 76, page 248 - Specification 100, page 250 (reference only).
Special Text No. 21 - Paragraphs 18-25 (reference only).

10th hour: MCM Paragraphs 150-152
Articles of War 94-103, 105, 107, 109-110, 112-113, and 119-121.

T-5104,AC

October 2, 1940.

Flying Cadet Reception Centers in Program of Instruction.

Commanding Officer, Southeast Air Corps Training Center, Maxwell Field, Alabama.

1. It is contemplated that a Flying Cadet Reception Depot will be established in each Training Center, as soon as it is practicable to do so. Cadet Reception Depots will perform the following functions:

a. Complete processing of Flying Cadets.

b. Physical training, close order drill and training in military discipline.

c. Such additional instruction and training as may be practicable during the period allotted (4 weeks) that will serve to further qualify trainees for instruction as pilots, bombardiers or navigators.

2. It is desired to emphasize the physical development of Flying Cadets, with the purpose of preparing them for the intensive course of instruction given in the flying schools.

3. Attached is a copy of the Training Syllabus used by the Royal Canadian Air Force in student instruction at the Canadian Initial Training School. Canadian Flight Trainees receive eight weeks of instruction in this school, prior to commencement of flight training.

4. It is requested that you submit recommendations covering program of instruction to this office by October 15, 1940. Your recommendations are requested as to the advisability of including instruction in the Visual Link Trainer with the objective of accelerating the student's progress during the elementary phase of flying instruction. In this training, the AAF uses the Link Trainer, without cockpit inclosure. A panorama depicting types of horizons and various visibility conditions encircles the trainer.

1 Incl.
-Ty Syllabus.

Appendix 4, Specification 101, pages 250-257 (reference only). Special Text Pt. 21 - Paragraphs 71-73 and 76 (reference only).

11th hour: Examination.

(b) Citizenship - Lectures..... 2 hours

1st hour: Citizenship.
Constitution.

2nd hour: National Policy.
Organization of Government.

(c) Mathematics..... 20 hours

1st-
2nd hour: Arithmetic: Review of arithmetic to include fractions, decimals, percentage, ratio and proportion, and square root. (No text for above material.)

3rd hour: Chapter I, "New School Algebra," - Wentworth, (Definitions and notation.)

4th hour: Chapter II, "New School Algebra," - Wentworth, (Simple Equations.)

5th hour: Chapter III, above text, (Positive and Negative Numbers.)

6th hour: Chapter IV, above text, (Addition and Subtraction.)

7th hour: Chapter V, above text, (Multiplication and Division.)

8th hour: Review and Examination.

9th hour: Chapters VI and VII, above text, (Special Rules and Factors.)

10th hour: Chapter IX, above text, (Fractions.)

11th hour: Chapter X, above text, (Fractional Equations.)

12th-
13th hour: Chapters XI and XII, above text, plus pages 403-417 on graphs.

(Simultaneous Simple Equations and Problems.)

14th hour: Review and Examination.

15th hour: Chapters XVI and XVII, above text, (Theory of Exponents and Radicals.)

16th-17th hour: Chapter XIX, above text, plus pages 418-423 on graphs (Quadratic Equations - Use of Formulae.)

18th-19th hour: Logarithms.

20th hour: Review and Examination.

(3) Military Hygiene and First Aid.. .... 5 hours

1st hour: Personal Hygiene.
FM 21-10 Chap. 1 - General
" 9 - Personal
" 6 - Tropical diseases.

2nd hour: FM 21-10 Chap. 2 - Communicable Diseases.
" 3 - Respiratory Diseases.

3rd hour: FM 21-10 Chap. 4 - Intestinal Diseases.
" 5 - Insect-borne Diseases.
" 7 - Miscellaneous.

4th hour: First Aid.
FM 21-10 Chap. 10, Sect. 1-5 incl.

5th hour: FM 21-10 Chap. 10, Sect. 6-10 incl.

( ) Chemical Warfare Defense - Lecture.... .... 2 hours

1st hour: Discussion of principal chemical agents and their use; protection and protective equipment; first aid for gas casualties.

2nd hour: Practical instruction in use of gas masks; practical exercise in identification of chemical agents - methods of decontamination.

(f) Current Events.......... .. .. 2 hours
Lecture at the beginning of the course on the international situation, evaluation of sources of available news, reading suggestions. 10-minute daily discussion of current news in mess hall. Final lecture of 1 hour to review and analyze the world situation to date.

3. Administrative Indoctrination - Lectures.

(a) Military Customs and Courtesies.................. . 5 hours

1st hour: FM 21-50, Section 1 - Military Discipline.

2nd hour: FM 21-50, Section 2 - Military Courtesy.

3rd hour: FM 21-50, Appendix - Customs of Service.

4th hour: FM 21-50, Wearing of the Uniform, Personal Appearance and Deportment.

5th hour: Review and Examination.

(b) Squadron Administration and Control................ 10 hours

1st hour: Pars. 1 to 9, inclusive, "Duties Squadron Officers," A.C.T.S. [illegible] Sec. I, AR 12-250, General Rules of Administration.

