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MILITARY MONOGRAPH

TITLE: REORGANIZATION OF AIRBORNE UNITS

SCOPE:

A discussion of the factors affecting the reorganization of airborne units following a landing by parachute, and the presentation of a plan to facilitate the regaining of control by the airborne unit commander.

41-69

Prepared by: William J. Harris
Major Cavalry

INTRODUCTION

Since the inception of the airborne unit, one of the most challenging and intractable of problems has been the difficulty encountered by the airborne unit commander in regaining control of his unit following a parachute landing. In the landing of an airborne regiment by parachute the unavoidable dispersion of personnel over the drop zone and the initial loss of tactical unity in landing, are in themselves formidable obstacles to reorganization. In addition the actual or potential uncertainties produced by unfamiliar terrain, unfavorable weather, and the circumstances of enemy reaction, increase this problem. The airborne commander must originate and employ a workable plan for reorganization if he is to regain control of his unit in time to accomplish his mission.

CHAPTER 1
FACTORS AFFECTING REORGANIZATION
SECTION I
PATHFINDERS

Reorganization is immeasurably influenced by the ability of the Air Force to locate the proper drop zone and to drop the airborne troops, and their equipment, within the smallest area possible. To assist the air crews in the elimination of flight error the airborne commander has available organic pathfinder personnel. These specialists are formed into four pathfinder sections of one officer and thirteen enlisted men, a part of the Airborne Division Headquarters Company.⁽¹⁾ Unfortunately the inclusion of organic pathfinder sections in tables of organization did not come about during World War II, consequently each airborne regiment equipped and maintained its own pathfinder teams. Of interest in the study of pathfinder development is the composition and initial employment of the first of these groups.

Following the prohibitively scattered landings in North Africa and Sicily, Air Force and Airborne commanders conferred to arrive at a plan of navigational assist-

(1) Airborne Division Organizational Charts

ance, utilizing available aids, which would provide the troop carrier formations additional means to accurately locate the desired drop zones. As a result of the conference there was born at Agrigento, Sicily, on September 7, 1943, the first provisional pathfinder group of the 82nd Airborne Division, under the direction of Lt. Col. Charles Billingslea. The group consisted of three officers and eighteen enlisted men, and was equipped with two portable radar sets (the "Eureka", forerunner of the current AN/PPN-12), flashlights, and panels. After training with their opposite troop carrier numbers for one week the team was employed at the Salerno beachhead. Here they successfully guided the aircraft of the 52nd Troop Carrier Wing to a drop zone in the vicinity of Paestum, Italy, on the nights of the 13th and 14th of September, 1943, permitting the troops of the 505th and 504th Parachute Combat Teams to land without incident. (1)

Since both the Sicilian and Italian landings were made at night from aircraft flown by the same troop carrier units, an interesting comparison may be made which forcefully illustrates the importance of the pathfinder.

(1) After Action Report, Sicily, 82nd Airborne Division,

In the operation in Sicily the 505th Parachute Combat Team was widely dispersed in landing -- over an area sixty-five miles in length.⁽¹⁾ Reorganization was not completed until D+ 3.⁽²⁾ The immediate result of this inefficacious commitment was that only one of the missions assigned to the combat team was accomplished⁽³⁾, and the reorganization of the Division seriously impaired.⁽²⁾ No pathfinders were available for this mission. In the landings at Salerno however "The Bn. jump patterns were extremely small and (...) all personnel and equipment were assembled in a remarkably short period of time (No Bn. taking more than 60 minutes to assemble)."⁽⁴⁾

The successful employment of this embryonic pathfinder team was a decided step forward in assuring the safe arrival of the bulk of the airborne forces on the selected drop zone. The coordination of employment and training of pathfinder personnel continued and a joint Air Force/Airborne Pathfinder School was established at Northwitham, England, in the spring of 1944. Pathfinder

(1) After Action Report, Sicily, 82nd Airborne Division

P. 6

(2) Ibid, P. 13

(3) Ibid, P. 9

(4) Ibid, P. 88

teams were used thereafter in every Allied airborne operation in the Mediterranean and European Theaters.

