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FINAL DRAFT

STUDY

AD829038

US ARMY REQUIREMENT FOR PACK ANIMALS



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**UNITED STATES ARMY
COMBAT DEVELOPMENTS COMMAND
SPECIAL WARFARE AGENCY
FORT BRAGG, N.C.**

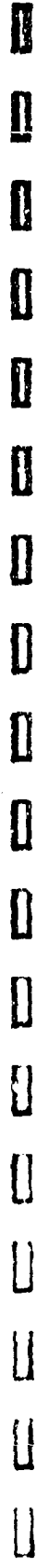
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UNITED STATES ARMY COMBAT DEVELOPMENT'S COMMAND

SPECIAL WARFARE AGENCY

FORT BRAGG, NORTH CAROLINA

FINAL DRAFT

STUDY

US ARMY REQUIREMENT FOR PACK ANIMALS

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ACKNOWLEDGEMENT

The conclusions and recommendations of this study are those of the Commanding Officer, USAFDC Special Warfare Agency. This study is based upon information gathered and analysis performed primarily by the Special Warfare Agency. Some of the individuals having a major area of responsibility in the preparation of this study are listed below:

Lt Col M. V. Motola

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Captain J. R. Jeter, Jr.

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ABSTRACT

This study was undertaken to analyze US Army pack animal transport doctrine and resources in order to determine the adequacy of the doctrine and resources to support requirements for conventional forms of warfare, unconventional warfare, and counterinsurgency operations. Army regulations, publications, and resources were analyzed to identify voids in doctrine, resources, and training. Preliminary evaluation indicates that requirements do exist for pack animals in all levels of warfare, especially in remote areas, and in rugged, vehicle-restrictive terrain. The study concludes that there is a lack of techniques doctrine, resources, and training capability within the US Army. It recommends action to rectify these inadequacies.

SUMMARY

1. PROBLEM. To analyze US Army pack animal transport doctrine and resources in order to determine the adequacy of the doctrine and resources to support requirements for limited and general warfare, unconventional warfare, counter guerrilla and counterinsurgency operations.

2. BACKGROUND. It is recognized that many areas of the world are lacking in adequate transportation facilities, and have difficult terrain. The nature of the threat indicates that the US Army may become involved in counterinsurgency and counter guerrilla operations and possibly limited and general war in those unsophisticated environments. Historically, pack animals have been employed in every war fought by the United States Army. The assumption is that, in the Army's quest for air and ground mobility, expertise, resources, techniques, and doctrine covering the handling of pack animals has been lost or downgraded and has created an area ripe for investigation.

3. PURPOSE AND OBJECTIVES. The purpose of this study is to analyze the requirement for pack animals, the associated skills, training and equipment for the US Army; and, determine the adequacy of available doctrine and resources to meet the requirements. The ultimate objective is to provide an adequate base of knowledge, doctrine, training facilities, and other resources to meet the varying requirements for pack animal transport for the time frame 1965-1970.

4. SCOPE AND METHOD. This study is concerned primarily with the evaluation of existing doctrine, techniques manuals, resources, and facilities for pack animal management and training to determine its adequacy to meet increasing demands for such training and knowledge.

5. CONCLUSION. The primary conclusions are that:

a. Circumstances of terrain, weather, and transportation resources may dictate the employment of pack animals by US Army forces in limited and general war or in counterinsurgency operations with receiving state forces advised and trained by US Army personnel.

b. Army Regulation 700-22 recognizes the requirement for pack animals for special purposes on an "as needed," "where needed" basis.

c. Adequate Army regulations exist authorizing procurement of pack animals and associated equipment and forage; however, there are no pack animals and associated equipment in the US Army.

d. There is a requirement to train selected personnel in the art and techniques of pack animal transport and management.

e. US Army doctrinal literature reflects the feasibility of employing pack animals in certain operations and in difficult terrain.

f. A requirement exists for a techniques manual on pack animal training and management.

g. A requirement exists for a limited number of pack animals and a limited amount of associated equipment to conduct pack animal training for special forces personnel, members of MTT, personnel involved in counterinsurgency operations, and selected individuals and units of regular field army type forces.

h. Forage and forage resupply presents a major logistic problem which may be a problem even when utilizing indigenous animals in remote areas.

6. FINDINGS AND RECOMMENDATIONS. It is recommended that:

a. US Army Combat Developments Command update and republish FM 25-7, Pack Transportation.

b. US Army Combat Developments Command Transportation Agency provide additional material for inclusion in FM 25-7 on the care, management, maintenance, equipment, loading, training, handling, methods of evacuation of sick and wounded personnel by pack animals, and capabilities and limitations of each of the following animals:

- (1) Donkey
- (2) Asian Horse
- (3) Ox, Water Buffalo, Yak
- (4) Camel
- (5) Elephant
- (6) Llama
- (7) Dog
- (8) Reindeer

c. ALL US Army Area Handbook manuals contain chapters on land transport resources, to include sections on pack animal resources of the subject area.

d. USCONARC establish a pack animal training section at the US Army John F. Kennedy Center for Special Warfare. The training facility should have available a limited variety of pack animals and associated equipment. The school should provide training for selected individuals of special forces groups, special action forces, US conventional forces, MAAG, Missions, and MPT. Teams from the facility should be available to

instruct CONUS based units on an "as needed" basis dictated by contingency missions. Records of trained cadre should be maintained, and identifiable MOS (driver, packer, handler) should be established and awarded these individuals to facilitate recall to pack school or similar duty.

e. US Army Combat Developments Command Combat Service Support Group prepare a study on forage, forage logistics, and resupply problems for pack animals operating in limited and general war, to include unconventional warfare, and in counterinsurgency operations.

f. US Army John F. Kennedy Center for Special Warfare include in its current POI, "Animal Management and Transportation," instruction on transportation of sick and wounded personnel by pack animal.

g. US Army Combat Developments Command assess the requirement for further study on pack animal employment for all forms and levels of warfare.

MAIN REPORT

SUBJECT: US Army Requirement for Pack Animals

1. PROBLEM: To analyze US Army pack animal transport doctrine and resources in order to determine the adequacy of the doctrine and resources to support requirements for limited and general warfare, unconventional warfare, and counter guerrilla and counterinsurgency operations.

2. ASSUMPTIONS.

a. Mobile warfare, guerrilla warfare, and counter guerrilla operations may be conducted in difficult terrain in remote areas.

b. Technology and scientific achievement will improve modes of transportation, but will not change appreciably the foot mobility of forces on the terrain in which the guerrilla operates.

c. Mechanical mobility may not always be available, adequate, or appropriate for certain limited and general warfare operations, unconventional warfare missions, counter guerrilla and counterinsurgency operations.

3. PAGES BEARING ON THE PROBLEM.

a. The US Army John F. Kennedy Center for Special Warfare has established a limited training program in pack transport techniques.

b. Pack animals were used during World War II by conventional forces and since World War II in limited war, and by guerrilla and counter guerrilla forces in such countries as Algeria, Greece, Burma, Laos, Philippines, Vietnam, and Malaysia.

c. There are no officially supported US Army schools, training facilities, techniques manuals, technical manuals, equipment, or training aids

for pack animal training, and there have been no requirements established for pack animal units, training, or equipment for the US Army as a whole.

d. Army regulations recognize the requirement for pack animals for special purposes on an "as needed," "where needed" basis.

4. DISCUSSION. (For a more complete discussion, see Annex A, Discussion.)

a. Subversive insurgency will continue to be a threat to world peace for many years to come. US Army forces are, and will be, committed to countering this threat. Historically, subversive insurgency has taken place in developing nations. These countries are characterized by extremes of weather, difficult terrain, and poor transportation facilities.

b. Contingency plans to support guerrilla warfare in general or limited wars are in being and special forces groups have been charged with specific roles and missions in the execution of such plans.

c. Pack animals of various types are available in many of the countries where limited/general war, guerrilla warfare, and counterinsurgency operations may be waged. These animals have been used for years by the peoples of such countries, and are often the best or only means of transport available.

d. Army regulations state that the Army policy on the employment of pack animals is on an "as needed" basis. The regulations place logistic responsibilities for animals and associated equipment and forage with the Quartermaster Corps. Army doctrine (as differentiated from techniques) provides adequate guidance for the "where and when" to employ pack animals in counterinsurgency, counterinsurgency, and guerrilla warfare operations, and in limited and general war.

a. The US Army John F. Kennedy Center for Special Warfare has established a requirement to include pack animal training in special forces pre-mission training cycles and a 40-hour training program has been approved. The training literature used to prepare the instruction consists of outdated field manuals, old British manuals, communications from Army attaches, and commercial publications. Training aids, pack equipment, and animals are locally procured. No funds have been approved for purchase or rental of animals, facilities, and equipment for demonstrations or training.

1. In difficult terrain, pack animals have the capability to increase the ground mobility of forces engaged in limited and general warfare, and in counter guerrilla and counter insurgency operations. Operations conducted in remote areas of the world may be enhanced by the employment of indigenous pack animals.

5. CONCLUSION. The primary conclusions are that:

a. Circumstances of terrain, weather and transportation resources may dictate the employment of pack animals in remote areas with US Army forces or receiving state forces which are advised and trained by US Army personnel.

b. Adequate Army regulations exist authorizing procurement of pack animals and associated equipment and forage; however, there are no pack animals and associated equipment currently in the US Army.

c. There is a requirement to train selected personnel in the art and techniques of pack animal transport and management.

d. US Army doctrinal literature reflects the feasibility of employing pack animals in certain operations and in difficult terrain.

e. A requirement exists for a techniques manual on pack animal training and management.

f. A requirement exists for a limited number of pack animals and a limited amount of associated equipment to conduct pack animal training for selected personnel engaged in special operations, involved in counterinsurgency operations, and selected individuals and units of regular field army type forces for operations in remote areas and difficult terrain in limited and general warfare and counterinsurgency operations. A requirement exists to insure that expertise is retained in the US Army by maintaining a trained cadre, awarding identifiable MOS (packer, driver, handler), and recording cadre and graduate students for future recall to pack duties.

g. Forage and forage resupply has been a major logistic problem and may still be a problem, even when utilizing indigenous animals in remote areas.

6. FINDINGS AND RECOMMENDATIONS. It is recommended that:

a. US Army Combat Developments Command update and republish FM 25-7, Pack Transportation.

b. US Army Combat Developments Command Transportation Agency provide additional material for inclusion in FM 25-7 on the care, management, maintenance, equipment, loading, training, handling, methods of evacuation of sick and wounded personnel by pack animal, training and management of indigenous pack animal handlers, and capabilities and limitations of each of the following animals:

- (1) Donkey
- (2) Asian Horse
- (3) Ox, Water Buffalo, Yak
- (4) Camel
- (5) Elephant
- (6) Llama
- (7) Dogs
- (8) Reindeer

c. All US Army Area Handbook manuals contain chapters on land transport resources, to include sections on pack animal resources of the subject areas.

d. USCONARC establish a pack animal training section at the US Army John F. Kennedy Center for Special Warfare. The training facility should have available selected varieties of pack animals of the world. The school should provide training for selected individuals of special forces groups, special action forces, US conventional forces, MAAG, Missions, and MIT. Teams from the facility should be available to instruct CONUS based units on an "as needed" basis dictated by contingency missions. Instruction should include a discussion on the management and training of indigenous pack animal handlers.

e. US Army Combat Developments Command Combat Services Support Group prepare a study on forage, forage logistics, and resupply problems for pack animals operating in limited and general war, to include unconventional warfare and in counterinsurgency operations.

f. US Army John F. Kennedy Center for Special Warfare include in the POI, "Animal Management and Transportation," instruction in transportation of sick and wounded personnel by pack animal.

g. US Army Combat Developments Command assess the requirement for further study on pack animal employment for all forms and levels of warfare.

ANNEX A

DISCUSSION

1. INTRODUCTION. Long before the advent of the wagon, motor vehicle, and helicopter man employed animals for transport. He tamed the beast and burdened him for commerce, travel, and war. Animals have been an integral part of war from the day the first rock was thrown in anger. The days of Hannibal, Alexander, Washington, Napoleon, Lee, and Grant saw the use of the noble horse, plodding elephant, and stubborn mule. Pack animals have been used by the Army in every war the United States has fought. This means of transportation has been used in the tropics, the arctic, the mountains, the jungle, and the desert. They have served in conventional war, guerrilla war, counter guerrilla operations, and counterinsurgency operations. They are by no means outdated or old-fashioned. Animals have been used for centuries, and in this day of air transportation, are still in use throughout the world. They will still be in use long after we have established stations on the moon. Pack animals can go where machines cannot.¹ They follow the combatant, lightening his load, to the very edge of hell and back.

2. THE STUDY

a. Purpose. The purpose of this study is to analyze the requirement for pack animals for US Army forces in the conduct of all forms of warfare, and thereupon determine the extent of the requirement and the adequacy of Army doctrine and resources to meet it.

¹Report RAVK 11, "Army Tank Automotive Center, 13 June 1963, p. A-1.

b. Scope. This study will limit discussion to Army doctrine and resources regarding pack animal transport and to presenting an analysis of the doctrine and resources to meet requirements.

c. The Nature of the Threat. The Communist threat to peace and freedom in the world is characterized by so-called "national liberation wars" or "people's struggles." An intensification of the cold war by the application of subversive insurgency is the Communists' modus operandi. Further intensification may lead to limited war.

d. To Counter the Threat.

(1) The United States is pledged to defend the liberty of the nations of the free world and in doing so defends her own freedom.

(2) The United States Army provides man and resources for Military Assistance Programs, Military Assistance Advisory Groups, Missions, contingency forces, counterinsurgency forces, and other field army-type forces.

(3) US Army forces which participate in counterinsurgency operations, unconventional warfare, and psychological activities are:

- (a) US Army Special Forces.
- (b) US Army Special Action Forces.
- (c) Psychological Operations Organizations.
- (d) Brigade-Size Backup Forces.
- (e) Civil Affairs Units.
- (f) Intelligence and Security Units.
- (g) US Army Aviation Units.
- (h) US Army Engineer Units.

- (i) US MAAG and Missions.
- (j) US Army Security Agency.
- (k) General Purpose Forces of the Army as required.

These forces and their concept of operations are discussed in Appendix VI.

e. Discussion Appendices. The remainder of this annex is divided into appendices written to examine more fully the various facets of the requirement for pack animals.

(1) Appendix I, The Operational Environment, is a study of world areas in which the US Army is committed. The major finding of this section is that these countries, for the most part, are characterized by rugged terrain, poor transportation facilities, and are targets of Communist-inspired insurgency.

(2) Appendix II, Pack Animals of the World, is a study of the world's most commonly employed pack animals. A major finding is that domesticated pack animals are utilized in almost every country of the world.

(3) Appendix III, Animals in the Military Forces of Selected Countries, provides information on military pack animal units throughout the world.

(4) Appendix IV, Historical Examples, is a compendium of quotes and references on the employment of pack animals in World War II, Korea, and in certain guerrilla, counter guerrilla, and counterinsurgency operations since World War II.

(5) Appendix V, US Army Policy, Doctrine and Resources Relative to Pack Animals, analyzes Army regulations, publications, and resources to determine what is available and what is lacking.

(6) Appendix VI, Requirements for Pack Animals in Counterinsurgency, Unconventional Warfare Operations, and Limited and General Warfare, discusses the concept of operations and the concept of employment of pack animals in such operations.

(7) Appendix VII, US Army John F. Kennedy Center for Special Warfare Position on the Use of Pack Animals, discusses the Center position, training program, resources, and past training.

(8) Appendix VIII, Lesson Plans, POI and Pack Animal Courses, is a list of subjects and courses taught at the Marine Corps School, proposed for presentation at the John F. Kennedy Center for Special Warfare, and presented at the Royal Army Service Corps Training Center, Malaya.

