A Report on Aviation Activities at
Naval Air Training Center-Corpus
Christi

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CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES

COMMITTEE ON NAVAL AFFAIRS
Washington, D. C.

A REPORT

on

AVIATION ACTIVITIES
at
THE NAVAL AIR TRAINING CENTER
CORPUS CHRISTI, TEXAS

LYNDON B. JOHNSON
Texas

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at
THE NAVAL AIR TRAINING CENTER
CORPUS CHRISTI, TEXAS

A REPORT

of a

SPECIAL SUBCOMMITTEE

of the

COMMITTEE ON NAVAL AFFAIRS

HOUSE OF REPRESENTATIVES

Seventy-eighth Congress

First Session

Pursuant To

H.Res. 30

A Resolution for an Investigation to Determine
Whether the War Effort is Being Carried
Forward Efficiently, Expeditiously,
and Economically

- 0 -

October 15, 1943

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LETTER OF SUBMITTAL

Hon. Carl Vinson,
Chairman, Committee on Naval Affairs,
House of Representatives, Washington, D. C.

My dear Mr. Vinson: There is submitted herewith a report of a special subcommittee, which was appointed by you, pursuant to House Resolution No. 30 of the Seventy-eighth Congress, for the purpose of investigating the progress of the war effort with a view to determining whether such effort is being carried forward efficiently, expeditiously and economically. This report relates to the Naval Air Training Center at Corpus Christi, Texas.

LYNDON B. JOHNSON.

Washington, D. C.

CONTENTS

AVIATION ACTIVITIES
at
THE NAVAL AIR TRAINING CENTER
CORPUS CHRISTI, TEXAS

PART III

PART IV

P A R T IV (cont'd)

PART IV (cont'd)

PART V

TABLES

CHARTS

EXHIBITS

E X H I B I T S (cont'd)

E. Assembly and Repair Department, Proposed Layout of Interim Overhaul Division.
F. Assembly and Repair Department, Projected Order of Equipment.
G. Bureau of Aeronautics Circular Letter No. 42-41.
H. Assembly and Repair Department, Comments with respect to Changing Army and Navy Instruments.
I. Bureau of Aeronautics, Comments with respect to Changing Army and Navy Instruments.

AVIATION ACTIVITIES
AT
THE NAVAL AIR TRAINING CENTER
CORPUS CHRISTI, TEXAS

Introduction

On May 18, 1943, the Chairman of the House Committee on Naval Affairs, pursuant to House Resolution 30 of the Seventy-eighth Congress, appointed a Special Subcommittee for the purpose of inquiring into a number of naval activities, including the Naval Air Training Center at Corpus Christi, Texas. The Center was inspected during June and July, 1943, and supplemental inquiries were made in the Navy Department in August and September.

In the course of its inspection of the Training Center, the Subcommittee observed its facilities and equipment, studied the various aspects of its flight training program and interviewed a substantial number of naval and civilian personnel. As a result of this study, it can be generally stated that the Center appears to be well operated with the exception of the Assembly and Repair Department. For this reason, the report which follows deals rather extensively with that Department.

PART ONE

NAVAL AIR TRAINING CENTER

1. Establishment of the Center

(a) Location

The headquarters of the Naval Air Training Center is located at the Naval Air Station, approximately twelve miles southeast of the city of Corpus Christi, Texas. The Center as such has been organized since October 12, 1942; prior to this time the Naval flight activities were carried on at the Naval Air Station which was commissioned on March 12, 1941. The rapid expansion of flight facilities in the vicinity of Corpus Christi resulted in the establishment of the Naval Air Training Center for the purpose of coordinating the work of the Naval Air Station, six auxiliary air stations and the Naval Air Technical Training Center. 1/ The auxiliary air stations and the satellite fields lie generally south and southwest of Corpus Christi within a radius of thirty-five miles. The only exception is Chase Field which is located at Beeville. With the exception of this field and Kingsville Field, which is located near the town of Kingsville, the other auxiliary stations are located near Corpus Christi.

1/ The six auxiliary fields are Cabaniss, Chase, Cuddihy, Kingsville, Nodd, and Waldron. Another field is under construction at Rockport. Each of the auxiliary fields is devoted to some specialized training such as fighter, torpedo-bomber, observation-scout, and patrol-bomber.

Corpus Christi has an estimated population of 102,800 as of May 31, 1943. 2/ It is a trading center for a prosperous farm and ranching hinterland. Prior to the beginning of World War II, Corpus Christi had little manufacturing but recently oil refineries and a chemical plant have been constructed. It also has many attractions both as a summer and a winter resort and, consequently, the city has an unusual number of hotels and tourist houses for a city of its size.

(b) Facilities

Each air station has, in general, the facilities described below. Barracks, quarters, and messing facilities at the various air stations are shown in Table 1. Medical facilities consist of a hospital and a dispensary at the Naval Air Station and smaller dispensaries at the auxiliary fields. These dispensaries are equipped to conduct physical examinations, and to diagnose and give primary treatment for all ailments and injuries. All dispensaries are equipped to furnish medical attention at the scene of airplane crashes. At the Naval Air Station, there is a low pressure chamber for the indoctrination of personnel in the use of oxygen equipment.

2/ This estimate was made from the number of ration books issued and represents an increase of almost 100% in population since 1940.

Table 1

QUARTERS AND MESSING FACILITIES
NAVAL AIR TRAINING CENTER
CORPUS CHRISTI, TEXAS

	HOUSING FACILITIES		MESSING FACILITIES	
	Number of Buildings	Rated Capacity	Number of Buildings	Rated Capacity
Officer Personnel				
Married	55	184 1/		
Bachelor	16	1469	8	2200
Women	8	302		
Enlisted Personnel				
Chief Petty Officers	1	100		
Men	72	15,788	9	26,750
Women	8	1,728		
Cadets	37	5,278	8	10,340
Civilian Personnel				
Men	1	30		
Women	24	149	1	3,000
TOTAL	222	24,998	26	42,390

1/ Capacity given as families

Each auxiliary air station is equipped with hangars which contain office spaces for administrative work, shop spaces for minor aircraft repair work and routine checks, spaces for the repair, maintenance, and storage of ordnance equipment, and lecture and class rooms for instruction of student pilots and squadron personnel. The Naval Air Station has hangars for minor repairs and routine checks of aircraft of the various training squadrons and Assembly and Repair shops for the major overhaul of aircraft from the Air Training Center.

(c) Aircraft

Stationed at the Naval Air Training Center are approximately 1800 aircraft. Of the 1355 standard basic SN trainers at the Training Center, approximately one-half were built by Valtee and the other half by North American. These airplanes are used for basic training and for specialized training for carrier squadrons. Table 2 below shows the types of aircraft used and the employment of each type.

Table 2

Employment of Training Aircraft
Naval Air Training Center
Corpus Christi, Texas

Type	Number	Employment
SNV-1	595	Intermediate basic and intermediate instrument training
SNJ-3-4	760	Intermediate instrument and intermediate specialized carrier training
OS2U-2-3	116	Intermediate specialized observation squadron training
SNB-1-2	60	Intermediate specialized patrol bomber squadron training
PBY-1-3 -5-5a	120	Intermediate specialized patrol bomber squadron training
N2T-1	18	Primary training for foreign student officers and for training instructors
N3N-3	114	Intermediate specialized observation squadron training and instruction in inverted spins in intermediate specialized carrier training

2. Administration of the Training Center

(a) Administrative Organization

The organization of the Training Center is shown in Chart 1. The administrative work of all its activities is handled largely through a central Administrative Headquarters. The Commandant, Naval Air Training Center, has general cognizance over Naval Air Station, Corpus Christi, the six Naval Auxiliary Air Stations mentioned previously, and the Naval Air Technical Training Center at Ward Island, and each of these organizations has a separate commanding officer.

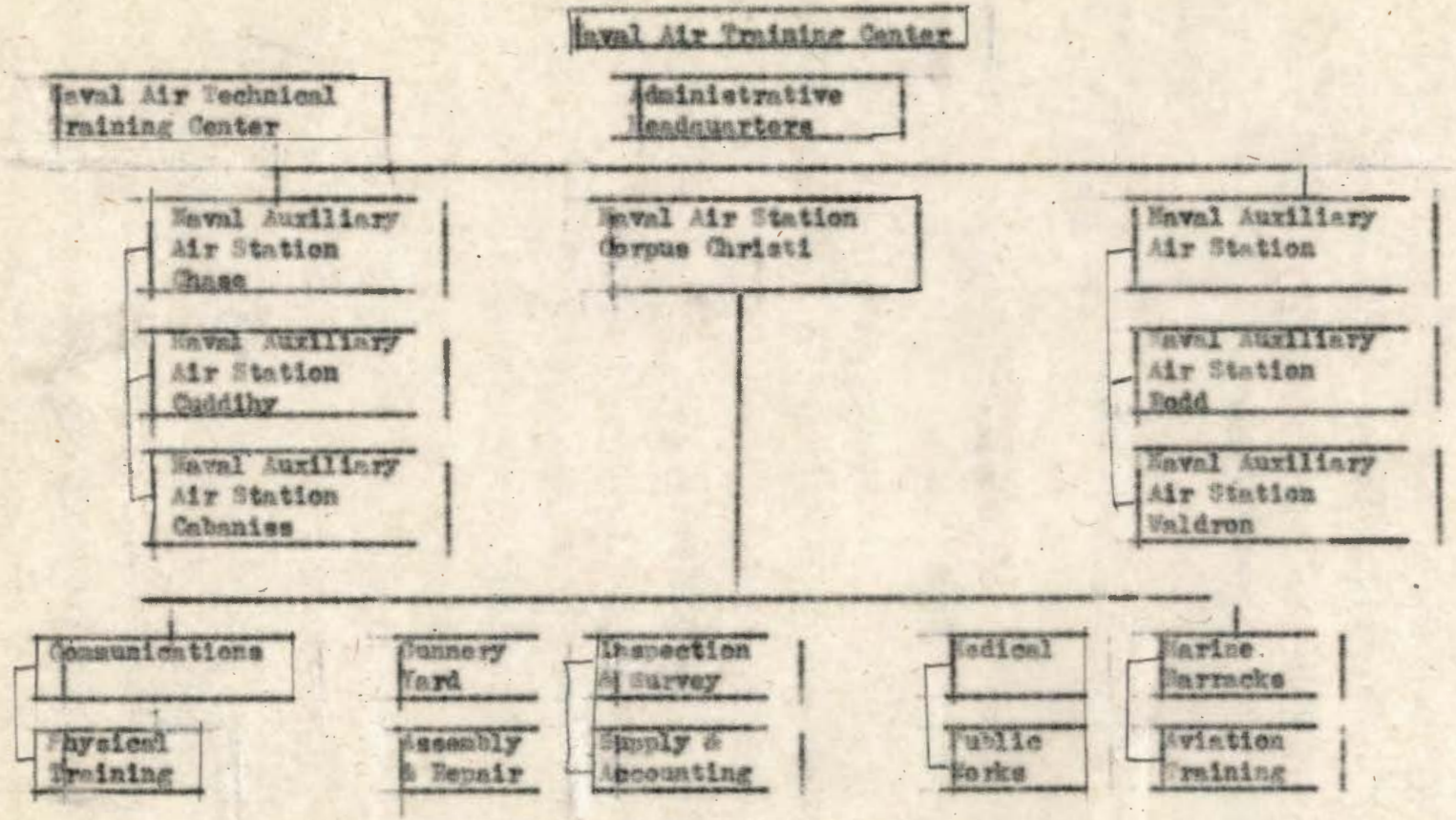
The administrative work of the auxiliary air stations is handled primarily by the Naval Air Station so that the stations themselves can emphasize training. Similarly, much of the administrative work of the Naval Air Technical Training Center is performed by the Training Center proper. Service departments, such as the Assembly and Repair Department, maintain but one officer at the satellite fields compared to the 47 stationed in the department at the Naval Air Station.

The organization of the Naval Air Station is composed of eleven departments, as follows:

Communications
Physical Training
Gunnery
Yard
Assembly and Repair
Inspection and Survey
Supply and Accounting
Medical
Public Works
Marine Detachment
Aviation Training

Chart 1

ORGANIZATIONAL CHART
NAVAL AIR TRAINING CENTER
CORPUS CHRISTI, TEXAS



The head of each department, with the exception of Aviation Training Department, Communications Department and Yard Department, is also on the staff of the Commandant of the Naval Air Training Center. Aviation Training is represented by the Ground School Officer. Therefore, a Naval Air Station Department head, by reason of his position on the staff of the Commandant, has general cognizance over the operation of the related department at the satellite stations. It is in this way that the operation of the Center is co-ordinated.

The detail of the departmental organization of the auxiliary stations is substantially similar to that of the Naval Air Station except for size and appropriate modifications.

(b) Administrative Personnel

As would be expected, the vast majority of administrative officers are Reserve Officers. The Commandant of the Center and the Commanding Officers of the Naval Air Station and the auxiliary fields are regular Naval Officers who have had the usual tours of duty and shore assignments of a regular Naval Aviator. Staff activities, such as Supply, Public Works, and the Medical Departments, are headed by officers with lengthy naval experience. Generally speaking, the reserve officers who headed minor departments, such as Intelligence and Public Relations, were well qualified in civilian status for the Navy job.

No detailed evaluation of the administrative personnel of any departments other than the Assembly and Repair Department and the Supply Department was made by the Subcommittee since we had received no serious complaints regarding any department except Assembly and Repair.

The investigation of the Supply Department was confined largely to those functions that had a direct relation to the operation of Assembly and Repair. Both of these departments are the subjects of later parts of this report and the character of their administrative personnel is discussed in some detail.

(c) Relation of the Center to Surrounding Communities

Most of the civilian personnel lives in Corpus Christi, and both civilian and naval personnel seek entertainment there. Considering the fact that Corpus Christi has almost doubled in population since the establishment of the Naval Air Station and the Naval Air Training Center, it is understandable that the city has encountered numerous problems which are directly attributable to expansion of the municipality. The demands on water supply, transportation, housing, and sanitation facilities were tremendous but have been met with considerable success. As these problems were the result of the establishment of the station and directly affected its personnel, the Naval authorities have joined with local government officials in efforts to solve them.

The Public Relations Office is active in promoting good relations with the civilian population around the Center. This office has a Liaison Officer who was formerly a member of the Corpus Christi city government and is familiar with the problems of the community and the views of its people. He is active in advising with local government officials on all problems mutual to the city and the Center and, in this way, can forestall difficulties and misunderstanding. Discussions with municipal officials, including the Mayor, the City Secretary, the Attorney, and the Chief of Police, revealed that these officials were pleased with the cooperation of the officials of the Naval Air Training Center.

Cooperation with the police authorities is particularly good. Shore patrol headquarters are maintained in the City Hall and to all patrol cars is attached one Shore Patrol member who apprehends service men for misconduct. All cases involving service men taken into custody by municipal police are turned over to the Shore Patrol for delivery to Naval authorities. The Chief of Police expressed satisfaction with the personnel of the Shore Patrol, stating that the members had an aggregate of over ten years previous civilian police experience per man. Naval officials stand ready at all times to reinforce local police if disorders get beyond the control of local authorities.

3. Personnel

(a) Officer Personnel

Stationed at the Naval Air Training Center on June 1, 1943, were 2529 officers, including 35 WAVES. 2/ A majority, or 1542, of these officers are instructors assigned to the various training squadrons. Performing administrative duties are 987 officers. Administrative officers are assigned to the staffs of the Commandant, the commanding officers of the Naval Air Station and the auxiliary stations, the various service departments, and the Aviation Training Department.

On the question of replacing male officers with WAVES, it was stated that, although present experience was insufficient for intelligent forecasting, few WAVE officers would be capable of replacing officers presently doing administrative work because of their lack of aviation background and executive and military experience. This, however, appears to be an unrealistic approach to the problem and to be begging the question because many of the male Aviation Specialist officers had no background in aviation work, were otherwise inexperienced, and had to be indoctrinated. Doubtless, the indoctrination of WAVE officers in the administrative problems of an aviation training station would qualify them also for service at aviation bases.

2/ Recent information shows that the complement of WAVE officers has been increased to 54 officers, 17 in Communications, 14 on duty status, 21 supervising enlisted women, and 2 Supply Officers.

Most of the WAVE officers are now assigned to communication work or in supervisory capacities over enlisted women. There are, however, 25 unfilled billets for WAVE officers at the Center, and there probably are other billets beside those in personnel, training, and supply categories that could be filled equally well by women. It is conceivable that women can properly be used in almost any job at the Center other than the non-administrative work directly related to the Cadet Regiment and the training squadrons.

(b) Enlisted Personnel.

Enlisted personnel consisted of 14,206 men and 331 women, as of June 1, 1943. 4/ Most of this personnel, with the exception of those in training at the Technical Training Center, are attached to the various training squadrons where they perform the duties of a ground force. A number of male enlisted personnel is used in all types of positions in the administrative departments and the Assembly and Repair shops. Women usually hold clerical ratings but also are found in the air specialist classifications. It is the plan of the Bureau of Aeronautics to replace as many male enlisted personnel as possible in certain aircraft ratings when WAVES become available. In the Assembly and Repair Department of the Naval Air Station, there are some 1200 enlisted personnel who are performing tasks similar to the civilians. The assignment of

4/ More recently, the complement of women has been increased to 572. Present estimates place the complement of enlisted women at nearly 1300 by the end of 1943.

enlisted personnel to the department is discussed at some length in another section of this report.