In an airborne operation the mission of the pathfinder team is:

1. To establish navigational aids for troop carrier aircraft to insure accurate delivery of the airborne forces, and
2. To assist with the ground assembly of the troops after landing.⁽¹⁾

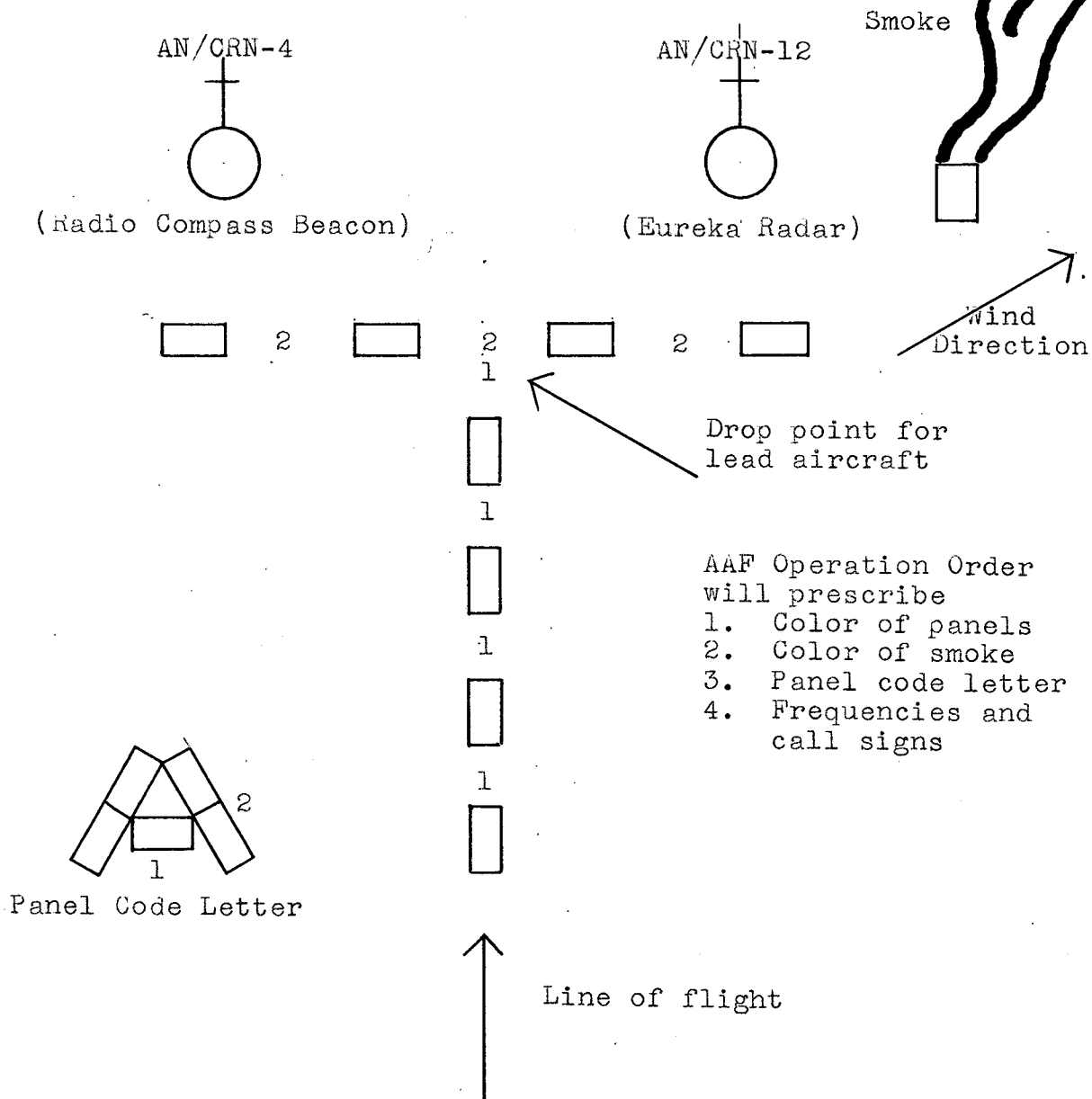
Landing from pathfinder aircraft from fifteen minutes to one hour preceeding the main troop carrier formations, the teams direct the aircraft by means of radio and radar aids until they are within sight of the drop zone. Then through visual orientation by additional aids the exact point at which the parachute or glider loads are to be dropped is indicated.

Radio and radar aids currently employed by pathfinder teams include the radio compass beacon (AN/CRN-4), the "Eureka" portable radar set (AN/PPN-2), and a portable, high frequency radio receiver and transmitter (AN/GRC-9). The latter provides direct radio communication between the drop zone and the incoming aircraft. Visual aids

(1) Airborne Operations Manual, Command and General Staff College, P. 55

MARKING OF DROP ZONE FOR DAYLIGHT OPERATION

Electronic aids to be installed within 100 yards of center of cross bar "T".
 Aids to be coded with the same letter used for panel code letter.