2nd hour: Duties of Adjutant; practical knowledge of paper work compiled by Squadron Sergeant Major, Pars 10-13, incl., A.C.T.S. Text.

3rd hour: Duties of Squadron Supply Officers with practical knowledge of duties, regulations, and forms kept by the Supply Sergeant. Pars 14-16, A.C.T.S. Text.

4th hour: Duties of the [illegible] Officer, also regulations and knowledge of forms required of the [illegible] Sergeant. A.C.T.S. Text.

 [illegible]

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5th hour: Discussion and review.

6th hour: Chapters 2, 3, 4, TM 12-250. Military Correspondence, Company Management, Service Record.

7th hour: Chapters 5, 6, 7, 8, TM 12-250. (Morning report, sick report, duty roster, rations.)

8th hour: Chapters 9, 10, 11, TM 12-250. (Funds, forms, guard.)

9th hour: Chapters 12, 13, 15, TM 12-250. (Pay, payrolls.)

10th hour: Discussion and review.

(c) Organization Lectures..... 5 hours

1st hour: Organization of the Army. This lecture will include discussion of Corps Areas, Field Army areas, and the strategical and tactical divisions. It will also include the organization of units and including square and triangular divisions. Emphasis will be placed on the latest trends and developments, particularly in reorganization.

2nd hour: Organization of the Army Air Forces. This lecture will include the latest Air Corps Command and Staff Organization, and the distribution of the various air units and tactical divisions. It will also include a general discussion of the interrelation between training, combat, and supply (Materiel Division) units.

3rd hour: Organization of the Air Corps Training System..... 30 min.
Organization of the Air Combat Forces..... 30 min.
This lecture will discuss the organization of the Training Centers, various types of pilot training schools, or transition schools, as well as the organiza-

tion and functions of the Air Corps Technical Training Command. The discussion of the Air Combat Forces will include a detailed explanation of the units into which the Combat Forces have been formed, including the overseas units, and the relation of the various units to National Defense.

4th hour: The Air Corps Supply System.
The functions of the Materiel Division will be discussed, including experimental procurement and supply. The chain of supply will be traced from the letting of the original contracts through production and distribution to the operating units; the discussion should bring out the delays entailed in the procurement of aircraft.

5th hour: History of Aviation.
This lecture should cover the entire history of flying from the first attempt of flying to the present day.

6th hour: History and Functions of Observation Aviation.
This lecture will cover the development of balloons and aircraft for observation purposes to the present time. It will also discuss the requirements for both observation and reconnaissance aviation.

7th hour: History and Functions of Pursuit Aviation.
The history and role of Pursuit Aviation, both fighter and interceptor. The lecture will include an outline of the role of the pursuit airplane in the anti-aircraft defense of a nation.

8th hour: History of Bombardment Aviation.
This lecture will discuss the history and growing improvement of bombardment aviation; the development of long-range heavy types will be noted and the need therefor.

4. Basic Military Indoctrination.

(a) Manual and Firing Caliber .45 Pistol..... 6 hours

1st hour: Chapter 1, Sections I and II. Description, disassembly, and assembly.

2nd hour: Chapter 1, Sections I and II. Description, disassembly, and assembly.

3rd hour: Chapter 1, Sections III, IV, V, VI, VII. Care and cleaning, functioning, [illegible] ammunition, safety

4th hour: Chapter 2, Sections I and II, and Chapter 3, Section I. Manual and marksmanship (to include aiming exercises).

5th hour: Chapter 3, Section I. Marksmanship - aiming exercises and dry runs on range.

6th hour: Chapter 3, Sections III and IV. Firing.

(b) Interior Guard Duty..... 4 hours

1st hour: Chapter 1, General, Chapter 2, Sections I and II, General Provisions for Main Guard and Duties of Personnel.

2nd hour: Chapter 2, Sections III and IV, Formations and Orders for Main Guard. Orders will be learned verbatim.

3rd hour: Chapter 3, Special Guards, Chapter 4, Prisoners and Prisoner Guards.

4th hour: Chapter 5, Miscellaneous, Appendix 4, Details and Rosters.

(c) Infantry Drill..... 20 hours

1st hour: As outlined in Chapter 1, FM 22-5. (Purposes, Definitions, etc.)

Program of Instruction
Air Corps Replacement Center (Cont'd)

2nd hour: Chapter 2, Section II, FM 22-5, (School of the Soldier.)

3rd hour: Review second hour, plus Section III, Chapter 2, FM 22-5, (School of the Soldier.)

4th hour: Review second hour, plus Section III, Chapter 2, FM 22-5, (School of the Soldier.)

5th hour: Chapter 3, Section V, FM 22-5, (School of the Soldier.)

6th hour: Chapter 4, Section I, FM 22-5, (School of the Soldier.)

7th-8th 9th hour: Chapter 4, Section II, FM 22-5, (School of the Platoon.)

10th-11th 12th hour: Chapter 4, Section III, (School of the Company.)

13th 14th hour: Chapter 9, Section IV, FM 22-5, (Inspections.)

15th hour: Chapter 8, Sections I and II, (Battalion Drill.)

16th hour: Review Chapter 9, Section IV and Chapter 8, Sections I and II.