(c) Cadets

In various stages of training at the Naval Air Station and satellite fields are some 4550 aviation cadets.

(d) Civilian Personnel

There were, on June, 1943, over 8000 civilian employees at the Naval Air Training Center, of whom over 2700 were women. The largest single group of workers is found in the Assembly and Repair Department where there are over 4000 workers, including 1440 women. This is almost exactly one-half of all civilian personnel employed at the Center. Details of the employment of this group are contained in a subsequent discussion of this department.

Recruitment of civilian workers is carried on by the Labor Board for the entire Center. So far, the classified labor supply has proven to be adequate because female workers and physically handicapped workers are being hired in trades where these groups have been barred before. Skilled workers of the non-aircraft trades are said to be available in sufficient number to meet the demands of the Center. Difficulty is being encountered in the procurement of aircraft trades personnel and efforts to alleviate this situation have been directed towards the recruitment of workers from allied trades and then training

these persons in aircraft trades. However, the demands for aircraft tradesmen are being met with difficulty for several reasons. One of these is the increasing difficulty of obtaining skilled persons from allied trades. These workers have the choice of employment in the shipbuilding industry or in other war production plants. Demands for aircraft workers at the Naval Air Training Center are exceedingly heavy as illustrated by the fact that 67 out of each 100 workers hired by the Assembly and Repair shops during the year ending May 31, 1943, were replacements. Even with a plentiful supply on the labor market, it would be difficult to fill the quota for skilled aircraft workers under these conditions.

Civilian personnel are employed in clerical positions in the administrative offices of the Commandant, the Commanding Officer of the Naval Air Station, in the Labor Board, the Supply and Accounting departments, and, in short, in practically all the administrative activities of the Center. They are also found in the mechanical trades in the maintenance and repair shops where airplanes are repaired and overhauled. None, however, are employed in the operating squadrons, where all the work is performed by military personnel.

(e) Civilian Personnel Policies

At the time the Subcommittee made its inspection of the Center, there appeared to be no well co-ordinated personnel policy.

and we will hereafter discuss a number of the problems this has occasioned.

Each major department has its own personnel officer and follows generally the Civil Service regulations concerning civilian employees. The Labor Board is under the Regional Director of the Civil Service Commission, the Senior Member being a Naval Officer nominated by the Commandant, and is responsible for the enforcement of regulations governing the employment of civil personnel in the field service of the Navy.

Instead of the Labor Board supervising the application of Civil Service regulations, it actually was only the recruiting office and the repository for certain personnel records obtained from the various departments. The Board was very lenient, if not lax, in bringing the infringements of regulations to the attention of the department concerned and, in at least one instance, refused to take action against the offending department. In this instance, the Recorder of the Labor Board, on June 10, 1943, sent a letter to the Assembly and Repair Officer, via the Senior Member of the Labor Board, inviting attention to certain policies in the Assembly and Repair Department which were in conflict with provisions of the Schedule of Wages. These policies related to the assignment of supervisory mechanical employees and, specifically, of the Master Mechanic to planning and estimating work. The letter suggested that the Assembly and Repair Officer report to the Navy Department the wartime conditions that required the abrogation of Civil Service

Regulations. However, the Labor Board took no official cognizance of the infraction and, on June 30, 1943, returned the memorandum to the desk of the Recorder without comment. From this instance and from information adduced from interviews with various men at the Center, including the Senior Member and the Recorder of the Labor Board, it appeared to us that the Labor Board has played a rather passive role in the labor relations efforts of the Center.

This situation has changed somewhat since the Subcommittee's inspection of the Center. Pursuant to an order of the Assistant Secretary of the Navy of May 6, 1943, a Personnel Relations Division has been established and the Personnel Relations Officer is the Senior Member of the Labor Board. If this officer obtains the support of the Commandant, possesses the requisite training in personnel work, and institutes an aggressive personnel policy that will give recognition to the civilian personnel of the station, a great improvement in the working conditions and, consequently, the morale of the workers of the station should result.

The lack of a definite personnel policy, the infringement of regulations by management, and the "you do it because you are told to" attitude of the management appear to have been responsible for the general dissatisfaction that was rampant at the time of our inspection. Most of the complaints were leveled at poor management policies or lack of

policies and not on personal grievances. Correction of these managerial policies should eliminate most of the personnel difficulties at the Naval Air Training Center.

4. Housing Problems

(a) Naval Personnel

Housing for naval personnel, both officer and enlisted, is inadequate in the Corpus Christi area. There are insufficient government quarters for married personnel assigned to the Naval Air Station and auxiliary fields. Housing for them in Corpus Christi is far from satisfactory. In June, 468 naval personnel were registered with the War Housing Center as seeking living quarters. Their applications indicated that there were 175 married officers who were living in the bachelor officers' quarters until they could find suitable housing for their families. Eighty-nine more applicants were quartered in hotels, 113 lived in bedrooms, and 49 others occupied tourist courts.

The War Housing Center and the Housing Authority of Corpus Christi are actively cooperating with Naval authorities in an effort to alleviate this situation, but existing regulations, the scarcity of material and labor, and the timidity of local capital to enter the small homes construction field has prevented the full realization of plans. At the end of June, 1943, the Executive Director of the Housing Authority of Corpus Christi reported the housing situation

for naval personnel to be substantially as follows:

(a) By provisions of a joint agreement between the National Housing Administrator and the Secretaries of War and Navy, disseminated by Secretary of the Navy Letter, 28 July, 1942, naval personnel are not to rent in projects constructed under the various War Housing Acts; those so quartered are to be replaced with in-migrant war workers;
(b) Two hundred average sized family units are needed by officer personnel; and
(c) A growing tendency of landlords to favor naval personnel in rental property is apparent but insufficient to afford relief from the lack of housing.

(b) Civilian Personnel

Housing for civilian war workers does not present quite the same problem as that of naval personnel because all existing housing has been placed at their disposal. Table 5, below, shows the housing developments and the use to which they are devoted.

Pursuant to the joint agreement of the Army, Navy, and National Housing Administration, Naval personnel in the two Aranda projects, and in Peary Place and Pineda Park are being replaced with war workers. This is gradually placing more units at the disposal of civilian personnel. However, release of housing by Navy personnel has not solved the housing problem because units other than those so released are still needed. The Executive Director of the Housing Authority of Corpus Christi, who, in conjunction with the Navy authorities, made a survey of housing conditions, stated that, as of June, 1943, 80 additional units were needed for civil personnel at Peary Place, the closest development to the

Table 3

HOUSING DEVELOPMENT FOR WAR WORKERS
CORPUS CHRISTI, TEXAS

Development	No. Units	Race 1/	Percent War Workers 2/
George W. Wiggins Homes	188	A-A	75
Navarro Place	210	L-A	75
D. H. Leathers Center	122	N	75
La Armada I	250	A-A	100
La Armada II	400	A-A	
La Armada III	100	A-A	100
Pineda Park	200	A-A	100
Total Units	1540		

1/ Code: A-A - Anglo American, L-A - Latin-American, N - Negro
2/ La Armada I & II are occupied by civilians and enlisted personnel. Pineda Park is occupied by civilians and junior officers. All others are occupied by civilians.

Naval Air Station and to several satellite fields. He also stated that "housing conditions of the Negro Navy and Civil Service personnel are most critical, with at least 60% of the Negro personnel in crowded substandard conditions, and 45% of the Latin-American employees of the Naval Air Training Center are ill housed." It is anticipated that additional housing problems will be created when the new refining and chemical plants begin operation in the fall of 1943.

6. Transportation

Transportation will probably continue to present a problem because of the distance between the stations and Corpus Christi. Public transportation is furnished by the Nueces Transportation Company operating from Corpus Christi to the Naval Air Station and the satellite fields of Cabaniss, Cuddihy, Rodd, and Waldron. These fields are located from 12 to 20 miles from Corpus Christi so that the round trip of the facilities serving the area is approximately 30 miles. At the time of our inspection, public transportation was not entirely satisfactory because of lack of adequate equipment. Some of it was worn out and unreliable for continuous operation. However, the transportation situation has been somewhat relieved by the recent allocation to the Nueces Transportation Company of ten 40-passenger buses by the Office of Defense Transportation.

So far there has been no demand for additional transportation from the new war industries which are located a short distance

from the city. However, if private transportation is further restricted, additional public service equipment will be required for the area.

PART TWO

NAVAL AVIATION TRAINING PROGRAM

1. Pilot Training

(a) Naval Aviation Pilot Training Program

When stationed at the Naval Air Training Center, the Aviation Cadet is undergoing the intermediate stage of his training. Prior to assignment to this Center, he has already had from 42 to 52 weeks of training. He has completed his ground school training in one of 20 Flight Preparatory Training schools located at various colleges and universities and flight training and additional ground school under the War Training Service program at one of 93 locations throughout the United States.

After completion of the War Service Training program, the cadet is sent to one of five Pre-Flight Training Schools. At these schools, no flight training is given during the 10 to 12 weeks of the course. The primary object of these schools is to give physical training courses to the cadets, and one-half of the total of 480 periods comprising the course is devoted to physical training and to military drill.

After the hardening process at Pre-Flight Schools, the cadet is sent to one of 16 Naval Reserve Aviation Bases or Naval Air Stations for primary flight training which lasts 12 weeks. During this period, he is introduced to the standard Navy trainer and to the Navy style of flying. Flight training consists of approximately 85 to 120 hours of day and night flight, during which the student pilot is expected to become a reasonably adept and safe flyer. Ground

school is also continued.

Following primary flight training, the cadet is sent to Pensacola or to Corpus Christi for intermediate training. Intermediate Flight Training at Corpus Christi is divided into two stages, one of four weeks' duration and one of seven weeks. The four weeks' course is known as "Basic and Instruments" and consists of familiarization with heavier and more complex types of aircraft, formation and section tactics, and night flying. The student is then shifted to a specialized squadron where he is trained in the type of plane he will man in the Fleet, i.e., the patrol plane, scout-observation, or one of the carrier types, such as fighter, dive-bomber, or torpedo-bomber.

Ground school training consists of the following subjects:

Table 4

Subject	Total Periods
Engines - Patrol planes	44
Engines - Other planes	33
Navigation Problems - Patrol planes	144
Navigation Problems - Other planes	90
Communications	65
Recognition	18
Gunnery	72
Aerology	20
Administration and Operation	60
Physical Training	72
Total	614

It is necessary to spend more time on patrol plane engines because these planes have multiple power plants and the engines

are heavier. Similarly, because of the very nature of patrol work, additional time is devoted to navigation problems in patrol planes. Except for these differences, all other phases of ground training are the same for each type of plane.

Ground training in gunnery is given on both stationary targets and on mobile sleeve targets that simulate the flight of airplanes. This training is preparatory to gunnery training in airplanes using both stationary targets on the ground and sleeve targets towed by other airplanes. Men are also given training on a clay pigeon range where they fire at targets with a shotgun from a moving truck.

Synthetic training devices are used rather extensively. The Link Navigation Trainer, which simulates "blind flying" conditions and teaches the student instrument flying on the ground, is one of the more important of these. Other devices are used to teach recognition of aircraft and ships. The use of BB shot air guns with miniature targets has saved thousands of dollars in live ammunition and has given the student gunner invaluable practice. Mock turrets are used to give the student the "feel" of the mechanism of the real turret. Large scale models of navigational instruments are of considerable value in demonstrating the use of instruments.

Synthetic training is also given students by means of motion picture and sound training films. One important type depicts the flight of airplanes in such a manner that the student receives the

sensation of flight and attempts to shoot down approaching enemy planes. This type of training is excellent for teaching gunners the proper amount of "lead" to give a target under varying conditions of approach and will save many hours of actual instruction with service type guns and ammunition.

(b) Daily Routine of Cadets

As noted previously, the Intermediate Flight Training of cadets is divided into two stages, Basic-Instrument and Specialized. Each of these is divided, in turn, into Early Flight and Late Flight in order that flight and ground facilities may be fully utilized. The daily routine begins at 5:25 AM and ends at 9:25 PM. The Early Flight receives flight and ground training for four hours in the morning and ground school and drill in the afternoon. The Late Flight engages in ground school instruction and drill in the morning and receives flight and ground training in the afternoon. In the evening, there is a brief recreation period and a one-hour study period. Cadets change Early and Late Flights weekly and have liberty one day in eight.

(c) Accidents, Fatalities, and Safety Precautions

Data relating to accidents and fatalities to personnel are shown in Table 8. There appears to be no definite pattern to the relation between hours flown, accidents, and fatalities. For example, in May, 1943, more hours were flown than in any previous month and, although the total number of accidents exceeded that of

Table 5

ANALYSIS OF ACCIDENTS BY MONTHS
NAVAL AIR STATION
CORPUS CHRISTI, TEXAS
FROM JUNE, 1942 TO MAY, 1943.

Month		Hours Flown	Total No. Accidents	Hrs. per Accident	No. Fatal Accidents	Hrs. per Fatal Acc.	No. of Fatalities	Hrs. per Fatality
June	1942	109.947.1	76	1,446.7	5	21,989.4	7	15,706.7
July	1942	116,239.4	68	1,709.4	3	38,746.5	4	29,059.9
August	1942	108,387.0	48	2,258.1	4	27,096.8	5	21,677.4
September	1942	104,333.4	39	2,675.2	3	34,777.8	5	20,866.7
October	1942	111,915.6	40	2,797.9	5	22,383.1	7	15,987.9
November	1942	93,594.9	13	7,199.6	4	23,398.7	7	13,370.7
December	1942	93,556.3	14	6,682.6	3	31,185.4	5	18,711.3
January	1943	97,972.5	30	4,898.6	3	32,657.5	4	24,493.1
February	1943	132,334.9	32	3,823.0	5	24,467.0	6	24,467.0
March	1943	153.585.0	38	4.041.7	10	15,358.5	18	8,532. 2
April	1943	149,354.5	78	1,914.8	8	18,669.3	9	16,594.9
May	1943	174,290.1	85	2,050.5	9	19,365.6	15	11.619.3
			551		62		91	

any other month and the number of fatal accidents was not excessive, the number of fatalities was very high.

Table 6 shows that the pilot is the cause of most accidents, and, particularly of fatal accidents. Of the 62 accidents occurring during the year ending May 31, 1943, only two accidents were caused by mechanical or structural failures. All others were due to "pilot error". Moreover, the majority of fatal accidents did not involve other aircraft; nearly one-half resulted from stalls or spins that were due to loss of control of the airplane.

Precautionary measures have been taken to minimize accidents. In addition to the customary traffic rules and the allocation of practice areas to prevent congestion, aircraft are inspected by qualified plane captains before each flight and the pilot is instructed to inspect his plane also. A "flying duty officer" patrols the operating areas of each station to report violations of flight and operating instructions or adverse weather conditions. During solo night flying, an experienced instructor is in the air as general supervisor and weather prognosticator. Dual flight instruction has been instituted in all phases of formation training, except in the patrol squadrons. Rules are strict and are rigidly enforced. Punishment for infractions varies from extra instruction to discontinuance of training for flagrant or repeated violations.

Table 6

ANALYSIS OF ACCIDENTS 1/
NAVAL AIR TRAINING CENTER
CORPUS CHRISTI, TEXAS

Period From June, 1942 thru May, 1943. Total Number of Hours Flown 1,435,510.7

Type of Accident	Total No. Accidents	Hours per Accident	No Fatal Accidents	Hours per Fatal Acc.	Number of Fatalities	Hours per Fatality
Stall or Spin	73		26			
Collision - Non-Formation						
Ground	(39)		(0)			
Air	(31)		(9)			
Total	30		9			
Collision - Formation						
Ground	(0)		(0)			
Air	(31)		(9)			
Total	31		9			
Hit Obstruction	64		2			
Scraped Wing	35		0			
Ground Looped (or Water)	54		1			
Nosed Over	89		0			
Wheels Up or Unlocked	44		0			
Flew into Ground or Water	22		13			
Engine Failure	37		1			
Structural Failure	23		1			
Fire						
Total	549	2,614.7	62	23,153.4	91	15,774.8

1/ Copy of Report submitted by Naval Air Training Center

One of the more important elements of the safety program is the conference between students and instructors of a squadron when an accident occurs. The accident is analyzed and discussed, and ways and means to prevent reoccurrence are suggested. In this way, the student is impressed with the causes of accidents and methods to prevent them.

(d) Result of Intermediate Training

The Naval Air Training Center began training cadets on March 20, 1941, but the first class of 51 students did not receive flight instruction until May 5, 1941. More than 13,000 cadets have since been received at the Center and, as of May 31, 1943, 7368 had been graduated. Cadets who have not finished the flight training course number 1162 and represent a cumulative attrition of 8.7 per cent of the total number inducted. The figures for the first year of operation show an abnormally high rate of attrition in comparison with the second year because, in the earlier period, Primary Training was also given at the Center and the "wash-outs" during this stage are included. At the present time, Primary Flight Training is conducted at other Naval Air Stations and the Center receives a highly select group. For several months, the percentage of attrition has not exceeded 6 per cent and has averaged 3 per cent. At one time, attrition amounted to as high as 30 per cent and averaged more than 15 per cent.