APPENDIX I
THE OPERATIONAL ENVIRONMENT

APPENDIX I

THE OPERATIONAL ENVIRONMENT

1. GENERAL. Historically, guerrilla warfare and insurgency has occurred in developing countries and in rural areas of developed nations which lack adequate transportation resources and facilities. The roads characteristically become wandering tracks, steep rock-strewn paths, or jungle choked trails as they penetrate the hinterland. Rail systems are nonexistent or outdated and burdened with obsolete rolling stock. Air transport is usually confined to a few flights between the major cities of such countries. Many of these countries may also be characterized by rising nationalism, former colonial rule, an agricultural base, and primitive ethnic groups.

2. TERRAIN. The geography of developing countries can have any one or a combination of the following characteristics: deserts, mountains, woodland, plains, delta, and jungle.

3. WEATHER. The gamut of weather conditions from tropical heat, near freezing cold, desert dryness, and monsoon rains is as varied as are the countries beset or threatened by insurgency.

4. COUNTRIES. The following list of countries are, have been, or may be faced with an insurgency movement. Characteristic of them all is a severity of climate and ruggedness of terrain.

a. Below are listed countries in which insurgency and guerrilla warfare have taken place. The list includes US Army MAAG and Missions, indicating the many countries of the world in which the Army is committed. The list also includes indication of countries whose Army has pack animal units and/or cavalry.

<u>COUNTRY</u> ⁺	<u>MAAG</u> ⁺⁺	<u>MISSION</u> ⁺⁺	<u>PACK ANIMALS</u> ⁺⁺⁺ <u>AND CAVALRY</u>
Algeria			X
Cuba			
Greece	Training		X
Laos			X
Indonesia	Logistic		X
Iran	Training		X
Philippines	Logistic		
Vietnam	Sub Unified Command		X

b. Countries where insurgency and guerrilla warfare situations could develop or are developing.

Angola			
Algeria			X
Bolivia		X	X
Brazil		X	X
British Guinea			
Burma	Logistic		X
Colombia		X	X
Congo	Training	MAP	
Dominican Republic		X	
Ecuador		X	X

+ Status of Military Counterinsurgency Programs, Including Counter-guerrilla Forces as of 1 Aug 64 (U) (SECRET)

++ "Where the Troops Are" ARMY, Lt Col Frank F. Rathburn, March 1964, p. 39.

+++ See Appendix III

<u>COUNTRY</u> ⁺	<u>MAAG</u> ⁺⁺	<u>MISSION</u> ⁺⁺	<u>PACK ANIMALS</u> ⁺⁺⁺ <u>AND CAVALRY</u>
Haiti			
Honduras		X	
Indonesia	Logistic		X
Iran	Training	X	X
Jordan			X
Laos			X
Libya	Logistic		
Malaysia			X
Morocco	Logistic	MAP	
Pakistan	Logistic		X
Panama		X	X
Portuguese Guinea			
Saudi Arabia	Training	MAP	X
Somalia/Ethiopia	Logistic		X
Syria			
Thailand	Training		X
Timor			
Venezuela		X	X
Yemen			
Zanzibar (Tanzania)			
Cambodia			X
El Salvador		X	X
Ghana			

<u>COUNTRY</u> ⁺	<u>MAAG</u> ⁺⁺	<u>MISSION</u> ⁺⁺	<u>PACK ANIMALS</u> ⁺⁺⁺ <u>AND CAVALRY</u>
Guatemala		X	X
Mozambique			
Nepal			
Peru		X	X
Tanganyika			
Argentina		X	X
Cameroon			
Egypt			X
India	Logistic	MAP	X
Ivory Coast			
Nicaragua		X	X
Republic of South Africa			
Southern Rhodesia			
Surinam			
Sudan			
Togo			
Tunisia			

c. Countries considered not susceptible to insurgency during the present time frame but which have US MAAG or Missions:

Chile		X	X
Paraguay		X	X
Uruguay		X	X
Costa Rica		X	
Liberia	Logistic	MAP	

<u>COUNTRY</u> ⁺	<u>MAAG</u> ⁺⁺	<u>MISSION</u> ⁺⁺	<u>PACK ANIMALS</u> ⁺⁺⁺ <u>AND CAVALRY</u>
Mali	Logistic	MAP	
Turkey	Training		X
Republic of China	Training		X
Japan	Training		
Korea	Training		
Belgium	Logistic		
Denmark	Logistic		X
France	Logistic		X
Germany	Training		X
Italy	Logistic		X
Netherlands	Logistic		
Norway	Logistic		X
Portugal	Logistic		X
Spain	Training		X
United Kingdom	Logistic		X
Senegal	Logistic		

5. COMMENTS FROM THE FIELD.

a. General. This section contains random comments from the field relative to pack transport. The comments have been taken from letters, interviews, and news articles.

b. Vietnam. In an article in Army, Captain George W. Gaspard, Jr., pleaded for pack animals for counter guerrilla operations in Vietnam. He says ...

Man-carrying 60-pound rucksacks along narrow and devious trails, through the densest bamboo, traversing many kilometers of punji stakes and man traps, all the while trying to maintain the strictest of patrol discipline, was most difficult. My eyes were opened to the need for the unglamorous Army pack animal.²

c. Thailand.

(1) In a letter to Captain Tolman, VC, USAJFKCENSPWAR, Lt Col

B. S. Ott, Senior Veterinary Advisor in Vietnam, states:

I have just returned from Bangkok where I visited a pack animal outfit. I was very impressed with the capabilities of the unit. They are using Thai ponies which are approximately 10 hands. They have a lightweight pack saddle for carrying weapons, ammunition, radios and general equipment. In my opinion, these small ponies are extremely useful in dense jungle areas which are not accessible by jeeps and trucks.³

(2) Col W. E. Lord, Veterinary Advisor, JUSMAG, Thailand, in a letter to Captain Tolman has the following observation to make:

I would not recommend elephants as pack animals, as horses, mules, cows, water buffalo, are more readily available and can perform the job satisfactorily.

They (elephants) would serve as a means of publicity but not as a practical means of moving men or equipment.⁴

d. Pakistan. Excerpts from a letter to Captain Tolman, from Col T. F. Hooper, Army Attache in Pakistan, indicates that pack animals are still in use by the Pakistan Army.

²"A Bray for the Army Mule," Capt G. W. Gaspard, Jr., Army, March 1964, p. 70.

³Letter, MACMD, USMAG-V, 14 May 64, Lt Col Bruce S. Ott.

⁴Letter, USASEL, JUSMAG, Bangkok, Thailand, 29 Jun 64, Col Willis E. Ford, VC.

Although camels are widely used in West Pakistan, both as draft animals and pack animals, they have not been used in the recent past by the Pakistan Army.

Elephants...haven't been used by the Army for several decades.

The only animals used in the Pakistan Army as of this date are mules and a few horses.... The Pakistan Army uses the Phillips Pack Saddle and employs its mules only in the mountain regions.

At present the only forces in Pakistan that utilize the Camel Corps is found in the paramilitary forces.

6. FINDINGS.

a. The breeding grounds of subversive insurgency are the developing countries of the world, where political, social, and economic unrest is the order of the day. Most of these countries are characterized by rugged terrain, extremes of weather, and poor transportation facilities -- where dependence of pack and draught animals is great.

b. The US Army is operating, or at least is represented by either a small MAAG or Mission, in 29 of the 58 countries listed in paragraph 4a and b.

c. Thirty-eight of the 71 countries listed in paragraph 4b and c have pack animal or cavalry units in their armed forces. Thirty-two of these 38 have a US MAAG or Mission.

5. Letter, 4-22-64 OMBARMA, 21 Apr 64, Col Thomas F. Hooper, US Army Attaché, to Captain Tolman, DVM, USAJFKCINCPAC.

APPENDIX II
PACK ANIMALS OF THE WORLD

APPENDIX II

PACK ANIMALS OF THE WORLD

1. GENERAL. Man has used pack animals for transport in every land and in every climate. From the cold Himalayas to the searing desert heat of the Sahara, to the dark rotting jungles of Burma, animals of every size, shape, breed, and demeanor have served mankind for centuries. The most common animals used for pack and draft are as follows:

- a. Horse - Pony - Asian Horse.
- b. Mule.
- c. Donkey - Burro.
- d. Oxen - Bullock - Yak.
- e. Water Buffalo - Carabao.
- f. Camel.
- g. Llama.
- h. Elephant.
- i. Reindeer - Caribou.
- j. Dogs.

2. HORSE. The horse, presumably derived from the wild horse of Central Asia, seems to have been first domesticated in Japan, though used for riding - not for draught. The horse's westward spread over Europe and finally into the New World, had a profound influence in the life of man.⁶ The horse, for all his noble qualities, was discovered to be more adaptable as a carrier of man than for utilization as a pack animal; however,

⁶Encyclopedia Britannica, No. 22, 1963, p. 408.

it must be noted that the horse can pack with good results.⁷ Horses can be found in almost every climatic area in the world.

3. THE MULE. Of all pack animals, the mule is by far the most favored pack animal of most of the armies of the world. He has endurance which enables him to carry a load of 100-160 pounds for 20-25 miles a day. Mules are intelligent and with proper handling, usually obedient. There are many varieties of mules: North and South American, Spanish, Italian, Maltese, Cyprian, Egyptian, Syrian, Abyssinian, Persian, Chinese, Indian, and Cape. Properly cared for and trained, the mule will provide the best pack transport in almost every climate and type of terrain.⁸ FM 101-10, SOPM, Organization, Technical, Logistics Data and FM 55-15, Transportation Corps Reference Data, both contain data on mule characteristics, capabilities, forage requirements, and transportability.

4. THE DONKEY. The donkey, found in Latin America, Africa and Asia, is a domesticated species of the African Wild Ass of Ethiopia. The domestic donkey thrives on very coarse food and is extremely hardy under rough climatic or terrain conditions. It can survive where horses cannot. The donkey is naturally patient and persevering, and responds to gentle treatment. He can be obstinate when overburdened or brutally treated.⁹

5. THE OX. Oxen are employed as pack or draft transport animals in many parts of the world. They are used, as are the Water Buffalo, Carabao,

⁷Pack Transport and Pack Artillery, Michael F. Parrino, Queensland Publishing Company, 1956, p. 30.

⁸Animal Management, His Majesty's Stationery Office, London, 1933, p. 270.

⁹ibid, p. 274.

Bullock and Yak, in South America, South Africa, India, Southeast Asia, and the Pacific Islands. They are generally more suited for line of communication transport rather than at the front. They may, however, be successfully used for pack work in difficult terrain as in the tea caravans which come over the Shan hills in Burma. The oxen can travel about 2 - 2½ miles per hour and cover 15-20 miles daily under favorable conditions. Pack saddles are kept in place by a crupper and breast piece only, no girth being used and, so equipped, the steepest and roughest of mountain paths can be successfully negotiated.¹⁰

6. THE CAMEL. There are two classes of camels: double-humped and single-humped.

a. The double-humped camel is found in Turkestan and throughout Central Asia. This is a long-haired, sturdy, powerful animal bred in and accustomed to rigorous climates, capable of marching in snow-covered mountains.¹¹

b. The single-humped camel is found in Arabia, Northern Africa, Egypt, Ethiopia, Somali, and India.

c. As a transport animal, the camel can, under suitable conditions, carry 250-450 pounds for 20 miles a day. Young and strong camels can travel up to 60 or 70 miles per day. The camel is patient, can endure pain, hunger and thirst with a stoical courage beyond all other animals. One cannot, however, work a desert camel successfully in the hills or a

¹⁰Ibid, p. 270.

¹¹Ibid, p. 276.

delta camel in the desert. Camels are not intelligent; they cannot be taught much. They are willing animals and must be driven with care and judgment.¹²

7. THE LLAMA. The llama is an animal common to the high cold regions of South America. It is a member of the Camelidae family generally found in the mountains of Peru and Chile. It is a sure-footed animal, capable of carrying 100 pounds at 2½ miles per hour walking all day. Only mature male llamas are used as beasts of burden.¹³

8. THE ELEPHANT. There are two general types of elephant, the Indian and the African.

a. The Indian elephant is found in the wooded and jungle regions of India, Burma, Thailand, Laos, Cambodia, and Vietnam. The elephant of Southeast Asia has been domesticated and used for centuries for hauling logs out of the jungle and for transporting people and provisions. The British used elephants to carry heavy weapons in their India campaigns.¹⁴

b. The African elephant, found in the plains region of South and Central Africa, has not been used extensively as a beast of burden as has the Indian elephant.

c. Hannibal's campaign over the Alps is probably the best known example of the military application of the elephant. Though slow, they are hard workers and can carry heavy loads. They are intelligent and easily trained; but the care, maintenance and feeding of elephants is

¹²Ibid,

¹³The Encyclopedia Americana, No. 17, 1963.

¹⁴Ibid.

time-consuming and expensive. They are expensive to buy and are not found in great supply.¹⁵

9. THE REINDRER. Reindeer are used as domesticated draught animals by the Lapps in the northern reaches of Scandinavia.

10. THE DOG. Trained dogs are used individually or in teams in arctic of subarctic areas; in temperate zones they have been used to carry messages and small packages. Towed loads should not exceed 100 pounds; pack loads should not exceed 25-35 pounds per dog depending on the terrain. The most commonly used dog in the north is the Eskimo or Husky. The German Shepherd is the most commonly used breed in the temperate zone for scouting, sentry duty, and pack and message carrying.¹⁶

11. FINDINGS.

a. Domesticated pack animals can be found in almost every country in the world.

b. The horse, mule, donkey, or Asian horse are the prevalent pack animals in use throughout the world. They generally are considered the most reliable and economical pack animals.

c. The elephant and camel can carry heavy loads but are expensive and are not found in as great abundance as the horse, mule, or donkey.

d. In some areas, as in the arctic, dog teams are essential for surface movement of supplies and equipment in the winter.

¹⁵ Animal Management, His Majesty's Stationery Office, London, 1933, p. 276.

¹⁶ FM 55-15, Transportation Corps Reference Data, Headquarters, Department of the Army, 1960, p. 267.

APPENDIX III

ANIMALS IN THE MILITARY FORCES OF SELECTED COUNTRIES

APPENDIX III

ANIMALS IN THE MILITARY FORCES OF SELECTED COUNTRIES*

Country	Pack/Draft	Cavalry	Remarks
Afghanistan	Believed to be 2000 to 3000 horses and mules		Information indicates that the Afghan Army still employs many animals in its horse cavalry units, its mule-pack units, and as officers' mounts. The Afghan Army Reconnaissance Branch employs approximately 900 horses for its units.
Argentina	200 Horses and Mules	Approx 800	Approx 800 horses in the Cavalry.
Australia			During war, this area generally follows British organization and TOE of the Pack Transport column which has a HQ Co, and 4 Pack Transport Co, each with 72 mules or horses, plus reserve animals.
Bolivia			Has cavalry and pack animals. Data on numbers unavailable.
Brazil			Has cavalry and pack animals. Data on numbers unavailable.
Burma	Approx 1500 horses and mules		48 horses, 14 mules, 30 donkeys in Vet Section. Bullocks reported being purchased for use in less hilly regions where motor cars and carts cannot be used. 1000 Japanese horses procured for use as pack transportation. Elephants, buffaloes, and oxen are used on occasion for special operations. These animals are used for towing as well as packing.

*Study, AMSCD 61-8, Veterinary Service for the Long-Range Army, Final Report, April 1962, p. C-iii.