- AAF Operation Order will prescribe
1. Color of panels
 2. Color of smoke
 3. Panel code letter
 4. Frequencies and call signs

1 - Indicates spacing of one panel length (15')
 2 - Indicates spacing of two panel lengths (30')

Figure 1.

used by pathfinder teams to mark drop and landing zones usually consist of panels (AP-50), smoke (grenade, hand, HC, M8), pyrotechnics (flares), and lights (infrared, flashlights, and fixed and rotating beacons).⁽¹⁾

The manner of marking drop and landing zones has been standardized through coordination between troop carrier and airborne commanders and consists of the letter "T", formed with panels by day and lights by night. In close proximity to the "T" the radio compass beacon and the "Eureka" are employed for both day and night landings with such additional visual aids as may be deemed necessary. (Figs. 1 and 2)⁽²⁾

SECTION II

FORMATIONS AND PATTERNS

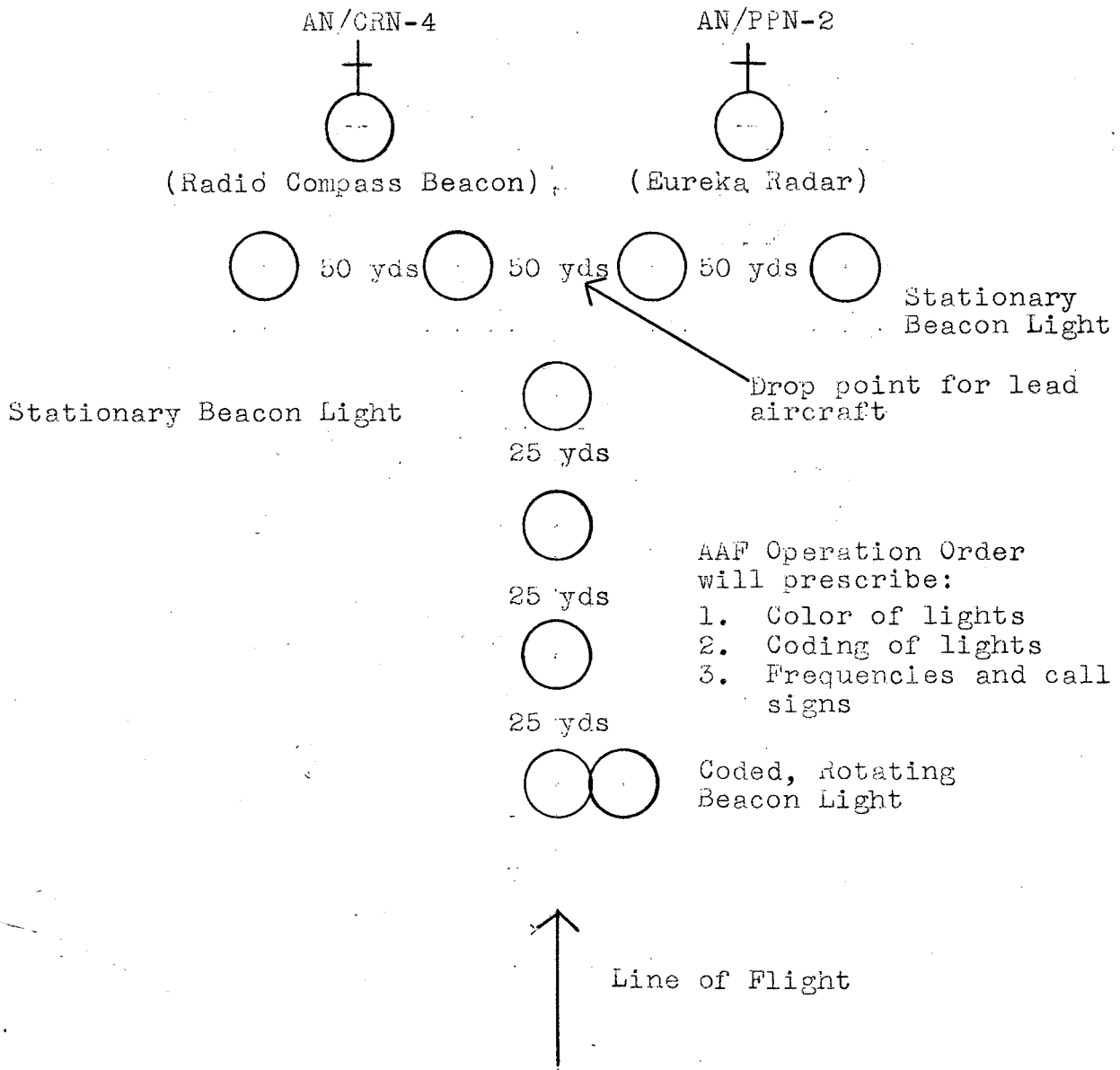
The dispersion of landing troops, and the resultant ease or difficulty of reorganization, is influenced by the type of aircraft formation employed, the speed and altitude of the aircraft at the time of drop, and the manner of exit of the parachutists from the aircraft. The most flexible formation employed by the troop carriers is the

(1) Tactics and Technique of Pathfinder Troops, The Infantry School, Chapter 3

(2) Ibid, Sections II and III, Chapter 7

MARKING OF DROP ZONE FOR NIGHT OPERATION

Electronic aids to be installed within within 100 yds. of center of cross bar of "T" on highest available terrain



- AAF Operation Order will prescribe:
1. Color of lights
 2. Coding of lights
 3. Frequencies and call signs

Figure 2.

three ship element, of "V". (Fig. 3) All formations now prescribed for airborne operations are composed of various arrangements of the "V" element, the maximum number normally employed being three, arranged in a "V" of "V's". (Fig. 4).