17th hour: Chapter 8, Section III (Regiment Drill.)

18th hour: Chapter 8, Section III (Regiment Drill.)

19th hour: Chapter 9, Section I. (Reviews.)

20th hour: Chapter 9, Section I and Section II, (Reviews and Escorts.)

(d) Ceremonies and Inspections..... 6 hours
This training will consist of reviews, ceremonies, and inspections for the entire Cadet Reception Center on Saturday mornings.

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5. Physical Training..... 32 hours
This training will include approximately 8 hours per week of mass calisthenics, supervised athletics, and competitive sports (except lacrosse, football, and soccer, due to the danger of injury to Aviation Cadets). Aviation Cadets should be rotated in sports such as volley ball, soft-ball, touch football, boxing, wrestling, track, swimming, and cross-country running.

Program of Instruction
Air Corps Replacement Center (Cont'd)

V. TEXTS:

NO.	SUBJECT	TEXTS	SUPPLY AGENCY	HOURS
1	Reception and Processing.			30
2a	Military Law of the United States. Articles of War.	Manual, Courts Martial 1928, AEC Special Text No. 21	AG	11
2b	Citizenship	"Lecture on Citizenship" Mimeog. pamphlet, ACTS Library "The Military Policy of the United States." Maj. Gen. Upton. "Principles of American Democracy" John Bassett Moore. "Actual Government." Hart "American Government and Politics." Beard.	Purchase or Local Library	2
2c	Mathematics	"New School Algebra." Wentworth.	Purchase	20
2d	Military Hygiene	TF 8-33 TF 8-154 FM 21-10 TF 8-155	AG	5
2e	Chemical Warfare Defense	FM 21-40 FS 3-3 FS 3-1 TF 3-2	AG AG	2
2f	Current Events	Daily News		2
3a	Customs and Courtesies of Service	TF 11-157 FM 21-50	AG	5
3b	Squadron Administration and Command	"Duties of Squadron Officers." ACTS Special Text. TM 12-250	SEACTC AG	10
3c	Organization Lectures.	AEC Text #227 AEC Text #138 AEC Text #135 FM 1-5, 1-10, 1-15, 1-20	AG	8
4a	Manual and Firing Caliber .45 Pistol	FS 7-16 FS 7-17 FM 23-35	AG	6

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Program of Instruction
Air Corps Replacement Center (Cont'd)

NO.	SUBJECT	TEXTS	SUPPLY AGENCY	HOURS
4b	Interior Guard Duty	FM 26-5	AG	4
4c	Infantry Drill	TF 7-248, 7-249 FM 22-5	AG	20
4d	Ceremonies and Inspections	FM 22-5	AG	6
5	Physical Training	TM 21-20	AG	32
			Total	163

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RESTRICTED

March 15, 1942

Army Air Forces
Headquarters Flying Training Command
Washington

PROGRAM OF INSTRUCTION

AIR CORPS REPLACEMENT TRAINING CENTER

(Air Crew)

PILOT TRAINEES

W-6953, AF

RESTRICTED

AIR CORPS REPLACEMENT CENTER
(Air Crew)

PROGRAM OF INSTRUCTION
for
Pilot Trainees

I. OBJECTIVE:

The preparation of trainees, both mentally and physically, for intensive pilot training in the Air Corps Flying Schools.

II. SCOPE:

1. Academic preparation will include such subjects as will prepare the trainee for the flight and ground school instruction which he will receive in the Air Corps Flying Schools.

2. Military training will include instruction in basic military indoctrination, military customs and regulations, and infantry drill.

3. Physical training will fit trainees to absorb future intensive training without undue fatigue or ill effects.

III. DURATION:

Nine weeks.

IV. PROGRAM OF INSTRUCTION:

A. GENERAL PLAN

1. Academic Instruction — 160 hours

a.	Safeguarding Military Information and Cryptography	3
b.	War Department Publications	3
c.	Military Customs and Courtesies	3
d.	Air Forces	10
e.	Chemical Warfare Defense	2
f.	Naval Forces	10
g.	Ground Forces	6
h.	Aircraft Identification	8
i.	Code	50
j.	Communications	1
k.	Maps, Charts, and Aerial Photos	12
l.	Mathematics	20
m.	Physics	20
n.	First Aid	1

2. Basic Military Indoctrination. 45 hours

a.	Manual of Pistol	6
b.	Interior Guard Duty	4
c.	Infantry Drill	26
d.	Ceremonies and Inspections	9

3. Physical Training 45 hours

Total 237 hours

B. DESCRIPTION OF COURSES; TEXTS, AND DISTRIBUTION.

1. Basis of Distribution:

Code Distribution

A - 1 per student graduate (text to be retained by student).
B - 1 per student under instruction (texts to be used by every other successive class until worn out - two full classes under instruction).

C - 1 per 2 students under instruction (texts to be used by each successive class until worn out).
D - 1 per instructor (for reference and classroom use only).
E - As required locally (or as available).
F - 1 per school.