As indicated in Table 5, the number of hours flown has increased at the Center to the record figure of nearly 175,000 hours in May, 1943. This increase was possible only because of staggered use of aircraft and ground facilities. In the Basic and Instrument Squadrons, flights are in the air from seven in the morning until seven in the evening. The flight period for the Specialized Squadrons is only slightly less. Night flying activities further increase the utilization of airplanes and ground facilities.

2. Naval Air Technical Training Center

(a) Scope of the Program

When the Subcommittee made its inspection of the Naval Air Training Center, radar was regarded as a highly secret device and, consequently, little detailed information relating to it was obtained from the Technical Training Center. However, we did inspect its physical facilities and informed ourselves generally of the scope of the program. The purpose of the activity is to train officers and enlisted men of the Navy and Marine Corps and those of allied nations in the use and maintenance of aircraft radar. Aviation cadets and selected aviation officers receive a brief indoctrination course and enlisted men are schooled for the fleet and active bases for operation and maintenance of radar equipment.

(b) Facilities

The Technical Training Center is approximately one year old and is still in the process of expansion. Quarters for the personnel and buildings for the classrooms and laboratories appeared to be adequate for the complement of the school. An additional swimming pool for use in instructing non-swimmers and in abandon ship drill was badly needed when we were in Corpus Christi. It is understood that this pool is now in the process of construction.

PART THREE

THE SUPPLY DEPARTMENT

1. Role of the Supply Department

(a) Functions

The Supply Department is responsible for the procurement, receipt, storage, and issue of most of the materials and supplies that are used by the Naval Air Training Center. The Supply Officer of the Naval Air Station is also on the Staff of the Commandant of the Center and, therefore, acts in a supervisory capacity over the auxiliary training fields with respect to Supply Department activities. Actually, the Technical Training Center alone has a full time Supply Officer. The satellite fields have only a Commissary Officer in charge of the messes.

Procurement, whether by requisition on the Aviation Supply Office at Philadelphia or by Navy Department or local contract, is performed by the Supply Department and the satellite activities draw from the Supply Department warehouses. However, a different procedure is followed in the case of fresh provisions which are delivered directly to the activity involved for obvious reasons, although the contract was let by the Supply Officer.

The major work of the Supply Department consists of supplying the needs of the Naval Air Station, where most of the repair work of the Center is performed. Supply activities outside the Naval Air Station are of so little consequence in comparison to those related to the Assembly and Repair Department that the

following discussion of Supply Department functions and problems is confined to the Naval Air Station.

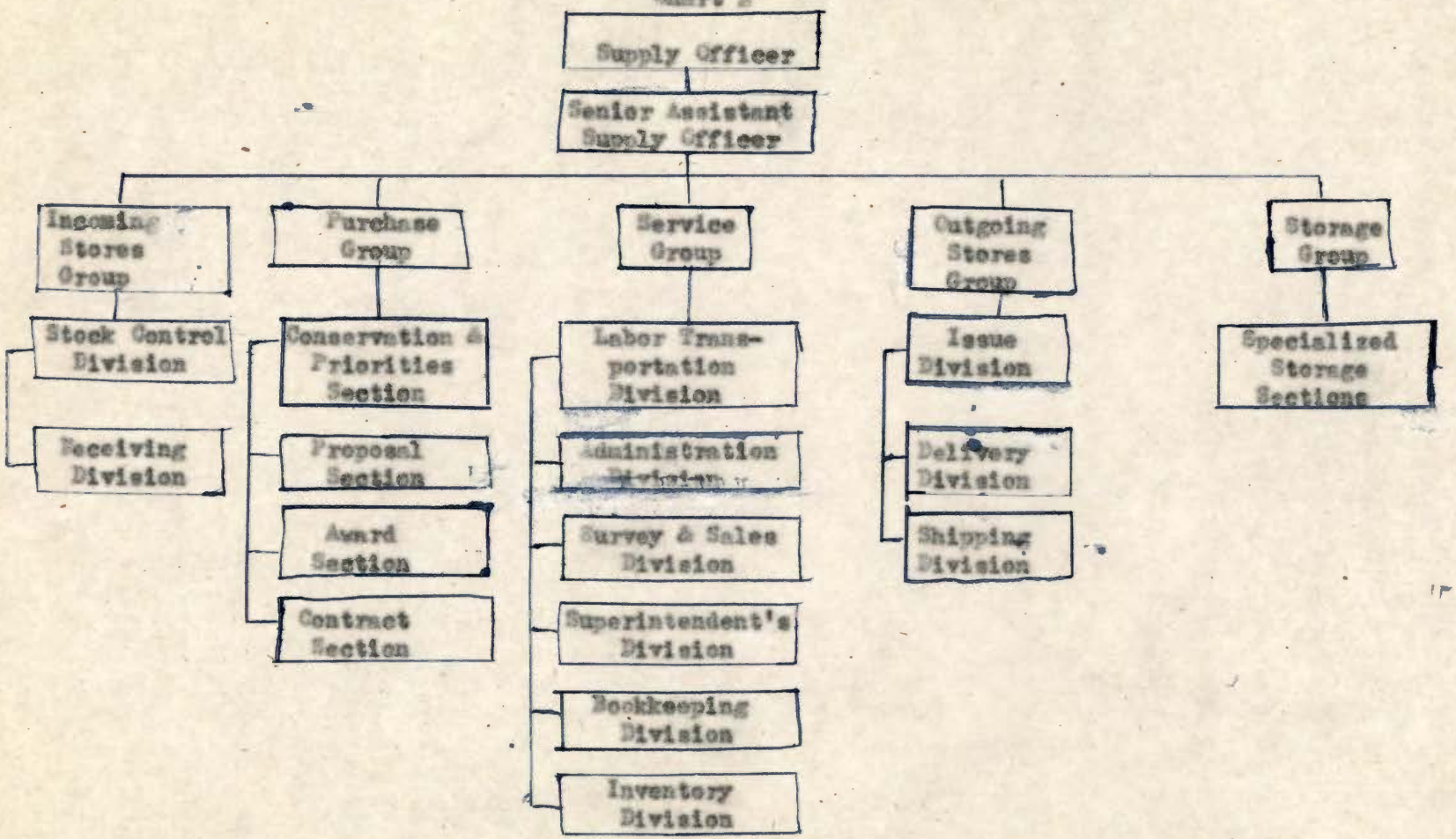
(b) Organization

The Supply Department is made up of five groups, viz., Incoming Stores, Purchase, Service, Outgoing Stores, and Storage. Each of these groups is divided into one or more divisions and/or sections. The major organizational structure is shown in Chart 2. Since we made no detailed functional analysis of the numerous sections and have no suggestions with respect to the organization of them, it would serve no purpose to enumerate and describe them here.

2. Officer Personnel

Personnel questionnaires relating to the experience of the 14 division and section heads of the Supply Department were obtained in order to analyze the abilities of the officer personnel. The Supply Officer and his executive officer are the only members of the regular Navy on the staff and both of them have served as officers of the Supply Corps since 1918. The remaining 12 are reserve officers in the grade of lieutenant or below. Eight of the officers in the Supply Department have had four or more years in college, three have had two or more years, and three had no college education. Of the officers who went to college, all but two majored in economics, accounting, or kindred subjects. One of these two is a lawyer and the other is an engineer.

Chart 2


Supply Officer
Senior Assistant Supply Officer
Incoming Stores Group
Stock Control Division
Receiving Division
Purchase Group
Conservation & Priorities Section
Proposal Section
Award Section
Contract Section
Service Group
Labor Transportation Division
Administration Division
Survey & Sales Division
Superintendent's Division
Bookkeeping Division
Inventory Division
Outgoing Stores Group
Issue Division
Delivery Division
Shipping Division
Storage Group
Specialized Storage Sections

The work experience of these officers is summarized in the table below:

Table 7

Work Experience of Supply Officers
Naval Air Station
Corpus Christi, Texas

Business or Profession	Number of Officers
Navy Supply Corps Officer	2
Industrial Banking	2
Commercial Banking	1
General Merchandise - Hardware	2
Warehouse and Transportation	1
Tire Distributor	1
Engineering Sales and Consulting	1
Tax Accountant	1
Teacher	1
Lawyer	1
City Manager	1
Total	14

3. Contract Procedure

(a) Authority to Contract

The contracting authority of the Supply Department is without monetary limitation except that the Bureau of Supplies and Accounts must approve all contracts exceeding $200,000. In purchasing general supplies valued at less than $500, "over the counter" or common business practices are followed. In purchases from $500 to $5,000.00, any appropriate method which is consistent with good business practice is permissible. Hence, supplies may be obtained by means of a telephone order and later confirmed by a formal order

or a formal invitation to bid.

All purchases exceeding $5,000 are covered by formal contract. Moreover, the Supply Department is limited in the purchase of certain items such as automobiles and buses, railway rolling stock, arms and ammunition, and airplanes, airplane engines and certain accessories therefor. Ordinarily such items are purchased by the bureaus of the Navy Department, but in emergencies authority is granted for local purchase.

(b) Contractual Methods

Contract terms, including price, are agreed upon by negotiation when this appears to be advantageous to the government. Advantages in this method over competitive bidding are early delivery, reduction of paper work, and distribution of orders to plants or areas not already overloaded. The chief advantage is, of course, the time element. Competitive bidding is the traditional procedure for procuring supplies for government agencies and was the only method of procurement in the shore establishments for some time after we became involved in war. However, it proved to be too cumbersome when materials and supplies had to be obtained rapidly and afforded the government no particular protection in purchasing scarce items and materials produced exclusively for war purposes. Many items are still purchased by the Supply Department at the Naval Air Station through formal competitive bids when doing so serves a real purpose. Thus, more than 70 per cent of all contracts let during the fiscal year 1943 were on a competitive basis. Competitive bidding accounted for about 68 per cent of the dollar volume of $5,236,016.

(c) **Time Element in Letting Contracts**

In order to determine the efficacy of the negotiated contract in reducing the time between the request for supplies and the placing of the contract, a test check was made on 100 negotiated contracts and 100 competitive contracts executed between January 1, 1943, and June 30, 1943. A tabulation of the time intervals between the issuance of requests for materials and final date of contract is shown in Table 8:

Table 8

TIME SCHEDULE FOR CONTRACTS
COMPETITIVE AND NEGOTIATED
SUPPLY DEPARTMENT - NAVAL AIR STATION
Corpus Christi, Texas

Elapsed Time Days	Period Between Receipt of Material Request and Completion of Contract		Period Between Receipt of Material Request and Advertisement of Contract
	Competitive	Negotiated	Competitive
1		17	(
2		20	(
3		5	(66
4		3	
5		3	8
6		8	1
7	1	3	1
8		5	
9		4	
10		5	
11		2	
12		6	
13	2	4	
14		3	
15	1	3	13
16	3	1	
17	3		
18	6	2	
19	2		7
20	9		
21	5	2	
22	7	1	
23	10		
24		3	
25	10		
26	1		
27			4
28	1		
29	3		
30			
33	2		
35	1		
36	1		
38	2		
39	1		
42	6		
43	3		
46	13		
49	1		
51	1		
55	2		
60	2		
62	2		
100	100	100	100

It thus appears that approximately 40 per cent of the competitive contracts required from 20 to 25 days to complete. More than 20 per cent took from 42 to 46 days. In striking contrast, nearly 40 per cent of the negotiated contracts were completed on the day the request was made or on the day following, nearly 60 per cent were completed within a week, and approximately 75 per cent were completed within ten days.

(d) Reasons for Delay in Competitive Bidding

One of the primary causes of delay in the competitive contracts seems to be inherent in the requirement that bids be advertised. One-third of the 100 requests were not advertised for more than 5 days. In nearly 25 per cent of the cases the delay was 15 days or longer. On January 5, 1943, 7 requisitions were received by the Purchase Group which were not advertised until January 23, 1943, a lapse of 19 days.

Competitive contracts are sometimes delayed also when no supplier can meet the requirements of the proposal and it is, therefore, necessary for the Supply Department to send the request back to the originating department and to effect modifications.

On two contracts for the Assembly and Repair Department, 18 days elapsed between the time the bids were opened and the award of the bid. The contracts were dated 22 days after the award and 60 days after the request for the material was first received by the Purchase Group. The elapsed time from the date of opening of the

bid until the award was made on a request from the Public Works Department was 24 days. In most cases, however, the award is made the day after the bid is opened or the second day following.

(c) Negotiated Contracts

The negotiation process eliminates or minimizes many of these delays. In the majority of the 100 test contracts placed by negotiation, the proposal was effected on the day of receipt of the request for material or the day thereafter. The delay in competitive contracts that results from substitutions is reduced materially in the case of negotiated contracts because the prospective contractor can begin negotiations immediately instead of offering the substitute on the date for the opening of bids. Also, the delay inherent in allowing contractors a reasonable time to submit competitive tenders is substantially reduced or eliminated.

It is highly desirable, if not essential, that a negotiating purchasing agent be a specialist in particular products and have a thorough knowledge of manufacturers, suppliers, and market conditions, if the maximum advantages of the negotiating process are to inure to the benefit of the government. Although such talent is not always available to supply departments, it is clear that the negotiated contract device has made it possible to expedite procurement of necessary materials substantially at Corpus Christi.

4. Storage Facilities and Practices

(a) General Storage

Supplies and materials used by the Naval Air Station fall generally into two classes, general stores, including provisions, and aviation material.

General stores are kept in the main Supply Department building and consist of such items of general use as stationary, general hardware, lumber, hand tools etc. Storage space appears adequate for this type of material.

There are special buildings for dry and refrigerated provisions. Inventories are small and require that close attention be given to ordering procedures.

Special storage facilities are provided for automobile and airplane tires because they deteriorate from exposure to air and light. For similar reasons, refrigerated storage is provided for fur-lined flying clothing.

Scrap materials are stored in a salvage yard. Scrap is sorted, classified, cleaned, and graded, and, if necessary, processed for sale. Certain materials, such as rubber, burlap and manila, are stored under cover to protect them from further damage by the elements. Salvaged lumber is segregated according to dimension and grade. Other salvage material, such as garbage, cooked grease, bones and tin c ans, is disposed of by sale under contract and is collected directly by the contractor.

Storage spaces at auxiliary fields were reported to be adequate. Two buildings that were authorized have not been constructed because there appears to be no need for them. However, additions to an aviation storehouse at the Naval Air Station is projected when additional space for airplanes awaiting repair is needed.

(b) Storage of Aviation Material

When we inspected the Naval Air Station, the method of storing airplane parts was being changed. Formerly, new parts, repaired parts, and parts awaiting repair of the same type or class were stored in the same bins. However, so much material awaiting repair had accumulated that it became necessary to segregate this class of material (Class 365) in a separate building.

Table 9 is a tabulation of major airplane parts awaiting repair in storage at the Naval Air Station, as of July 12, 1943. It appears that the accumulation on that date included 800 wings, 450 engines, 211 carburetors, and hundreds of other critical parts.

It is difficult to see why this quantity of material was allowed to accumulate in storage in an unrepaired condition and to become a burden on the storage facilities of the Supply Department during a period when the Assembly and Repair Department was not operating at full capacity and steps were being taken to secure work from other stations. If more work was wanted, it could easily have been found across the street from the Assembly and Repair shops in the Supply Department warehouses. It is true that Assembly and Repair had all the wing and engine overhaul work it could handle and that some materials and replacement parts may not have been available, but it is difficult to understand why work could not have been performed on much of this material and a reduction effected in the ratio of

MATERIAL AWAITING REPAIR - CLASS 265
SUPPLY DEPARTMENT
NAVAL AIR STATION
CORPUS CHRISTI, TEXAS
July 12, 1943.

TYPE OF AIRPLANES	WINGS			FLOATS		CONTROL SURFACES									POWER PLANT						
						STABILIZERS		AILERONS		FLAPS											
	RIGHT	LEFT	CENTER	MAIN	WING TIP	HORIZONTAL	VERTICAL	RIGHT	LEFT	RIGHT	LEFT	CENTER	RUDDER	ELEVATOR	CARBURETORS	ENGINES	PROPELLERS	MAGNETOS	GENERATORS	STARTERS	
OS2U	4	12		19	96	25		10	19	3	5		13	28	11	6	6	90	40		
PBY	8	6	5		16	6		3	3	5	5		6	3	46	126	64	20	83		
N2S(1)	79	72	21			7		14					16	4	51			40			
N3N(2)	21	19	17(3)	18	38	9		32	39				1	15	5			20			
SNJ(4)	122	100	49			37	17	100	147	194	118	85	115	97	60	114	67	25	268(5)		519
SNV(4)	50	46	32			100	19	42	49	7	10	40	78	38	32	115	64	25			
TOTAL	284	255	124	37	150	184	36	201	257	109	138	125	229	185	205	361	201	195	383		519

NOTE (1) BIPLANE - LANDPLANE
(2) BIPLANE - SEAPLANE
(3) ONE WING - UPPER
(4) LANDPLANE

damaged parts awaiting repair to the number of airplanes in operation.

An example of the high percentage of damaged parts carried in storage is found in the case of the 1335 SNJ and SNV training airplanes in service at the Center. Engines for these airplanes in storage in Class 265, in July, 1943, numbered 229, or 17 per cent of the total number of aircraft. Again, when there were 760 SNJs in service, 122 right wings and 100 left wings were in storage awaiting repair. The need for devoting every energy to keeping work current on this class of material is too apparent to require further comment.