As the height above the ground at the point of release becomes greater so does the dispersion of the parachutists increase. This is also true as the speed of the aircraft is advanced. Normally training drops are not permitted below an altitude of 1000 feet above the terrain, while in actual combat operations jump altitudes vary between 400 and 600 feet. In both training and combat drop exercises aircraft indicated speed (air speed) is not permitted to fall below 100 mph nor exceed 120 mph during the exit of the parachutists. In addition unskilled or poorly trained jumpers will exit more slowly than well-trained, experienced troopers, proportionately extending the length of their ground pattern.

Ground patterns of parachute landings are oval in shape and are often so indicated when required on maps or in orders. Normally the average airborne battalion, carried in from twenty-two to twenty-seven aircraft of the C-82 type, requires a minimum area twelve hundred

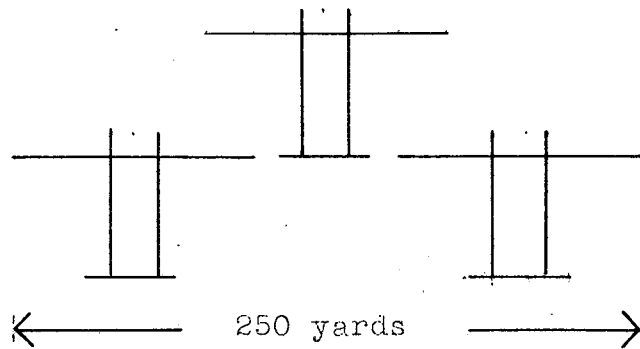


Figure 3 "V" Formation

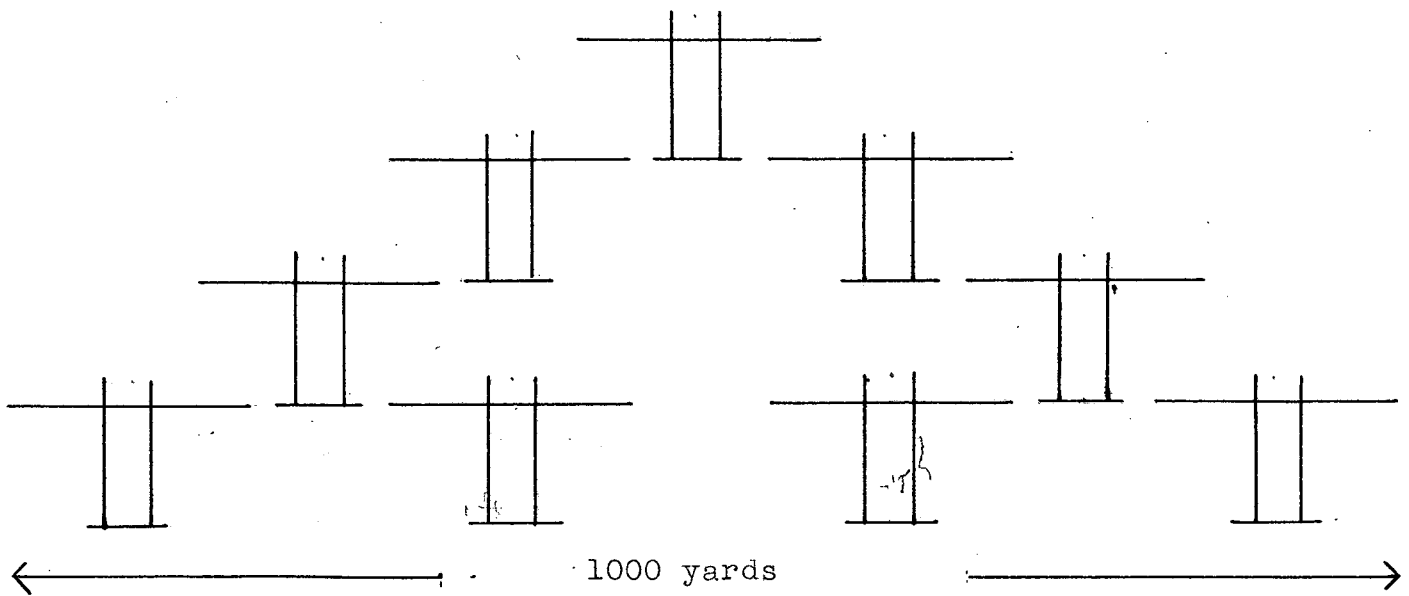


Figure 4 "V" of "V's" Formation

yards wide by fifteen hundred yards long. The commitment of an airborne regiment by parachute, usually accomplished by landings in three separate battalion zones, will require a minimum area fifteen hundred yards wide by five thousand yards long. The separate battalion drop areas may be adjacent with demarkation achieved by time intervals in the flight plan or by variations from the point of drop indicated by the pathfinder teams. In other instances they may be in widely separated zones to facilitate the seizure of objectives.