2. Academic Courses, Texts, Materials, and Distribution:

Subject	Texts and Materials	Distribution
a. Safeguarding Military Information and Cryptography	AR 380-5	D
	FM 24-5	D
	TE 11-204	E
Classification and protection of documents and discussion of cryptography.	TE 11-205	E
	TE 11-235	E
	M-94 Cryptographic device	D
b. War Department Publications	AF Reg. 5-1	D
Purpose, use, and indexing of Army Regulations, Air Force Regulations, Technical Orders, Training Manuals, and Field Manuals	AR 1-5	D
	AR 1-6	D
	AR 1-10	D
	AR 1-15	D
	FM 31-6	D
	TO 00-5	D

Program of Instruction
Air Corps Replacement Center (Cont'd)

c. Military Customs and Courtesies Discipline, honor, morale, leadership, customs, personal finances.		FM 21-50 FM 21-100 TF 11-157	C A E
d. Air Forces Position and organization of Air Forces in U.S. Army; discussion of Combat aviation, including Bomb, Pursuit, and Reconnaissance with weapons and employment; non-combat aviation, including organization of training, supply, and ferrying services.		FM 1-5 FM 1-10 FM 1-15 FM 1-20 FM 101-10 TM 1-409 Jane's "all The Worlds Aircraft" Current M.I.D. reports.	B B B B D D D E
e. Chemical Warfare Defense Chemical agents, protection and protective equipment.		FM 21-40 TF 3-2 TF 3-10 TF 3-216 TF 3-217 Gas Mask Gas Identification set Gas Chamber	B E E E E B D E
f. Naval Forces Organization and functions of the Navy and the fleet; types, characteristics and recognition of Naval vessels, fleet disposition and tactics.		FM 30-50 FM 30-58 Naval Operations Vols. 1 and 2 Ship models Silhouettes Playing Cards	B B D E E E
g. Ground Forces Organization and size of units, offensive and defensive dispositions and tactics, special operations and recognition		FM 100-5 FM 101-10	B D
h. Aircraft Identification Classification of types and discussion of identification methods; silhouette and model study and range estimation exercises; emphasis on American aircraft.		FM 30-30 FM 30-35 FM 30-38 TF 1-258 TF 1-259 Playing cards Model Sets Silhouette	B B B E E E E E

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Program of Instruction
Air Corps Replacement Center (Cont'd.)

i. Code This course includes reception practice only. Final minimum proficiency: Aural - 8 words per minute; Visual - 6 words per minute.	TM 11-454 Code Practice Equipment Signal Lights	D E E
j. Communications Various means of communication including pyro, signal flags, and panels.	FM 24-5	B
k. Maps, Charts, and Aerial Photos Types of projections, map reading and aerial photo reading.	FM 21-25 TF 1-245 TF 5-12 TM 1-205 Ruler Protractor Simple Compass Maps and Charts Aerial Photos	B E E B B B B E E
l. Mathematics Review of Arithmetic; Ratio and Proportions; simple algebra; use of graphs; angular measurement; Vector problems; use of scales.	To be written Ruler Protractor Simple Compass	 B B B
m. Physics Fundamental laws of fluids and gasses; heat and temperature; laws of motion; vector forces; units of measure; work and energy.	"Elementary Physics"	B

n. See page 5.

3. Basic Military Indoctrination

a. Manual and Firing Cal. 45 Pistol Description, functions, care and cleaning, manual, marksmanship (including aiming exercises and firing).	FM 23-35 FS 7-16 FS 7-17	B E E
b. Interior Guard Duty Provisions and duties of guard personnel, general orders (verbatim), prisoners, details and rosters.	FM 26-5	B

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Program of Instruction
Air Corps Replacement Center (Cont'd.)

c. Infantry Drill Definitions, School of the Soldier, School of the Platoon, School of the Company, Battalion and Regimental Drill.	FM 22-5 TF 7-248 TF 7-249	B E E
d. Ceremonies and Inspections Reviews, ceremonies, and Inspections for the entire student organization on Saturday mornings, or at such other times as may be prescribed locally.	FM 22-5	B
4. Physical Training Mass calisthenics, supervised athletics, and competitive sports (except LaCrosse, football, and soccer). Rotation of students in sports such as volley ball, softball, touch football, boxing, wrestling, track, swimming, and cross-country running is desirable.	FM 21-20	D

2 n. First Aid

The academic instruction will include such subjects as are necessary to prepare the trainee for travel in lands infested with various disease-carrying insects and foods, and will bring to his attention First Aid measures necessary to save life and limb during transportation to or arrival of Medical assistance.

The instruction will consist of film strips, lectures, demonstrations, and actual application by the aircrew member himself of such First Aid methods and Sanitary Measures.

(Ltr AFFTC 4/24/42 to each ACTC, "First Aid Instructions")

W-6953,AF

HEADQUARTERS
Army Air Forces Pre-Flight School (Pilot)
Maxwell Field, Montgomery, Alabama 1/cs.

353 — September 26, 1942.

SUBJECT: Reconsideration of Training Program, Army Air Forces Pre-flight School (Pilot).

TO: Commanding General, Southeast Army Air Forces Training Center, Maxwell Field, Alabama, (THRU: Commanding Officer, Maxwell Field, Ala.)