PART FOUR

THE ASSEMBLY AND REPAIR DEPARTMENT

1. Organization of the Assembly and Repair Department.

(a) Function of the Department

The Assembly and Repair Department (hereinafter sometimes referred to as A&R) is charged with the overhaul and repair of aircraft, aircraft engines, accessories, and spare parts. Its functions are of vital importance to the pilot training program of the Naval Air Station because maximum utilization of aircraft is entirely dependent upon satisfactory operation of maintenance facilities. An efficient maintenance department can be of inestimable value to the program; an inefficient one can serve only to retard and impede. In the evaluation of A&R which follows, the Subcommittee has concerned itself primarily with the ultimate effect of its policies and practices on pilot training, because the training of naval aviators is the primary function of the Station.

(b) Establishment of the Department

The A&R Department of the Naval Air Station at Corpus Christi, Texas, was established when the Station was first commissioned in March, 1941. Naval officers were placed in key administrative positions and a group of fifty civilian employees were transferred from the A&R Department of the Naval Air Station at Pensacola, Florida, to serve as a nucleus of employees who were trained in

aircraft overhaul and repair. Most of the civilian employees who transferred from Pensacola were placed in supervisory positions.

The task of setting up the Department was complicated by the fact that it was not possible to obtain any great number of employees with previous aircraft experience. Moreover, the majority of the men from Pensacola were first-class craftsmen who had no supervisory experience; it was necessary, therefore, that they orient themselves in their new supervisory positions. These men, in conjunction with the naval officers, became responsible for perfecting overhaul procedures, planning shop layouts, procuring equipment and supplies, and other related matters.

Substantial progress was made by this group. Overhaul procedures were drawn, shop layouts were completed, needed equipment and space were secured, and work was begun on the overhaul and repair of aircraft. Nevertheless, it appeared that insufficient progress was being made in the actual overhaul and repair of planes. In July, 1942, some fifteen months after its establishment, ARR had a complement of 3035 employees but overhauled only 7 airplanes and 130 engines and repaired only 31 airplanes and 20 engines. Shop procedures and practices were not adequately enforced. Charges of favoritism were rife and loafing and idleness were common. Moreover, both naval officers and civilians were using government material and time to make articles for their personal use. In these

circumstances, it was no cause for surprise that the Department was thoroughly reorganized at the direction of the Bureau of Aeronautics in the late summer of 1942. 5/

(c) Reorganization of the Department

The reorganization of the Corpus Christi AAR Department was entrusted to a group of officers, civilians and enlisted men of the AAR Department of the Naval Air Station at San Diego, California. These men, who were experts in assembly and repair work, commenced the reorganization of the Department in August, 1942, and completed their study in September, 1942. The system proposed by them was put into effect immediately.

The system installed at Corpus Christi might well have been labelled the "San Diego System", because it closely paralleled the system of aircraft overhaul and repair utilized at San Diego. A manual and basic orders were prepared which set forth the procedures for the assembly and repair work of the Department. Many intra-departmental transfers of civilian employees were effected in an effort to improve the utilization of personnel. Similarly, a new head of the AAR Department was installed to carry out the policies enunciated by the San Diego group.

5/ The present AAR Officer and Commanding Officer of the Station were not connected with AAR at the time conditions requiring the reorganization were prevalent. Although such conditions were appalling, no useful purpose would be served by a restatement of them here. Consequently, this report deals only with the present policies and practices of AAR.

An organization chart of the Corpus Christi Department as reorganized by the reorganization group is attached as Exhibit A. A study of this chart discloses that the A&R Department is composed of three sections and nine divisions. Each section and division is under the direction of a naval officer who serves as section chief or division superintendent. The officers in charge of the Administrative, Personnel and Engineering sections and the Planning Division are directly responsible to the Executive Assistant. Eight production divisions (Overhaul Control, Structures, Accessories, Machine and Metals, Engine Overhaul, Assembly and Test, Plant, and Interim Overhaul) are under the jurisdiction of the Production Superintendent. All sections and divisions are under the general supervision of the A&R Officer who is primarily responsible for the efficiency of the entire Department.

(d) Functions of Departmental Subdivisions

The reorganization group defined the functions of each section and division. Briefly, these functions are as follows:

(1) Administrative Section - Receives, records, routes, distributes and files correspondence, orders, memoranda and technical information, and handles all matters relating to office administration. It also is charged with the administration of personnel matters involving per annum civilian employees.

(2) Personnel Section - This section is charged with handling all personnel matters pertaining to per-diem civilian employees and enlisted personnel. It also conducts the Vocational Training Program of the Department.

(3) Engineering Section - Investigates failures in and damage to aircraft structures and advises as to proper methods of repair; prepares technical instructions for local guidance; corrects faulty designs and advises the Bureau of Aeronautics thereof; prepares drawings, blueprints, etc.; operates a materials laboratory; and advises shops as to substitution of materials.

(4) Planning Division - Generally, it is charged with planning the work of the Department. Schedules the work load and sets up pre-overhaul estimates; issues basic work orders and plans and breaks down major assemblies; checks on the percentage of completion on aircraft and engine overhauls or repairs; prepares estimates, in conjunction with the Supply Department, with respect to replenishment of parts and supervises the procurement of parts from Supply; determines the materials to be stocked and handles the operation of shop stores; disseminates Bureau of Aeronautics and local change orders; maintains records and issues instructions with respect to the installation of and reviews requests for equipment; and exercises financial control of all funds provided for the operation of the Department.

(5) Overhaul Control Division - Inspects and disassembles aircraft received for overhaul; initiates procurement of replacement parts shown to be needed by inspection; routes the disassembled parts to the proper division and shop; and operates a cleaning plant.

(6) Structures Division - Overhauls and repairs all major structural parts of an airplane, i. e., fuselage, wing and tail surfaces, and landing gear. Also, covers and dopes fabric-covered surfaces, applies protective coatings and finishes to all airplane parts, and overhauls parachutes.

(7) Accessories Division - This division is charged with the overhaul and repair of aircraft accessories, e.g., bombsight and ordnance equipment, instruments, radio equipment, propellers, pumps, starters, etc.

(8) Machine and Metals Division - Consists primarily of manufacturing shops which manufacture parts to be installed on aircraft undergoing overhaul or repair.

(9) Engine Overhaul Division - This division is responsible for the disassembly, inspection, overhaul, assembly and test of aircraft engines, carburetors, auxiliary power equipment and ignition equipment.

(10) Assembly and Test Division - Primary function is assembling the various parts which have been repaired, ordered or manufactured in the other divisions. Receives these parts and assembles them into largest sub-assembly suitable for assembly into the airplane in one operation. These sub-assemblies are incorporated into the airplane and the airplane is finally assembled on a production line. Conducts ground and test flights of the airplanes overhauled and repaired.

(11) Plant Division - This division is charged generally with maintenance work for the entire Department and installs, removes, transfers or constructs plant equipment, including special tools, jigs, and fixtures.

(12) Interim Overhaul Division - Overhauls and repairs wing floats, power plant cowling and structural assemblies of PBY aircraft. Other items disassembled from aircraft by this division are forwarded to other divisions of A&R for repair or overhaul. When these items are returned, the aircraft is assembled and tested by this division.

The functions of these departmental subdivisions are intimately related. In fact, their correlation is so close that should one division fall behind in its schedule, the efficiency of the entire Department would be seriously affected. It is imperative, therefore, that the procedures of the various divisions and shops be

synchronized. Likewise, it is fundamental that personnel policies of the Department should be designed to promote high morale and to encourage all workers to exert their maximum efforts to the end that the Department as a whole will operate efficiently and effectively. These and related matters merit consideration in evaluating the role of A&R in the pilot training program.

2. Personnel

(a) Character of Personnel Utilized in A&R

The A&R Department is manned by commissioned and enlisted personnel and by civilian employees. Key administrative positions are held by naval officers. Division and shop positions are held by warrant officers, chief petty officers, and civilians. The actual production work in the shops is performed by enlisted personnel and civilians. Thus, military and civilian personnel work side by side at the varying craft levels.

The civilian employees of A&R are divided into four categories: Groups IVb, IVa, III, and II. Group IVb personnel are employed on a per annum basis and perform clerical, administrative, and fiscal duties. Groups IVa, III, and II are per diem employees and perform the technical duties connected with aircraft overhaul and repair. Group IVa is the classification accorded civilian production supervisors and is comprised of the ratings of foremen, quartermen, leadingmen and snappers. 6/ Group III is composed of the various

6/ A foreman is assigned to each production division. However, the A&R Officer has filled one or two foremanships with enlisted personnel. Quartermen supervise several shops; a leadingman is generally assigned to each shop; and snappers serve as supervisors within shops.

craftsmen, such as mechanics, sheet-metal workers, etc., while group II is composed of mechanic learners, helper trainees, and classified laborers.

(b) Recruitment of Personnel

The Navy Department orders officers and enlisted men to A&R with the result that there is no local problem involved in the procurement of naval personnel. The recruitment of civilian personnel, however, is a local problem and is handled by the Labor Board, which employs civilians for all activities of the Station. This Board interviews applicants, examines their qualifications, and, if they are deemed worthy of employment, places their names on a register for future employment or sends them forthwith to the department in which they are to be employed.

To aid the Labor Board in its recruitment of personnel for the Department, the A&R Personnel Officer prepares estimates of his personnel requirements for two months in advance. The Labor Board operates on the basis of these estimates and has been very cooperative with A&R. On a number of occasions, it has called the attention of A&R to the availability of capable mechanics although it had no requests for them on file at the moment.

A&R has had no real difficulty in procuring a sufficient number of civilian employees for its operations. There has been a real problem, however, in securing applicants for positions who have the essential qualifications for the work. A relatively small percentage of the employees of A&R and applicants for employment

has had previous training in the aircraft industry. It has been necessary, therefore, to provide for both in-service and vocational training of personnel. 7/

(c) Personnel Complement

The personnel of A&R has been increased steadily as its facilities expanded and the work load became heavier. This increase in personnel is shown on a monthly basis in the following table:

Naval Air Station, Corpus Christi, Texas
Assembly and Repair Department
Personnel Statistics
(June, 1942 - May, 1943)

Month	Officers	Enlisted	Civilian	Total
1942				
June	25	4	2,885	2,914
July	26	10	2,999	3,035
August	23	10	3,099	3,132
September	23	10	2,981	3,014
October	31	620	3,000	3,651
November	38	833	3,095	3,966
December	39	964	3,228	4,231
1943				
January	39	1015	3,344	4,398
February	37	1062	3,538	4,637
March	38	1145	3,740	4,923
April	39	1152	4,043	5,234
May	47	1221	4,035	5,303

The A&R Officer stated that personnel on board as of May 31, 1943, was adequate to handle the work scheduled for the summer months. In fact, in at least one division, there was not enough work in July to keep the personnel fully occupied. The Department recognized this fact, but it was reluctant to lay off employees because it was thought that it would be impossible to replace them in the autumn when a substantial number of airplanes are scheduled for "high-time" overhaul. 8/

7/ For a discussion of A&R Training Programs, see Section 3, infra.

8/ The Bureau of Aeronautics has set a maximum number of hours that the various types of airplanes may be flown without being overhauled. (cont'd)

It is apparent from the foregoing table that there were practically no enlisted men assigned to A&R until October, 1942, when the reorganization was completed and 610 enlisted men were ordered to the Department. The sudden influx of enlisted men at that time caused a great deal of unrest among civilian employees in the shops. It was widely rumored that all civilian employees were to be replaced by enlisted personnel. The comment was frequently heard that "The Navy is taking over"; there was little other conversation. Naturally, such rumors undermined civilian morale to the point where a serious situation was created. Nevertheless, naval officers in A&R took no decisive measures to stop their circulation. No bulletins were posted to the effect that these enlisted men were not being ordered to A&R for the purpose of replacing civilians. 2/ No concerted effort was made to apprise the shops that the utilization of enlisted men was merely a part of the reorganization and did not entail the replacement of civilians. Moreover, it was not made clear that the primary reason for utilizing enlisted personnel in A&R was to train them in aircraft overhaul and repair. In fact, as late as July, 1943, several civilian supervisors seemed to be thoroughly convinced that it was intended that naval personnel would eventually take over

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1/ (cont'd). When an airplane has been in the air the prescribed number of hours, it is sent to a repair shop for overhaul, which is referred to as a "high-time" overhaul as distinguished from an overhaul necessitated by a crash or by other causes.

2/ The tendency of the A&R management to refuse to recognize personnel problems as such has been one of the major weaknesses of the administration of A&R and is discussed fully in later sections of the report.

A&R completely through a gradual process of infiltration. The continued existence of such rumors seems to be inexcusable. The A&R Officer stated that it never has been and is not presently contemplated that the Department would be staffed exclusively by naval personnel; this fact should be made clear to civilian employees so they will no longer be troubled by the feeling of insecurity which has developed from the circumstances and rumors which prevail.

(d) Utilization of Civilian and Naval Personnel

Civilian employees are also concerned that there will no longer be an opportunity in A&R for them to advance to supervisory positions. They feel generally that all such positions will be filled almost exclusively with naval personnel. In these circumstances, it is readily understandable that they would derive little consolation from assurances that they will not be replaced by enlisted men unless it is also made clear that the road for advancement is not closed to them. The following tables indicate the distribution of positions as between military and civilian in A&R as of May 31, 1943:

U. S. NAVAL AIR STATION, CORPUS CHRISTI, TEXAS
Assembly and Repair Department

Civilian Personnel Schedule

Civilian Personnel-May 31, 1943

Division or Section	Group IVb											Group IVa		Group III		Group II		Group II		Total	AGGREGATE TOTAL
	Supervisory		CAF Service		Custodial CPC		Professional and Scientific		Sub Professional		Total	Supervisors		Mechanics etc.		Helpers etc.		Classified Labor			
	M	F	M	F	M	F	M	F	M	F		M	F	M	F	M	F	M	F		
Administrative	3	2	1	8	2	1	-	-	-	-	17	-	-	-	-	-	-	-	-	-	17
Personnel	1	1	-	33	1	-	-	-	-	-	36	4	-	26	-	2	220	12	35	299	335
Engineering	1	-	1	7	-	-	1	-	1	-	11	-	-	-	-	-	-	-	-	-	11
Planning	1	-	6	48	-	-	1	-	-	-	56	2	-	70	-	8	104	-	13	197	253
Assembly and Test	-	-	-	6	-	1	-	-	-	-	7	11	-	195	1	30	64	5	4	310	317
Structures	-	-	-	3	-	-	-	-	-	-	3	28	-	234	40	32	129	7	19	489	492
Plant	-	-	-	1	-	-	-	-	1	-	2	22	-	171	2	24	16	83	32	350	352
Engine Overhaul	1	-	0	6	-	-	-	-	-	-	7	27	-	275	-	41	92	55	12	502	509
Overhaul Control	-	1	-	4	-	-	-	-	-	-	5	6	-	51	2	20	69	50	30	228	233
Interim Overhaul	-	-	1	3	-	-	-	-	-	-	4	23	-	312	4	28	113	37	45	562	566
Machine and Metals	-	-	-	4	-	-	-	-	-	-	4	41	-	263	-	53	135	10	19	521	525
Accessories	-	-	-	2	-	-	-	-	-	-	2	23	-	266	1	31	152	6	5	423	425
											M 23 F131									M2523 F1358	M2546 F1489
TOTAL	7	4	9	125	3	2	2	-	2	-	154	187	-	1802	50	269	1094	265	214	3881	4035

M - Male
F - Female

U. S. NAVAL AIR STATION, CORPUS CHRISTI, TEXAS
Assembly and Repair Department

Naval Personnel Schedule

Naval Personnel-May 31, 1943

Division or Section	Officers		Enlisted Personnel holding positions comparable to Group IVs		Other rated Enlisted Personnel		Non-rated Enlisted Personnel		TOTAL
	M	F	M	F	M	F	M	F	
Administrative	3	-	-	-	-	-	-	-	3
Personnel	8	1	9	-	11	2	4	-	35
Engineering	3	-	-	-	8	-	2	-	13
Planning	3	-	3	-	13	5	22	-	46
Assembly and Test	4	-	10	-	138	-	59	-	211
Structures	3	-	2	-	96	-	37	-	138
Plant	3	-	3	-	34	-	18	-	58
Engine Overhaul	3	-	3	-	97	-	32	-	135
Overhaul Control	2	-	5	-	47	-	27	-	81
Interim Overhaul	5	-	6	-	194	-	41	-	246
Machine and Metals	4	-	7	-	153	-	46	-	210
Accessories	3	-	3	-	51	-	35	-	92
TOTAL	44	1	51	-	842	7	323	-	1268

M - Male
F - Female

It thus appears that 45 officers have been assigned to A&R and that they fill all the key administrative positions. Also, the superintendents and most of the assistant superintendents of divisions and sections are naval officers. No civilian serves as a superintendent or assistant superintendent of a division or section. 10/

We are not disposed to quarrel with the policy of the Station of placing naval officers in key supervisory positions if they are technically qualified for their jobs. Unfortunately, this is not always the case because there are not enough officers with adequate qualifications. Such a policy undoubtedly offers many advantages in the management of a naval establishment, but, whenever it results in such discord among civilian employees that production is seriously affected, it is open to question whether the advantages gained are worth the ultimate cost. Although it is not clear that this point has been reached in A&R, it may be well to bear in mind that the operation of A&R is fundamentally an industrial rather than a military enterprise and it is not unlikely that a civilian may be as well or better qualified to perform the necessary supervisory functions involved than most military men.