Country	Pack/Draft	Cavalry	Remarks
Cambodia	Approx 248 horses, 56 mules, 18 elephants and 841 cattle		The 841 cattle are beef and ox draft animals. In addition to all these animals assigned to the Army there are: 22 sheep, 44 goats, 42 deer, and an unknown number of water buffalo.
Chile	Approx 800 horses, approx 850 mules	Approx 2912	Includes 777 draft horses, 32 pack horses, and 850 mules. The pack horses are being replaced by mules and will be eliminated by attrition. Animal transport continues as the principal organic means for the Chilean Army.
Colombia			Has cavalry. Numbers unavailable.
Denmark			Cavalry horse squadron. Number of animals not known.
Ecuador	250 mules	950 horses	The Ecuadorean Army has a total of 950 horses, used exclusively as cavalry mounts, and 250 mules, used exclusively as pack animals. It is planned to retain the horses and mules in the Army.
El Salvador		117	Expected to remain a horse unit because of terrain.
Ethiopia and Eritrea		200	There are no pack animals maintained by the Imperial Ethiopian Ground Forces. The only horse cavalry units in existence are ceremonial troops.
France			Camels are used by small units of native troops in Algeria. Camels and horses are used by native troops, in Algeria. 18,000 horses--12,000 in Africa, and 6000 in France are probably divided into one-third cavalry units and two thirds infantry divisions.
Great Britain	Approx 288 mules and pack horses		Mules of pack horses (1957). Cavalry used for ceremonial and display.

Country	Pack/Draft	Cavalry	Remarks
Greece			Animals per infantry division, 2103 of which approx 5% horses. Wartime mobilization goal includes 30,000 mules and horses. Extensive use of mules for transport expected to continue.
Guatemala	185	41	Army will probably continue to use animals.
Indonesia			No information is available on the animal population of Indonesia. Pack animals have been procured from Australia, and cross-bred with smaller animals from Timor and Flores.
Iran	Approx 12,000	Approx 7,000	It is planned to disband the Army's mounted units. The resulting surplus horses may be sold to the Gendarmerie, which has a requirement for 2500 horses.
Italy			Horses used in some minor units. Mules used extensively in North and expected to continue. Very limited use of horses in Alpine Brigades.
Laos			The Army uses elephants, ponies, and horses of small frame to haul supplies but no data as to the number of animals.
Malaysia		12	During war, this area generally follows British organization and TOE of the Pack Transport Column with a HQ Co, and 4 Pack Transport Co, each with 72 mules or horses, plus reserve animals. The SARAWAK Rangers have been given the task of developing techniques for using mules and ponies as a means of jungle transport. Use of elephants and water buffalo has been reported.

Country	Pack/Draft	Cavalry	Remarks
Mexico	Approx 1700 mules, 10,000 horses, 100 donkeys		Twenty regiments of horse cavalry will comprise the chief mobile arm of the Mexican Army.
New Zealand			During war, this area gen- erally follows British or- ganization and TOE of the Pack Transport Column which has a Hq Co, and 4 Pack Transport Co, each with 72 mules or horses, plus re- serve animals.
Nicaragua	14 donkeys 6 oxen 51 horses 67 mules		In addition, the Guardia Nacional rents horses and pack animals from the local inhabitants when needed.
Norway	One pack company	Approx 130	One pack company. Numbers unknown.
Pakistan			Horses and mules are used in the Pakistan Army to draw carts and as pack animals. Camels are used as pack ani- mals on the plains and on the deserts. Data on the number of animals used is lacking.
Panama		Approx 85	Horses attached to Panama National Police in Panama City.
Paraguay			Has cavalry. Numbers not available.
Peru	775 horses 1258 mules	2225	
Portugal			Extensive use of ponies, horses, mules expected to continue. Cavalry horse regiments-numbers unknown.
Philippines, Republic of		59	A proposal to include horse- breeding in the socioecon- omic military training pro- gram is not known to have been acted on favorably by the Armed Forces.
South Vietnam	164 horses as of 1960		Used by the Vietnam Army Pack Co.

Country	Pack/Draft	Cavalry	Remarks
Republic of China (Taiwan)			At the present time GAC not using any pack animals. No mules available on the island. Horses used for riding and training purposes. 126 horses at military academy at Fengshan for training. 190 horses at Stud Station at Houli for breeding purposes. 212 horses being used by Provincial Government's Peace 528th Preservation Corps. US MAAC has been supporting 400 horses (storage only) but has recommended that the Stud Farm be discontinued. Chinese have asked for larger numbers of horses, but request not granted by MAAC. 1 May 56 Stud Station was transferred from Army QM to the Taiwan Peace Preservation Headquarters.
Thailand			Ponies and horses are used as pack animals. No data on the number of animals. Thai Army has 1 cavalry division, but no data as to the number of animals assigned. NOTE: Kanburi is the largest breeding station in Thailand with 300 brood mares, 50 stallions, 87 fillies, 150 yearling colts, and 7 jackasson (as of 1958). This station works for both civilian and military.
Turkey	11,066	12,690 None	Army will probably continue to use animals.
United States			19 equine used for ceremonial purposes.
Uruguay	250 mules	2,291 None	Horses reported as officer mounts (649) and other horses (1642). Army will probably continue to use animals. Authorized animal strength is 13,863, of which 7,389 are cavalry.
West Germany	Approx 200	Approx 80	MC Div has pack animal co. (mules and horses) only animal pack unit in W. German Army.

Country	Pack/Draft	Cavalry	Remarks
Venezuela			Has cavalry horses, numbers not available (1960). Plan to continue use.

FINDINGS.

a. This listing contains information on 40 nations of the free world which have pack animals and cavalry units in their armed force.

b. A comparison of this Appendix and Appendix II indicates that the United States Army has a MAAG or Mission in 33 of these countries.

APPENDIX IV
HISTORICAL EXAMPLES

APPENDIX IV
HISTORICAL EXAMPLES

1. GENERAL.

a. History has served as a foundation for the present and a springboard to the future. We cannot, however, allow ourselves to be lulled by history or convinced that the past holds all of the answers to the transportation problems of the future. We must not be bound to the past as were the authors of "Cavalry Combat" when they wrote:

Finally, relative to post-World War (I) developments, it is rash, as well as unscientific, to make deductions from speculative imaginations instead of from observed facts and experiences gained in actual combat.

b. Though not using "speculative imagination" we must look to the past with its "observed facts and experiences gained in actual combat" to seek some answers for today's combat problems.

c. The historical examples cited below show that pack animals have been used in the recent past with a measure of success by conventional forces as well as by guerrilla, counter guerrilla, and counterinsurgency forces.

2. COUNTERGUERRILLA. The following examples serve to illustrate the use of pack transportation in counter guerrilla operations:

a. Greece. The United States gave 4000 mules to the Greek government to aid in its 1946-49 counter guerrilla operations.

¹⁷Cavalry Combat, The Cavalry School, US Army, Telegraph Press, Norristown, Pa., 1937, p. 507.

This, with its resources in motor and animal transport gave it (the Greek Army) strategic mobility and staying power which tended to offset the guerrillas' greater tactical mobility. Motor transport had little value in the mountainous country to which the guerrillas normally withdrew to nullify the Army's advantage in transport and heavy weapons. It did, however, enable the Army to maintain larger forces operating in the impassable area. Through its use, resupply could be brought up to a roadhead, whence it could be forwarded by animal transport.¹⁸

b. Laos. In an interview with Lt Col Revis, now with US Army CDCSWA and formerly with PEO/MAAG Region Chief of Military Region IV in Laos, he stated that pack animals, oxen and horses, had been purchased by the United States for the Lao Army. The animals were employed on several operations but, due to improper handling and inadequate knowledge of pack animal technique, they were poorly utilized. Several died, the others were ill fed, improperly loaded, and driven too far.¹⁹

c. Vietnam. Though not extensively utilized, pack animals are employed in counter guerrilla operations in Vietnam. The small Asia horse has been used by special forces personnel for patrol operations in the wooded plains and jungle-covered highlands of Central Vietnam. Elephants have been used on patrols in the vicinity of Ban Don, near the Cambodian border.²⁰ The First Animal Pack Company of the ARVN was organized in 1958 to support combat units by providing an additional means of transport for

¹⁸Col J. C. Murray, USMC, "The Anti-Bandit War," selections from the Marine Corps Gazette, The Guerrilla and How to Fight Him, 1962, p. 65.

¹⁹Interview with Lt Col W. E. Revis, Chief, Special Forces Operations Branch, USACDCSWA, 1964.

²⁰Interview with Capt J. T. Robinson, Special Forces Operations Branch, USACDCSWA, 1964.

supplies and equipment over terrain unsuited for wheeled and tracked vehicles.²¹ The pack animal company has since been inactivated in favor of a hiring or contracting method of procuring pack transport for "as needed" and "where needed" operations.²² In a recent article in the Durham (N. C.) Morning Herald, some comments were made on the use of elephants in Vietnam.

BAN DON, South Vietnam (AP) - American Special Forces men are trained to handle virtually every wartime situation at their base camp at Ft. Bragg, N. C., but not elephants.

'I thought this was a helicopter war,' said Sgt. I. C. Tilbert Apodaca when he arrived from Ft. Bragg. 'But they send me to elephant country. How do you fly an elephant?'

Apodaca is now a veteran mahout - elephant driver, who has spent many days of elephant patrols along the Cambodian border 20 miles away.

He can 'fly' an elephant pretty well.

He and his 11 Special Forces 'A' team colleagues are proud that they are the only elephant-borne team in the US armed forces.

Before the Special Forces came, the elephants came, the elephants were used for carrying timber and water. Now they are used for war.

The Communist Viet Cong have them too, and are known to pack supplies into Vietnam from Cambodia and Laos on elephants.

In Hannibal's day the elephants were used to engage in close combat with the enemy. Nowadays they are kept out of the way.

A Special Forces man explained: 'Elephants are so scarce and so valuable in this primitive economy that to have one killed is a serious matter.'

In times of battle, the Special Forces elephants are trained to kneel down, but the Viet Cong apparently never aim at them. 'We have had men shot off their backs, but only infrequently are the animals hit. I think the Viet Cong know the bad propaganda that could be generated in the area if they killed them,' a Special Forces man said.

²¹Lt Col L. K. Patterson, Handbook for the use of Pack Animals, First Animal Pack Company, ARVN.

²²Tactics and Techniques of Counterinsurgent Operations, MAAC-V, 1 Jul 63.

The Americans hire the elephants at 150 Vietnamese piasters - about \$2 - a day. Four elephants usually accompany each patrol. Sometimes the Americans use 12 elephants at a time.

Each elephant can carry up to a ton of supplies. Sometimes the command post of the patrol is established on an elephant's back, and it wanders through the brush with a radio antenna waving high in the air. Two Americans were killed on an elephant patrol in November last year in this region, but they were on the ground at the time.²³

3. GUERRILLA. The following examples will serve to illustrate the use of pack transportation in guerrilla operations:

a. Greece. The guerrillas fighting in Greece during 1946-49 were resupplied from bordering countries and by what they could forage off the land. Mule trains were the principal means of transporting the many tons of supplies necessary to equip and supply the guerrilla army.²⁴ A book entitled Modern Guerrilla Warfare states:

Supply operations for support of guerrilla forces in the interior of Greece were difficult and hazardous because of terrain, distance, and possible interception by the GNA. The guerrillas solved the problem adequately by using pack animal trains moving mainly at night.²⁵

b. China. During WW II, large portions of guerrilla forces in China were large, conventionally organized forces. According to Mao Tse-tung ...

The problem of transport is more vital in North China than the south for in the south all that is necessary is mules and horses. Small guerrilla units need no such animals but regiments and brigades will find them necessary.²⁶

²³The Durham Morning Herald, "Elephant Driving Course Now Wounded at Fort Bragg," 1964, Horat Fams.

²⁴The Guerrilla and How to Fight Him, Col J. C. Murray, 1962, p. 104.

²⁵Franklin Mark Osanka, Modern Guerrilla Warfare, The Press of Glencoe, Macmillan Company, New York, New York, 1962, p. 223.

²⁶James B. Griffith, "Guerrilla Warfare in China," Marine Corps Gazette, June 1951, p. 20.

c. Vietnam. The Viet Cong are known to use pack animals in their long trek from North Vietnam through Laos and Cambodia to the Republic of Vietnam. Elephants, loaded with heavy weapons, have been sighted in the I and II Corps Tactical Zones.²⁷

d. Burma. Long-range guerrilla forces operating in Burma during WW II made extensive use of aerial resupply and pack animal transport. Merrill's Marauders, the Chindits, and Marsmen used thousands of mules and Asian horses.

Supply arrangements revealed how completely the campaign had come to depend on air supply. ...Animal pack transport to face the hills ahead was heavily relied on.... Here and there in the columns were small two-wheeled carts, improvised and pulled by ponies and little Burmese horses....²⁸

OSS Detachment 101 provided the advance scouting, patrolling, and small unit actions which paved the way for larger guerrilla forces. This detachment made extensive use of mules and elephants.

Elephants were often the foundation of a guerrilla battalion's transport logistics. They ate off the land, and always traveled a day or two behind the main column.²⁹

Another organization, the Mars Task Force, was more conventional in appearance yet had the same unconventional task as OSS 101. Its mission was to travel through dense Burma jungles and over high mountains around and

²⁷Interview, Lt Col J. H. Irving, Jr., Armor, Chief, PSYOP Branch, USACDCSWA, March 1964, Past Senior Advisor, 2d (ARVN) Division.

²⁸Charles F. Romanus and Riley Sunderland, USA in WW II, The CBI Theater, Time Runs Out in CBI, Office of the Chief of Military History, Department of the Army, 1959, p. 185.

²⁹Behind the Burma Road, William R. Poers and Dean Brails, Atlantic, Little, Brown and Company, Boston, Mass., 1963, pp. 118-119.

behind Japanese lines. There are many photographs in Mr. Randolph's Book, Marsmen in Burma, of mules, their loads, handlers, and the terrain over which they moved. The author says this about mules:

It has been said that the famed "weasel," which can out jeep a jeep, went where mules would not go in Italy. In Burma, men and mules went where a weasel could not go!³⁰

The official history of the CBI theater recounts the important role of the mule in jungle guerrilla warfare.

Because of the extremely difficult nature of the terrain in North Burma, extensive reliance was necessarily placed on animal transport, such as mules, horses, and Indian ponies. Each division had about 1000 animals. Forage for the animals was regularly drop-supplied by air.³¹

Pack transport was provided for mobility in jungle and over rough terrain. CALAHAD began its campaign with an animal strength of 700.³²

4. PACK ANIMALS EMPLOYED BY MECHANIZED ARMIES IN CONVENTIONAL WARFARE.

The following examples serve to illustrate the employment of pack animals in conventional warfare in mountain, northern, and jungle operations. These examples depict modern mechanized armies confronted with non-trafficable, hostile terrain, severe weather, and how these armies turned to the services of pack animals.

³⁰Marsmen in Burma, John Randolph, Guild Publishing Company, 1946, Introduction.

³¹Albert C. Smith, US Army in WW II, The CBI Theater, Stillwell's Command Problems, Office of Military History, Department of the Army, 1955, Government Printing Office, p. 33.

³²Ibid, p. 35.

a. Russia. During the winter of 1941 when the German Army found itself bogged down in mud and snow, it resorted to the Panje horse, the little peasant horse of the Russian steppe. DA Pamphlet 20-201, Military Improvisation During the Russian Campaign, discusses the Germans' problems:

When the German armored and motorized units swept across the dusty plains of Russia during the summer of 1941, nobody paid much attention to the insignificant little peasant horses of the Russian steppe. The tankers and truck drivers could not fail to notice the industrious little animals pulling heavily loaded peasant wagons cross-country whenever they were pushed off the road by the modern mechanical giants. They were looked upon sympathetically, but what was their performance compared to that of the steel colossi and multiton carriers? Any comparison obviously was out of the question. Many a man dismissed them with a disdainful gesture and the words: 'A hundred years behind the time.' Even next to the heavy coldblooded draft horses and the tall mounts of the infantry divisions their dwarfish cousins seemed slightly ridiculous and insignificant.