SECTION III

REORGANIZATION AIDS

Unless an airborne commander employs effective reorganization aids to facilitate assembly he may not hope to achieve an efficient reorganization without more than a gentle assist by the elusive blessing of coincidence. These aids may be classified as natural or mechanical devices which enable the leaders of all echelons to regain control of their units by effecting their rapid reorganization.

Natural aids are usually major terrain features prominent and easily recognizable by which the individual can orient himself. Hills, isolated groves of

woods, deep ravines, are examples. Man-made objects may be utilized but care must be taken in the selection of a building, road junction, or the like, to prevent confusion by similar objects. The most important factor in the employment of a natural terrain feature as an aid to reorganization is the thorough briefing of all personnel in its recognizable characteristics and the conformation of the terrain surrounding it. In selecting a natural aid the time of day that it will be used must be considered. During a reorganization at night the terrain feature or object selected must be somewhat higher than the area surrounding it (on the skyline) to insure rapid recognition. In addition it should be as free of vegetation as possible so that movement to and from it will be relatively unimpeded and noiseless. On the other hand a natural aid selected for an operation in daylight should afford cover and concealment and must not be on the skyline. By utilizing the terrain feature as a reference point from which landing units locate their assembly areas through distance and direction, any number of parachute units may use the single feature without the confusion which would result from the convergence of all reorganizing troops toward a single point.

A mechanical aid is a device through which attention

is attracted to a desired point by means of sight or sound. Although adaptable to both day and night reorganization mechanical aids are most useful in assisting assembly during darkness. Usually in a discussion of the use of mechanical aids the question arises of whether the time gained in assembly through their use justifies the possible disclosure of the position of the landing unit. Major General James M. Gavin in his recent book "Airborne Warfare", presents an interesting conclusion in speaking of the Sicilian operation:

"A night parachute operation had never before been attempted by any army so organization and training for it offered many new problems. The many intangible and indefinable difficulties of fighting at night in hostile territory when every object appears to be and often is the foe, all had to be overcome. Rapid assembly and reorganization of the troops appeared to be the greatest. Lacking combat experience, it was difficult to determine just how much security to sacrifice for speed. The actual combat proved that assembly and reorganization were conducted too cautiously. Many visual aids could have been used to great advantage."(1)

Mechanical aids are readily separated into two groups, visual and auditory. To understand the advantages, disadvantages, and capabilities of the more common

(1) James M. Gavin, Airborne Warfare, Infantry Journal Press

of each of these let us briefly inspect them.

Visual Aids

Panels

Panels are easily transported, cannot be seen from a great distance, and are useful only in daylight. To be most effective they must be elevated at least twenty-five feet above the ground and different colors or combinations of colors must be employed for each using unit.

Smoke

Smoke presents no transportation problem and can be seen from a considerable distance under normal conditions. When used in conjunction with panels an effective combination is achieved. Its usefulness is limited to daylight operations and its effectiveness reduced by adverse atmospheric conditions.

Lights

A light that can be observed by properly equipped friendly troops but is invisible to the enemy is an extremely effective aid. Such a device is available to airborne commanders in the Airborne Beacon, M-1, which consists of an infrared beacon on a twenty-five foot telescoping pole, powered by a wet battery. The beacon may be carried, erected, and operated by one man. It may be automatically coded to flash any letter except "E" and "F" and cannot be seen except through an infrared view-

ing device such as the sniperscope or metascope. It is visible up to three miles and is usually employed in battalion reorganization. In addition to the beacon, an infrared originating instrument is available for the use of the small unit leader. This device, Flashlight Adapter, M-384, employs the issue flashlight as a power source and provides the squad or platoon leader with an infrared beacon which is visible up to five hundred yards. The flashlight may also be used as an aid to assembly when the infrared attachment is not available, by stretching a colored balloon or piece of cellophane over the lens.

Pyrotechnics

Effective use has been made of flares in regaining control of units of battalion size. During the airborne landings in Normandy on the night of the 5th of June, 1944, the reorganization of the 2nd Battalion, 505th Parachute Infantry, would have been disastrously delayed had not the commander, all other mechanical aids having failed, saturated the sky with flares of prearranged color. As a direct result of this action he had regained control of over seventy-five percent of his unit within two hours, a remarkable achievement during that night operation. To achieve maximum effectiveness when

using pyrotechnics care must be exercised to insure that the flare when discharged rises vertically. Flares viewed at an angle to the perpendicular deceive observers as to the point of discharge.