1. It is believed that it would be valuable at this time to reconsidor the complete training program now in the Army Air Forces Pre-flight School (Pilot) to determine whether it is the most efficient program possible. The present training program at the Pre-flight School has been in effect for a sufficient period to warrant careful investigation of its value.

2. It is suggested that the value of many phases of the program might be given serious consideration such as:

a. The value of Aircraft Identification at this period of training. It might be argued that thirty (30) minutes spent on Aircraft Identification after one has become an officer and ready to go into active operations against the enemy would be of more value than eight (8) hours spent in the Pre-flight School, because:

(1) Types may change before the cadets now in Pre-flight School get into active combat, so that many models now studied will be obsolete, while there will be many new models.

(2) Since the cadets have not become familiar with the realities of plane structure, any study of Aircraft Identification may be somewhat abstract if studied before they have flown.

b. It is understood that Code is not given in primary schools at this time. The question is raised whether or not it might not be better to give less Code in Pre-flight and more in Primary.

c. A scientific and objective investigation might disclose that the twenty (20) hours course in Physics may not be of as much practical value to pilots as has been supposed.

d. Likewise the practical application of the course in mathematics might be questioned.

e. Every other academic course might be subjected to the same careful scrutiny.

f. There has been some apprehension as to whether or not the cadets are in a fighting spirit, and therefore the benefits in fighting spirit which might accrue from bayonet drill warrants consideration of making this a part of the training program.

g. The desire of having cadets familiar with ground forces operations leads to the question of whether or not it might not be more fruitful to have the cadets spend one complete day assimilating an infantry attack and defense with blank ammunition than it would be to give six (6) hours of this work in the Academic Department. The problems of concealment and the attitude of the ground soldier as well as a consideration for his problems and safety might better be impressed upon the cadet by a field problem than by classroom study.

4. Another reason why it might be well to reconsider the whole training program at this time is that many subjects are now taught which were not taught at the time the program was created, such as the subjects required by Training Memorandum No. 25, Hq., Southeast Army Air Forces Training Center, dated September 21, 1942, and First Aid.

5. The above suggestions are motivated by a desire to use all available man power in the most effective way, so that no time is spent upon anything if this time could be better spent in other phases of training or in different methods of training. The above is not necessarily the belief of the undersigned, but it is intended purely to suggest that the whole program be investigated to determine whether or not we are accomplishing the most per man hour spent.

LOUIS A. GUENTHER,
Lt. Col., Air Corps,
Commanding.

T C MEMORANDUM

NUMBER 50-23-1

HEADQUARTERS
ARMY AIR FORCES TRAINING COMMAND
FORT WORTH 2, TEXAS 23 May 1944

TRAINING

Preflight Training, Program of Instruction

(This Memorandum supersedes T. C. Memorandum No. 50-23-1, 19 February 1943, and rescinds those portions of T. C. Memorandum No. 50-1-1, 21 April 1943, pertaining to Preflight Training.)

SECTION I - General
II - Plan of Instruction
III - Medical Processing and Assignment

SECTION I - General

1. Objective:

   a. Proficiency of students in the fundamental principles of military aviation preparatory to assignment to flight training in Primary Pilot Schools, Navigation Schools, or Bombardier Schools.

   b. Preparation of students for service as junior officers or Flight Officers by necessary indoctrination in military subjects, honor, and discipline.

2. Duration - Ten (10) weeks.

3. This program of instruction will be uniform for all students at Preflight Schools, whether classified as Pilot, Navigator, or Bombardier, and will be placed into effect upon receipt at the station level of instructor handbooks for each course from the Ground Training Technical Advisory Unit, Randolph Field, Texas. The publication and distribution of student workbooks for each course will follow at a later date.

SECTION II - Plan of Instruction

	Hours
4. Aural and Visual Code	48
a. Scope - Aural code, minimum proficiency of six (6) w.p.m., sending and receiving; visual code, minimum proficiency of five (5) w.p.m., sending and receiving.	
5. Aircraft Recognition	30
a. Scope - Original presentation of forty (40) aircraft on "List A" (T. C. Memorandum No. 50-26-3) through use of basic TAD slide set; recognition proficiency at exposure of 1/10 second on close up (non-distant) views; knowledge of enemy wing span within a tolerance of plus or minus one (1) foot.	
b. Every approved method and device which will tend to make training interesting and successful, including the flash exposure method, Baloptican, shadowgraph, models, posters, and training films will be employed to the greatest advantage.	
6. Applied Aero Mathematics	28
a. Scope - Review of fundamental operations, fractions, percentage, conversions, ratio and proportion, equations and formulas, graphs, logarithms, and trignometry as applied	

Hours

to future aircrew training. Six (6) hours are devoted to an explanation of and drill with the E-6B computer.

b. Instruction in this course will be given on a proficiency basis only. Provision will be made for allowing entering students to take a comprehensive substantiating examination in the subject of Applied Aero Mathematics. Students who attain a satisfactory grade on the examination indicative of their proficiency in the subject will be excused from further instruction except for those hours devoted to the E-6B computer.

