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With an Army rapidly taking to wheels, development of Trailer Command Posts was inescapable. As opening article in this issue we give you Captain Robb's story on the construction and operation of trailer offices and therewith mark another milestone in the evolution of motor transportation. Also, on pages 23 and 24, are shown recently perfected mobile equipment units in use at Camp Lee.

There's never a subject more important to man than food and such being the case Dr. Ancel Keys' story on page 26 will be read with interest. Development of concentrated, well-balanced rations for air-borne and other mobile troops has challenged the ingenuity of Army and industrial scientists but from all indications success is near at hand and tomorrow's soldier need never be vitamin shy.

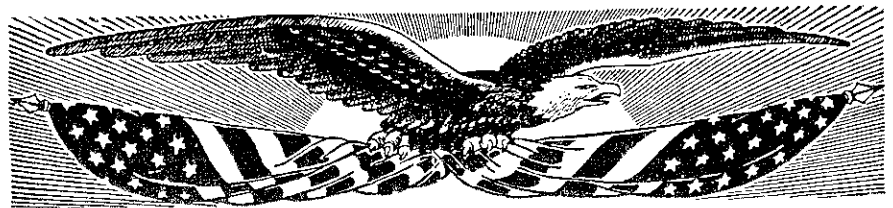
The attention of all Chapters is especially invited to the article by Colonel Thrasher appearing on page 66 of this issue on the subject of mobilizing the Quartermaster Association. Every Depot Commander and every procurement officer will find something useful in this article.

With millions of dollars invested in Army installations throughout the United States the need for "Protective Lighting" is self-evident. Major Lindsay M. Applegate, Q.M.C., has written authoritatively on this subject in his article beginning on page 29—a treatise to discourage all prowlers, at least!

What has been the secret of the German Army's deadly onrushing success? Why has it been able to override all obstacles, defeat all enemies? At least a partial answer to those questions is found in Colonel Jackson's article on page 35.

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# The Story of the Quarter-Ton

## The Army's Smallest Car Known as a "Jeep"

BY LT. E. P. HOGAN, Q. M. C.

EDITOR'S NOTE: We have published information before on the Quartermaster Corps "Truck 1/4-ton 1st," but so widespread is everybody's interest in the "jeep" that we thought you would want to know who thought of it and where it came from. Well, here's the story.

■ In spite of the fact that America gave the world the original automobile, the small commercial car was not originally an American development. The small commercial car was designed in Europe to fill a need in thickly populous areas covering a comparatively small ground range and because of the high cost of "petrol." In America where distances are greater and gasoline is cheaper, there was not the same need for a little car. It was, however, largely from the small commercial car that the small military car was developed.

In 1905 one Herbert Austin, later Lord Austin of Longbridge, organized the Austin Motor Car Company of Birmingham, England. This firm achieved great success in England with a small car of only 45 cubic inches displacement and 7 horsepower tax rating, known as the Baby Austin. Licenses for the manufacture of this car were issued to French and German firms, and in 1929 the American Austin Car Company was formed to manufacture the car in this country. A plant at Butler, Pennsylvania, was acquired from the Standard Steel Car Company, and production of the car was begun. However, owing to various factors such as its small size and the generally great distances in America from one place to another, it did not prove very popular with buyers. In 1936 the American Austin Company was taken over by the American Bantam Car Company.

During these years, although there was virtually no expansion whatever in the American Army, the constantly increasing warlike conditions in Europe gave rise to many suggestions for future military development in this country. Certain Quartermaster Corps motor engineers, for at least 10 years before its actual development, felt a need for a motor vehicle that would take the place of the motorcycle with side-car. Other Branches of the Service likewise recognized this need, the Infantry being particularly interested.

Accordingly, on March 22, 1933, the Army bought one Austin for test purposes. This was the only Austin owned by the Army and was widely driven at Fort Benning. For preliminary tests, it was a forerunner

of pilot models of the 1/4-ton truck. An open two-seated commercial passenger car, this Austin was also driven outside the Benning reservation even as far away as Fort McPherson. Observation of it under driving conditions proved of material assistance in determining what the Army might expect in the performance of a small car. Upon termination of its use, this vehicle was salvaged.

