Naval War College Review

Volume 3
Number 4 *April*

Article 4

1950

Traffic Management Control

George W. Baurenschmidt
U.S. Navy

TRAFFIC MANAGEMENT CONTROL

A lecture delivered by
Rear Admiral George W. Baurenschmidt, U.S.N.
at the Naval War College
February 16, 1950

In the last war production as a problem was solved very early, but the problem of distribution was not solved. Transportation is a major component of distribution. Traffic management is a major component of transportation. My subject today is "Traffic Management." But it cannot be discussed without a discussion first of transportation as it pertains to logistics.

We are accustomed to thinking of war in terms of fighting, but you here at the Logistics Course of the War College must by now recognize that the major part of modern war is logistics, and transportation is a big part of logistics. The statistics of transportation in the Second World War are impressive and colossal. Cargo and passenger ships outnumbered fighting ships many times over. The Army, which depended almost entirely on truck transportation in the European theater, had 30,000 men just operating railroads in that theater. The tonnage hauled away from the United States for the war effort can be represented as half a thousand billion ton miles, while inside the United States the railroads alone in one year hauled three quarters of a thousand billion ton miles. The Navy each day during the war turned over to carriers in the United States an average of 100,000 tons of material. These statistics are not only colossal, they are beyond comprehension just as is the National debt, which, in no small part, represents transportation costs. I cannot stress too much the point that in modern war, transportation is a factor to be given ever greater

---

Admiral Baurenschmidt is Deputy Chief, Bureau of Supplies and Accounts.

consideration for its importance; cost, and effect grow and grow as new techniques of war develop. The soldier of Caesar's Legions furnished his own transportation and lived off the land, but in the intervening 2000 years since the days of these Legions, such things as gun powder, petroleum, feeding habits and spare parts have made transportation a matter of grave concern to the military leader.

Transportation is a chain of many links including the actual media of movement such as trucks, trains, planes and ships, and including terminals, ports, landing fields and storage facilities. In time of war, or any other time of maximum utilization of transportation, all links of this chain must be of equal strength. Thus the capacity of railroad cars serving a port must be matched by port capacity, ship capacity, and finally capacity at the terminal at the other end of the overseas haul. A bottleneck anywhere reduces the efficiency of the whole. The result of imbalance was conspicuous in the First World War when there was an actual backing up of 200,000 loaded freight cars at New York because of insufficient port facilities and vessels capacity. To give you some idea as to what 200,000 freight cars constitute in the way of a block to traffic, they jam the facilities of the railroads from New York all the way back to Pittsburgh. Proper balance between the links of transportation can be maintained in some part by the carrier operators, but by far the greater agent in maintaining this balance is good traffic management.

The Second World War shows that much has been learned from the lessons of the first great war. There were no serious breakdowns in transportation even though imbalances did exist, and to show you that imbalance did exist and in part to indicate how they were taken care of, I can state that Navy material awaiting transportation across the Pacific was backed up for want of

shipping, backed up as far as Illinois, but the effect of this back-up on transportation was kept to a minimum by the expedient of retaining the material in warehouses. In other words whenever it became apparent that the material could not be moved forward beyond a certain point, it was placed in warehouses until it could move forward and so the Navy operated warehouses from San Francisco to Illinois.

Just as there were lessons to be learned from the First World War so are there lessons to be learned from the Second. Two of these are: first, there is a need for more intelligent use of port facilities, and second, there is a need for the use of more ports with less emphasis on the large ports. Under the National Security Resources Board there is an agency studying the Nation's needs for transportation in the next war and the means to best satisfy those needs. This agency, come the next war, will probably be the successor to the Office of Defense Transportation, which operated in the last war. The name of this agency is Office of Transportation and Storage. It is planning port-utilization now and has established rules and an organization, which should do much to promote maximum port utilization. In the last war we shipped most of our cargo through the East Coast ports of New York, Norfolk, Boston and Philadelphia, and through the West Coast ports of San Francisco, San Pedro, Seattle, and Port Hueneme. The disadvantages of this type of operation are self-apparent. First, such concentration of war material and transportation facilities offers excellent targets in the age of atomic warfare. It also narrows the hunting fields of the wolf packs of submarines. Just as important as the first two is the fact that this restrictive use of the Nation's port facilities overtaxes the ones that are used, the railroads that serve them, while leaving comparatively idle many smaller ports and the railroads serving them. It is the Navy's intention, and I have been assured that it is the intention

also of the Army, that the smaller ports shall be used in the next war and to this end the Navy has planned the establishment of a substantial number of small supply depots and transit sheds for our minor ports with supply centers centrally located inland to assemble material for them and route it to them.