7. Maps, Charts and Aerial Photos — 24

a. Scope - Fundamentals, interpretation and use of maps, charts and aerial photos; relief; symbols, measurements of distances and directions; consideration and application of map projections. Aerial photos: types, arrangements, orientation, scales, interpretation and identification methods, identification of topographic and military features; objectives, types, and detection of camouflage.

8. Applied Aero Physics — 20

a. Units of measurements, hydrostatics, accelerated motion, fundamentals of magnetism, magnetic compass, and gyroscopes as applied to aircrew training. Five (5) hours are devoted to the study of vectors, stressing the wind triangle.

b. Instruction in this course will be given on a proficiency basis only. Provision will be made for allowing entering students to take a comprehensive substantiating examination in the subject of Applied Aero Physics. Students who attain a satisfactory grade on the examination indicative of their proficiency in the subject will be excused from further instruction except for those hours devoted to the study of vectors.

9. Naval Vessel Recognition — 12

a. Scope - Nomenclature, disposition, tactical functions and recognition features of important types of combatant and non-combatant naval vessels. (T. C. Memorandum No. 50-26-3).

b. Every approved method and device which will tend to make training interesting and successful, including the flash exposure method, Balopticon, shadowgraph, models, posters, and training films will be employed to the greatest advantage.

10. Aircraft and Principles of Flight — 12

a. Scope - Familiarization with the simple scientific facts associated with flight of aircraft, with emphasis on correct nomenclature.

11. Military Training: Refer to the following T. C. Memoranda and amendments thereto: — 78

a. T. C. Memorandum No. 50-0-2

b. T. C. Memorandum No. 50-27-1

c. T. C. Memorandum No. 50-27-5 — Hours

d. T. C. Memorandum No. 50-27-6

e. T. C. Memorandum No. 50-27-7

f. T. C. Memorandum No. 50-26-2

12. Physical Training: Refer to the following T. C. Memoranda and amendments thereto: — 60

a. T. C. Memorandum No. 50-21-1

b. T. C. Memorandum No. 50-21-2

c. T. C. Memorandum No. 50-21-5

d. T. C. Memorandum No. 50-21-6

13. Medical Training: Refer to the following T. C. Memorandum and amendments thereto: — 6

a. T. C. Memorandum No. 50-28-1

14. Altitude Training: Refer to the following T. C. Memorandum and amendments thereto: — 9

a. T. C. Memorandum No. 50-0-3

15. Army Orientation: Refer to the following T. C. Memoranda and amendments thereto: — 10

a. T. C. Memorandum No. 34-3

b. T. C. Memorandum No. 34-3A

c. T. C. Memorandum No. 34-3B

SECTION III - Medical Processing and Assignment

16. One full day between the 5th and 30th days of the course will be devoted to medical and psychological processing.

17. One-half day between the 8th and 33rd days of the course will be devoted to assignment processing.

By command of Major General FICKEL:

W. W. WELSH
Brigadier General, General Staff Corps
Acting Chief of Staff

Official:

PHILIP DODDRIDGE
Colonel, Adjutant General's Department
Adjutant General

Distribution:

Z(less P,S,T)

RESTRICTED

Interview: Major Louis F. Dreyer, Commanding Officer, 882d Preflight Training Squadron (P), San Antonio Aviation Cadet Center, San Antonio, Texas, by Asst. HO, A-2, AAFCFTC, 4 Mar 1944.

Conducted by Lt. A. B. Hollingshead, Assistant Historical Officer, at San Antonio Aviation Cadet Center, San Antonio, Texas, 4 March 1944.

(The interviewer talked with Major Dreyer about the early organization of Preflight. Major Dreyer developed the theme without a specific question being asked).

The early history of preflight is very sketchy. I have been somewhat interested in it from a personal viewpoint, and I have gone into the records. I know that many documents are missing, and that if you are to get the story straight you will have to talk to a lot of the men who were here from the beginning. I talked to Joe (Lt. Joe B. Norris) once and he may have some of this already.

Q. Well, I am not sure how much Joe has but I would like to sketch in as much of the background of Preflight as I can. Who was the first commanding officer?

A. Our first Commanding Officer was Major Sidney D. Grubbs, Jr. I don't want to give you the wrong impression about Grubbs from what I say. Personally, I thought he was an excellent administrator, but he wasn't the kind that looks well on Army efficiency reports. He wasn't interested in the niceties of military administration. He believed in getting the job done, and it was really a job that we undertook. One of the difficulties of getting a history of the early months of preflight is the informality with which Grubbs gave orders. I have gone back to my 201 File and tried to find orders on myself covering several assignments I had in the early months I was at Kelly. Grubbs would just call a man up on the telephone or see him and tell him he wanted something done, and you would carry out theorder. Maybe it would be on a formal order, but usually it wasn't. Grubbs had the happy facility of cutting Army red-tape. He did a wonderful job and I have never heard a word of criticism against him. All I want to make

here is that he believed that getting a thing done
ore important than following minute administrative
dure. We started here under very primitive circum-
es and the men were anxious to do the job ahead, but
of them didn't realize how big the problem was.

hat was the curriculum of the first ~~in~~- classes in
ight?