News of the tests made with this Austin aroused considerable interest within the Army in the small motor vehicle. So much so that prior to 1937 there was a growing clamor from those desiring to speed up the Army, decriing the immobility of supporting weapons on the battlefield and advocating low silhouette motorized carriers as a cure.

Writing in the *Infantry Journal* of November-December, 1937, Captain Wendell G. Johnson, Infantry, said, "What is wanted is merely a gasoline-propelled conveyance not much higher than a man crawling that will be able to carry a one- or two-man crew, a gun, and plenty of ammunition, and scoot from one firing position to another at 5 to 10 miles an hour."

In this connection, reference is made to the Howie Machine-gun Carrier. Captain Johnson tells us that the building of this vehicle was initiated by Brigadier General Walter C. Short while he was Assistant Commandant of The Infantry School, Fort Benning. General Short specified that a vehicle be constructed for the sole purpose of transporting two men, a caliber .30 machine gun, tripod, and ammunition. Other requirements were:

1. That the gun not be mounted for firing from the carrier.
2. That the vehicle be light enough for four men to lift it into a 1 1/2-ton truck and across small obstacles.
3. That the vehicle present as low a silhouette as possible — sacrificing ground clearance therefor, if necessary.
4. That dimensions be such that it could be carried in the 1 1/2-ton truck issued to machine-gun companies.
5. That speed was no object — as low as 10 m.p.h. maximum would be sufficient.
6. That units be commercially available as far as possible.

The job of designing and building a test carrier was given to Captain Robert G. Howie, then an instructor in the Tank Section, The Infantry School. Another long-time tanker and expert mechanic, Master

Sergeant M. C. Wiley, was his partner in production. Assisting in the final assembly of this vehicle made from salvaged units was Sergeant G. L. Rush, also of the Tank Section. Work began late in 1936 and ended in April of '37. The crew of two rode this vehicle in a prone position. Many tests were made with this trial vehicle and much that was good was learned from it. It was the first and only Army-built forerunner of the "truck  $\frac{1}{4}$ -ton, 4x4."

Gradually, long before development of the first test model of the  $\frac{1}{4}$ -ton truck, general Army requirements in a small vehicle came to be known. Primary needs for this vehicle were for reconnaissance purposes over very rough terrain, for command purposes, as a carrier for small numbers of personnel, and as a light weapons carrier. It was desired that the vehicle be small, tough, and high powered for driving over bad roads, or, if necessary, in marshy ground. It had to be of the lowest possible silhouette in order to make concealment as effective as possible under trees and in tall grass. The vehicle was to be used, from the first, as a tactical truck.

In the latter part of 1937, the Army ordered from the American Bantam Car Company of Butler, Pennsylvania, a preliminary engineering model of a small motor vehicle designed for military purposes according to tentative military specifications. Such a vehicle was built and, upon completion, delivered to the Army at Holabird. It aroused great interest at once.

This Bantam preliminary engineering model represented an assembled vehicle designed primarily by the engineers of the Holabird Quartermaster Depot, the unit manufacturers and the engineer of the Bantam Company. The present body design was based almost entirely on drawings furnished by Holabird, and the axles and transfer case were designed by the Spicer Manufacturing Corporation of Toledo, Ohio.

Credit for the original design of the Army's truck  $\frac{1}{4}$ -ton, 4x4, may not be claimed by any single individual or any single manufacturer. This vehicle is the result of much research and many tests. Army engineers, both military and civilian, at the Holabird Quartermaster Depot did the bulk of work in designing it.