Let us divide transportation logistics for this study into the parts of *lift potential* and *lift utilization*. The carrier operator furnishes the first by providing ships, planes, trucks, railroad cars, and, in addition, by providing schedules, rates, repairs to his equipment, interchanges with other carriers and other operational services. The second is the responsibility of the users of the lift potential. In other words the shipper-receiver. It is he who must apply to best advantage the highly complicated structure of the lift potential furnished by the carrrier operator. Lift potential is a field for deep study and constant research by the logistician, but it can be bypassed this afternoon, for our interest as of the moment is in the lift utilization, or traffic management.

I have described the structure of the lift potential as highly complicated. It is seldom that we can put a package in a carrier and have it remain there until it arrives at its final destination. In the case of railroads, ships and planes the package must usually be brought to the carrier and hauled away from the carrier, and except for whole truckloads even truck cargo must be consolidated. Add to this the various rates, or tariffs, the multitude of schedules, and time intervals for transit, the various requirements for packaging, and we begin to see the complications. Good traffic management requires a thorough understanding of all that each carrier operator has to offer. The traffic manager must obviously see to it that his package is so shipped as to arrive at the intended destination and to arrive there on time and in good condition. He is also involved in the matter of cost and these must be true costs.

In other words, it is not merely sufficient that he balance the charges of one carrier against those of another but he must also include such items as the cost of packaging required for each mode of travel, and such items as stevedoring. When using premium transportation to achieve speed, he must not only weigh need against cost, but he must provide for, or insure that, his package is transferred to a more reliable but slower means of conveyance whenever the premium type carrier is unable to perform.

The matter of cost of transportation is not the simple one of inquiring of each carrier what he will charge to haul a specific load of freight. The tariff structure is complicated and a rather wide field for negotiation even though rates have been published. The Armed Services have been subjected to a fair amount of criticism because they failed to negotiate in transit rates for tremendous amounts of material moved during the recent war. I can describe an in transit rate somewhat in this fashion. Short hauls cost more per mile than do long ones, but when material is destined to make a long haul, which is interrupted, the carrier may legally charge the short haul rate, but the user may demand and get the long haul rate.

Suppose, for example, Mechanicsburg is shipping engine parts to San Francisco, but these parts should be added to other parts at Clearfield to form full kits. If the Navy claims in transit privileges it may ship the parts to Clearfield where Clearfield works on them for several weeks and then sends them on in kits to San Francisco. The Navy may claim through rates for the parts from Mechanicsburg to Clearfield and for that portion of the shipment from Clearfield to San Francisco which represents the original parts. Involved also in the matter of rates is the commodity classification. Rates have been established for each commodity. It is incumbent upon the shipper to designate his shipment as falling in

that commodity group which is both appropriate and carrying the minimum rate. To illustrate this point, I cite the case of the man who went to the cereal manufacturer and stated that he could save him large sums of money. The manufacturer was skeptical but finally entered into a contract which proved to be lucrative to both the manufacturer and the man. The man's proposal was that the manufacturer stop calling his product the shredded wheat biscuits and merely call it shredded wheat, because under the first name the product took the tariff for bakery products since it was called a biscuit, while under the second name it took the much lower tariff for cereals. The services have been criticized for failing to take advantage during the recent war of in transit privileges and proper commodity classification. It is true that leisurely analysis after the war can show that a billion dollars could have been saved by better traffic management but so can every Monday-morning quarterback prove to you how last Saturday's game could have been better played.

Traffic management has been defined many times. I shall give you a definition which may be over-simplified, but which focuses attention upon its salient features. Traffic management is the science of procuring for the shipper the cheapest possible transportation consistent with delivery requirements in times of peace, and, especially in time of war, securing the greatest and most effective utilization of carrier capacity.

This appears to be the age of centralization in government, and that in spite of the fact that almost a generation ago big business found that over-centralization was costly, and big business has long since decentralized in many areas. We are urged today to centralize under one head all transportation controls in the Navy. Then to centralize under one head all transportation controls for the Army, Navy and the Air Force. And finally, we are told to central-

ize under one head all transportation controls for the Department of Defense and for all other Government departments. And yet during the recent war both the Army and Navy found it necessary to decentralize their transportation controls to agencies in the field. Some concentration is indicated. How much there will be remains to be seen. As of the moment there has been formed a Central Military Land Traffic Office to perform under the administration of the Army certain functions which the Army, Navy and Air Force were mutually agreed could be centrally performed and yet leave to each of the three departments those functions of traffic management which each of the three services at present believe essential to its own adequate operation. Some of these functions are: (a) Negotiation of rates and charges on after-the-fact shipments, (b) Issuance of freight classification guides, (c) Negotiation of rates and average demurrage agreements, (d) Issuance of export release permits under conditions of war or emergency only, (e) Exchange of information as to availability of service-owned equipment to promote maximum use, (f) Operation of freight consolidating and distributing stations if and when established by mutual agreement in times of war or emergency. To the functions assigned to the Central Military Land Traffic Office can be added other functions when the three departments are satisfied that it is appropriate to lodge them there. Should the departments feel that any of the present functions are improperly lodged in that Office, they may be removed and restored to the several departments. So far the operation of this central office appears to be satisfying all three services. Further, it is hoped that by the improvement in their operations the three departments may satisfy the General Services Administration and other agencies of the Government that it will be unnecessary to centralize any traffic management of the three military departments in any other agency of the government. The three military departments are already of the opinion that it would be unwise so to do.