AUDITORY AIDS

Noise Makers

The many auditory aids which are used to facilitate squad, platoon, and company reorganization are limited only by the materials at hand and the imagination of the commander. Bells of the cowbell and buzzer types, horns of the New Year's Eve variety, the issue bugle, tin crickets of the sort used by children on Hallowe'en, regulation and improvised whistles, gas warning rackets, animal calls, and many others have been used in combat operations offering results as varied as the types employed. In general all of the above are affected by wind and atmospheric conditions and cause some confusion when used in quantity. None can be depended upon to be effective at distances greater than three hundred yards. However they are inexpensive and easily procured or improvised, transportable, and require no particular skill to operate. To minimize possibilities of confusion all troops must be thoroughly trained in the prearranged plan of employment.

Radio

The organic radio equipment of a unit, even without special attachments, may be utilized as an aid in reorganization. By employing the command radio nets to contact unit leaders and commanders immediately after landing, status and location reports can be received, and units may be moved toward reorganization areas, missions of opportunity, or directly from the drop zone to their assigned objectives.

A more elaborate radio aid combination is found in the Radio Transmitter AN/CRN-12 and the Homing Modification Kit, MC-619. The transmitter is a small, compact unit particularly adaptable in the reorganization of unit of battalion size since it is capable of automatically transmitting a coded signal of one minute duration on each of four different frequencies. The kit, MC-619, provides a loop antenna which is substituted for the telescoping antenna on the SCR-536. This permits the operator to home (locate as to direction) the signal emitted by the AN/CRN-12 or any other presently authorized ground force radio transmitting on the frequency to which his radio is tuned. The AN/CRN-12 is transported and operated by one man.

SECTION IV

IDENTIFICATION OF EQUIPMENT

No plan for reorganization may be considered comprehensive unless unit equipment can be identified and recovered without unnecessary delay and confusion. Therefore airborne commanders must provide a standard method of marking equipment containers so they may be readily identified as to content and unit.

Current equipment marking plans employed by airborne units are based upon the designation of the general type of equipment by canopy color, the designation of the unit to which the container belongs by a color and alphabetical code, and a detailed description of the contents by a numerical code. Color, letter, and numerical codes are painted on the exterior of the containers.

A detailed plan for the identification of the equipment of an airborne division is contained in Appendix I.

CHAPTER 2

REORGANIZATION OF PARACHUTE UNITS

"Small unit tactics in airborne organizations differ very little from those of any other ground unit. One difference -- the first problem to be solved upon landing-- is that of reorganization and initiation of combat. All airborne units have their SOP's for this. They are based upon the principle of using every assembly aid permissible without enemy interception and interference between friendly units. Recognizable terrain features, flares, infrared signals, smoke, assembly lights, and radio, directional or otherwise, all play a part in accomplishing the assembly."⁽¹⁾

A plan for the organization of an airborne unit after a landing by parachute must be as simple as possible and adaptable to either a day or night operation. Since the conservation of time is always important in an airborne operation all possible means, commensurate with the tactical situation must be used to assist the troops in reorganizing as quickly as possible. Confusion will result if the reorganization has not been carefully planned and thoroughly rehearsed before the operation. The minutely detailed plans and continuous rehearsals in which the 82nd Airborne Division engaged prior to landing in Normandy, bear this out. Night reorganization plans were overhauled and revamped, and the finished products were

(1) Airborne Warfare, James M. Gavin, Infantry Journal Press,

practiced again and again. Joint training exercises were conducted with the troop carrier units destined to carry the parachutists into battle.⁽¹⁾ When, in the actual drop, the parachute elements found their reorganization impeded by dispersed landings and assembly proportionately slow, this was not a failure nor an indictment of their training principles. Rather the measure of control achieved and the accomplishment of all missions clearly established the worth of a sound reorganization plan.

SECTION I

PRINCIPLES OF REORGANIZATION

In any reorganization plan the sequence of assembly is:

Check of personnel

Recovery of equipment

Orientation

Movement to reorganization or objective area

All of the above may, depending upon the situation, be accomplished individually or simultaneously. The basic reorganization procedure of "rolling up the stick" is sound, and should be the initial step in regaining con-

(1) Airborne Warfare, James M. Gavin, Infantry Journal Press,
P. 45

trol. This procedure consists of the jumpmaster and last member of the stick moving along the line of drop until each member of the group is accounted for.