A few months later the Panje horse was judged quite differently. It came into sudden demand during the muddy season when no motor vehicle could operate and any number of coldblooded horses could not move the heavy guns and ammunition. How were the advance elements to be supplied when they were stranded without provisions? By Panje columns. Who brought the urgently needed ammunition to the front when the organic divisional supply columns were stuck in the mud as far as fifty miles to the rear of the advance elements? Again the Panje column. Who was capable of moving gasoline from the railheads to the mechanical colossi even through the deepest mud? The Panje horse. By what means of transportation were the badly wounded to be transported when the most modern ambulance could no longer advance in the mud? The answer was always the Panje horse and wagon. From then on they became faithful, indispensable companions of the field forces. In winter the Panje horse proved even more essential. The Panje sleigh became the universal means of transportation when motor vehicles were incapacitated and roads were snowbound or nonexistent. During the first months of 1942 some panzer divisions had as many as 2,000

Panje horses but hardly a single serviceable motor vehicle. For that reason they received the nickname 'Panje Divisions.' This unexpected turn of events made the veterinarian the busiest man in any panzer division.

There was not a single German military agency in Russia which was not forced to employ Panje vehicles or columns during winter, not even excepting the Luftwaffe. German mechanization had not made sufficient progress to cope with the Russian mud or terrain conditions in winter. As a result German motor vehicles were incapable of replacing native means of transportation despite the fact that the latter were 'a century behind the times.'³³

b. Finland. DA Pamphlet 20-201 goes on to recount German and Russian employment of reindeer on the arctic front in Finland during World War II.

In the absence of roads that could be used as traffic arteries, the transportation problem could be solved only the use of very narrow conveyances which could move across open country, through swamps of little depth, and through snow. The ideal means of transportation was the Finnish cart, a narrow two-wheeled vehicle drawn by a small horse. In addition the Germans use self-sprung drag sleds formed of tree forks, which the Finns called purillas, pack animals, and human pack bearers. Reindeer served as draft animals during winter. These reindeer were purchased with the assistance of local experts and given some time to get accustomed to the German soldiers who were to be their new handlers. With its highly developed sense of smell the Reindeer does not take to strangers and is likely to run away. For the transitional period of adjustment it was therefore decided to hire the Lapps who had hitherto handled the reindeer. The next step was to train the troops in the handling and care of these animals. In summer the reindeer roam on the open range like any other wild game and can only be

³³DA Pamphlet 20-201, Military Improvisation During the Russian Campaign, Headquarters, Department of the Army, Washington, D. C. August 1951.

classified as such, whereas in winter they become domesticated animals. Even the methods of harnessing and driving reindeer are unusual and must be learned. Each division received one reindeer transport column with fifty reindeer for the primary purpose of facilitating the supply of raiding detachments and reconnaissance patrols. Partly because of foreign exchange considerations the Germans employed relatively few reindeer whereas the Russians organized an entire reindeer division and committed it in midwinter after executing a major enveloping maneuver on the southern flank of the German arctic front. In this operation the Russian troops and all their equipment were transported on reindeer sleds.³⁴

c. Italy. References to the fighting in the mountains of Italy during World War II are rife with examples of the support rendered by mule trains. Here are some examples of the problems encountered in developing these mule trains:

The Army's advance into the mountains where no roads or trails existed required increasing use of pack trains. In many cases only mules or horses could reach the forward areas. The only pack train in Fifth Army was the one which the 3d Division had used in Sicily and brought with it to Italy. During the early days of the Italian campaign General Clark foresaw the use of this means of transportation. On 27 September he wrote to the Chief of Staff: 'As I look at the map it appears that our future operations, as we wind our way to the north in Italy, will be through mountainous terrain. I am impressed with the pack train which the 3d Division has. We are going to need more of this type of transportation. Please have a study made, estimating our future requirements and recommending to me the best way to fulfill them.' As a result of this study it was determined that 1,300 mules were needed by the Army and that few could be secured from local sources. A requisition, placed with Peninsular Base Section for 900 animals, produced a total of 316, although the countryside was scoured for three weeks.³⁵

³⁴Ibid.

³⁵US Fifth Army History 7 Oct - 15 Nov, Part II, "Volturno to the Winter Line."

When the 34th Infantry Division moved into Italy, and mountain fighting was encountered, a pack train consisting of some two hundred animals was operated. This was during November and part of December. Veterinary supplies, pack equipment, and shoeing equipment were available only in small amounts, and in many cases, not at all. However, despite every obstacle, rations, water, ammunition, and other supplies were delivered to men fighting in the mountains. Inadequate as this first pack train was, the Division, without it, would not have been able to gain and hold much of the high ground to the west and north of the Volturno River.³⁶

d. New Guinea. US personnel assigned to pack animal units were not very successful in directing, leading, or handling native drovers in New Guinea during World War II. Australian soldiers were more adept in their treatment and relations with them and as a result controlled most pack trains.³⁷

e. Korea. In Korea, the 1st Cavalry Division, 7th Regiment used captured Mongolian ponies and mules to transport material to build the various defense barricades across Korea during the fall of 1951 and spring of 1952.³⁸

f. Germany. During World War II the German Army used animals to transport men and equipment at night prior to the Battle of the Bulge.³⁹

³⁶History for 1943 of the Veterinary Service in the North African and Mediterranean theatre of operations, from the USAMEDS Historical Unit, Office of the Surgeon General.

³⁷Letter, AIBKAS-DIL, US Army Armor School, 18 February 1965, subject: Draft Study "Requirement for Pack Animals in Special Warfare Operations."

³⁸Letter, CDCMSA-CO, US Army CDC Medical Service Agency, 25 February 1965, subject: Review of Draft Study, "Requirement for Pack Animals in Special Warfare Operations."

³⁹Ibid.

g. India. During the Chinese invasion of India in 1962, the Indian Army found that mules were an invaluable aid in keeping the supplies moving up into the mountains to the front. The New York Times, (7 June 1964), carried this account.

NEW DELHI (UPI) - Mules can be more useful than multimillion dollar military aid, especially in mountain country like the snow covered north eastern front where the Indian Army fought the Chinese in 1962.

The most thankless jobs during the war were assigned to mule teams which carried food, arms, ammunition, and other vital supplies to the cold Indian troops serving in isolated border posts. A veteran said: 'Where men failed, mules helped.'

Recalling an incident when a large convoy of jeeps had failed to reach a high altitude base because of the slippery trail, the soldier said one of the junior noncommissioned officers suggested mules.

'In no time,' the soldier recalled, 'we had loads of tinned food and medicines moving briskly atop mules.'

The Animal Transport Company forms a major part of the Indian Army Service Corps. The latter runs special classes in a North Indian town where mules are broken and they and their handlers are trained.⁴⁰

5. FINDINGS.

a. Pack animals have been used in modern times by guerrilla and counter guerrilla forces, and by conventional forces in limited and general war.

b. Special forces personnel have used pack animals in Laos and RVN.

c. Mules and the small Asian horse more frequently used than any other pack animals.

⁴⁰The New York Times, "Mules in India," 7 June 1964, New York, New York.

d. The lack of available forage, even in the jungle, created feed and forage resupply problems. CDC Medical Service Agency indicates that the amount of bulk and weight of food required by animals could be reduced by forty percent by the use of pelletized rations. Nosebag feeding will simplify care and reduce waste.

APPENDIX V
US ARMY POLICY, DOCTRINE AND RESOURCES RELATIVE TO
PACK ANIMALS

APPENDIX V

US ARMY POLICY, DOCTRINE AND RESOURCES RELATIVE TO PACK ANIMALS

1. US ARMY POLICY.

- a. The official Army policy on the use of pack animals is stated in AR 700-22, Logistics (General) Horses, Mules and Working Dogs.

Within the Department of the Army animals will be used when the task cannot be accomplished effectively and economically by other available means. Approval will be obtained from Department of the Army prior to departure from this policy.⁴¹

- b. This position was reiterated in a recent issue of Army Times.

Mountains, yes! Mules, no! says the Army. If the Army has to fight in mountains it will requisition mules for the task. However, according to Maj Gen R. E. Haines, Jr., Deputy Assistant Chief of Staff for Force Development there are no plans now to form special units.⁴²

2. US ARMY DOCTRINE.

- a. General. Listed below are appropriate excerpts from field manuals which indicate "when and where" pack animals may be used in counterinsurgency, counterguerrilla warfare, guerrilla warfare, survival, and jungle operations. FM 100-1, Doctrinal Guidance (U), points out the requirement for locally procured equipment and provisional pack animal units.

b. Organic transportation means normally require augmentation from both United States and local sources. TOE materiel may be of little use in a given locality and have to be replaced by items more suitable to the area. Dependent upon the conditions under which the command is operating, provision of adequate transportation may require such measures as ...

⁴¹AR 700-22, Logistics (General) Horses, Mules and Working Dogs, Jan 1961.

⁴²"No Plans for those Mules, Long-Ear Type," Army Times, 25 March 1964, p. 4.

NOTE: Underlining in quoted documents added by Study author.

(2) Organizing provisional animal pack units, to include the necessary logistic support backup, from whatever resources are available.⁴³

b. Counterinsurgency. Doctrine for pack animal employment in counterinsurgency is contained in the following field manuals:

(1) FM 31-22, US Army Counterinsurgency Forces, indicates that all modes of transportation support must be investigated or planned for under all conditions encountered in counterinsurgency operational environments.

Certain unique transportation problems must be considered in providing transportation support to counterinsurgency operations. Support must be provided under all conditions. Minimum essential items required in support of unit operations, which cannot be manpacked by the soldier or carried by organic vehicles because of terrain conditions, must be transported by other modes of transportation, such as bicycles, indigenous porters, pack animals and rafts and sampans. Such modes of transportation should be planned far in advance and SOP's and control organizations developed to control their use. These procedural guides should be flexible enough to enable the various modes of transportation to be selected based on terrain, environmental and operational conditions. Unconventional modes of transportation will back up aerial logistic support to forward isolated areas as necessary to accomplish the mission.⁴⁴

(2) FM 31-16, Counter guerrilla Operations, is applicable to cold and limited and general war counter guerrilla operations. It recognizes the need for counter guerrilla forces to move through the same difficult terrain as do the guerrilla forces and to enhance their mobility by the use of many different types of transport including pack animals.

⁴³ FM 100-1, Doctrinal Guidance, Headquarters, Department of the Army, 1954.

⁴⁴ FM 31-22, US Army Counterinsurgency Forces, Headquarters, Department of the Army 1963, p. 72.

Guerrilla forces will utilize every means of transportation available. They develop a cross country mobility difficult for a regular force to equal. The extent and kind of transportation used by a guerrilla force is limited by the area, the force controls, the means at its disposal and the topography. Historically, guerrillas have made extensive use of animals for mounts, pack animals, animal-drawn vehicles and boats.⁴⁵

Certain unusual transportation problems must be considered in providing transportation support to combat units in counterguerrilla operations....

Depending on the situation, the provision of adequate transportation may require such measures as: (1) Commandeering civilian ground and water transportation means such as trucks, bicycles, rafts, sampans, river boats, motorcycles and horses or mules. (2) Recruiting indigenous bearer units and pack animals for pack operations.⁴⁶

(3) FM 31-15, Operations Against Irregular Forces, points out that conditions may necessitate the recruitment of indigenous pack animal units.

Organic transportation means may require augmentation from both military and local sources. Dependent upon the conditions under which the command is operating, provision of adequate transportation may require such measures as - recruiting indigenous bearer units for man pack operations, organizing provisional animal pack units, to include the necessary logistical support, and exploitation of available waterways and indigenous land transportation to include railway and highway equipment.⁴⁷

⁴⁵FM 31-16, Counterguerrilla Operations, Headquarters, Department of the Army, 1963, p. 8.

⁴⁶Ibid, p. 109.

⁴⁷FM 31-15, Operations Against Irregular Forces, Headquarters, Department of the Army, 1963, p. 40.

(4) FM 41-10, Civil Affairs Operations, discusses the use of animals for the movement of civilian supplies.

Upon entry into an area previously under enemy control, all civilian vehicles, trucks, and animal-drawn carts required for the transportation of civilian supplies are organized into transportation pools for operation under the supervision of CA units in the area. The organization of vehicles into pools provides the most effective means for movement of civilians and transportation of essential supplies. To the maximum practicable extent, such vehicles are operated by their respective owners.⁴⁸

(5) FM 100-20, Field Service Regulations Counterinsurgency (U) CONFIDENTIAL, points out:

(U) a. Spatial transportation problems in insurgent areas result from abnormal distances, difficult terrain, lack of signal communication, and the probability that movements will be subject to attack, harassment, and delay.

(U) b. Organic transportation means may require augmentation from both military and local sources.⁴⁹

The manual goes further to discuss special environmental areas such as mountains, jungles, swamps, deserts, and extreme cold. Only in the discussion on mountain areas is there mention of the use of animals to overcome the decreased mobility inherent to such an area.⁵⁰

⁴⁸FM 41-10, Civil Affairs Operations, Headquarters, Department of the Army, 1962, p. 197.

⁴⁹FM 100-20, Field Service Regulations Counterinsurgency (U) CONFIDENTIAL, Headquarters, Department of the Army, 4 May 1964, p. 35.

⁵⁰Ibid, p. 30.

c. Unconventional Warfare. FM 31-21, Guerrilla Warfare and Special Forces Operations, indicates that pack animals may be employed in unconventional warfare.

The transportation requirements of the area command are met largely from within the area since it is usually impractical for the sponsor to provide transportation support for operational use. To fulfill its transportation requirements, the area command utilizes any means available.⁵¹

Movement by foot is usually the primary means, especially in the initial stages of guerrilla development. In specific situations, this may be supplemented by locally procured motor vehicles or animals. The auxiliaries provide whatever local transportation is normally furnished on a mission basis. However, in some instances the guerrillas permanently acquire transportation and organize supply trains.⁵²

d. Other.

(1) There are a few field manuals which point out the need for pack animals in situations other than special warfare.

(2) FM 21-76, Survival, illustrates the use of pack animals in survival situations.

Don't overlook the possibility of making yourself mobile. In both the Sahara and the Gobi, as well as in much of the American desert country, travel by ordinary automobile is practical. Native transportation, camels, horses and donkeys may be available. The camel, although cantankerous and slow, can travel as long as eight to ten days without water.⁵³

⁵¹FM 31-21, Guerrilla Warfare and Special Forces Operations, Headquarters, Department of the Army, 1963, p. 99.

⁵²Ibid.

⁵³FM 21-76, Survival, Headquarters, Department of the Army, 1957, p. 224.

(3) FM 31-30, Jungle Operations, points out that pack animals may be used in jungle operations but warns that they do create a logistics problem and that available forage is not always acceptable to imported animals.

a. Because of the lack of routes of communication and the difficulties involved in constructing roads and trails, transportation presents a series of problems in jungle operations. Utilization of all modes of transportation should be considered for maximum efficiency.

b. The basic means of jungle transport is hand-carry by indigenous help or troops, though pack animals are frequently employed. Jungle vegetation is not satisfactory forage for domesticated animals, so a large part of their load must necessarily be food for them. Native pack animals and handlers may be used to supplement organic means and to preserve the combat efficiency of troops but the dependability and maintenance of the natives (and their animals)⁵⁴ must be carefully considered.⁵⁵

(4) Draft Manuscript FM 31-30, Jungle Training and Operations in Jungle, places more stress on using native handlers and pack animals.