y first connection with the school was in September
Colonel Grubbs assigned Captains Hewitt, Adnee, and
f to the staff to organize courses and train
uctors. We held a lot of meetings, worried a lot, and
to follow directives from Randolph. We had quite a
f latitude because Grubbs told us to use our judgement and
out the curriculum the best way possible. We finally decided
ree departments. We called them, Dept. A--that was math.
nk we taught either nineteen or twenty hours of math.
B was really Military Law, and Customs and Courtesies
e Service. The first emphasis was on Military Law. I
ve we taught fifteen hours of Military Law and five
s of Customs and Courtesies of the Service. Department
s a "hodge-podge". We threw everything into it we couldn't
nto Departments A and B. They taught three courses, but
were actually twelve or fourteen. The courses in
tment C were, Organization of the Air Corps, Organiza-
of the Army and Administration and Military Correspon-
e. That was the academic program. In the Air Corps,
d School subjects have included everything taught on the
d; academic courses, military and physical training. But
everything we taught over here was on the ground, some
ese young pilots who were very recent graduates, dubbed
courses we taught as academic courses. Actually they were
re academic than anything else. Before very long the
mic courses had been identified as ground school
es and military training was set up as a separate
ion.

hat did they teach in military training?

(With emphasis) I don't know a thing about the military
tment! All the Tactical Officers were very recent pilot
ates and they let it be known from the first they didn't
to have anything to do with the Academic men. (At this
, Major Dreyer called into the other office and said,

I remember we had different officers giving the courses: Captain Hewitt gave lectures on public speaking, Captain Chase talked about Military Law, Lt. Col. Mills on Post Exchanges, and Colonel Sullivan didn't have any interest in it and he didn't make any preparation. I remember he brought a bunch of field manuals and after he thumbed through them he said, "I don't know anything about this and I don't think you fellows want to learn", and spent the rest of the afternoon telling stories. I don't think anyone learned much in the course on Administration.

Q. How did you select the instructors for the three departments?

A. In mathematics the men were somewhat selected. They had all had some mathematics. Some of them, however, had no more than high school geometry. None of them had been teachers. Department "B" was composed of lawyers. Every man in there was a lawyer. Department C was the "catch-all". Anyone who didn't know any math or wasn't a lawyer was assigned to Department C.

Q. What did you use for texts?

A. I remember we had a bibliography of about 500 or 600 references sent us. There were bulletins, pamphlets, field manuals, civilian texts, magazine articles and a little bit of everything on it. I remember, I went to Captain Lawson, and Major Grubbs and asked what I was to do about this. They said, "Go through the list and order what you think we can use." I marked a lot of field manuals, pamphlets and then we ordered them. Kelly supply didn't have them and Fort Sam supply didn't have them. For months I kept getting directives that they would arrive soon. They would dribble in. I remember, I ordered "A History of Aviation." This was when we had our first class. As I remember it, we had about 1900 cadets. Anyway, I ordered 1900 copies of that "History of Aviation". A year later a whole bunch of big wooden boxes arrived. We broke them open and found out it was my "History of Aviation". Here we were with 1900 copies of a book that was out of date. It had been printed in 1928. Besides the course had been dropped. We had to get rid of them

as the inspector said he didn't want the boxes lying around so we put them in the barracks, in the classrooms and in Ground School headquarters. I don't know whatever happened to them, but we got rid of them.

Q. What were some of your early instructional problems?

A. The men lived in Tent City at Kelly. There was no road up the hill and there were no trucks to bring them up. The tactical Officers were supposed to march the men up the hill and about half the time they weren't there to march the cadets to class. The mess hall situation at Kelly was almost intolerable. Both the cadets and enlisted men, in a recruit detachment they had down there, ate in the same mess hall. The cadets were on garrison rations, and the enlisted men on field rations. The cadets ate first, then the enlisted men. They were supposed to keep the food separate and there weren't enough dishes for the two groups. Many times our men arrived late--that was the first week or two.

Before the first class moved out the cadets were in the barracks but we had to teach in the barracks as the classrooms weren't finished. We had no blackboards, chalk, or teaching devices of any kind. We only taught a half day and the other half day we had department meetings--not once a week like we have now, but every day. At the mathematics meeting, one of the daily chores was to cut butcher paper. Since we had no blackboards, somebody got the idea to use butcher paper. So every morning one instructor would unroll the butcher paper the full length of the barracks. Another instructor would go along with the yardstick and mark the paper; a third came along with a pair of sheers and cut it. Then they collected all the pieces and tacked them together. Each instructor then received the number of pieces he would need the next day to demonstrate the problems. The paper was tacked on the wall and the instructor used a lumber crayon to demonstrate the problem.

Capt. Lawson was very insistant that each man have an outline of the lesson typed on 3 x 5 cards. The outline had to be formal. That was an idea he had gotten from Hewitt when he had that public speaking course down at Kelly. (At this point Capt. Pifer brought in two packages of old lecture

outlines. Attached to each lesson was the 3 x 5 card Capt. Pifer used when he was an instructor).