More important perhaps is the question of the distribution among civilians and service men of positions as foremen, quartermen, and snappers. It appears from the foregoing tables that there are 187 Group IVa civilian personnel in A&R and that there are 3694

10/ Although the reorganization group made the Master Mechanic the superintendent of the Plant Division, the A&R Officer later replaced him with a naval officer. The Master Mechanic was then assigned to the Planning Division in an advisory capacity. Such an assignment of a supervisory mechanical employee to departmental planning is a direct violation of Civil Service Regulations.

civilians actually working on aircraft overhaul and repair. Also, 51 enlisted men, out of a total military complement of approximately 1225, hold supervisory positions comparable to those held by Group IVa civilian employees. Thus, there seems to be no discrimination in the utilization of civilian and enlisted personnel as supervisors, as 4.8% of the civilians and 4.2% of the enlisted personnel hold supervisory positions.

While there is no marked disparity now between the utilization of enlisted and civilian personnel in production supervision, the morale problem created by the use of enlisted men is a matter which warrants the careful consideration of the A&R Department. A number of civilian supervisors expressed the belief that there was an increasing tendency to fill positions customarily held by Group IVa civilian employees with chief petty officers. The A&R Officer has not explained to them the Department's policy in this respect. One can well appreciate the attitude of civilian employees who, not being apprised of any departmental policy to the contrary, feel that they have little or no chance for advancement and that supervisory positions are to be filled only by enlisted personnel. There is every evidence in A&R that civilian employees are disgruntled, dissatisfied, and discouraged because of this condition.

It would appear to be appropriate, in these circumstances, for A&R to enunciate its policy in regard to the advancement of civilians to supervisory positions.

The Subcommittee realizes that capable supervisory personnel is practically unobtainable at the present time and that it is necessary to utilize the best available talent. Nevertheless, every possible inducement should be held out to civilian employees to equip themselves for advancement in and to supervisory positions so that they will have some material incentive to make a real contribution to the work of the Department. Civilian employees should be assured that production supervisory positions will be given competent civilians, that the door to advancement is open, and that there will be no discrimination against civilian employees in favor of enlisted personnel. Improvement of morale and efficient operation of the Department seems to demand such action.

(e) Relation between Civilian and Enlisted Personnel

The civilian employees and enlisted men work side by side in the AAR shops at the varying craft levels. There has been a minimum of friction between them, and sailors and civilians appear to be working together in a very harmonious manner. They borrow each other's tools, exchange ideas as to how the job at hand should be done, and otherwise collaborate in the work of the shops.

No distinction is made with respect to the supervision of civilian employees and enlisted men. Civilians work under the immediate supervision of chief petty officers and enlisted men are supervised by civilians. Civilian supervisors are authorized to report enlisted men for any infraction of the rules of the Department and, similarly, chief petty officers may report civilians.

It is apparent that the dissatisfaction among civilians in A&R at the present time is not attributable to the fact that both civilians and enlisted men are utilized as workers but rather to the policies established by the naval personnel in supervisory positions, particularly, officers in key administrative positions.

(f) Supervisory Personnel.

(1) Position of Supervisory Personnel. The importance of adequate supervision to efficient operation of A&R cannot be overemphasized. It is the supervisors, both naval and civilian, who are charged with perfecting operating procedures, planning shop layouts, and handling the myriad technical details of aircraft overhaul and repair. Although the technical aspects of assembly and repair work constitute the primary responsibility of the supervisors, they also have a major responsibility to conduct their shops and divisions in a manner which will promote the highest morale among workers and cause them to exert their maximum efforts in the interest of production.

In some cases, technical and personnel responsibilities of supervisors are so closely interwoven that they are almost indistinguishable. For example, a journeyman mechanic who repeatedly receives inaccurate or incorrect technical information from his supervisor not only has no respect for the supervisor's technical ability but may become dissatisfied with his job, and develope into an unenthusiastic, disinterested worker. Similarly, a technically

qualified supervisor may not get the most out of his men unless he makes a business of being helpful to them and understanding their psychology and problems.

It is equally imperative, of course, that there be an amicable relationship among the supervisors, that they cooperate in solving joint problems, that they feel they are working together in a common cause, and that they coordinate their efforts toward the ultimate objectives of the Department. Unless these conditions exist, it can hardly be expected that the shops will operate on an even keel and that the work will go forward at maximum efficiency.

(2) Naval Supervisors. On July 1, 1943, there were 38 officers of the rank of ensign and above assigned to the A&R Department. This Subcommittee has obtained the records which reflect the background and qualifications of 29 of these officers. Although it is true that the ability of an officer cannot be judged solely on the basis of paper records, nevertheless, such records give some indication of his potentialities insofar as they reflect his training, experience, and previous employment.

Of 29 officers on duty in A&R, 3 are in the Regular Navy and 26 are Reservists. The A&R Officer, the Planning Superintendent, and the Assembly and Test Superintendent are Regular Navy officers. The A&R Officer, a graduate of the Naval Academy, is serving his third tour of shore duty in assembly and repair work and has been assigned additional maintenance duties on his sea duty tours. The Planning Superintendent has been in the Regular Navy since 1937, at

which time he received an electrical engineering degree. The Assembly and Test Superintendent has had 23 years' experience in aviation, twelve of which were served as a chief aviation machinist mate. He also served as a pilot and engineer on each of the Byrd Antarctic Expeditions and as a trouble shooter and test pilot for United Aircraft Corporation for the four years immediately preceding his return to the Navy.

The Executive Assistant, a reserve officer, is second in command in A&R and has been on active duty since 1935. He had formerly been employed as an engineer. In the Navy, he has served as a flight instructor and as a squadron engineer, and for the past three and one-half years has been engaged in assembly and repair work.

Nineteen of the twenty-six reserve officers in A&R are superintendents or assistants to superintendents in the Engineering Section, the Planning Division, and the production divisions. Three of this group of nineteen have aeronautical engineering degrees; 11/ one of them worked as a leadman in a major aircraft factory before he was commissioned; and, one officer worked for one year as a stock chaser for Pratt and Whitney. The remaining fourteen reserve officers had no aeronautical training or experience before they were assigned to A&R except that approximately one-half of them were given a three-month naval course. Nine of this group of fourteen officers went directly from the college campus to active duty in the Navy. Their previous experience was limited entirely to summer employment. Although the average age of these nine officers is 24.33

11/ Two of these engineers are in the Engineering Section and one serves as Interim Overhaul Superintendent. The experience of one of these engineers has been entirely in the field of vocational education but he is not being utilized in that capacity because the (cont'd)

years, two of them are division superintendents and seven are assistants to division superintendents and, as such, supervise as many as 500 employees. Two of these nine officers did not receive a college degree 12/; three have degrees in petroleum engineering; two have mechanical engineering degrees; and, two hold degrees in chemical engineering.

Of the remaining five officers engaged in production supervision, two have had two years' experience or less and three were in business five or more years before entering the Navy. All of these officers have college degrees; four of them hold engineering degrees (mechanical, chemical, civil, and industrial) and one is a Bachelor of Arts in chemistry. Their experience was rather varied. One held two jobs dealing with petroleum testing and the practical experience of another was almost confined to the Civil Engineering jobs assigned to him while studying engineering on the cooperative system. The Plant Superintendent has had ten years' experience in various mechanical and electrical engineering fields. The Accessories Superintendent worked for one firm for six years, during which time his principal duties consisted of testing and developing various types of gas equipment and controls; he also worked as an instrument maker at night, Sundays, and holidays for a period of three or four months. The Production Superintendent was employed by General Electric

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11/ (cont'd.) Department feels that his aeronautical training can be used to greater advantage in the Engineering Section.

12/ The Structures Division Superintendent lacks only three hours of academic work for the degree of Bachelor of Science in Mechanical Engineering. The other officer without a degree is a "washed-out" cadet, who has spent a little more than two years studying mechanical engineering.

Company for five years as an engineer and salesman.

Six other officers are assigned to the Personnel Section. Two of these serve as the chief personnel officers for the Department. 13/ Three officers, who have had several years' experience in vocational instruction, are in charge of A&R vocational training programs. The other officer serves as security officer for the Department.

Warrant officers and chief petty officers also serve as supervisors, as heretofore stated. In such cases, the warrant officers are generally utilized as assistants to division superintendents and the chief petty officers customarily hold positions comparable to those held by civilian Group IVa personnel. These men usually have been in the Navy for a number of years, have had experience in the overhaul and repair of aircraft, and have successfully completed the naval courses for advancement in rating.

(3) Civilian Supervisors The Subcommittee was furnished records reflecting the background and training of four A&R foremen, the Senior Civilian Supervisor, and the Master Mechanic. Twenty-seven civilian supervisors were also interviewed.

A number of the civilian supervisors, particularly foremen and quartermen, have had from five to fifteen years' experience in the aircraft industry or in aircraft overhaul and repair. While most of these supervisors have only had a high school education, they have taken special courses in aircraft overhaul and repair and in the

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13/ See discussions of the administration of personnel, Section 4(a), infra.

supervision of men. Also, the supervisor complement of the Department was substantially improved by the transfer of the fifty men from Pensacola who had an average of several years' experience in assembly and repair work. Several supervisors, particularly snappers, had not had a great deal of aircraft experience and, in some instances, were not familiar with the type of work they were assigned to supervise.

(4) Evaluation of Supervisory Personnel. It appears from the foregoing that relatively few of the officers assigned to A&R had previous aeronautical training or experience and that a substantial number of these men now play a major role in the operation of the Department. It is obvious, of course, that the expansion of the aircraft industry has been so great during this war that it would be surprising, indeed, if the Department did have adequate officer and civilian personnel trained in this industry. It should not be expecting too much, however, to require that officers assigned to supervisory duties of substantial responsibility should be technically trained in some engineering field and, in addition, have some experience in supervising men and industrial operations. Nevertheless, many of the officers supervising production work in A&R had little or no industrial or supervisory experience of any kind when they entered the Navy. Consequently, several civilian supervisors complained that their officer-supervisors,

whose entire aeronautical experience consisted of a three-month course, started issuing orders on the mechanics of overhaul and repair immediately on reporting for duty and thereby became a major problem in the administration of the shops. According to these supervisors, such orders were frequently incorrect, confusing, or conflicting and were occasionally canceled. When such circumstances persist, it is understandable that civilian supervisors who have had considerable experience in overhaul and repair work find it difficult to muster up any great amount of respect for the officers under whom they serve. The continuation of conditions such as this is a real disservice, in every sense of the word, to these officers, the Department, the uniform, and, indeed, to the Navy itself. The ineptness of several of the young officers in their relations with their personnel is also reflected in the morale of civilian workers throughout the plant. Complaint is made that they are unreasonable, dictatorial, and cavalier in their dealings with their men who feel that some of the officers are unduly impressed with the stature they recently acquired when they were authorized to wear a uniform and assigned to their first supervisory positions. They resent any tendency of the officers to be patronizing and are inclined to regard the ~~so-called "military manner"~~ pseudo military demeanor of some of them as offensive and as a poor substitute for the technical and administrative ability which they consider necessary for the proper operation of the Department.

Forty-seven civilian employees were interviewed regarding conditions in A&R and informal discussions were held with an additional 60 or 75 men in the shops. The most consistent complaints that were made were that the naval officers did not take civilians into their confidence and that there was no spirit of mutual undertaking among civilians and naval officers in the Department. When this situation was related to an officer who serves as a division superintendent, he dismissed the matter by saying: "We take the civilian employees into our confidence so far as necessary." From our observations in A&R, it is apparent to us that this remark typifies the attitude of the officer personnel toward personnel problems arising in the operation of the activity. Although it may well be that this type of supervision is adequate aboard ship or in any military enterprise, we are convinced that employee relations will never be satisfactory in an industrial effort of this sort unless the men have reason to respect the management and the management, in turn, respects them. Unfortunately, it cannot be said that this happy condition prevails at the present time.

An incident occurred during our visit to the Station which serves as a graphic demonstration of the value of competent supervision by men who are experienced in dealing with workers. One of the divisions of A&R was formerly headed by a warrant officer, who gave unexplained orders to his subordinates and was otherwise autocratic in his manner toward them. His employees quote him as saying that he cared nothing about morale. They were dissatisfied

and discouraged, and there was in fact no morale among them. This warrant officer was replaced by an officer with years of experience in industry who appears to be eminently capable of getting along with the men under his supervision. The morale of the men in this division improved noticeably immediately after the change was made and civilian supervisors estimate that it is now 100% better.

It was made eminently clear by this incident that the real source of friction with civilians in A&E is to be found in the attitude and experience of individual officers and not in any inherent incompatibility between officers and civilians. A careful analysis of the qualifications and supervisory ability of the naval officers assigned to A&E should be made and those who do not possess suitable qualifications and ability to serve as a division superintendent or an assistant superintendent should be replaced. If officers with aircraft training and experience are not available, the replacements should, in any event, have some industrial experience involving supervision of a substantial number of civilian employees. As heretofore indicated, many of the officers presently assigned to A&E had no prior experience other than an academic training. Better qualified men should be made available by the Navy Department.

It is equally true that some civilian supervisors in A&E do not have appropriate qualifications for supervisory positions in that they either lack technical ability or the knack of handling men. A similar analysis should be made of civilian

supervisor assignments to the end that all divisions and sections of the Department will have adequate leadership.

3. Personnel Training Programs.

(a) Civilian Training Programs.

In view of the difficulties encountered in A&R in securing competent supervisors, it is particularly important that emphasis be placed on supervisor and other personnel training programs. It has already been indicated that few applicants for employment in A&R had prior experience in aircraft industries or repair shops. For this reason, it was apparent at an early date that training courses would have to be conducted. The Department inaugurated its training program on June 18, 1941, three months after the Station was commissioned. It has been revised and augmented to meet the requirements of the Department and at the present time is divided into four classifications: (1) supervisor and instructor training, (2) on-the-job instruction, (3) supplementary shop training, and (4) supplementary related training. The first two classifications are conducted exclusively by the Vocational Training Section of A&R; the last two are now conducted by the Vocational Training Section of the State of Texas Department of Education.

(1) A&R Programs. Supervisor and instructor training are conducted by A&R in order to train supervisors for utilization in production shops and to train qualified mechanics as instructors for trainees. The course for supervisors is designed to acquaint them with production policies and practices and to develop their supervisory abilities. Similarly, the course for instructors has as its

major objective the training of qualified mechanics in teaching technical skills to trainees. Since these courses were commenced, 169 persons have completed the supervisory course and 311 instructors have also been trained.

On-the-job instruction for A&R employees is conducted by the Vocational Training Section in separate shops from the actual production shops. The trainees work under the supervision of instructor on the particular type of job they will later be required to perform in the production shops. When the course is completed, trainees are transferred to the production shops where they usually start as helpers to experienced mechanics. By serving in this capacity, they gradually become experienced in the particular craft for which they were trained. Since the program was inaugurated on June 18, 1941, approximately 1500 workers have completed the course of instruction. This program has unquestionably been of material benefit to A&R and a well trained and experienced corps of employees is gradually being accumulated.

(2) Supplementary Training by Outside Agencies. A&R has also availed itself of the training facilities of outside agencies. At one time, employees of A&R were instructed in schools operated by both the Vocational Training Section of the State of Texas Department of Education and by the National Youth Administration. Since the reorganization of the Department in late 1942, A&R discontinued its utilization of NYA facilities and the Texas Department of Education is now the only outside agency which trains A&R employees. 14/

14/ The reorganization group determined not to continue utilization of the facilities of NYA because it was decided that a number of employees loaned to NYA to serve as instructors could be used to better advantage in A&R.

The so-called supplementary related training and supplementary shop training courses are regarded as preliminary courses. Supplementary related training consists largely of textual instruction, while the shop training part of the program is primarily concerned with practical work on aircraft overhaul and repair. Although these courses are conducted by the Texas Department of Education, as heretofore stated, they are under the general supervision of A&R . Trainees are not paid for time spent in attending these classes as in the case of the vocational training courses conducted directly by A&R. Nevertheless, there have been as many as 1155 trainees under instruction simultaneously.

(b) Training of Enlisted Personnel.

It has already been indicated that one of the principal reasons for assigning enlisted personnel to A&R is to train them in aircraft overhaul and repair so they will be available for use in other activities where it is essential to use military personnel. When enlisted personnel report to A&R, they are divided for training purposes into two groups: (1) those who are already qualified because of previous training or experience to perform the required work without further instruction in fundamentals and (2) those who have had inadequate training or experience in aircraft overhaul or repair.

The Department immediately assigns men in the first group to productive work for which they are qualified. Men with higher rates are usually assigned to work similar to that performed by journeyman mechanics. Lower rates are utilized as helpers to men with

higher rates or civilian journeymen.

Enlisted personnel in the second group are first interviewed by officers in the Vocational Training Section to determine their preferences and natural aptitudes. On the basis of this interview, they are assigned to a training shop for a period of six weeks. At the end of this period, they are transferred to a production shop which does the same type of work . In the production shop, the training continues in much the same way as that of a civilian helper. Since October 15, 1942, a total of 118 enlisted men have completed the initial six weeks' course.