The United States no longer has pack animal units. There are native animal handlers and pack animals in most tropical areas which can carry relatively large loads over difficult terrain, the amount of load is dependent upon the distance to be traveled, the terrain and rate of march. The use of native handlers and pack animals is extremely advantageous in that it

⁵⁴(and their animals) - my own words.

⁵⁵FM 31-30, Jungle Operations, Headquarters, Department of the Army, 1960, p. 105.

preserves the combat efficiency of the troop units. Clothing, footgear, rations, supervision, and security must be provided by the unit employing the handlers and animals. If pack animals are procured from native sources in an area of operations, provisions must be made for carrying feed for the animals themselves as there is little feed, but plenty of forage, for animals in the jungle. This will, of course, lessen the pay load of rations, ammunition, and equipment that the animals could carry.⁵⁶

e. Planning Guides.

(1) There are only two manuals which provide guide figures for staff planning for the employment, shipment, or feeding of pack animals. They are listed below:

(2) FM 55-15, Transportation Reference Data, discusses the payload capacity and endurance of sled dogs and pack dogs. It also lists the characteristics, payload capacity, endurance, forage requirements, and transportability of mules.⁵⁷

(3) FM 101-10, Staff Officers Field Manual, Organization, Technical and Logistic Data, Part I - Unclassified Data, contains the same data on pack animals as found in FM 55-15.⁵⁸

f. Voids. There is no mention of the employment of pack animals in the following seemingly applicable manuals:

⁵⁶FM 31-30, Jungle Training and Operations in the Jungle, Draft Manuscript, US Army Forces Southern Command, Oct 1960.

⁵⁷FM 55-15, Transportation Reference Data, Headquarters, Department of the Army, December 1963, p. 130 and 261.

⁵⁸FM 101-10, Staff Officers Field Manual, Headquarters, Department of the Army, October 1961, p. 439.

- (1) FM 31-25, Desert Operations.
- (2) FM 31-71, Northern Operations.
- (3) FM 31-72, Mountain Operations.

3. US ARMY RESOURCES.

a. General. This section will examine US Army resources available for the employment of pack animals. For the purpose of this study we shall define these resources as:

- (1) Army regulations authorizing procurement of forage, equipment, and animals.
- (2) Pack animal units, organizations, personnel.
- (3) Pack animal training and schools.
- (4) Pack animal equipment.

b. Army Regulations.

(1) AR 700-22, Logistics (General) Horses, Mules, and Working Dogs, states that the Army policy is to use animals when the task cannot be accomplished effectively and economically by other available means. The AR goes on to say that horses, mules, and working dogs for the Army and the Mutual Assistance Program will be procured by purchase boards. Each board will be made up of one Army (QMC) contracting officer, one military veterinarian, and a clerk. The duties and responsibilities of board members and sellers are spelled out in the regulation. A section on the classifications and specifications of animals is included as a guide to the purchasing boards.⁵⁹

⁵⁹AR 700-22, Logistics (General) Horses, Mules, and Working Dogs, Headquarters, Department of the Army, January 1961.

(2) AR 701-8820, Logistic Responsibilities, Federal Supply Classification Class 8820, Live Animals Not Raised for Food, assigns the logistics responsibilities for live animals to the Quartermaster Corps and covers all items classified in FSC Class 8820 by Supply Bulletin 708-402.⁶⁰

(3) AR 701-3770, Logistic Responsibilities Federal Supply Classification 3770, Saddlery, Harness, Whips, and Related Animal Furnishings, assigns logistic responsibilities for the above listed equipment within the scope of the AR 701-series to the Quartermaster Corps.⁶¹

(4) AR 701-8710, Logistic Responsibilities Federal Supply Classification Class 8710 Forage and Feed, assigns the logistic responsibility to the Quartermaster Corps for all items covered in FSC Class 8710 by Supply Bulletin 708-402.⁶²

c. Pack Animal Units and Organizations.

(1) There are no pack animal transport or pack artillery units in the US Army today. The last pack transport units in the Army were stationed at Fort Carson, Colorado, home of the Mountain Warfare School. They were inactivated in 1957. The animals were sold at public auction.

⁶⁰AR 701-8820, Logistic Responsibilities, Federal Supply Classification Class 8820, Live Animals not Raised for Food, Headquarters, Department of the Army, November 1956.

⁶¹AR 701-3770, Logistics Responsibilities Federal Supply Classification Class 3770, Saddlery, Harness, Whips, and Related Animal Furnishings, Headquarters, Department of the Army, October 1957.

⁶²AR 701-8710, Logistic Responsibilities Federal Supply Classification Class 8710 Forage and Feed, Headquarters, Department of the Army, October 1956.

(2) Examination of DA Pamphlet 310-10 reveals that there are no published TOE for pack animal transport or pack artillery units for the US Army.

(3) There are very few Army veterinarians who are trained in the duties and techniques of purchasing sound pack animals. There are only a handful of enlisted men in the Army actively engaged in horse handling. They are stationed at Fort Meyer, Virginia, Fort Sam Houston, Texas, and one is stationed at Saigon, Vietnam. There is no MOS listed in AR 611-201 for packers, drovers, drivers, cavalrymen, etc. Consequently, it is difficult to identify personnel through their MOS ratings who have had such experience. There is an MOS for veterinary specialist, MOS code 084, which indicates an ability to shoe horses and mules.

d. Pack Animal Training and Schools.

(1) Training Literature.

(a) General. There are no published field manuals, pamphlets, or training programs on the subject of pack animals.

(b) Manuals. A number of manuals, listed below, are not listed in DA Pamphlet 310-3, Index of Doctrinal Training and Organizational Publications (and thereby are no longer official), provide excellent guidance, doctrine, and technical information to assist in preparing training programs for pack animal employment.

TM 10-395, US War Department Manual on Remount,
Dec 1941.

TM 2-220, The Horseshoer, War Department, Mar 1941.

FM 10-11, Quartermaster Pack Company, Department of
the Army, Oct 1954.

FM 25-5, Animal Transport, US War Department,
Jun 1939.

FM 25-6, Dog Transportation, US War Department,
Aug 1944.

FM 6-110, Pack Artillery, US War Department, Aug 1947.

FM 25-7, Pack Transportation.

FM 25-7 is still being considered for republication. The old version of the manual was revised by the USACDC Transportation Agency and distributed in May 1963 to CDC agencies in draft form for review and comment. The Special Warfare Agency reviewed the manual and commented in a letter of transmittal dated 15 May 1963 stating:

4. With the exception of material affected by the enclosed comments, this Agency concurs in the draft manuscript.⁶³

The Agency recommended a change of title to "Pack Animal Management and Transportation" and the publication of a supplement on the care, training, management, and packing of pack animals indigenous to Southeast Asia, Latin America, Africa, and the Middle East. These recommendations were not accepted. The final manuscript has been sent forward for approval, but it has not yet been decided whether the manuscript will be published as a field manual, special text, or not at all.⁶⁴

(2) Schools. There are no Army schools presenting instruction on pack animal management, training, loading, care, and associated subjects.

⁶³Letter, CDCSWA-OE, USACDCSWA, 15 May 1963.

⁶⁴FONECON, Mr. Betts, USACDC Transportation Agency, Ft Eustis, Va., 27 Aug 1964.

(3) Training.

(a) Army Training Detachment at Marine Basic School. An Army detachment consisting of one veterinarian, one lieutenant, and one instructor-horseshoer (E-7) is stationed at the Marine Corps School, Quantico, Virginia. The instructor-horseshoer is responsible for presenting a two-hour pack animals class to officer students attending the Marine Corps Basic School. References for this block of instruction, FM 25-7, Pack Transportation and FM 25-5, Animal Transport, are out of print and are not authorized field manuals. The rationale for this training is presented in the introduction portion of the lesson outline.

First, let it be made clear that pack transportation is not in competition with the more modern methods of transportation such as truck, helicopter, or airplane. If the more modern methods are available, they will be used. But bad weather can prevent the passage of vehicular or air traffic. Mountainous or overgrown terrain may hinder air support. In such situations, you might have to rely on pack transportation to accomplish your mission. Moreover, with the world situation as it is, it is quite possible that you may be fighting an enemy who is so supported. Guerrillas, with their camps and headquarters located in wild and inaccessible areas are often supported by this means, and if you are to be successful in combatting them in such regions, you too will need this method of support. For these reasons, you should know something of the subject.⁶⁵

The Marine Corps Lesson Plan is inclosed as Tab A.

(b) Marine Doctrine. The US Marine Corps recognizes the need for pack transport and in their manual, FMFM-21, Operations Against Guerrilla Forces, states:

⁶⁵Lesson Plan, Employment of Pack Animals, Basic School Marine Corps Schools, Quantico, Virginia, November 1961, p. 3.

When no other transportation is available, troops move on foot and supplies are manpacked. Native carriers and/or pack animals are used, their owners or other native handlers should be hired, if possible.⁶⁶

(c) US Army John F. Kennedy Center for Special Warfare. The US Army John F. Kennedy Center for Special Warfare is conducting training on pack transportation. This training is discussed in Appendix VII, US Army John F. Kennedy Center for Special Warfare position on the use of pack animals.

e. Equipment and Animals. There are no stockpiles of pack equipment such as harnesses, saddles, and pack hangers in the Army inventory. The only horses on active duty are stationed at Fort Myer, Virginia, and are used in parades and ceremonies. Quantities of pack saddle equipment have been sent to Turkey, Greece, Thailand, and several South American countries.

4. FINDINGS.

a. There is adequate doctrine spelling out the need for pack animals in certain terrain and certain operations.

b. Army regulations provide for the employment of pack animals on an "as needed," "where needed" basis.

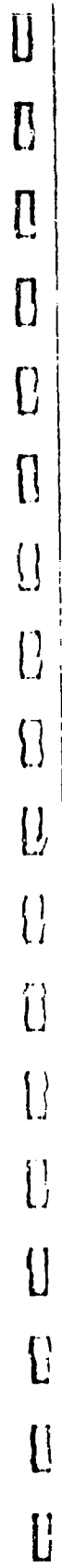
c. Army regulations provide for the purchase of pack animals, equipment, and forage when and where needed.

d. There is no requirement for US Army pack animal units in the Army.

⁶⁶FMM-21, Operations Against Guerrilla Forces, US Navy, p. 69, UNDI.

e. Because of the limited need for pack animal training, there are no Army schools which provide instruction on pack animal employment.

f. There are no "how to do" techniques manuals available in the Army.



APPENDIX V.
REQUIREMENTS FOR PACK ANIMALS IN
COUNTERINSURGENCY, UNCONVENTIONAL WARFARE OPERATIONS
AND LIMITED AND GENERAL WAR

APPENDIX VI

REQUIREMENTS FOR PACK ANIMALS IN
COUNTERINSURGENCY, UNCONVENTIONAL WARFARE OPERATIONS
AND LIMITED AND GENERAL WAR

1. GENERAL. Special warfare is defined as all military and paramilitary measures and activities related to unconventional warfare, psychological operations, and counterinsurgency operations. The nature of the threat and a view of the future indicates that the cold war will continue and most assuredly will become more intense. The environment of this cold war arena is discussed in Appendix II, The Operational Environment. US Army forces will operate in this environmental and operational arena.

2. US ARMY FORCES WHICH PARTICIPATE IN SPECIAL WARFARE.

- a. Special Forces.
- b. Special Action Forces.
- c. Brigade-Size Backup Forces.
- d. Psychological Operations Organizations.
- e. Civil Affairs Units.
- f. Intelligence and Security Units.
- g. US Army Aviation Units.
- h. US Army Engineer Units.
- i. US MAAG and Missions.
- j. US Army Security Agency.
- k. General Purpose Forces of the Army as required.

FM 31-22, US Army Counterinsurgency Forces, FM 31-21, Guerrilla Warfare and Special Forces Operations, and FM 33-5, Psychological Operations,

contain discussions of the missions, functions, and capabilities of these forces for special warfare operations. The JCS report, "Status of Military Counterinsurgency Programs" (U), (SECRET) contains a listing of these forces and their areas of responsibility.⁵⁷

3. CONCEPT OF PACK ANIMAL USE.

a. Counterinsurgency.

(1) Mission. The basic mission of US Army forces engaged in counterinsurgency operations is to provide training, operational advice, and assistance to indigenous, military and paramilitary forces, and to operate with those forces in coordinated military campaigns if necessary.

(2) Concept for Pack Animal Use. In remote areas, all transportation resources must be considered to support the mission. Certain factors may exclude the use of any transportation other than pack or porter. Examples are: weather, terrain trafficability, political considerations, geographic locations, or security. During Phase I and in the early stages of Phase II, it can be expected that limited air support will be provided. As the situation escalates, more Army aviation will be called upon. In these early stages, counterinsurgency operations generally will be limited in size, duration, distance, and frequency. They may be resupplied by air; however, aircraft may not always be available. The operation may exclude the use of aircraft for security purposes, or may be protracted, with air resupply unavailable or undesirable; hence, the need for pack or porter transport.

⁶⁷"Development Status of Military Counterinsurgency Programs, Including Counterinsurgency Forces (U)," JCS, 1 February 1964. SECRET.

(3) Mobile Training Teams. The US Army dispatches MTT, upon the invitation of foreign countries, to assist in the training of their armed forces or to aid in promulgating military and military civic action programs and projects. In the past, MTT have operated in Latin America, Africa, the Middle East, and Southeast Asia. Many of these teams have had occasion to use pack animals and many have worked with armies which still employ pack transport units.⁶⁸ For example, one company in each infantry battalion in Northwestern Iran is a pack animal unit.

b. Unconventional Warfare.

(1) Mission. The mission of special warfare units, specifically special forces, during limited or general war is to organize guerrilla forces to support military operations under the direction of the theater commander. In cold war special forces may employ UW techniques in some counterinsurgency situations.

(2) Concept of Pack Animal Use. Special forces in the conduct of unconventional warfare, organize, advise, and assist in the training of guerrilla forces. As war progresses, the guerrilla force may grow, thereby increasing the problem of resupply. In latter stages of the effort, resupply may measure many tons and must be carried inland from sanctuaries and pick-up points to the GWQA. Pack animals may be used to preserve the strength of the guerrilla. They have been used in the past by guerrilla forces in Vietnam, Algeria, Burma, and Greece and probably will be used again.

⁶⁸Interview with Capt D. G. Tolman, Veterinary Corps, Hq USAJFKCENSESWAR.

c. Limited and General War. Although the nature of the threat and present US commitment indicates a continuance of cold war and counterinsurgency operations, the specter of limited or general war is ever present. The Army must organize and train for combat in such wars. Increased ground and air mobility would seem to negate argument for the employment of pack animals in modern warfare. Historically, however, the argument is supported. Pack animals have been employed by the Army in every war fought by the United States. Army regulations authorize procurement of pack animals for special purposes on an "as needed," "where needed" basis. Doctrine recognizes the requirement for, and the worth of, pack animals in special operations, in difficult terrain, and in adverse weather conditions in combat operations. The examples of history, the authority of Army regulations, and acknowledgment in doctrinal literature of pack animal employment should suffice as ample warning to maintain at least a nucleus of expertness and skills in the Army.

APPENDIX VII

US ARMY JOHN F. KENNEDY CENTER FOR SPECIAL WARFARE POSITION
ON THE USE OF PACK ANIMALS

APPENDIX VII

US ARMY JOHN F. KENNEDY CENTER FOR SPECIAL WARFARE POSITION
ON THE USE OF PACK ANIMALS

1. GENERAL. The following position supports the operational concept on the employment of animals by special forces:

a. The examination of the subject of pack animals should not be restricted to special forces operations alone.

b. The use of pack animals should be considered generally as a supplemental mode of transportation, and sometimes the primary means for conventional forces and special forces in remote areas.

c. Guerrilla forces will increase their mobility through the use of locally available pack animals.

d. Special forces detachments must take advantage of opportunities to use local or imported pack animals where other transport is inadequate or inappropriate.

e. If possible, indigenous animals should be used. Foreign animals may be sensitive to abrupt climatic changes, local diseases, and native feeds.

f. Local handlers, packers, and drivers should be used with indigenous pack animals.

g. Certain bonus effects accrue with the use of pack animals.