The next step came in February, 1938, when three Bantam test model Chassis Assemblies  $\frac{1}{4}$ -ton, 4x2, complete as specified, were purchased for shipment, one each to Fort Benning, Georgia; Fort Riley, Kansas; and Holabird, Maryland, from the American Bantam Car Company. The object desired of these vehicles was:

The development of a suitable self-propelled vehicle of the wheeled type consisting, insofar as practicable, of standard commercial units and parts and of the least possible weight and size for the purpose of transporting two men, a caliber .30 machine gun, tripod, and ammunition over cross country terrain such as

may be expected to lie between opposed infantry and infantry machine gun positions.

In August, 1938, the problem of developing a small motor vehicle for military purposes reached the point where Quartermaster Corps recommendation was made that a new project be set up authorizing the construction of a three-passenger, light-weight, open body for the chassis then under consideration so that this vehicle could be tested in a comparison with the three-passenger motor tricycle. Accordingly in 1940, seventy (70) of these cars were ordered from Bantam as an experimental and service test project authorized by the A.G.O. on July 5, 1940. The vehicles were 4-wheel drive, 2-wheel steer.

These cars were painted with the new olive drab lustreless enamel. Dimensions were as follows: Model "60", actual overall length of 120", actual shipping weight 900 pounds, gross 2,030 pounds, wheel base 75 inches, tire size 15x500, and usual standard tool equipment.

In order that no possibility might be overlooked, 8 of these vehicles were built with 4-wheel steering mechanism for test purpose. The turning circle, and size of the vehicle, however, together with other factors, led the 2-wheel steering to be decided upon.

The service test of the 70 Bantam cars clearly indicated the suitability of a vehicle of this general type for military purposes. Tentative specifications including results of the tests were drawn up and contracts were negotiated, invitations for bids being issued in the latter part of 1940 from Holabird at different times for a total of 4,500 vehicles, 4-wheel drive, 2-wheel steer. These vehicles were purchased in lots of 1,500 from the American Bantam Car Company, 1,500 from Willy-Overland Motors, Inc., and 1,500 from the Ford Motor Company. Procurement of these vehicles was in the nature of an extended service test with the vehicles actually in the hands of troops all over the country. In addition to Quartermaster Corps tests, the Infantry, Field Artillery, and Cavalry have likewise made extended service tests.

The purchasing of the 4,500 truck-cars from more than one manufacturer was the result of a carefully considered plan initiated by the Office of the Quartermaster General to insure proper engineering development and, in addition, the development of adequate productive facilities to turn out this type of car in the quantities that might be needed. In other words, it was believed that greater advantage might result to the Army in having the combined facilities of several manufacturers set up and available for a greater output of these cars, if needed, in the event of a major emergency.

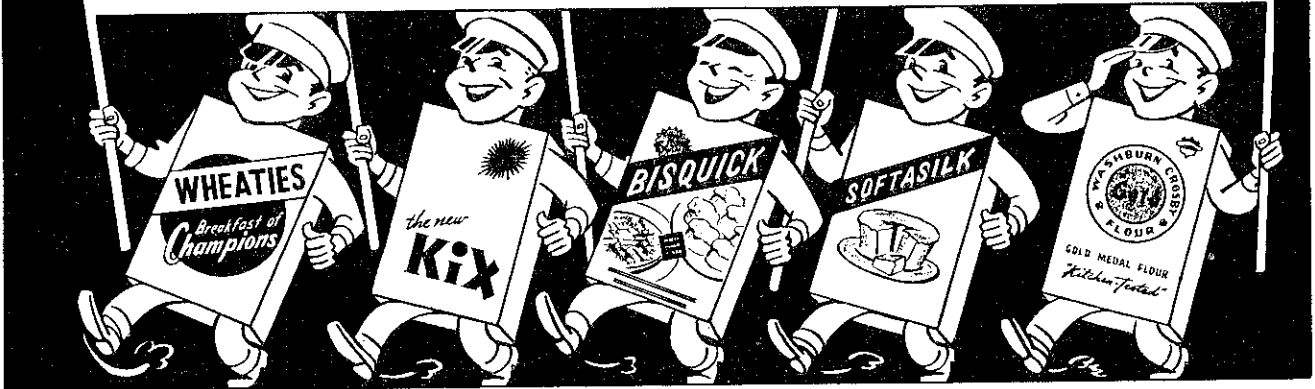
In this connection, however, the Army's complete awareness of the value of motor vehicle standardiza-

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### ARMY MOTOR TRANSPORT

(Continued from page 56)

repair, rebuild, reclaim and salvage vehicles, store and issue supplies. These companies have highly skilled specialist mechanics of various types.