Both of the groups are also given an opportunity to attend classes to qualify them for advancement in rating. Such classes are conducted by chief petty officers in the Vocational Training Section and consist of lectures, demonstrations, moving pictures, and slide films. They are conducted for two-hour-periods on five evenings per week for six weeks. Upon completion of the course, an examination for advancement in rating is given. From January, 1943 to May, 1943, inclusive, 1239 enlisted men completed this course.

It thus appears that A&R has developed a well-rounded program for training enlisted personnel. No particular effort is made here to train the men for fleet or advance base assignments. They are trained generally, however, to become experienced and competent aircraft mechanics who are thoroughly conversant with the duties of their individual ratings.

The transfer of enlisted men who have learned to be competent mechanics to other naval activities is a function of the Bureau of Naval Personnel. An analysis of such transfers from the A&R Department follows:

U. S. NAVAL AIR STATION, CORPUS CHRISTI, TEXAS
Assembly and Repair Department

Transfer of Enlisted Personnel Schedule

MONTH	ON BOARD		TRANSFERRED DURING MONTH				TOTAL
	Beginning of Month	End of Month	To Advance Training Schools	To the Fleet (a)	To Squadrons (b)	To Other Assignments	
1942							
November	710	909	-	-	2	1	3
December	913	1,035	-	1	4	1	6
1943							
January	1,035	1,079	-	1	13	1	15
February	1,079	1,132	3	-	8	1	12
March	1,132	1,218	12	1	15	1	29
April	1,218	1,151	11	6	23	78	118
May	1,151	1,222	2	7	14	0	28
TOTAL TRANSFERRED			28	16	79	83	211

LEGEND:

(a) It is not known whether any men have been transferred to advance bases.

(b) Transfers to squadrons were for the most part transfers to squadrons at the Naval Air Training Center.

It thus appears that only a very small number of trained enlisted men have been transferred out of A&R. In this connection, it was stated by the A&R Officer that he knows of no program for the systematic transfer of these men to the fleet or advance bases when their training is completed and that such transfers are made only when the Bureau of Naval Personnel deems that men are needed by the fleet. It appears to us that the training of these men can logically be completed only by utilizing them from time to time to relieve men on active combat duty, to staff new vessels, and to man new advance bases.

4. Personnel Policies and Problems.

(a) Administration of Personnel Matters.

The A&R Personnel Officer is generally charged with handling personnel matters pertaining to civilian employees. Personnel problems are also brought to the attention of the A&R Officer and his Executive Assistant. Moreover, each division superintendent, assistant superintendent, and other supervisory employee handles a number of such matters arising within his division or shop in the ordinary course of business. However, the A&R Officer is the final arbiter of all personnel problems and he devotes a great deal of time to them.

Questions involving personnel usually arise, in the first instance, with the worker's immediate supervisors and are passed from them through a chain of authority to the division superintendent or one of his assistants, thence to the Personnel Officer,

and, ultimately, to the Executive Assistant and the A&R Officer. In some instances, one or more of these steps is avoided but, in others, additional intermediate supervisors are also called upon to pass judgment. As a result of this awkward and indirect procedure, the individual employee is not infrequently completely confused and bewildered before his problem is considered by anyone with authority to make a determination in the matter.

The Personnel Officer received a degree of Bachelor of Science in Commerce in 1934 and thereafter served as traffic manager and division officer of the Southeastern Sales Division of the American Stove Company. In this position, he was responsible for personnel matters. Assuming that he is qualified by training and experience for his present assignment, circumstances and procedures prevailing in A&R make it impossible for him now to do the job that should be done. Practically all of his time is consumed in handling papers for employment, discharge, transfer, promotion, demotion, and suspension, deferment, efficiency, and time of personnel. Under such circumstances, it is impossible for him to investigate and consider major personnel problems and to formulate adequate personnel policies. Similarly, the A&R Officer has a multitude of duties involved in the supervision of the entire Department and cannot devote the time to personnel problems that they deserve, nor should he be expected to do so. The Executive Assistant has three sections and one division directly responsible to him and is also preoccupied with matters other than personnel. Moreover, division superintendents and their

assistants not only have other duties but also, in several instances, have had little experience of any kind and no conception of how to handle personnel relations. Under such circumstances, it seems to be fairly obvious that at least one officer should be designated to act as a clearing house for A&R personnel matters who should have no other duties and should also have experience in dealing with industrial personnel. His entire time should be devoted to the careful investigation of personnel problems and to the formulation of personnel policies. He might well be a Shop Personnel Assistant as designated in the directive of the Assistant Secretary of the Navy setting up Personnel Relations Departments in yards and stations. If it develops that he needs assistance, competent help should be assigned to him. In addition, the Personnel Relations Officer of the Station should constantly review policies of A&R and counsel from time to time with such assistant or assistants as may be assigned to A&R.

(b) Employee Organizations.

(1) Shop Committee. A Shop Committee was formed in A&R for the purpose of representing civilian employees before the management. It is composed of eleven members elected by the various divisions and sections. Three of the members also serve as members of the Shop Committee for the entire Station.

The A&R Shop Committee appears to be functioning well and is serving a very useful purpose. There is every evidence that it has been fair in its actions and that it is extremely anxious to promote harmony among the employees and management. It has brought a number of personnel

problems to the attention of A&R officials and has endeavored to cooperate with them in effecting an appropriate solution. Moreover, the Shop Committee could be of valuable assistance to the A&R officials in formulating policies and investigating personnel problems because employees usually call their ideas and grievances to its attention.

(2) Unions. Three recognized employee unions have operating locals at the Naval Air Station: the International Association of Machinists(AF of L), the American Federation of Government Employees (AF of L), and the National Federation of Federal Employees (Independent). Officers of these local organizations represent their respective members before A&R officials and seem to be anxious to cooperate with the management in increasing production and in solving the problems facing A&R.

(3) Supervisors' Committee. There also exists in A&R an unofficial committee composed of approximately 60% of the civilian supervisors which serves as a forum for the discussion of the supervisors' problems. Its formation was inspired by their belief that A&R had established a policy of discriminating against civilians as supervisors in favor of naval personnel and that they would have a better chance for advancement if they presented a united front. However, the results of their discussions are presented to the management as those of the individuals who compose the committee rather than those of the committee as a group.

It is obvious, of course, that, in the normal industrial establishment, the supervisors who have formed this committee would constitute an integral part of the management and that the conditions

which stimulated the formation of a defensive clique of this character never exist. Moreover, we find it difficult to understand why it has not been possible for the naval personnel in A&R not only to accept and respect the civilian supervisors as a component part of the management but also to make them feel that their contribution is and will be recognized. Although the continued existence of this unofficial group within the organization is open to question, the management should certainly exert every effort to eliminate the circumstances which understandably enough occasioned its creation.

(4) Relation between Employees' Organizations. It would be normal to expect to find some friction among the five different organizations which represent civilian employees and supervisors, and there has in fact been considerable friction among them at various times in the past. However, at the present time, these organizations usually cooperate with each other and there seems to be little petty bickering and strife because of the duplication of effort necessarily involved.

We also found indications that there used to be a lack of coordinated effort among civilian supervisors in A&R because most of the fifty employees who transferred from Pensacola and were made supervisors developed a clique among themselves to the exclusion of the other supervisors. At the present time, however, it appears that these two groups have reconciled their differences and that all civilian supervisors are a co-ordinated group.

(c) Complaints and Grievances.

This Subcommittee initiated the current inquiry largely because of numerous and persistent complaints about A&R to the House Committee on Naval Affairs. Accordingly, the A&R Officer was requested to supply the following information, inter alia, regarding such complaints:

1. Describe the existing machinery for handling employees' complaints or grievances.

2. Describe any complaints or grievances which have arisen since June 1, 1942, together with a statement as to the manner in which they were handled and the disposition thereof. Append any applicable supporting documents.

3. Indicate any marked tendencies for grievances to increase or decrease since June 1, 1942, together with the reasons therefor.

In response, the A&R Officer listed automobile parking, transportation, tire rationing, partial closing of a lunch counter, denial of fifteen days annual leave on resignation, and the discrepancy in wages between per diem and per annum employees as the principal causes of complaints and grievances in the Department.

It was apparent to us from our inspection of the Department that this list represents a grossly inadequate catalogue of the complaints and grievances there and indicates to us either a failure to recognize the more serious aggravations or a certain lack of candor regarding them. 15/ However, A&R did acknowledge that

15/ It should be stated, in passing, that A&R keeps no record of complaints, grievances, or suggestions of its employees. It seems to us that such records would be of substantial value because it is not otherwise possible to determine the extent to which complaints or grievances are common to all employees.

complaints have been more frequent than the expansion of personnel seems to justify and attributes this increase to the fact that employees can easily obtain more lucrative or desirable employment in other localities. Matters which were called to our attention as being the source of considerable dissatisfaction are discussed in the sections which follow.

(d) Working Employees Out Of Their Ratings.

There has been a marked tendency in AAN to work employees in positions which carry higher ratings than their pay-roll classifications. Maximum grade Group III employees are made acting snappers or leadingmen, snappers are made acting leadingmen, leadingmen are made acting quartermen, and quartermen are made acting foremen. They are charged with the responsibilities of the acting assignments, but are remunerated on the basis of their lower pay-roll classifications. Similarly, second and third-class craftsmen are not infrequently assigned as crew chiefs over crews which include first-class employees.

No records are maintained which reflect the extent to which crew chiefs supervise men with higher ratings for the stated reason that such assignments are often of short duration, and the maintenance of a record has therefore been regarded as having little value. Our observations in shops persuade us, however, that the practice is quite prevalent and that employees feel they should at least be elevated to the journeyman rate of the persons under their supervision as crew chief.

In the supervisory category, a schedule prepared by A&R indicates that there were 48 employees in acting Group IVa assignments, as of June 1, 1943. We also found during the course of our inquiry that four additional persons who were not included on the schedule, held acting supervisory assignments at that time. Of these 52 acting supervisors, 39 are intermediate or maximum grade craftsmen acting as snappers; 7 are maximum grade craftsmen acting as leadingmen; 1 is a snapper acting as a leadingman; 3 are leadingmen acting as quartermen; and 2 are quartermen acting as foremen.

The A&R Department states that lower classified employees are used as crew chiefs over senior employees in order to utilize fully the most capable men, regardless of job classifications, and that employees are given acting Group IVa assignments to determine their supervisory ability. It was acknowledged in our discussions with the A&R Officer that the practice of placing men in acting supervisory positions might cause some dissatisfaction among employees but this seems to be regarded as unavoidable and attributable to some basic difference in the character of the employees holding acting assignments. It is said that some of them regard an acting assignment as an opportunity to prove their mettle and to earn an advancement, while others are concerned primarily with the fact that they are performing duties for which they are not being adequately remunerated. We are inclined to the view, however, that this is an over simplification of the situation and that any employee would probably become very dissatisfied as the period, during which he is not properly remunerated for the job he performs, is prolonged month after month.

Of the 39 employees acting as snappers, 1 was appointed in September, 1942; 2 in November; 3 in December; 5 in January, 1943; 1 in February; 11 in March; 4 in April; and 12 in May. The 8 acting leadingmen were appointed between January and May, 1943. Two of the 3 acting quartermen were appointed in October, 1942, and one of the acting foremen has been serving in that capacity since September, 1942.

Conceding that there may have been reason for some of the acting appointments, ~~may have been advisable~~, it cannot be said that individual cases of irritation have been handled in a manner which was well calculated to restore harmony to the shops. Subordinates of a leadingman who has acted as a quarterman since October, 1942, prepared a petition to the Shop Committee urging that he be elevated to the pay-roll classification of quarterman. The Committee called the matter to the attention of the A&R Officer, who, we are advised, refused to entertain the petition or to consider for promotion any person who was the subject of a petition. While petitions may have their unfortunate aspects, the reaction of the A&R Officer does seem rather harsh when it is realized that they may well have a good deal of merit and be the only means available to employees for presentation of a collective opinion to a well insulated management. In this particular case, the acting quarterman apparently was unaware of the existence of the petition but is singled out for oblivion as the result of it. Another petition to raise an acting leadingman to that pay-roll classification met with a similar fate.

It seems quite clear to us that the policy of the Department with respect to working men out of their rating has had a harmful effect upon morale of employees. It is true that, as of July 22, 1943, A&R had initiated promotions for 39 of the employees holding acting supervisory assignments but there had already been far too much delay in effecting an equitable disposition of these cases. Many of the acting supervisors stated that they were going to quit unless raises came through immediately and they would seem to be justified in such action if they actually have the capacity for their assignments. It should be observed, in passing, that working employees out of their pay-roll classifications is a direct violation of Civil Service Regulations and of a directive of the Assistant Secretary of the Navy. A letter, dated September 16, 1942, of the Assistant Secretary, pointed out that Civil Service Regulations were being violated by the practice, particularly, with respect to mechanics performing the duties of snappers and leadingmen, and directed that "qualified employees shall be assigned to the ratings corresponding to the duties performed or relieved of these duties as expeditiously as possible." A&R, nevertheless, failed to comply with this directive and has persisted in appointing employees to acting assignments since this directive was issued. We have observed in our studies that there seems to be a disposition in many naval establishments to disregard policies emanating from the Navy, and venture the opinion that an employee who persistently violated an A&R order would be disciplined accordingly. Since the Subcommittee has not been advised that A&R plans to discontinue working men out of their ratings, it appears to be appropriate that the Assistant Secretary take additional action to insure that A&R fully complies with the terms of his directive.

(e) Efficiency Ratings.

(1) Procedure for Assigning Efficiency Marks. The assignment of efficiency marks in A&R has caused a great deal of dissatisfaction among employees in Groups IVa, III, and II. 16/ General rules applicable to this matter were promulgated by the Secretary of the Navy in a directive issued on April 30, 1936, a copy of which is attached as Exhibit B. Briefly, this directive provides that the efficiency rating of an employee, which indicates his relative value to the organization in comparison with other employees in the same group performing similar duties, is to be based on four factors: (1) knowledge of trade or work, (2) quantity of work, (3) quality of work, and (4) adaptability. It also requires that marks be distributed by pay rates, e.g., intermediate rates are marked relatively among themselves and not in competition with maximum rates. The local naval activity is given a great deal of latitude in establishing pay-rate groups for efficiency rating purposes and generally scales in one group all men in the same pay rate who come under the general supervision of the highest civilian supervisor in the establishment. For example, all intermediate grade sheet-metal workers under the supervision of a foreman would constitute a single efficiency rating group. Moreover, it is prescribed that the efficiency rating assigned to the average employee shall be between 80 and 85

16/ Little dissatisfaction was found among the relatively small number of Group IVb employees whose ratings are assigned in accordance with Civil Service Commission Efficiency Rating Manual, Form 3823.

and that other employees shall be graded in accordance with a specified scale.

In calculating efficiency ratings, A&R groups all men according to their production divisions. The first step in the formulation of the division list is the preparation by shop supervisors of lists which indicate the relative value of the employees of a given pay rate. In a division which has six shops, with ten intermediate class sheetmetal workers in each shop, the shop supervisors prepare lists which grade these employees from 1 to 10 with respect to each of the four fundamental considerations heretofore mentioned. These six lists are then forwarded to the division office where they are consolidated into a single list in which the sheet-metal workers are scaled from 1 to 60. For this purpose, the division superintendent confers with his supervisors but a very large margin of error is necessarily present because each leading man, although familiar with the ten workers under his direct supervision, has little or no knowledge of the relative abilities of any of the other employees in the group. Thus, conceding conscientious effort on the part of all concerned the ultimate efficiency mark of any man is very likely to be an arbitrary decision which is controlled primarily by the opinions and bargaining power of a group of people who are relatively ignorant of his comparative ability or value. Frequently, therefore, the division list is headed by the number one man of the six shops, rated from one to six in the division list, although the number two

or three men in any one of the shops may well be a much better man than the number one man of any of the other shops.

Finally, the division list is submitted for review to the A&R Officer via the Personnel Officer and the Executive Assistant. The function of the Personnel Officer is to check the list to determine whether there has been an unusual change in the efficiency mark of any employee and to insert percentage ratings according to the scale prescribed by the Navy Department. When this operation is completed, the division list is reviewed and approved by the Executive Assistant and the A&R Officer.

The operation of the efficiency rating system has caused a great deal of dissatisfaction among employees because they feel that there is something wrong with it even when they are not sure of the exact basis of their complaint. The type of thing that irritates them is illustrated in the following example. The number one man in a group of 10 receives an efficiency mark of 90.2 under the sliding scale established by the Navy Department. If the same man is later transferred to a group of five employees, where he becomes an even better employee and continues to be the number one man of his group, he nevertheless cannot receive a mark higher than 85. The lowering of his efficiency mark is entirely attributable to the utilization of an arbitrary scale and not to a diminution in the quantity or quality of his work or his value to the organization. Occurrences of this sort are exceedingly disturbing to employees because they are inclined

to take them as a reflection on their work. Many of the men do not understand that a reduction in rating, under these circumstances, is not considered to be an indication of decreasing efficiency.