- (1) Emergency food source.
- (2) Civic action participation.
- (3) Source of income for indigenous owners.

h. The US Army John F. Kennedy Center for Special Warfare recommends that a simple handbook on pack transport be published. Upon publication it would become a part of the special forces unit library as reference material for detachment training.⁶⁹

2. TRAINING PROGRAM. Upon direction of Hq USA John F. Kennedy Center for Special Warfare, the staff veterinarian, Capt Donald G. Tolman, VC, prepared a 40-hour program of instruction to "enlighten special forces personnel on the care and use of animals for pack transportation."⁷⁰ The course will be integrated into the 16-week pre-mission training course conducted by special forces groups at Fort Bragg. Selected individuals from each company will attend the course of instruction. The POI is attached as Tab D. Each special forces group is authorized a staff veterinarian and a veterinary assistant in the medical detachment of headquarters company. The veterinarian is responsible for food inspection and public health programs in the conduct of civic action programs. In addition, he is capable of providing treatment and care of animals and providing instruction in the proper use of pack animals employed by the group and receiving state forces. Each special forces group veterinarian and his assistant will receive training in pack transport and horseshoeing techniques at the Marine Basic School at Quantico, Virginia. Upon inauguration of the Special Warfare Center pack transport training program, the group veterinarians will receive their training at Fort Bragg.

⁶⁹1st Ind, Ltr Hq USAJFKCENSESWAR, 3 Jun 64, subj: Pack Animals in Special Warfare.

⁷⁰POI for Animal Management and Transportation, May 1964, USAJFKCENSESWAR, p. 1.

3. RESOURCES.

a. Reference Material. The reference material used by Capt Tolman in preparing the lesson plans of the POI are commercial publications, British Army field manuals, outdated US Army field manuals, draft manuscripts FM 25-7, Pack Transportation, British Army POI from the Malaysian Jungle Warfare School, communications from Army attachés, and personal notes.⁷¹ The British Army Pack Transport POI is attached as Tab E. There are no current or approved Army training programs, Army subject schedules, or field manuals available as reference material for such training.

b. Training Aids - Equipment. Some of the necessary pack equipment to be used as training aids will be procured from a civilian (on the US Army approved list for sale to US Army) firm near Quantico, Virginia. The US has given the Thai Army some 800 Phillips pack saddles for use by the Thai Army animal transport companies and the Thai remount station. Inasmuch as there is no equipment available in the US Army, the US Army John F. Kennedy Center for Special Warfare has procured 20 Phillips pack saddles and one ox saddle, and one Thai pony saddle from the Royal Thai Remount Station for use as training aids. An attempt is being made to procure several camel saddles from the Iranian Army for use as training aids for the 40-hour pack transport course.

c. Training Aids - Animals. Horses from the Fort Bragg Special Services Riding Stables will be rented as training aids for the course. Saw horses and mock-ups will be used to train students on the proper adjustment and packing of pony, ox, camel, and elephant saddles. The

⁷¹Ibid., p. III-1 thru IV-10-1.

John F. Kennedy Center for Special Warfare desires to procure several live camels for the course.

4. PAST TRAINING.

a. Pack Animal Demonstration. Selected individuals from the A detachments of the 5th, 6th, and 7th Special Forces Groups attended a two-day pack animal course on 4 and 5 March 1964. This was the 4th such demonstration. The class consisted of lectures and demonstrations on the use of horses and included:

- (1) Examination of the animal for soundness.
- (2) Restraint of horses.
- (3) Proper care and feeding.
- (4) Ageing.
- (5) Capabilities.
- (6) Shoeing and normal care of horses' feet.
- (7) Improvement of pack saddles.
- (8) Methods of trying on a pack.
- (9) "Hitches" and knots used in packing.

The instruction was enthusiastically received. This experience and a recommendation by the staff veterinarian to incorporate packing and animal care in special forces training led to the development and subsequent approval of the 40-hour pack transport class shown in Tab D. This instruction was conducted at the post riding stables with rented horses and a few borrowed pieces of pack equipment.

b. MTT Training. A Mobile Training Team made up of men from the 6th Special Forces Group participated in an 8-hour block of instruction on pack animal care and packing techniques in August 1964 prior to its departure. The MTT will be working with receiving state units which employ pack animals.

5. FINDINGS.

a. Communist aggression, principally subversive insurgency, will continue to be a major threat to world peace.

b. US Army units such as special forces, special action forces, MTT, and many other conventional organizations are required to participate in counterinsurgency operations and have used pack animals in the recent past.

c. Special forces units may use UW techniques and long-range patrols during counterinsurgency operations wherein air support and resupply will not be feasible or available.

d. The US Army John F. Kennedy Center for Special Warfare states that special forces detachments must take advantage of in-country pack animals where other transportation is inadequate or inappropriate.

e. A training program has been approved for special forces group pre-mission training. The training will be conducted by the Center for Special Warfare.

f. The US Army does not provide training literature, animals, and associated equipment to conduct pack animal training.

g. This study will be restricted to an examination of US Army doctrine and resources for the employment of pack animals in counterinsurgency, counterinsurgency operations, and unconventional warfare.

h. There is a requirement for Army-wide knowledge of employing pack animals in remote areas of the world.

APPENDIX VIII

LESSONS PLANS, POI, PACK ANIMAL COURSES

TAB A

BASIC SCHOOL
Marine Corps Schools
Quantico, Virginia

B0383
L,D,A(G)

LESSON PLAN

Essential Data

REFERENCE: B0386

TITLE: EMPLOYMENT OF PACK ANIMALS

SUBJECT: 15

SCHOOL IN WHICH PRESENTED: Basic School

DATE PREPARED: November 1961

HOURS: Two

STUDY ASSIGNMENT: None

ESTIMATED TIME REQUIRED TO COMPLETE STUDY ASSIGNMENT: None

STUDENT MATERIAL: None

STUDENT EQUIPMENT: None

INSTRUCTORS REQUIRED: One Primary, NCOIC Animal Management Training Facilities. Twelve Assistants.

INSTRUCTOR REFERENCES: FM 31-70, FM 25-5, 25-7

ASSISTANT INSTRUCTOR MATERIAL: None

TRAINING AIDS: Twelve pack horses
Two travois
Six sawbuck saddles
Four Cargo saddles
1 McClellan saddle

ADDITIONAL DETAILS: Schedule after 1000

AI: None

PURPOSE: To familiarize the student with the employment of pack animals

Lesson Schedule

<u>Time:</u>	<u>Activity</u>	<u>Method</u>
0000-0002	Introduction	L
0002-0005	History	L
0005-0010	Capabilities	L
0010-0015	Limitations	L
0015-0016	Main Points to Consider When Packing	L
0016-0030	Demonstration	L,D
0030-0040	Questions	
0040-0050	Break	
0050-0140	Application and Care of Animals	D,A
0140-0145	Questions	
0145-0150	Summary	L
0150-0200	Break	

EMPLOYMENT OF PACK ANIMALS

Lesson Outline

INTRODUCTION

(2 min)

1. Gain Attention.--(PRIMARY INSTRUCTOR ENTERS THE CLASSROOM RIDING ON A HORSE) In this modern era of nuclear weapons and jet aircraft, it may seem a little behind the times to become engrossed in the details of pack transportation. However, let's stop a moment and take a closer look at this subject under a new light.
2. Motivate.--First, let it be made clear that pack transportation is not in competition with the more modern methods of transportation such as truck, helicopter, or airplane. If the more modern methods are available and are economical, they will be used. But bad weather can prevent the passage of vehicular or air traffic. Mountainous or overgrown terrain may hinder air support. In such situations, you might have to rely on pack transportation to accomplish your mission. Moreover, with the world situation as it is, it is quite possible that you may be fighting an enemy who is so supported. Guerrillas, with their camps and headquarters located in wild and inaccessible areas are often supported by this means, and if you are to be successful in combating them in such regions, you too will need this method of support. For these reasons, you should know something of the subject.
3. State Purpose and Main Ideas.--It is our purpose here today to familiarize you with the capabilities, limitations, and use of pack transportation. You will see some standard packing equipment and how it might be used. However, most of the demonstration and application phases will be devoted to the use of improvised field expedient type equipment. You will then have an opportunity to do some packing yourselves.

BODY

1. Brief History.

(3 min)

a. Marine Corps.

(1) The Marine Corps has not had any T/O Pack Units since the early 1930's when they were used in Haiti and Nicaragua. Individual Marines and small units have occasionally picked up pack animals during WW II and the Korean conflict to aid them in their mission, but these animals were never included in the organization T/O. I expect that most of you have heard of the Korean mare called "Flame of the Morning" which

was purchased from a race track for \$250 by a First Marine Division officer. His unit used this animal to transport 75mm recoilless rifle ammunition during the fighting in Korea. She later became known as "Reckless" after her valiant performance under fire, and a few years ago was promoted to honorary S/Sgt. She is now stationed at Camp Pendleton.

b. Army.

(1) The Army has used pack animals in units of regimental size as recently as WW II. The 124th Cavalry operated in Burma and independent companies operated in the mountainous terrain of Italy successfully.

(2) Until recently, the Army maintained two (2) pack-train units at the site of their mountain warfare school at Camp Carson, Colorado. Both of these units have been disbanded, and the pack animals sold at public auction on 14 February 1957.

TRANSITION.--As with all of our tools of trade, a good understanding of capabilities and limitations is essential to proper employment. First let's find out what we can expect from pack animals - then we will talk about their limitations.

2. Capabilities.

a. Use.

(1) Over terrain impassable to motor vehicles; i.e., mountains, unsettled areas devoid of roads. Through heavy jungles and swamps with narrow trails, etc.

b. Load.--This will depend upon several factors.

(1) Size of animal.

(a) Generally speaking, 25% of the horse's weight can be carried with a good packing saddle.

(b) With a small animal about 100 pounds can be carried, but with a horse the size of these about 250-300 pounds can be carried with a cargo saddle.

(2) Terrain.--It follows that over flat terrain with good footing a horse can carry more than over mountainous terrain with poor footing. Also through deep snow or swamps, the load will be reduced.

(3) Condition and Training of Animal.--Use the biggest and strongest animals to carry the largest loads.

c. Speed and Distance.

(1) These will depend primarily on the load and terrain.

(2) Generally, we can expect a speed of 4 miles per hour and a distance of 25 miles per day for average terrain and an average horse.

(3) With light loads, 100#, and mounted handlers we can increase the speed to 30 mph for short periods and the distance to 40-60 miles per day. Again the terrain and also the condition of the animals will dictate even with light loads.

3. Limitations.

a. General.--We have seen some limitations in respect to capabilities such as load, speed and distance of travel. However, we have other factors which limit employment which are worth mentioning.

b. Food.

(1) The necessity for providing food for the animals may cut down the load. In areas where food or forage is not readily available locally we must carry our own. This amounts to 18-25 pounds of bulky food a day per animal.

c. Handlers.

(1) The lack of trained handlers for horses or mules limits their effectiveness.

(2) If using native horses, and these are best since they are acclimated to the country, use native handlers if possible.

(3) Loads with ammo and weapons should be escorted by Marines, if using native handlers. This will reduce your fighting force, but is necessary for the protection of your equipment.

d. Equipment.

(1) Lack of saddles designed for packing may require the use of native equipment or field expedients.

(a) These are usually crude and cut down the load.

(b) They may be injurious to the animals.

(c) Because of the simple construction of native equipment and field expedients many military loads are extremely difficult to pack or require a long time for packing.

4. Main Points to Remember When Packing.

(1 min)

a. Load.

- (1) Don't overload the animal.
- (2) Make sure the load is balanced.

b. Protection of the Animal.

(1) Proper padding under the load prevents saddle sores and cuts on the animal.

(2) Proper care of the animal, providing plenty of food, rest, and shelter when available.

TRANSITION.--Now that you have some general background information on the capabilities and limitations of pack transportation, let's take a look at some loads we might carry. These certainly are not all the loads we could carry, but they are representative of what we might transport with horses or mules with various types of saddles and rigs.

5. Demonstration of Pack Saddles and Loads.

a. Various loads are now led out one at a time. The Primary Instructor will discuss the load and type of saddle.

b. The loads shown are:

- (1) 105mm Ammunition (3 boxes)
- (2) LMG w/1000 rds ammo.
- (3) 81mm Mortar
- (4) Casualty on Travois
- (5) DR 4 Reels of Wire
- (6) C Rations and Water

OPPORTUNITY FOR QUESTIONS

(10 min)

BREAK

(10 min)

PRACTICAL APPLICATION

(50 min)

1. After the break, students reassemble in groups at designated stations to pack various items on various saddles and rigs. The groups are rotated every 10 minutes to allow participation at 3 different stations. The saddles available for this practical application phase will be field expedients and cargo saddles. After the application the students reassemble in the stands.

OPPORTUNITY FOR QUESTIONS

(5 min)

SUMMARY

(5 min)

1. We have not made qualified handlers or riders of you today as this would take many weeks of intensive training. However, you are now familiar with some of the capabilities and limitations of pack transportation.

2. In future operations throughout the world, we do not expect that this mode of transport will compete with the more modern means. We do feel, however, that with terrain and weather being what they are in various parts of the globe, we may find ourselves relying on this means of transportation. If you should now find yourself without air and motor transport, you know that a horse can be a great asset and provide good support. They should certainly be considered for use when the occasion arises.

BREAK

(10 min)

SHORT SUMMARY OF ANIMAL PACK TRANSPORTATION

1. Securing horses and the different ways of obtaining them which is approximately 4 ways.
 - a. Local purchase.
 - b. Being issued from a remount depot.
 - c. Commandeered from local country side.
 - d. Captured enemy equipment.
2. Maintaining horses once you have them secured, what they require in the way of forage, how much grain, hay, bedding, salt and water, how to hobble a horse so he can graze, that you will be able to retrieve him. Approximately a 30 minute talk on when to feed and water a horse, the amount required, not to water a hot horse and stop him. Approximately 30 minutes on grooming and care of their feet.
3. Type of horse to obtain if possible, for packing, type of horse for a saddle mount. What to look for in soundness in a horse. How to check the teeth without the aid of a speculum. Check the eyes, wind, legs and feet for defects. A short talk on the proper conformation. A mule always makes a better pack animal than a horse.
4. How to erect a picket line to maintain a base camp. How far apart horses should be tied and a demonstration on knots and splices and the use of rope in general, it's advantages and disadvantages such as drawing, getting tight when wet, giving slack and getting loose when dry.
5. A short talk on training and conditioning of the animals prior to use in a theater of operation. How to accustom animals to gunfire, smell of blood and strange surroundings. The different types of reaction and how to handle and restrain the animals.
6. The different types of saddles, pack and riding. There are approximately three types of riding saddles - Officer Phillipps Flat - McLellan Cavalry - Packers Full Rig. Mule Saddle. The different types of pack saddle - Phillipps Artillery Pack Saddle - Cavalry Phillipps Pack Saddle - Sawbuck Pack Saddle, homemade or otherwise. How to build a pack saddle from sticks, communication wire, rawhide strings, burlap bags, straw, G. I. blankets. The capabilities of each saddle. The different types of loads you carry on each saddle. The different types of lashes to be used on different types of loads.
7. The capabilities of a horse or mule. A pack animal can go any place a man can go without the aid of his hands to pull him. A good pack animal can carry one third of their weight, but their conformation plays a big part in this. Ideal pack animals weigh approximately 900 pounds, short straight back, broad chest, and strong hindquarters, approximately 15 hands tall. A good saddle horse well conditioned, with experienced rider can

cover approximately 60 miles in a 12 hour period of time. A good pack animal with a 200 pound pay load can cover approximately 15 miles per day over mountainous and rough terrain. When you are transporting cargo type and herding pack animals and everybody is mounted, 30 miles is a good days march.