We believe that very few cases other than unavoidable accidents would find their way to Third and Fourth Echelon shops if proper preventive maintenance, that is, First and Second Echelon work, could be established. Certainly an abnormal demand for spare parts would be reduced to a minor fraction.

Our organization includes eight large motor supply depots located in various sections of the United States.

How to "Keep 'Em Rolling" is a problem of supply and training; and training means first of all, creating an interest and desire in the Army to care for its vehicles and second, providing the technical knowledge to make this interest effective.

As engineers and men of ideas, your continued cooperation in this as in the other branches of the work of Motor Transport is most heartily invited, so that we can "Keep 'Em Rolling" now and as far into the future as conditions may require.

### THE STORY OF THE QUARTER-TON

(Continued from page 54)

tion and the innumerable disadvantages resulting from a lack of standardization has neither been forgotten nor side-tracked. The experiences gained in World War I are well remembered. The American forces overseas in the other war had a total of 216 makes and models of motor vehicles including many foreign ones such as French, British, captured German and even Spanish and Italian motor vehicles to operate and attempt to maintain without an adequate source or system of supply for spare parts. Nor at that time were our own vehicles standardized. From that time to the present, however, great strides have been made in standardization.

The Quartermaster Corps Tentative Specification covering this vehicle provides that the truck fully equipped and loaded shall demonstrate the following abilities on smooth concrete roadway.

1. A level road *maximum* speed of not less than 55 miles per hour at an engine speed that does not exceed the peak horsepower speed.

2. A level road *minimum* speed of not more than 3 miles per hour.

3. An ability to ford (hard bottom) water crossings of at least 18 inches water depth at a speed of at least 3 miles per hour without effect from the water.

Tire chains are required for use on driving wheel tires, and frequently will be used when traversing hazardous terrain. The truck construction shall permit the satisfactory installation and use of the tire chains.

The weight of the truck, fully equipped (including lubricants and water), but less fuel, tire chains and payload, shall not exceed twenty-one hundred (2,100) pounds for two (2) wheel steer trucks, and twenty-one hundred and seventy-five (2,175) pounds for four (4) wheel steer trucks, and every effort, consistent with best recognized engineering practices, shall be made to minimize the weight.

The payload allowance shall be eight hundred (800) pounds, for operating personnel (including the driver) and military supplies.

The towed load may be one thousand (1,000) pounds gross weight, and will be mounted on two (2) pneumatic tire equipped wheels.

The angle of approach shall be at least forty-five (45) degrees; angle of departure at least thirty-five (35) degrees, with the truck fully equipped, loaded and in a level position.

The Army's "truck 1/4-ton, 4x4,"—its official designation—originally called a "Light Command and Reconnaissance Car," is combination of passenger vehicle and truck. The mission of these cars is to do the fast hard-hitting job performed in the highly mechanized Nazi Panzer divisions by motorcycles with side-cars. Their 4-wheel drive provides them with plenty of traction for the most rugged terrain and on good roads they are capable of traveling 60 miles per hour. They have 4-cylinder engines. These vehicles were adopted in 1940 by the Army. So useful have they proved, that early in August, 1941, arrangements were completed for the purchase of 16,000 1/4-ton trucks from Willys-Overland Motors, Inc.