In many instances, employees working closely together receive ratings which are measured in fractions and it is absolutely incomprehensible to them how anyone could draw a line between them with such finesse. Thus, two employees doing similar work may receive marks of 82.5 and 83 and they just cannot understand it. Actually, of course, it is just one arbitrary method of rating the men and their relative positions in the shops and divisions are all that really matter. However, they are not always aware of this fact and, consequently, suffer considerable emotional anguish. Under these circumstances, it is far from clear that the efficiency rating device as practiced in AAR accomplishes the purpose for which it is designed. In view of the understandable confusion about the matter, it would certainly seem appropriate for AAR to take measures to eliminate prevalent misinformation concerning this rather bewildering subject.

(2) Complaints with respect to Efficiency Ratings. A number of civilian employees stated that AAR had utilized efficiency ratings as a means of forcing employees, particularly civilian supervisors, to resign or transfer. It appears to be a fact that for the period ending December 31, 1942, there was a marked lowering of the efficiency ratings of a substantial number of civilian supervisors. Many of these men had had years of experience in aircraft overhaul

and repair. Their records showed no similar drop in ratings and indicated that they were well qualified for jobs in assembly and repair shops. The reason usually given such supervisors for the reduction was that they had not operated their shops or division in an efficient manner. 17/ This matter was discussed with three officers in AAR and it must be conceded that none of them gave any clear reason for the substantial lowering of the marks of so many supervisors.

A number of employees have resigned or transferred as a result of reductions in their efficiency ratings which they regarded as arbitrary and unfair. In a rather extreme case, a civilian supervisor was transferred by AAR from the foremanship of the Accessories Division, where he was familiar with the work, to the foremanship of a division in which he had had little or no previous experience. His efficiency was naturally reduced in the new position because of inexperience and a reduction was recorded in a special efficiency rating. 18/ When the employee was then reduced in rating from a foreman to a maximum grade electrician, he resigned from AAR and,

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17/ About two months after notification of these reductions naval officers assigned to AAR as division superintendents or assistant superintendents were promoted in rank. Supervisors could not understand why they were denied raises and received lower efficiency ratings when the officer in charge of the entire division was given a promotion. It must be conceded that this reasoning does not lack cogency. However, it was not pointed out to these supervisors that promotion in the lower officer ranks depends almost entirely on the passage of time rather than upon efficiency.

18/ A special efficiency rating, as the name implies, is one given at a time other than at the end of the regular period. The special rating in this case was the only one that came to our attention and seems to have been utilized for the specific purpose of reducing the pay-roll classification of this employee.

although he was apparently regarded as an undesirable employee, he was denied fifteen days' annual leave on the grounds that he gave insufficient notice of his resignation and that his resignation was detrimental to the war effort.

It is apparent, we think, that the system for assigning efficiency ratings is necessarily subject to many inaccuracies which can cause a good deal of unrest and dissatisfaction. For this reason, it is imperative that A&E take great care to insure that it is administered as efficiently as possible to eliminate any appearance of partiality or arbitrariness. Ratings should be carefully prepared and complaints of employees with respect to them should be appropriately heard and handled.

Some action should be taken so that the impression among employees that efficiency marks are to be used to force resignations or transfers will forever be dispelled.

(3) Review of Efficiency Ratings. When the efficiency lists of the various divisions are reviewed by the Personnel Officer, the Executive Assistant, and the A&E Officer, as heretofore stated, these reviewing officers do not change questioned efficiency marks but return the lists to the divisions for reconsideration with their comments and remarks.

Where efficiency marks originally assigned in the divisions are changed after review, employees frequently find it out because

their supervisors tell them or because the final efficiency rating slip shows that a higher mark has been erased and a lower mark inserted. In either case, the employee is inclined to feel that his efficiency is being judged by someone who is in no position to make a fair estimate of his ability or value to the organization. One employee complained about an erasure on his slip which indicated that a lower mark had been substituted and was subsequently given a mark higher than the one that was erased in the first instance. Other employees informed us that they had endeavored to find out who lowered their marks and that each civilian supervisor and officer involved denied both knowledge of and responsibility for the reduction. While informing employees of the mark initially assigned in the division seems inappropriate, it seems that an employee who has found out that his mark has been changed should be able to receive a satisfactory explanation from the person who is responsible for the change. It is inevitable otherwise that he will think that the change was made arbitrarily or for an unjustifiable reason.

There is no established procedure in A&R for the appeal of an efficiency rating. An employee may question an efficiency rating before his division superintendent, the Executive Assistant or the A&R Officer, 19/ but there is no formal procedure before an appeals

19/ Although a small booklet given to each new employee in A&R mentions that he may appeal his efficiency rating to the division superintendents, the Executive Assistant, and the A&R Officer, no official order has been issued personnel informing them of this limited right, and, in fact, many of them do not know about it.

board as in most of the agencies of the Federal Government. It seems to us that an appeals board of this character could do a great deal toward removing the widespread dissatisfaction with the efficiency rating system in AAR and would materially improve morale in the Department and the Station..

(f) Promotions

Difficulties have also arisen over the promotion policies of AAR which seem to have been responsible for personnel losses and unsatisfactory morale. Until recently, little had been done to define any policy with respect to granting promotions. No standards of performance or periods of service in grade were prescribed as prerequisites to eligibility for advancement, and no pattern seems to have been followed. It has been stated that this has been the reason for the resignation of a number of employees, especially well qualified journeymen mechanics, who could easily procure more lucrative employment elsewhere.

On June 15, 1943, AAR issued Order No. 53-43, a copy of which is attached as Exhibit C, which goes far toward eliminating this source of complaint. It officially establishes the policy that promotions will be based on efficiency marks and will be made from the top of the individual groups.20/ It also provides that efficiency marks for both permanent and war service employees will be assigned every three months and that recommendations for promotions will usually be made at the end of such three-month periods. War service employees are rated every month during a probationary period of one year and

20/ Clarification of the promotion policy makes it more important than ever that the efficiency marks, on which raises are predicated, be allocated carefully and impartially.

classified laborers may receive in-group promotions after a trial period of thirty days.

We anticipate that the provision in the order that

> "All employees receiving an efficiency rating of 82.5 or above may be considered for the next higher rating, depending on the amount of work required of the department and the available funds"

will be the source of considerable dissatisfaction. As heretofore stated, the efficiency marks for all the production employees of A&R are required to average approximately 82.5, and thus approximately 50% of the employees will be eligible to be considered for raises every three months. It is a conceded fact that it is never going to be possible to effect this many promotions, but it is almost inevitable that every employee in the Department who receives a rating of 82.5 or more will, nevertheless, think that he has earned a promotion and that his failure to receive one was due to some sort of administrative chicanery.

This situation was entirely inadvertent and can be remedied by appropriate measures. Indeed, the A&R Officer states that a revised order setting forth the promotion policy of the Department is already being formulated. Clearly, a new order is not only warranted but necessary, although, unfortunately, such a revision at this time will naturally be taken by some employees as another example of vacillation and lack of permanent policy. It is most important, therefore, that it be well considered and carefully prepared to minimize any such reaction.

(g) Leave

(1) Annual Leave. Annual leave is granted to employees in accordance with directives promulgated by the Navy Department. At the present time, it is the policy of A&R to grant annual leave for a one-week vacation. A&R allows an additional week during a year for emergencies. Annual leave in excess of two weeks must be approved by the Commanding Officer of the Station. The provision for annual leave seems to be adequate and the workers in A&R seem thoroughly reconciled to the exigencies which require the curtailment of leave during the war. No employees were encountered who thought that the Department permitted insufficient leave.

However, considerable irritation has been caused by the application of Civil Service Commission Circular No. 404, which permits A&R to deny as much as fifteen days' annual leave where the resignation of an employee is accompanied by insufficient notice and is deemed detrimental to the war effort. The Department has applied this regulation broadly, and, in one instance, which we have already noted, it denied fifteen days of annual leave to an employee whom it apparently regarded as undesirable on the basis that he gave

insufficient notice and that his resignation was detrimental to the war effort. As the employee had been transferred from one division to another and reduced in rating from a foreman to a maximum grade electrician, the denial of annual leave on his resignation would seem to have been unwarranted. Controls of this nature are entirely necessary to combat an excessive employee turnover but care should be exercised to insure that their application is understood to be fair and reasonable in every respect.

(2) Sick Leave. Sick leave presents a troublesome problem largely because it all too frequently is used as an excuse for what is in fact an unauthorized absence. Normally, an employee was permitted three consecutive days of sick leave without furnishing a doctor's certificate, but this policy has understandably been curtailed during the war because we can no longer afford the loss of man-hours involved in the unauthorized absences. In times such as these, it is not without reason that some check should be made on the authenticity of sick leave. Accordingly, the approval of an ASR medical officer is a prerequisite to the granting of sick leave. However, his examination is made after the employee has recovered and has returned to work, and, for this reason is of questionable value.

In this connection, employees complain that the doctors are brusque in their manner, sometimes make no actual examination, and not infrequently deny the granting of sick leave when they have actually been sick. In a rather extreme case, it is said that the

medical officer told an employee that he felt badly himself that morning and forthwith disapproved her request for sick leave without benifit of either examination or courtesy. Since it is ~~hardly~~ not possible for the doctors to determine with accuracy whether an individual has actually been indisposed under the present system, ~~it is~~ they are hardly to be criticised for ineptly handling a futile examination. Under the circumstances, it would seem that an actual check on employees during their absence would be much more desirable than the present post-mortem and, we are glad to report, officials of the A&R Department thoroughly agree. Indeed, the Naval Air Station once requested permission from the Navy Department to employ a junior welfare worker for this purpose and permission was refused on the recommendation of the Bureau of Medicine and Surgery. We think that the operation of the present system has proved itself to be impracticable and that the request for a welfare worker should be reviewed and approved by the Navy Department.

(h) Morale

A&R has developed a conventional morale program. A new employee is given a pamphlet, "Introducing A&R", which describes the organization, lists its objectives, and apprises the employee of some of his rights. Posters are utilized as a means of impressing employees with the vital importance of their work. A shop newspaper is published. During lunch hour, short subjects are shown with a portable moving picture projector; employees dance to music

provided over a public address system. It has also installed Coca-Cola vending machines at convenient locations. Under the Beneficial Suggestions System, cash awards are made for suggestions that are helpful in carrying forward the work of the Department. 21/

The foregoing measures are all accepted morale-building procedures and they undoubtedly are helpful in fostering enthusiasm and bolstering the morale of employees. It is clear, however, that morale cannot be nourished on movies and music alone and that it depends also for sustenance upon the more fundamental questions of policy involved in the operation of the shops. Posters are a small consolation to an employee who has worked out of his rating for many months. Morale-building measures are not substitutes for an efficiency rating appeal board and are completely ineffectual where deserved promotions are long overdue.

A spirit of mutual undertaking is an essential prerequisite of good morale. But, in A&R, civilian employees feel that the naval officers almost regard them as a necessary evil instead of an integral

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21/ Many A&R employees have received such awards for inventions that are presently utilized in the shops. These suggestions are forwarded to the Navy Department for consideration for a national award. The Navy Department also determines whether the suggestion merits an application for letters patent. In this connection, it should be noted that the employees themselves do not know that the Navy takes measures to protect their inventions. Of course, the government receives a royalty free license with respect to inventions by civilian employees of the Navy and actually uses them. It appears that, if A&R would advise the men that meritorious ideas are patented for them, it would provide them with additional incentive.

part of the organization. They resent what they regard as a "you do it because you are told to do it" attitude of a minority of the naval officers. This is particularly so in the case of officers who have little technical knowledge and practically no experience, and it has caused a number of the civilians to question whether they are all working toward a common goal and whether it is worth the effort. It may well be that some of these grievances are more imagined than real, but the effect on morale is the same and there has undoubtedly been some cause for their reaction. For example, it was reported to us that naval officers had told workers that they could "get them" any time they desired because they were naval officers. In another instance, an employee, who is working out of his rating, was told by his division superintendent that he would not receive the appropriate raise in rating and salary because he would then receive more money than the naval officer-division superintendent. The division superintendent involved admitted that he might have made the statement in jest. It is abundantly clear that the employee could not be expected to appreciate this humor and that statements of this sort, when circulated throughout the shops, have a serious effect upon morale and raise insuperable barriers between the naval and civilian personnel.

It should also be stated that a number of employees feel that they cannot question policies of the Department and that either criticism or suggestion is unwelcome. In support of this persuasion,

they point out that some employees who have questioned such policies have been forced to resign or to transfer. They think they can make constructive suggestions but are extremely reluctant to do so where they run counter to established policies.

It seems worthwhile to mention, further, an instance which persuaded us, if we then had any doubts, that there was considerable room for improvement in the personnel policies of A&R. The present inquiry was stimulated by the letters of a number of employees to the House Committee on Naval Affairs with respect to conditions in A&R. The A&R Officer stated that it was his opinion that the A&R employees who wrote these letters, instead of submitting their grievances through naval channels, were "fighting on the side of the Japs and Nazis."[21a/] Such a characterization of these employees indicates to us a complete misunderstanding of very human reactions and is hardly well calculated to instill either enthusiasm or confidence in the management. Many of these men are in fact as intensely patriotic as any man in the service and are inspired by no other desire than to improve production in the Department. It was to this end that they exercised the inalienable right of every American to communicate with their Congress.

One more example will suffice, perhaps, to illustrate what we regard as an unhealthy point of view. One of the civilian supervisors in A&R was interviewed by the Subcommittee on a number of occasions at its request regarding shop procedures and practices. He seemed to

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21a/ We understand that the A&R Officer has recently signed a statement denying the quotation which we have attributed to him.

be thoroughly conversant with procedure of the entire Department and appeared to be sincerely interested in improving its operation. Moreover, the A&R Officer advised us at the outset of our study that this man was doing an excellent job. Nevertheless, for the period ending June 30, 1943, his efficiency rating was 5.5 points lower than his rating for the period ending December 31, 1942. Circumstances persuade us that this reduction in rating resulted directly from the management's disapproval of his cooperation with a Congressional Committee. 21b/ Believing that this was the first step in what had become a familiar pattern, the employee requested and was granted a transfer to a position in the San Diego A&R Department where he will no longer be a supervisor. The net result of the transaction is, in effect, that A&R and the Navy have lost the supervisory services of a man who is said to be exceedingly competent at a time when talent is so scarce that incompetence is all too prevalent.

As heretofore indicated, we left the station with the definite impression that the inexperience of many of the naval officers assigned to A&R has had a harmful effect on morale of civilian employees and upon the operation of the Department. Whether they are justified or not, it is apparent that the employees consider many of the officers to be offensively dictatorial in manner and without the ability or experience to be constructive in production or helpful in building morale. It cannot be expected, under these circumstances, that the operation of A&R can or will reach its maximum efficiency until some definite measures are taken to effect substantial changes in the atmosphere that now prevails.

21b/ By letter, dated October 12, 1943, the Commanding Officer denied that retaliatory measures had been taken against this man and indicated that his former apparent efficiency was attributable to his violation of certain A&R directives. Since these directives were not specified and we are completely unable to imagine how an employee can make himself appear to be efficient by violating directives, we are still somewhat mystified by the entire transaction and our confusion is not dispelled by the explanation.

If A&R is to meet the schedule which is anticipated for this fall, these practices must be corrected. Officers in charge of divisions should have experience in and aptitude for dealing with industrial personnel and should strive to promote good will, efficiency, and a common desire to get the job done as a collective enterprise. Personnel policies of the Department should be well planned, carefully checked after their inception to determine their effect, and administered by a well-qualified officer, who is free of the voluminous paper work which now occupies much of their time. We do not believe that this can be accomplished without rather radical changes in the naval personnel of the Department.

5. Absenteeism.

(a) Extent of Absenteeism

The A&R Department, in common with all war industry, is faced with a serious problem of absenteeism. Extraordinary measures to curb it were instituted at an early date because of the impact of it on the work schedules. All employees who failed to appear without previous authorization were marked absent without permission. When they returned to work, a check was made to determine whether the absences were justifiable or excusable and charges were made accordingly to sick or annual leave, or to leave without pay. If absences were found to be neither justifiable nor excusable, employees were carried as absent without permission and received no pay for the day or days of absence. In the latter event, employees lost a day's pay at the overtime rate because they could only be credited with 40 hours of work for which no overtime was paid.

The extent of absenteeism in A&R is shown by the following table:

U. S. NAVAL AIR STATION, CORPUS CHRISTI, TEXAS
Assembly and Repair Department

Absenteeism Schedule

Absence Attributed to:	MONTHLY RATE OF ABSENTEEISM FOR THE PERIOD DECEMBER 28, 1942 TO MAY 31, 1943, INCLUSIVE												% Distribution of Causes of Absence	% of Employees for Entire Period
	Dec. 28, 1942/Jan. 31, 1943		Feb. 1/Feb. 28, 1943		Mar. 1/Mar. 28, 1943		Mar. 29/May 2, 1943		May 3/May 30, 1943		Total for Period			
	Man Days	Man Hours	Man Days	Man Hours	Man Days	Man Hours	Man Days	Man Hours	Man Days	Man Hours	Man Days	Man Hours		
Sick Leave	2,060	16,480	1,391	11,128	774	6,192	1,045	8,360	1,327	10,616	6,597	52,776	15.78%	1.34%
Annual Leave	3,492	27,936	3,170	25,360	2,928	23,424	4,117	32,936	4,230	33,840	17,937	143,496	42.90	3.64
Leave Without Pay	794	6,352	796	6,368	651	5,208	717	5,736	496	3,968	3,454	27,632	8.26	0.71
Without Permission	1,943	15,544	1,691	13,528	2,885	23,080	4,216	33,728	2,853	22,824	13,588	108,704	32.50	2.76
Suspensions	78	624	93	744	40	320	26	208	0	0	237	1,896	0.56	0.05
TOTALS	8,367	66,936	7,141	57,128	7,278	58,224	10,121	80,968	8,906	71,248	41,813	334,504	100.00%	8.50%
Estimated Number of Work Days	30		24		24		30		24		132			
Number of Employees at Month-End	3,344		3,538		3,740		4,043		4,035		3,736	(Estimated) (Average)		
% of Employees for Each Period	8.3%		8.4%		8.1%		8.3%		9.2%		8.5%			

It thus appears that the Department lost 41,813 man-days or 334,504 man-hours through absenteeism in the course of approximately five months. This represents 8.8% of the total time that should have been worked during this period. Translated into overhauls, these lost man-hours would have overhauled approximately 1911 Pratt and Whitney Type 985 engines. Although this alone is a serious loss, the impact of these absences is actually much more critical than at first appears because many key operations require that men work in groups or teams and the absence of a single man necessarily reduces the output of all the men in the group.