Q. Did you have classroom inspections at that time?

A. No, we did not have classroom inspections as we have at the present time. As I remember it, there was a directive from Randolph which said that each director was supposed to spend one hour a week inspecting the instructor and his classroom. We didn't follow that plan until three or four classes had passed. One day Capt. Lawson asked me if I had been inspecting my instructors. About a month later he asked me for my inspection reports. I didn't have any, He was very firm and insisted that I inspect my instructors once a week. I didn't like it. Then came classroom inspections. I think three or four classes had passed when we started that. When I was going to inspect a man I always gave him two or three days of advance warning and told him to be on his toes, and to have the cadets on their toes. It was pretty funny the way we sometimes inspected them. Many instructors had knot holes in the walls of their classrooms. They knocked a knot loose, and I knew where it was. When I was supposed to inspect them, I would remove the knot, look into the classroom and listen. Finally Capt. Lawson became very insistent and designated four full time inspectors.

Q. Did you have civilian instructors?

A. No. When we started out, our Tactical Officers were all pilots and our academic instructors reserve officers. We had trouble from the very beginning with our math instructors. Most of them knew little or nothing about math and less about teaching. After the second class we saw that our math instructors just couldn't teach. We were authorized to employ as a civilian Roy W. Arrowood. He was head of the math department at Technical High School in San Antonio. We brought him in as head of the math department and authorized him to hire as many civilian math teachers as he needed. At one time we had only one officer in the math department and that was Capt. Stubbins. All of our math men came in as civilians. Later many of them were commissioned. Arrowood was the first one commissioned. He was commissioned a First Lieutenant. He expected a majority and I rather suspect he had grounds for expecting it. I remember he was

very unhappy to receive a First Lieutenant's commission. This was before the Snyder Board and I think that these men were promised better commissions than they actually received.

Q. When the Snyder Board officers began to come in were they wanted in Preflight?

A. Very definitely, yes. I don't believe there was an officer on the hill at that time who didn't want to see these teachers brought in. They all wanted them brought in, however, for selfish reasons. All the officers who were here from the beginning wanted promotions and administrative positions. With the growth of the school more and more administrators were needed and as soon as the Snyder Board men began to arrive the men who had been instructors previously managed to get assigned to administrative positions. There is not one of them left in the classrooms. You know, the Army started out with the thesis that any officer can teach but within a year it had decided that any teacher can be an officer. From our experience here, the latter thesis has worked out better than the former.

Q. How were the cadets organized?

A. There were three wings numbered by I, II, III. There were three squadrons to a Wing. Each squadron had four (4) flights. The squadrons were numbered I, II, III, through IX. Flights were lettered A, B, C, and D. Some squadrons had an E Flight, which was broken up with the other flights for instructional purposes. The wing commanders were: Wing I, Capt. Edward S. Hewitt; Wing II, Capt. Wilbur S. Donner; and Wing III, Capt. Howard T. Dresbach. The present groups E, F, and G composed Wing I; H, I, and K, Wing II. The student officers, the inactive group, and group M were Wing III. Each squadron at that time was equal to a present group.

Q. Did you have a ground school as you have at the present time?

A. The term "ground school" is peculiar to SAACC. Here the term ground school has come to apply to academic training. We referred to it as supervision

then. We had three departments--A headed by Capt. Henry M. Adnee; Dept B, Capt. James Gleason; and Dept C, Capt. Louis E. Dreyer. We were all referred to as Assistant Directors of Academic Training.

MEMORANDUM FOR THE COMMANDING GENERAL, ARMY AIR FORCES:
(Attention AAF Historical Office)

Subject: Critique of Army Air Forces Historical Studies: No. 48, Preflight Training in the AAF, 1939-1944

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HEADQUARTERS
Army Air Forces Pre-Flight School (Pilot)
Maxwell Field, Montgomery, Alabama 1/cs.

353 — September 26, 1942.

SUBJECT: Reconsideration of Training Program, Army Air Forces Pre-flight School (Pilot).

TO: Commanding General, Southeast Army Air Forces Training Center, Maxwell Field, Alabama, (THRU: Commanding Officer, Maxwell Field, Ala.)

1. It is believed that it would be valuable at this time to reconsider the complete training program in the Army Air Forces Pre-flight School (Pilot, to determine whether it is the most efficient program possible. The present training program at the Pre-flight School has been in effect for a sufficient period to warrant some investigation of its value.

2. It is suggested that the value of many phases of the program might be given serious consideration such as:

a. The value of Aircraft Identification at this period of training. It might be argued that thirty (30) minutes spent on Aircraft Identification after one has become an officer and ready to go into active operations against the enemy would be of more value than eight (8) hours spent in the Pre-flight School, because:

(1) Types may change before the cadets now in Pre-flight School get into active combat, so that many models now studied will be obsolete, while there will be many new models.

(2) Since the cadets have not become familiar with the realities of plane structure, any study of Aircraft Identification may be somewhat abstract if studied before they have flown.

b. It is understood that Code is not given in primary schools at this time. The question is raised whether or not it might not be better to give less Code in Pre-flight and more in Primary.

c. A scientific and objective investigation might disclose that the twenty (20) hours course in Physics may not be of as much practical value to pilots as has been supposed.

d. Likewise the practical application of the course in mathematics might be questioned.

e. Every other academic course might be subjected to the same careful scrutiny.