An outstanding feature of this car is the success with which 4-wheel drive has been adapted to it. Its front axle can be used either as a driving axle or an idling axle. In addition to the regular gear box, the 1/4-ton has an auxiliary transmission which provides 6 speeds forward and 2 in reverse. These trucks have blackout lamps front and rear in addition to the regular lighting equipment. A brush guard protects the front of each car, and its windshield folds flat over the hood. Each also has a detachable folding top or canopy which is carried in a tool compartment in the vehicle. Under the spare tire rack on the rear of each car is its towing pintle.

This then is the story of the 1/4-ton, the smallest and most spectacular motor truck the Army has ever used. A constant flow of press and film publicity has quickly acquainted the public with it, and the public

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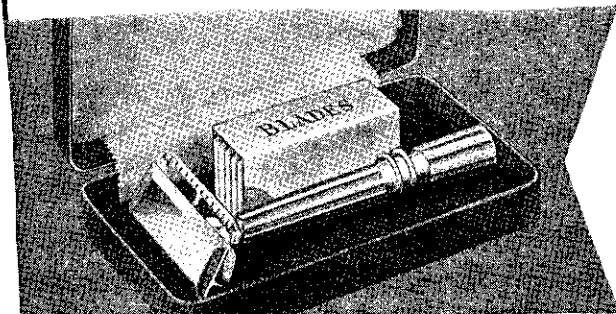
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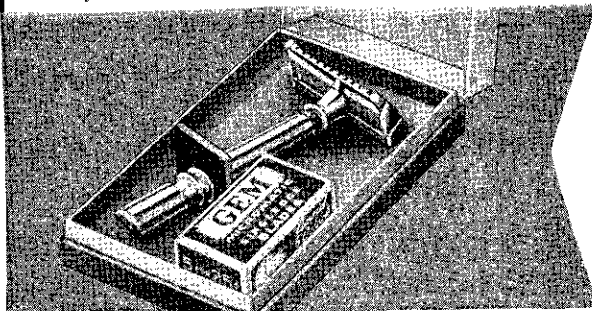


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has affectionately labeled it the "jeep," while at many camps it is called the "peep." Troops in the field, at Army posts and camps all over the country have had these vehicles in operation for some months now and the cars have proved to be of great usefulness. Orders are now being placed for large additional numbers of them. "Jeep" or "peep," there can be no doubt that this car, which is a development rather than an invention, has a definite place in Army Motor Transport.

## WAR CHIEFS INSPECT ARMY INCUBATOR

(Continued from page 49)

fire lasts and then remain to salvage and mop up the souvenirs of man's folly.

That ever increasing dependency upon the Quartermaster is what brought the Chief of Staff and the Secretary of War to this frontier reservation. They wanted to know how the thousands of embryo quartermasters were being trained to take their part in the baring of the eagle's talons if and when it becomes necessary. And they found out.

Available to them in the persons of the commanding generals of the two quartermaster replacement training centers. Warden and Hartman, was the last eight months' experience in teaching the art of army husbandry. Within normal vision was the evidence of the soundness of a training program that is more comprehensive and yet brass tacks than anything the army has done to date.

What should have warmed their military hearts was the discovery that the phenomenal progress of the Fort Warren Replacement Training Center was an almost identical picture of what's what with its two weeks younger brother, the Camp Lee Quartermaster Replacement Training Center. For the exchange of ideas and discoveries of one camp with the other has just doubled the improvement ratio that could be achieved in the solo training of selectees.

New quartermaster trained soldiers are really new — and trained.

The old picture of the quartermaster that other divisions of service like to paint — the bishop bellied, better clothed housewife of the army — is gone forever. In its place is a healthy, intelligent, obstacle-course-hardened trooper as familiar with close order drill, manual and use of the rifle and pistol as any combat soldier. In thirteen weeks of well planned and expertly carried out training he has not only learned his particular problem but has an insight into the aims and difficulties of his brothers in arms. Thus the ideal of millions of men working shoulder to shoulder and contributing intelligently their bit to the success of the effort as a whole comes closer and closer to reality.

What's the explanation?

It's the old story that successful football coaches