8. Next we give a demonstration of 8 pack animals. The proper adjustment of the saddle equipment. Then a demonstration on how to balance and load a horse. Then horses are unloaded and unsaddled. Then the platoon leader from each platoon steps forward and signs for one horse and one set of equipment. They may pack any equipment they have in the platoon. They have the horse for the next 12 hours. We observe them from horseback and also from the air to see if they follow instructions on camouflage and concealment.

9. They are also given instructions on how to butcher a horse should one break his leg, or is shot, so that the food value can be utilized if need be.

TAB B

HEADQUARTERS
UNITED STATES ARMY
JOHN F. KENNEDY CENTER FOR SPECIAL WARFARE
Office of the Surgeon
Fort Bragg, North Carolina 28307

July 1964

PROGRAM OF INSTRUCTION

FOR

ANIMAL MANAGEMENT AND TRANSPORTATION

MOS: NONE

Length: Peacetime - 1 week (40 hours)

Mobilization - None

Approved by: Commanding General
John F. Kennedy Center for Special Warfare

SECTION I - PREFACE

- A. Course: (Applicable No.), Animal Management and Transportation.
- B. Purpose: Experience indicates that more often than not Special Forces Detachments will be admitted in areas where animals represent the primary means of transport. This course of instruction is intended to familiarize Special Forces Personnel in the care and use of animals for transportation (packing personnel and supplies), draft (pulling carts or logs), and as a source of food.
- C. Prerequisites: None
- D. Length: 1 week (40 hours)
- E. Training Location: To be announced.
- F. Percentage of training requirement to be school trained: 100%

SECTION II - SUMMARY

Animal Management and Transportation

Length: 40 Hours

SUBJECT	HOURS	ANNEX NO.
A. Academic Subjects		
Introduction	1	1
Use and Management of Horses and Mules	3	2
Equipment Used in Packing; Its Care and Improvisation	2	3
The Art of Packing	20	4
The Care and Use of Cattle, Buffalo, and Yak	2	5
The Care and Use of Camels	2	6
The Care and Use of Llamas	2	7
The Care and Use of Elephants	2	8
The Care and Use of Dogs	2	9
Emergency Use of Working Animals for Food	4	10
SUBTOTAL		40
B. Nonacademic Subjects: None		
C. Recapitulation		
1. Security Classification		
SECRET	0	
CONFIDENTIAL	0	
Unclassified	40	
		93

2. Types of Instruction

Practical Exercise	14
Demonstration	6
Training Film	2
Examination	0
Conference	0
Lecture	18
Nonacademic	0

TOTAL	40
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SECTION III - BODY

Animal Management and Transportation Course

PART A - Academic Subjects

Length: 40 hours

SUBJECT	SCOPE	HOURS	ANNEX NO.
Introduction	The use of animals in Special Forces for draft, transportation and food. History & applications of working animals.	1	1
Use and Management of Horses and Mules	The basic fundamentals of feeding, managing, health and procurement of horses and mules (2); The basic principals of horsemanship. (1)	3	2
Equipment used in packing; its care and improvisation	Different types of riding and pack saddles and related equipment, to include maintenance and repair (1); Improvising various types of pack saddles from discarded boxes and other scraps. (1)	2	3
The Art of Packing	Demonstration and practical exercise on the use of ropes, knots, and hitches used in packing (6); Practical exercise using animals and transporting supplies and equipment (14).	20	4
Care and Uses of Cattle and Buffalo	Lecture and demonstration on the uses of cattle and buffalo for draft and packing; and the equipment necessary (1); Feeding, management and health of bovine work animals (1).	2	5

SUBJECT	SCOPE	HOURS	ANNEX NO.
Care and Use of Camels	Orientation on surviving on the desert using camels to ride and pack (1); types of equipment used and feeding, management and health of camels (1).	2	6
Care and Use of Llamas	Use of Llamas and goats as pack and draft animals. Their capabilities and limitations. Management of these animals and type of equipment used.	2	7
Care and Use of Elephants	Advantages of using elephants for pack and draft; their capabilities and limitations (1); Types of equipment needed, care, management, and health of elephants. (1).	2	8
Care and Use of Dogs	The use of sled dogs, guard dogs, pack dogs, scout dogs, and tracking dogs (1); Care, health, handling, and feeding of dogs in different parts of the world (1).	2	9
Use of Common Domestic Animals for Food	Very basic principles of antemortem inspection, post mortem inspection, slaughter and preparation of animals for food.	4	10

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 1

Introduction

Length: 1 Hour

PURPOSE: To Acquaint the students with the course.

SUBJECT AND FILE NUMBER	Hours	Scope of Instruction	References
Introduction	1L	An introduction to the course to include its purpose and content. A short history of the use of animals in previous and present military campaigns and in the history of our country.	<u>Useful Animals of the World</u> by Lionel Brimble & E. M. Edwards, St Mortins Press, New York City, 1956; <u>About Some Animals that Work for Man</u> , Uhl, Melvin, Melmont Publishers, Chicago, Ill., 1963.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 2

Use and Management of Horses and Mules

Length: 3 Hours

PURPOSE: To give the student enough general knowledge on handling horses and mules so that these animals will be an asset rather than a liability when they are used.

Subject and File Number	Hours	Scope of Instruction	References
Management of Horses and Mules	2LD	A basic orientation on care, feeding, and grooming the animals, soundness examination, common ailments and their treatment.	Holmes, Charles H., <u>The Principals and Practice of Horseshoeing</u> , PWCF; <u>Animal Management 1933</u> , prepared in the Veterinary Dept of the War Office, published by Her Majesty's Stationery Office, London 1933; Air Report No. 252, <u>Carriage of Animals</u> , Training and Development Centre R. A. F. Station; TM 10-395, War Dept, Technical Manual on Remount, Dec 1941; TM 8-450, DA Technical Manual Veterinary Technicians, Aug 1951; TM 2-220, The Horse-shoer, Mar 11, 1941.

Subject and File Number	Hours	Scope of Instruction	References
Horsemanship	10	The basic principles of horsemanship; mounting, dismounting, saddling, control and riding.	Manual of Horsemanship, Equitation and Animal Transport 1937, published by Her Majesty's Stationery Office, London, W.O. Code No 9746.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 3

Equipment used in Packing; Care and Improvisation

Length: 2 Hours

PURPOSE: To provide the student with a basic understanding of saddlery to enable the use of animals with or without proper equipment being supplied.

Subject and File Number	Hours	Scope of Instruction	References
Equipment and Repair	1 LD	A basic orientation on the various types of saddles used for packing and riding; basic equipment that is adapted to or used with the saddle. Field repair of saddles.	Animal Management 1933, prepared in the Veterinary Dept of the War Office, published by Her Majesty's Stationery Office, London 1933; Manual of Horsemastership, Equitation and Animal Transport 1937, published by Her Majesty's Stationary Office, London, W.O. Code No. 7193.
Improvising Equipment	1 LD	Building various types of saddle for temporary use from pieces of wood, old ammo boxes, commo wire, etc.	Hasluck, Paul N., Saddlery and Harness Making; Manual of Horsemastership, Equitation and Animal Transport 1937, <i>ibid.</i>

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 4

The Art of Packing

Length: 20 Hours

PURPOSE: To give the student a working knowledge of transferring personnel, equipment, and supplies with horses or mules.

Subject and File Number	Hours	Scope of Instruction	References
Knots, splices and hitches	6 LD & TF	To teach each student the knots and splices pertinent to working with ropes. To acquaint each student with the 3 or 4 basic hitches used to tie on various types of loads.	FM 25-7, Illustrations Pack Transportation, May 1963 USA Combat Developments Command Transportation Agency, Ft Eustis, Va; FM 25-7, Pack Transportation War Dept., 25 Aug 1944; FM 10-11, Quartermaster Pack Co., Dept of Army Oct 1952; Royal Army Service Corps Training Vol II, Transport Organization & Operation Pamphlet No. 2, Animal Transport 1951, W.O. Code No. 8720; Animal Management 1933, op, cit.; Manual of Horsemastership, Equitation and Animal Transport 1937, op. cit.

Subject and File Number	Hours	Scope of Instruction	References
Practical exercise on packing	14 PE	Field trip using animals to transport men and equipment. Different types of loads using different methods of packing and different saddles.	None.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 1

Care and Use of Cattle and Buffalo

Length: 2 Hours

PURPOSE: To acquaint the student with the principles involved in using cattle for draft to exclude care and other possible uses.

Subject and File Number	Hours	Scope of Instruction	References
Use of Bovine	1 1/2	Apparatus used in adapting cattle and buffalo to draft animals, capabilities and limitations of bovine.	Animal Management 1933, prepared in the Veterinary Dept of the War Office, published by Her Majesty's Stationery Office, London 1933.
Care of Bovine	1 L	Care and common ailments of the bovine.	Personal Notes, & professional correspondence.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 6

Care and Use of Camels

Length: 2 Hours

PURPOSE: To give the students a basic understanding of survival on the desert using camels for packing and riding.

Subject and File Number	Hours	Scope of Instruction	References
Methods and Equipment:	1 LD	Various types of saddles used and common methods of securing equipment and supplies. How to ride a camel.	Animal Management 1933, prepared in the Veterinary Dept. of the War Office, published by Her Majesty's Stationery Office, London 1933. Manual of Horsemanship, Equitation and Animal Transport 1937, published by Her Majesty's Stationery Office, London, W.O. Code No. 7193.
Care and Management	1 L	Feeding, restraint and control, capabilities and limitations of camels, basic diseases and common ailments.	Thosiger E. P. Datt and Co., <u>Arabian Sands</u> , 201 Park Ave South, New York 3, New York.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 7

Care and Use of Goats and Llamas

Length: 2 Hours

PURPOSE: To acquaint the student with the uses of the Llama

Subject and File Number	Hours	Scope of Instruction	References
Use of Llamas	2 L	Care, feeding and management of llamas. Uses of llamas, type of equipment needed, capabilities and limitations.	Issue of National Geographic Magazine May 1946. Personal Letters.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 8

Care and Use of Elephants

Length: 2 Hours

PURPOSE: To acquaint the student with the advantages and disadvantages of elephants, their capabilities, their management, and their current use in Viet-Nam.

Subject and File Number	Hours	Scope of Instruction	References
Saddles, brackets, harness, and other equipment.	1 L	The various types of equipment used and the various tasks which can be performed by or with the help of elephants.	Personal letters and conference.
Care, management, loading, and health	1 L	Survival of the elephant in the jungle. Feeding and watering habits. Common ailments which affect their use.	<u>Elephant bill</u> by William Viking Press, 625 Madison Ave., New York 22, New York. <u>Physiology of the Elephant</u> , Benedict, Francis K., Carnegie Institute of Washington, Washington, D. C., 1936.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 9

Care and Use of Dogs

Length: 2 Hours

PURPOSE: To acquaint Special Forces personnel with the use of the canine.

Subject and File Number	Hours	Scope of Instruction	References
Use of Dogs in S. F.	1 LD	A short orientation on the use of guard dogs, security dogs, casualty finding dogs, messenger dogs, mine detecting dogs, tracking dogs, arms recovery dogs, and pack dogs, with most emphasis on the pack dogs.	Training of War Dogs in 1962, W. O. Code No. 9746; TM 10-396, War Dept, Technical Manual on War Dogs 1 July 1943; FM 20-20, DA Field Manual Military Dog Training and Employment, April 1960, Hq: DA; Outdoor Life, Vol 133 No. 1, Jan 1964, p. 28; FM 25-6, "Dog Transportation," 19 Aug 1944.
Care, Management & Training of Dogs	1 L	Basic orientation on kennel management, foods, and feeding, training and health of dogs.	Training of War Dogs, 1962, W.O. Code No. 9746. Personal Notes.

SECTION IV - ANNEXES

Animal Management and Transportation Course

ANNEX NUMBER 10

The Use of Domestic Animals for Food

Length: 4 Hours

PURPOSE: To give the students a basic knowledge of meat inspection.

Subject and File Number	Hours	Scope of Instruction	References
Domestic Animals for Food	4 L	Antemortem and postmortem inspection, methods of slaughter, and methods of preparing and preserving meat.	TM 10-418, AFM 146-Meat Processing Ration Issue, Feb. 1952; Dack, G. M., <u>Food Poisoning</u> , Chicago, University of Chicago Press, 1956; USDA Meat Inspection Procedures, Washington: US Govt Printing Office, 1960; Dillon, C. E., <u>Meat Slaughtering and Processing</u> , 105 So 9th Street, St Louis, Mo., Meat Merchandizing, Inc.

TAB C

1 Training Battalion RASC

RASC Trg Centre
Syllabus No 1/2

COURSE: Officers Animal Transport Course
 AIM: To train selected officers for employment with
 a Pack Transport Company
 DURATION: 10 weeks - 450 periods of 45 minutes each
 DATE OF ISSUE: April 1963
 AUTHORITY: HQ RASC Trg Centre letter 41802 G dated 28 April 1964
 REVIEW DATE: April 1965

	<u>Periods Allotted</u>
1. <u>GENERAL</u>	
Opening Address	1
Closing Address	1
Tour of Workshops etc	2
Recreational Training	40
Examinations	14
	58
2. <u>THEORETICAL</u>	
(a) <u>Animal Management</u>	
Points of the Horse	3
Colours and Markings	2
Foods and Feeding	6
Watering	1
The Foot and shoeing	3
Transport by sea, rail, road and air	4
Bedding	1
	20
(b) <u>Horsemanship</u>	
Company Routine and Stable Management	2
Grooming	1
Health, conditions and exercise	1
Veterinary lectures	29
Stable tricks and vices	1

	<u>Periods Allotted</u>
(b) <u>Horsemanship</u> (cont'd)	
Saddles and sore backs	1
Bitting and bit injuries	2
Clipping and Clothing	1
Stable construction	1
	<hr/> 34

(c) <u>General</u>	
Harness pack duties GS	2
Saddlery Universal and SO	2
Care and preservation of saddlery	1
Pack Saddlery Mark V GS	4
March Discipline	2
Defence, line of march and in location	1
Forage Account	4
Troop Officer's Responsibilities	1
NBC Warfare	4
Pack Transport in the field	2
Staff Tables (Pack Transport)	1
Road/Jeep Head Drill and 1st and 2nd line duties	1
Strength and availability returns	1
Divisional and Brigade Staff Responsibilities	1
Revision and Private study	12
	<hr/> 39

3. PRACTICAL

(a) <u>General</u>	
Foot and shoeing	30
First Aid to Saddlery	12
Saddlery fitting	2
Clipping, Trimming and Tail Pulling	10
Rasping teeth	1
Washing Sheaths	1
Wisp making	2
Picqueting and tethering	3
Saddle Cleaning	3
Movement by road and rail	4
Grooming	16
Stables (Acting Troop Officer)	21
	<hr/> 105

	<u>Periods Allotted</u>
(b) <u>Pack Transport</u>	
Knot Tying	2
Lashing and Packing	11
Loading and leading drill	7
Camp Siting and layout	4
Pack Marches	32
	<hr/> 56
(c) <u>Equitation</u>	
Elementary	35
Advanced	45
Blanket Exercise	20
	<hr/> 100
(d) <u>Driving</u>	
Hooking in and out	8
Long Rein - single and double	8
Management of Four in Hand	2
	<hr/> 18

4. EXERCISES

Pack transport under load includes:-

March discipline, defence on line of march and in location, choice of camp site, duties while in location, night marches, care of animals in the field and picqueting and tethering when in command.	20
	<hr/> 20

SUMMARY

1. General	58
2. Theoretical	81
3. Practical	291
4. Exercise	20
	<hr/>
	450
	<hr/>

TAB D

1 TRAINING BATTALION RASC

COURSE: DRIVERS HORSE TRANSPORT
 AIM: To train RASC rank and file as Drivers HT to B3 stand
 DURATION: 12 weeks - 600 periods of 45 minutes each
 DATE OF ISSUE: Jan 64
 AUTHORITY: RASC Trg Centre letter 40106G of 23 Jan 64.
 REVIEW DATE: Feb 65

Periods Allotted

1. GENERAL

Pay Parades	12
Physical and Recreational Training	48
Interior Economy - Personal and animal eqpt	60
Films. (Horse Mastership, Cross Country Riding Animal Management)	4
Leave (48 hrs)	5
	129

2. DRIVERS HT (THEORETICAL)

Saddles and Sore backs	2
Characteristics - animals	11
Organizational and operational Pack Transport Unit	2
Unit Training man and animals, on formation of Pack Coy	1
Supply by Pack, first and second line - animal transport	2
RASC (HT) Standing Orders	1
Stabling routine and supervision	1
Movement of animals by road and rail	2
March discipline	2
Defence on line of March	2
Defence of a location	2
Pattern of harness and equipment	4
Clipping and Clothing	1
Grooming Tools and uses, and reasons for Grooming	1
Fitting Saddlery and harness	8
Methods of cleaning saddlery and harness	2
Types of loads and weights carried on Pack animals	2
	46

Periods Allotted

3. DRIVERS HT (PRACTICAL)

(i) Equitation

Saddling, and fitting of saddle and bridle	2
Movements around the horse (Dummy)	4
Mounted Instruction	100

(ii) Harnessing and Unharnessing (P.D.G.S.)