Generally reorganization will be accomplished at the level of the highest unit dropping on a particular drop zone. For example, in the case of a platoon drop on a separate zone, the landing sticks would not attempt to sort out and reorganize into squads before moving to the designated assembly area, but would, after rolling up the individual sticks and recovering equipment, proceed directly to the platoon reorganization point where the tactical resorting would be accomplished. Again, should a battalion utilize an isolated drop zone, sticks would be rolled up, equipment would be recovered, and personnel would move under stick commanders to the battalion assembly area. Normally the largest unit to which this applies is the battalion, since it is rare that a regiment or larger unit is landed together on one drop zone.

SECTION II

THE BASIC PLAN

The basic plan here presented is based upon a reference point, designated by the headquarters controlling the drop zone, the utilization of distance and direction from this point to designate subordinate reorganization

areas, and a control group from the directing headquarters to mark the reference point and assist in the orientation of the landing troops.

This plan is adaptable to day or night assembly, and is not effected by circumstances of weather nor the inability of the delivering agency to locate the proper drop area.

The Plan

1. From any given point (terrain feature, radio homing transmitter, infrared beacon, etc.) subordinate assembly areas will be located as follows:

Headquarters, organic supporting and attached troops	West
1st tactical unit	North
2nd tactical unit	East
3rd tactical unit	South

Distances of assembly areas from the reference point will vary dependent upon the terrain and tactical situation will be designated by the commander for each operation.

2. Reorganization aids are designated for each area:

a. Lights (except Airborne Beacon M-1), panels smoke, flares:

- (1) Headquarters area - Amber or Orange
- (2) 1st tactical unit - Red

(3) 2nd tactical unit - White

(4) 3rd tactical unit - Blue or Green

(5) Reference point - One Blue and one Red

b. The Airborne Beacon, M-1 (infrared) will always designate the reference point in addition to the aids indicated above.

c. The Homing Device, transmitter AN/CRN-12, will be employed to indicate a battalion reorganization area. Code letters for battalions will be designated in regimental orders.

d. Two or more control groups, obtained from headquarters personnel and commanded by unit staff officers, will move to the reference point immediately upon landing. They will erect the infrared beacon, such other aids as have been selected, and will direct displaced individuals to proper areas.

e. In the event that the carrying aircraft do not locate the assigned drop zone and the landing is made in another area, the center of the landing pattern will be the reference point.

f. Individual radio command nets will be provided in all units to include the company. Reports of leaders and commanders will be made to the next higher headquarters twenty minutes after landing. The report

will include status of personnel and location. A second report one hour after landing will be made if necessary. A report will also be made when reorganization is complete.

g. Unit supply recovery groups will operate initially under the direction of the battalion supply officers. Control by regimental and higher supply officers will be exercised after reorganization has been completed.

This then is the scheme. To more easily visualize the operation of the suggested plan, let us follow the fortunes of the 2nd Bn., 000th Airborne Regiment in an imaginary airborne operation:

OPERATION PARAGON

Lt. Col. Jumper, commanding the 2nd Battalion, has been directed to seize an important bridge site, a portion of his regiment's mission, in a night parachute operation deep in the enemy's rear. He has recommended that his battalion (reinforced) land on the far side of the river and separated from the landing area of the remainder of the regiment. This recommendation was approved by higher headquarters.

To insure a successful reorganization his battalion

engaged in an extensive period of briefing and rehearsal employing the Division SOP. Two control groups were formed, one commanded by the Battalion Executive Officer and the other by the Battalion S-1. Each group consisted of three NCO's and five enlisted men and each was equipped with an AN/CRN-12 transmitter and an Airborne Beacon, M-1, in addition to the necessary lights and flares. Lt. Col. Jumper directed that company reorganization areas be located 300 yards from the reference point. No aids other than those prescribed by the Division SOP were used by subordinate units and in addition only the control groups were permitted to use flares. The reference point was designated as the center of the drop zone since no usable terrain feature was available.

The Battalion dropped at H-hour from twenty-seven C-82 aircraft flying in a "V" of "V's" formation, twenty-five sticks landing as planned. One stick containing the Bn. Ex. Officer and one control group was lost in flight due to enemy action, and one stick was landed elsewhere. Dispersion was normal, the battalion pattern covering an area 1200 yards by 1500 yards. Immediately upon landing the Battalion S-1 and his control group located the center of the pattern without incident and erected the transmitter and beacon. Upon entering

the command net with his SCR-536 the S-1 learned that the commander of Company E could not contact his 1st Platoon. On the chance that they had landed nearby, the S-1 fired several flares of identifying color into the air to assist the platoon in locating the battalion area.

The unfortunate 1st Platoon was dropped some two miles away from the battalion, and, after rolling up his stick the Lieutenant Platoon Leader established all-around security and attempted to contact his unit through the SCR-536 command net. Failing in this he directed his stick to be particularly watchful for flares and sent his two metascope equipped men to the highest point of vantage. Several minutes later his observers reported several white flares to the East and the Leader moved his stick without delay in that direction. After a move of about a mile the metascope operators detected the infrared beacon and at the same time the Platoon Leader contacted his Company Commander by radio through which he reported his status and approximate location.