(b) Causes of Absenteeism

(1) Illness - The table reflects that illness caused the loss of 52,776 man-hours, or 15.78% of the total man-hours lost in a five-month period. Although illness is an unavoidable cause for absence, it has undoubtedly been given as an excuse, in some instances, for inexcusable or unjustified absences. In order to minimize feigned illness, A&R requires that all employees, who claim illness as the cause of absence, be examined by the medical officer attached to the Department upon return to work. Inaccuracies and dissatisfaction resulting from this check after the event are discussed fully in the preceding sections of this report and it would serve no useful purpose to repeat this discussion here. Suffice it to say that the procedure would be substantially improved if the legitimacy of the absence were checked before the employee returns to work.

(2) Annual leave - A loss of 143,496 man-hours, or 42.9% of the total number of man-hours lost in the five-month period, was charged to annual leave. So far as A&R has been able to ascertain, these absences represent excusable absences. Although they represent a loss of production, they are regarded as necessary and it is not expected that any substantial reduction can be effected.

As heretofore indicated, the Navy Department has estabblisehd a policy of allowing a short annual vacation. The one-week vacation allowed by the A&R Department seems reasonable. Annual leave is also allowed in serious emergencies. If an employee has accumulated insufficient annual leave to cover emergencies, leave without pay may be authorized for this purpose.

(3) Unauthorized Absence - The 108,704 man-hours (32.5% of the total) which were lost by reason of absences without permission for inexcusable reasons are those which constitute a real extravagance and must be eliminated so far as possible. In order to accomplish this objective, the Station promulgated an order on June 30, 1943, which sets forth a new list of penalties for inexcusable absence and tardiness. With respect to absenteeism, this order provides:

> Absence without permission, when explanation for absence is unsatisfactory -- beginning each quarter, as follows:
>
> First offense - (1) Suspension and loss of pay for time absent plus (2) an additional amount equal to time absent. (2 may be imposed at discretion of department head.)

Second Offense - Suspension and loss of pay for time absent plus an amount double the time absent.

Third offense - Additional disciplinary action applying penalties previously imposed.

Both the Commanding Officer and the A&R Officer consider that these penalties are necessary and will be effective in reducing unauthorized absences. 22/ It is obvious, we think, that suspensions alone will not entirely cure unauthorized absences. Both the Commanding Officer and the A&R Department recognize that additional action must be taken to remove the causes for them.

The A&R Department states that there are a number of principal causes for unauthorized absences and that some of these are: inadequate housing facilities; the distance of the Station from Corpus Christi and overtaxed transportation facilities; 23/ shopping and other personal affairs, such as banking, shortage of domestic help; and the fact that many employees are receiving higher wages than they have ever made.

22/ As indicated in the absenteeism table, 1,896 man-hours were lost because of suspensions and some of these hours represent suspensions for previous unauthorized absences. Suspensions, however, may also be imposed for various types of misconduct and, undoubtedly, some of these suspensions were for such reasons. The Assistant Secretary of the Navy has inaugurated a system of deferred suspensions whereby yards and stations may defer the suspension of an employee during good behavior. This directive was designed to save some of the man-hours lost through suspensions. Corpus Christi put this system in effect on February 13, 1943, and discontinued its use on April 1, 1943, because it was not found too helpful in accomplishing its purpose. While in effect, it saved only 18 man-days in A&R.

23/ The housing and transportation problems are discussed in Part I of this report.

(c) Remedies for Absenteeism

The Department suggests several measures which it thinks would be helpful in curtailing absenteeism. One of these is that banks in Corpus Christi remain open at least one night a week, preferably pay day, so that employees may take care of their banking business in the evening, or that a branch bank be established on the Station to serve as a collection agency for various banks in Corpus Christi. It was also suggested that day nurseries and child centers be organized to care for the children of A&R women. These suggestions appear to be sound and should be put into effect as soon as possible. Indeed, they are purely local matters that can be worked out in Corpus Christi and could well have been initiated many months ago when the need for them became apparent.

The Department made two additional suggestions which it can not put into effect. Thus, it was suggested that the Navy Department award incentive prizes, such as War Savings Stamps or Bonds, to employees who maintain a perfect attendance record for specified periods. Some such plan may well have merit and deserves the consideration of the Navy Department.

The second suggestion is to the effect that employees be given cash or bonds for accumulated annual leave in excess of a specified amount as an inducement not to take all of their annual leave. Under the present system an employee who has accumulated 60 days annual leave can accumulate a maximum of fifteen days each year thereafter until a total of ninety days is accumulated. A number of employees

now have forty, fifty, or more days of annual leave accumulated and the A&R Officer believes that they are inclined to take as much leave as they possibly can because they are not allowed to accumulate the entire twenty-six days which they earn and fear that accumulated leave may be cancelled at some future time. This suggestion also warrants serious consideration.

6. Civilian Labor Turnover

(a) Extent of Labor Turnover.

The major problem of A&R in procuring personnel grows out of the lack of previous aircraft experience on the part of applicants, but there is evidence that the labor market is rapidly becoming depleted. As this tendency increases A&R will be required to adopt additional measures designed to retain its employees because it can ill afford to lose the services of journeymen mechanics and other employees who have received practically all their training in the Department. The seriousness of the labor turnover problems in A&R is indicated in the following table:

U. S. NAVAL AIR STATION, CORPUS CHRISTI, TEXAS
Assembly and Repair Department

Civilian Labor Turnover Schedule

MONTH COVERED		NUMBER OF EMPLOYEES HIRED (a)	(b)	Total	NUMBER OF SEPARATIONS (a)	(b)	Total	NET INCREASE OR DECREASE (a)	(b)	Total
June	1942	328	10	338	78	4	82	250	6	256
July		177	3	180	119	7	126	58	4	54
August		161	9	170	95	9	104	66	-	66
September		84	9	93	235	21	256	151	12	163
October		233	11	244	368	2	370	135	9	126
November		281	29	310	398	6	404	117	23	94
Sub-Total		1264	71	1335	1293	49	1342	29	22	7
December		297	36	333	248	5	253	49	31	80
January	1943	329	20	349	242	8	250	87	12	99
February		365	14	379	142	4	146	223	10	233
March		447	19	466	82	21	103	365	2	363
April		463	14	477	160	16	176	303	2	301
May		246	2	248	138	12	150	108	10	98
Total		3411	176	3587	2305	115	2420	1106	61	1167

(a) -- Group 4A, III and II Employees
(b) -- Group 4B Employees

NOTE:
Based on the above information furnished to the Subcommittee, it is to be noted that:

of each 100 new (a) employees, 68 were utilized as replacements.
of each 100 new (b) employees, 65 were utilized as replacements.
of each 100 total new employees, 67 were utilized as replacements.

Thus, from June 1, 1942 to May 31, 1943, two out of every three persons hired by A&R were replacements. This is an excessive rate of turnover which is very costly to operations in the Department. In September, October, and November, 1942, separations exceeded the number of new employees. This is explained, in part, by the fact that the Department was being reorganized during this period and there was no intensive recruiting of civilians because enlisted personnel was brought in from elsewhere. Nevertheless, throughout the period, only one-third of all new employees were available for new positions. Moreover, 245 highly skilled journeyman mechanics were separated from A&R during the first six months of this year. Separations on this scale will unquestionably have a serious effect on the operation of the Department if allowed to continue.

(b) Causes of Labor Turnover

Some indication of the reasons for the labor turnover in A&R appear from the exit interviews conducted by the Personnel Officer and the Senior Member of the Labor Board. According to the A&R Officer, employees leave A&R to obtain more remunerative employment in other war industries, to move to a more desirable climate, or to accompany husbands on their transfer to other naval activities. As in the case of unauthorized absences, inadequate housing and insufficient transportation facilities have also been responsible for the departure of numerous men. In addition, a very substantial number of employees have gone into the armed services.

It was our observation at the Station that dissatisfaction with general personnel policies of the Department were also a primary factor in the high labor turnover in A&R. Many employees obviously do not like the atmosphere there and would prefer to work some place else. According to several civilian supervisors, this is the principal reason why so many of the better journeymen mechanics leave A&R.

(c) Efforts to Curb Labor Turnover

The Department has adopted some measures to combat labor turnover. It sometimes assigns employees to a different type of work when they become dissatisfied. It is stated that some effort is made to use promotions as a means of retaining personnel. In some instances, the Executive Assistant and the A&R Officer attempt to persuade employees to remain on the job. Such measures are undoubtedly helpful, but a well-rounded personnel program and a general change in atmosphere in the Department would do more than anything else to improve conditions in the Department. A satisfied employee is not prone to leave his employment. As we have previously stated, it is our opinion that the personnel policies of A&R are in real need of a thorough-going revitalization and we feel confident that a reduction in the labor turnover will follow as a natural consequence.

7. Production Policies and Practices.

(a) Scheduling of Work

The steady flow of work in A&R depends primarily upon the skill with which work is scheduled. At the present time, the Schedule

Section, on the basis of data furnished by the Planning Division, prepares a schedule for the succeeding month. This schedule establishes the dates for delivery of aircraft to the shops for high time overhauls. Finally, it is checked with the operational activity to determine whether the aircraft are available for overhaul on the specified dates and provision is made for alternate overhaul of different types of aircraft so that a constant work flow can be maintained. The volume of work due to crashes and other types of accidents cannot be estimated or scheduled with any great amount of accuracy, but suitable allowances are made on the basis of previous experience.

The Department also prepares a schedule of dates for completion of the overhaul of all parts and assemblies of specific airplanes on the basis of past performance and estimates of present capacity. Such information with respect to each airplane is forwarded to the appropriate divisions and shops about a week in advance. Discrepancies which appear in actual examination of the airplane and the nature of the job to be performed in each of the shops and divisions are later indicated in a final supplemental schedule.

The Department is currently formulating a new method of presenting scheduling information to the shops. The contemplated change does not alter the present method of preparing the initial forecast of the work load of the Department. It does eliminate, however, the detailed work schedule for each specific airplane. The Schedule Section will prepare a master schedule for each type of aircraft instead of the present detailed schedules for each individual plane.

This master schedule is being prepared with the help of other interested divisions on the basis of a careful check of job cards which reflect the time it takes to complete each type of overhaul and repair operation. Under the revised system, it is expected that the Schedule Section will only be required to identify the individual aircraft and indicate the date of its entrance for overhaul and the sequence of operation, because the time factors will have been pre-calculated on the basis of past experience in the master schedule. The Department contemplates that the new system will be placed in operation gradually and will be in full effect by December, 1943.

(b) Routing Airplane through Shops

When an airplane arrives in ADR for overhaul, it is delivered to the Overhaul Control Division where it is disassembled, and all parts that are removed are burred 24/, cleaned, and inspected to determine which ones can be repaired and which must be replaced with parts secured from Supply or manufactured by Machine and Metals. Orders are initiated accordingly for such replacement parts.

In the process of disassembling and inspecting the aircraft, Overhaul Control lists all parts on mimeographed forms which indicate where such parts are to be repaired and reassembled. These forms are then distributed to the appropriate repair divisions. All structural portions of the aircraft are delivered to the Structures Division and accessories are forwarded to the Accessories Division. The engine

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24/ A "burr" is a small metal tab that is attached to the part for identification purposes.

is sent intact to Engine Overhaul where it is disassembled, inspected, overhauled, assembled, and tested. As previously indicated, Machine and Metals manufactures parts that cannot be secured from the Supply Department. Each of these divisions is composed of several shops, which perform certain specific stages of the over-all operation assigned to the division. 25/

When the necessary repairs are completed in the above-mentioned divisions, parts are forwarded by them to the Assembly and Test Division which prepares subassemblies and, finally, assembles the entire aircraft. This division is composed of three functional units - a Parts Unit, a Floor Unit, and a Flight Test Unit. The Parts Unit repairs certain parts and assembles them with others received from the other divisions into the largest subassembly that can be incorporated as such into the airplane. The Floor Unit operates on an assembly-line basis and actually makes the final assembly by incorporating subassemblies, engines, etc., into the aircraft. The Flight Test Unit then takes over and tests the overhauled aircraft.

(c) Synchronization of Shops

It is essential, of course, that each division which overhauls and repairs any part of a plane complete its operation promptly in accordance with the specific schedule. Otherwise work on the assembly line in the Assembly and Test Division will be held up and the production of the entire Department will be thrown out of gear. Synchronization of the operations of the various shops is, therefore, one

25/ The diverse nature of these operations is indicated in Exhibit A.

of the most important and fundamental prerequisites to efficient production.

It appears to us that the mechanical controls established to affect coordination of the work of the Department are not being fully utilized to this end. Such controls are: check-off sheets, prepared by Overhaul Control, showing the operations to be performed on the aircraft; a schedule, prepared in the Schedule Section, for the overhaul of each airplane; check-off sheets, prepared in the Parts Unit of Assembly and Test; and a control board maintained in the Parts Unit to show the status of part repairs. When these controls indicate that parts will not be on hand in Assembly and Test on schedule, a delay report is submitted to the Senior Civilian Supervisor, who determines the reason for delay and expedites delivery of the necessary parts to Assembly and Test.

Both the Executive Assistant and the Assembly and Test Superintendent readily admit that the work of the various shops is not as closely integrated as it should be. This condition is attributed to the fact that the Senior Civilian Supervisor has a multitude of duties, including much paper work, which make it impossible for him to devote adequate attention to synchronization of the shops. The Assembly and Test Superintendent lacks authority to check on the other divisions to determine whether they are performing the most urgent work and to suggest measures that would enable the divisions to meet schedules. He states that he has occasionally done so, but was seriously handicapped because of his lack of jurisdiction.

It is our opinion that the importance of synchronization of the shops is so great that it is very necessary that a shop co-ordinator be selected who can devote his entire time to this vital function. The Executive Assistant and the Assembly and Test Superintendent heartily concur in the opinion that such action is advisable, and we believe that it will prove helpful to A&R in overhauling the increased number of aircraft that are scheduled for overhauls this fall. It is important too that this co-ordinator be selected with care to insure that he has adequate knowledge of aircraft overhaul and repair procedures and ability to work with others. Moreover, he should be given authority commensurate with the responsibilities of his position.

(d) Procedure for Interim Overhauls

Overhaul and repair of PBY wing floats, power plant cowling, and structural assemblies, e.g., pilots' seats, lockers, attaching brackets, etc., are accomplished in a division which is known as "Interim Overhaul." All other items of these aircraft are overhauled and repaired in other divisions of A&R.

The procedure provides for three days' notice to the squadron that a PBY would be taken by A&R for overhaul. Meanwhile, the squadron has the opportunity to list any unusual damage and prepare the so-called change and bulletin record of the airplane. 26/ The Interim Overhaul Superintendent then issues a work order to the shops which identifies the aircraft by Bureau of Aeronautics number, type, and sequence number, and contains the squadron work list.

26/ The Bureau of Aeronautics from time to time prescribes certain changes that are to be made on particular aircraft. The change and bulletin record contains a description of such changes, a statement of whether they have already been incorporated, and a notation of any specific action requested from A&R. Mandatory changes are necessarily (cont'd)

When the aircraft enters Interim Overhaul, it is inventoried, disassembled, and inspected, and a specific work list is prepared. All parts, except wing floats, power plant cowling, and structural assemblies, are distributed to other divisions of A&R where they are repaired in the same way as other types of airplanes and returned to Interim Overhaul on completion for final assembly into the PBY.

Exhibit D, attached, shows the present floor layout of Interim Overhaul. The progress of work under this layout has been somewhat disorganized in that there has been a noticeable lack of routine in the disassembly of wings; and the large work stands used by employees while working on the wings clutter the hangar floor and have wasted a great deal of needed space. Moreover, handling the hulls was an awkward process because the entire wing was not removed. In short, neither the airplane nor its component parts moved through the shops in a progressive, routine fashion, and equipment was scattered haphazardly over the entire hangar area.

The A&R Officer stated that he had given consideration to the advisability of changing the procedure for interim overhauls and, to this end started a survey in May, 1943, which demonstrated that the anticipated load of PBY overhauls would be more than present procedures would accommodate. For this reason, among others, a

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26/ (cont'd) made by A&R, but permissive changes or changes suggested in bulletins are effected only on the specific request of the squadron.