Hooking in and out, Single and Pairs	4
Harnessing (Unharnessing)	4
Driving-Long Rein (Wagon GS)	20
Driving-Ride and Drive (Wagon GS)	10
Mounting and Dismounting - (Wagon GS)	1
Whip drill (Long rein ride and drive)	1

(iii) Pack Transport

Saddling and coupling	4
Knot tying	6
Lashing and Loading	16
Loading Drill	6
Loading	4
Weights and types of loads carried	2

(iv) Animal Management

Grooming demonstration	1
Grooming and stable periods	168
Points of the horse	2
Colours and markings	2
Foods and feeding	4
Watering, stable and field	1
Foot and shoeing	2
Minor ailments and dressings	4
Prevention of disease	2
Condition, health and exercises	1
Handling animals	1
Stable tricks and vices	1
Clipping and trimming	4
Management in the field	2
Lameness and its detection	2
Wisp making	4

(v) Picketing and Tethering

Breast and ground lines	6
-------------------------	---

Periods Allotted

(vi) Camp and Sivoac
Defence of a location
Siting and layout

4
10 405

4. EXERCISE

Pack Transport (incl Adventure Training)

30 30

SUMMARY

1. General	129
2. Drivers HT Theoretical	46
3. Drivers HT Practical	405
4. Exercise	30
	<u>600</u>

ANNEX B

COORDINATION ANNEX

1. Coordinating Agencies. The following agencies were furnished copies of the initial draft study for comment:

- a. US Army John F. Kennedy Center for Special Warfare.
- b. US Army CDC Armor Agency.
- c. US Army CDC Artillery Agency.
- d. US Army CDC Aviation Agency.
- e. US Army CDC Civil Affairs Agency.
- f. US Army CDC Combined Arms Agency.
- g. US Army CDC Engineer Agency.
- h. US Army CDC Infantry Agency.
- i. US Army CDC Medical Service Agency.
- j. US Army CDC Military Police Agency.
- k. US Army CDC Quartermaster Agency.
- l. US Army CDC Transportation Agency.
- m. US Army Armor School.
- n. US Army Artillery and Missile School.
- o. US Army Engineer School.
- p. US Army Infantry School.
- q. US Army Medical Field Service School.
- r. US Army Military Police School.
- s. US Army Quartermaster School.
- t. US Army Special Warfare School.
- u. US Army Transportation School.

2. The US Army CDC Special Warfare and Civil Affairs Group was furnished information copies of the initial draft study.

3. The US Army Transportation School did not reply.

4. The following agencies reviewed the initial draft study and concurred without comment:

- a. US Army CDC Engineer Agency.
- b. US Army CDC Military Police Agency.
- c. US Army Engineer Agency.
- d. US Army Infantry School.
- e. US Army Military Police School.

5. Qualified concurrence was received as follows:

a. US Army CDC Armor Agency: "This Agency has reviewed the draft study and interposes no objection."

b. US Army CDC Aviation Agency: "The Aviation Agency understands and appreciates the special warfare requirements for unconventional transportation means in certain terrain and climatic environments and concurs in conclusions and recommendations of the draft study. However, suggest that care be taken to emphasize that pack animals would be used only when more conventional transportation resources are not available or when their use is more tactically feasible."

c. US Army CDC Civil Affairs Agency: "The Civil Affairs Agency has no comment to make in respect to (the study) inclosure to basic communication."

6. Review comments of coordinating agencies in which this Agency has concurred have been incorporated into the final draft study. A total of fifty-two (52) review comments were received. Inclusion of editorial comments of a general or specific nature, and routine and specific line-by-line comments accepted by this Agency are incorporated and thus obviate their inclusion in paragraph 7, below. This Agency nonconcurred or nonconcurred in part with a total of sixteen (16) comments.

7. Review comments which were not incorporated into the final draft study, together with justification for non-inclusion, are as follows:

a. US Army CDC Artillery Agency and US Army Artillery and Missile School:

(1) "Paragraph 6b: It is not considered practical to include in FM 25-7 information pertaining to animals other than the horse and the mule. Animals listed in paragraph 6b would not probably be included in operational army units. Information regarding use of these animals for pack transport could be obtained by writing military attaches or military missions in those countries where these animals are utilized as beasts of burden."

USACDCSWA Comment: Nonconcur. It is considered practical to include in FM 25-7 information pertaining to animals as listed in paragraph 6b. Such animals as the asian horse, donkey, elephant, camel, and ox are used in foreign armies. Examples are: the use of asian horses and elephants by Republic of Vietnam forces and their

US advisors, the use of oxen by the Royal Lao Army, and the use of camels by the Armies of the Middle East. When the information on such animals is required, there is no time to research the answers or write to attaches or missions. Information gathered as suggested could be used in formulating the recommended addition to FM 25-7.

(2) "Paragraph 6d: This Agency concurs in establishment of a pack animal training section; however, it is believed that it should be limited to horses and mules. It is further believed that information gathered in the nature of that recommended in Comment No. 2 (the CDC Artillery Agency comment, above) would suffice for training purposes for other remote areas of the world and that the necessity of procuring other animals would not be necessary."

USACDCSWA Comment: Concur in part. This Agency recommends that selected animals, to include donkeys, the asian horse, and oxen, be provided for the training program. Framework models may be substituted as training aids for the more exotic, not easily obtained animals, like the elephant, camel, llama, and reindeer.

(3) "Paragraph 6e: Concur with the exception that such studies on forage and forage logistics and resupply problems be limited to the mule and horse. Studies on forage and forage logistics and resupply problems for other animals, peculiar to remote areas, would be more properly included in area studies and appropriate contingency plans."

USACDCSWA Comment: Nonconcur. The employment of animals other than mules and horses is not uncommon. Elephants, small asian horses, and oxen are used in operations today in Vietnam and Laos. Hundreds

of asian horses were employed in Burma during World War II. Contrary to popular opinion, forage logistics, even with indigenous animals in seemingly apparent forage-abundant areas, was a major problem as attested to by the official History of the US Army, and informal remarks by Lt Gen Beach, former Commanding General, USACDC.

b. US Army CDC Combined Arms Agency:

(1) "This Agency has reviewed subject study and does not concur with recommendations 6a, b, d, e, f."

USACDCSWA Comment: Nonconcur. The USACDCSWA recommendation to update and republish FM 25-7, Pack Transportation, is valid. USACDCCARMSA recommends that information of this subject be included or expanded in appropriate field manuals, and the appropriate field manual is FM 25-7. It need only be published in a limited edition. The USACDCSWA recommendation for additional material on indigenous animals be included in FM 25-7 is valid. The user and staff planner does not have time, nor does he usually have appropriate reference material for his immediate needs. A collation of such information in one manual would greatly facilitate planning, employment, and advisory efforts of US forces, missions, MIT, and individual advisors. The USACDCSWA recommendation for study of forage, forage logistics and resupply is valid. See USACDCSWA comment in paragraph 7a(3), above.

(2) "Further studies on this subject are not required. Areas that require use of pack animals normally have animals, forage, and 'know-how' available indigenously. When circumstances dictate, animals and drivers can be hired and forage can be purchased to meet such limited requirements as may exist."

USACDCSWA Comment: This Agency prefers to defer comment on its recommendation for further study on pack animal employment in limited or general war to USACDC Group and Headquarters review. Areas that require use of pack animals normally have pack animals; but, as pointed out in the study and in this Annex, forage, and often native "know-how" are lacking. Accordingly, our planners, users, and advisors must have information readily available to facilitate planning and employment of pack animals.

c. US Army CDC Quartermaster Agency:

(1) "Paragraph 6e, line 10. Do not concur with recommendation requiring a CDC study on forage and forage logistics.

REASONS: The study presents a convincing discussion on the requirements for pack animals in special warfare operations. With respect to the recommendation, however, a Combat Developments type study does not appear to be the best means to obtain the information desired.

The wide variety of pack animals concerned are indigenous to the economically underdeveloped areas of Asia, Africa, and South America. The techniques of handling these animals, to include forage logistics, are a matter of local custom and tradition.

Much of the desired information may be contained already in intelligence documents, country handbooks, and area studies proposed over a number of years by various research agencies -- many specifically for special warfare purposes. If review of these intelligence documents discloses insufficient information on pack animal resources, the research organizations originating these publications are more likely to possess the expertness for quickly developing the information needed."

USACDCSWA Comment: Nonconcur. Forage and forage logistics, even for indigenous animals, is a problem. (See USACDCSWA comment paragraph 7a(3), above.) Contrary to popular belief, local customs tradition, and forage availability are not always proper or adequate. The fact that native customs and traditions of handling pack animals are centuries old does not substantiate that these practices are correct or proper. A review of many intelligence documents, country handbooks, and area studies disclosed little or no information on pack animals. Further study could be aimed at collecting information in FM 25-7, and in applicable area handbooks, so that it will be readily available to planners, users, and advisors.

d. US Army Quartermaster School: "General comment, reference study: The School takes the position that this study deals primarily with special warfare requirements and should not be considered on a worldwide Army basis.

REASON: Since this is a special project dealing with special forces, it does not apply to the Army as a whole."

USACDCSWA Comment: Nonconcur. The employment of pack animals, the units which may employ them, and the individuals who may advise on the employment of pack animals, are not restricted to special forces. Army personnel, in the role of advisors, MIT, or in contingency forces, will require information on pack animal training, handling, and management. The Chief of Staff has made counterinsurgency operations the third major capability of the whole Army.

(2) "Paragraph 6e, page 10. Do not concur. Recommend that an intelligence survey be initiated to determine if sufficient data is available on forage and logistics resupply problems.

REASON: There could be necessary data on hand to preclude preparing a study on this supply problem."

USACDCSWA Comment: Concur in part. An intelligence survey to determine available data on forage and logistics resupply problems would be one of the functions of the study. A study of this nature would provide information on forage requirements and recommend action to alleviate forage logistics problems.

e. US Army CDC Transportation Agency:

(1) "Paragraph 4a, line 24. DELETE: 'subversive ...'

CHANGE TO READ: Insurgency will continue to be a threat to world peace for many years to come.

REASON: Subversive and insurgency are synonymous."

USACDCSWA Comment: Nonconcur. Change 1, JCS Pub 1, 2 July 1962, page 114, defines insurgency as:

A condition resulting from a revolt or insurrection against a constituted government which falls short of civil war. In the current context, subversive insurgency is primarily communist inspired, supported or exploited.

(2) "Paragraph 5(a), Page 25, DELETE: '(a) There are only two ...

ADD: There are only three manuals which provide for staff planning for the employment, shipment or feeding of pack animals."

REASON: Final manuscript of FM 25-7, 'Pack Transportation,' although not published, has information concerning the above. If a draft manuscript is utilized as reference in one instance, then FM 25-7 should also be referenced."

USACDCSWA Comment: Nonconcur. FM 25-7 is not doctrine and cannot be quoted as doctrine until it is published as a field manual. There is some doubt that FM 25-7 will be published.

(3) "Paragraph 4a. DELETE: 'the examination of ...'

CHANGE TO READ: Pack animals as a mode of transport must be considered where other modes are infeasible.

REASON: Combine 4a and 4b for clarity."

USACDCSWA Comment: Concur in part. This Agency concurs in the comment. Inasmuch as paragraph 4 is a direct quote of a letter from the US Army John F. Kennedy Center for Special Warfare, this Agency is obliged not to change the content.

(4) "Paragraph 4b. DELETE: 'The use of ...'

REASON: Statement comment No. 9 (7e(3) above) covers this subparagraph."

USACDCSWA Comment: Concur in part. See USACDCSWA comment 7a(3), above.

(5) "Paragraph 4c. DELETE: "Guerrilla forces will ..."

CHANGE TO READ: Forces may increase their mobility through the use of pack animals when other transportation is inadequate or inappropriate.

REASON: Pack animals will not always increase mobility; further, if mobility will be increased by their use in the instances of the guerrilla,

conversely other forces operating in the same environment will increase mobility, due to lack of better transportation."

USACDCSWA Comment: Concur in part. The remarks above are cogent, but the Center for Special Warfare position on the use of pack animals is directed at pack animal employment by special forces conducting unconventional warfare and counterinsurgency operations. This Agency is obliged not to change the content of this position paper.

(6) "Paragraph 4d, DELETE: 'Special Forces Detachments...'

REASON: Statement comment No. 11 (paragraph 7e(5) above) covers this sub paragraph."

USACDCSWA Comment: Concur in part. See USACDCSWA comment 7e(5), above.

(7) "Paragraph 4h. DELETE: The 'US Army John F. Kennedy ... for detachment training.'

ADD: to paragraph 5.

REASON: This should be added to the beginning of paragraph 5, as it is not a position on the use of pack animals, but closer related to the training program."

USACDCSWA Comment: Concur in part. See USACDCSWA comments; para 7e(5), above.

(8) "Paragraph 5. ADD: Paragraph 4h.

REASON: See Comment No. 13."

USACDCSWA Comment: Concur in part. See USACDCSWA comment, paragraph 7e(5), above.

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USA Transportation School	2
Chief	
OSD/ARPA Research and Development Field Unit	2

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AR 40-960 Veterinary Hospitals
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13. ABSTRACT This study was undertaken to analyze US Army pack animal transport doctrine and resources in order to determine the adequacy of the doctrine and resources to support requirements for limited and general warfare, unconventional warfare, counterinsurgency and counterterrorism operations. Army regulations, publications, and resources were analyzed to identify voids in doctrine, resources, and training. Preliminary evaluation indicated that requirements do exist for pack animals in all levels of warfare, especially in remote areas and in rugged, vehicle-restrictive terrain. The study concludes that there is a lack of techniques, doctrine, resources, and training capability within the US Army. It recommends action to rectify these inadequacies.				

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