In the meantime Lt. Col. Jumper, having received his initial report from his subordinate commanders, reported to the Regimental Commander that his Battalion was well on its way to complete reorganization and that

Company F was moving at once to the bridge. The Commander of Company E, having oriented his prodigal 1st Platoon, halted them in their movement toward the area and directed that they establish an outpost and road-block in their present location.

Having completed his mission, the Battalion S-1 and his control group discontinued the operation of the aidstand and rejoined the headquarters unit.

CONCLUSION

Combat and training operations have demonstrated again and again that the success of any airborne operation is dependent upon the efficient reorganization of the troops after landing. The rapidity with which the airborne commander regains control of his unit will determine the extent of initial success he will achieve.

APPENDIX I

IDENTIFICATION OF EQUIPMENT

General identification:

Red Canopy - Ammunition

White Canopy - Medical Supplies

Yellow Canopy - Communication Equipment

Blue Canopy - Organic Equipment (other than communication or medical)

Green Canopy - Rations

Unit identification:

Battalion identification will be accomplished through the painting of container ends in the following colors:

(Fig. 5)

1st Battalion - Red

2nd Battalion - White

3rd Battalion - Blue

Regimental Headquarters - Unpainted

Unit designation within battalions will be indicated by company letters ("A" for Company A, etc.,) six (6) inches wide by eight (8) inches high, painted in yellow paint on five equally spaced portions of the container end. (Fig. 6).

Artillery, Engineer, Separate Companies and Battalions will have unpainted end caps. Unit identifi-

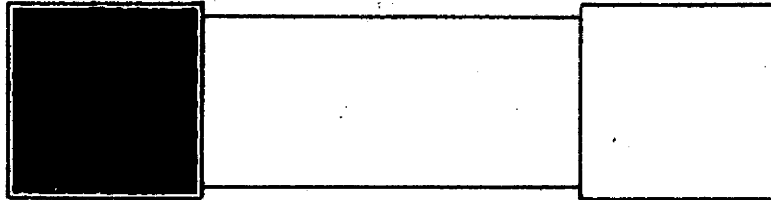


Figure 5. 1st Battalion

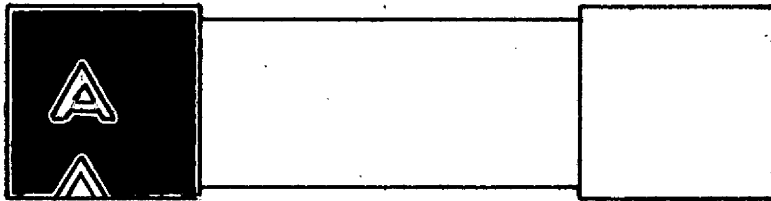


Figure 6. Co. A, 1st Battalion

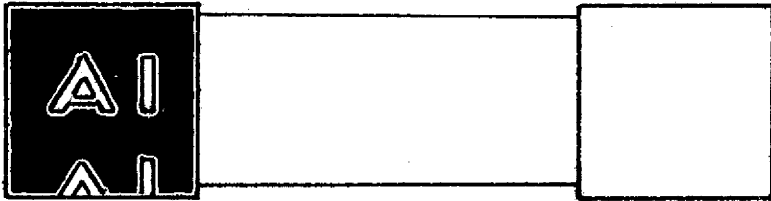


Figure 7. Container 1, Co. A, 1st Battalion

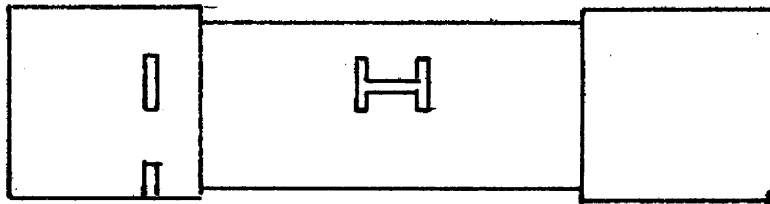


Figure 8. Container 1, Division Hq.

cation will be accomplished through an identifying code letter (see below) around the center of the container. The letter will be spaced and of the same dimensions as the letters identifying companies as just described.

(Fig. 7)

Artillery - "A"

Engineer - "E"

Signal - "S"

Defense and Anti-Tank - "D"

Quartermaster - "Q"

Military Police - "P"

Ordnance - "O"

Reconnaissance - "R"

Medical - "M"

Headquarters, Division - "H"

Content identification:

Content identification will be accomplished through a prearranged numerical code standardized by the division of all containers for all companies. Each type of container will be numbered consecutively and the number placed eight (8) inches from the letter identifying the company and of the same dimensions. (Fig. 8)