Just as there are some in the government who are clamoring for centralization and more centralization, so are there those who within the Department of Defense advocate that transportation be divided between its three major media and assigned to the three departments. Under this concept the Department of the Army would budget for and operate all land transportation, while the Department of the Navy would budget for and operate all sea transportation, and the Department of the Air Force would perform similar functions for all air transportation. This theory, like many another theory before it, sounds very attractive and plausible. Those who advocate it persuade many, but never do they persuade one who has a sound comprehension of traffic management. There are many sound arguments against this compartmentation or fragmentation of traffic management. I can illustrate the general tenor of most of them by stating that it is essential that one brain or group of brains direct the routing of a single shipment from its point or origin to its final destination. Let us assume that traffic management has been fragmented into its three components. Let us consider a single shipment that involves only land and sea transport. And let us suppose that this shipment originates in Ohio and is destined for Tokyo. First it falls into the hands of the land transportation traffic manager. He is interested in getting this shipment to tide water and off his hands in the minimum time and at the minimum cost. He, therefore, routes it from Ohio to Hampton Roads. This does not suit the sea transport people for it involves the long haul from Hampton Roads through the Canal and out to Tokyo. The sea transport people would much prefer that the shipment be consigned to San Francisco where they can pick it up and carry it to Tokyo for the cheapest rates and in the shortest time. If, however, a single brain is planning the movement from its point of origin to its destination, this brain might well balance all time and all costs and arrive at the solution that the cheapest over-all routing within the allowed time would be to ship by rail

from Ohio to New Orleans, and by sea from New Orleans through the Canal to Tokyo. There are similar arguments predicated upon the use of premium transportation and others upon the budgetary problems involved. The operation of sea transport has been assigned to the Navy, and the operation of MATS has been assigned to the Air Force. Regretably there are no major land carriers which are owned by the Department of Defense and the operation of which could be assigned to the Army. It, therefore, looks as though the Army has been short changed. Unless I have missed some important point the probability is that within a very few years the Army will find that it has gained rather than lost in this assignment for it looks very much as though the Navy will ultimately be required to assume budgetary responsibility for MSTS and the Air Force a similar responsibility for MATS leaving the Army unburdened with any similar responsibility since all three services are required to budget for their land transportation. Those who advocate fragmentation of transportation do so because they mistake carrier operation for traffic management. It is the first which has been assigned and not the second and there is no direct relationship between the two. Unfortunately it is not only those who cannot differentiate between carrier operation and traffic management who are advocating this fragmentation. There is also a group of people who would expand their own empire. I point the finger at no one department. All three have their empire builders in the fields of transportation.

It is perfectly true that in assigning carrier operations to the Navy and to the Air Force certain traffic management functions have gone to those two services incident to this assignment. These traffic management functions are essentially those of routing once the cargo has been made available to the carrier. In the case of MATS this is of little significance in view of the fact that the charter of private planes has been reassigned by MATS to the

three departments, MATS only retaining clearance to be sure that chartered planes are used to maximum capacity. In the case of MSTS the three departments, as shippers, have the right to lay down their cargo at any port they choose. From there on it becomes the responsibility of MSTS to deliver the cargo to its overseas destination and in the time specified. MSTS has the choice of using ships of its own or of using commercial bottoms. Those who advocate this system say that, in effect, MSTS has embraced all ocean carriers and, in effect, there is only one carrier. Hence, routing is a matter of little, if any, concern to the shipper. I, for one, do not agree with this and am actively advocating that the three departments each pay for their cargo which is shipped in commercial bottoms at tariff rates and that they retain the right to specify that their cargo shall go by such shipments and on such ships as they select with MSTS merely negotiating the contract for the lift. If this is done, each service will have retained all that is essential in traffic management.

Incident to the effect of unification on military transportation the question of priorities in traffic management has received considerable notice and to date there is no generally agreed upon policy with regard to priorities. Since priorities in many instances determine the sequence of shipment and in other cases result in premium transportation, it is obvious that there is need for an accepted policy with regard to them. One school of thought advocates priorities predicated upon categories of material. Under this concept, for example, bullets might always precede beans, and beans always precede general stores. It may be perfectly true that under normal conditions, ammunition is more important than food, and food is more important than general stores, but this is not always so and we come to the belief of the second group who maintain that priorities are predicated upon need and not upon categories. Why should ammunition, they say, always come first when

you may have plenty of ammunition and not enough food? Or why should ammunition and food both come ahead of general stores when you may have plenty of ammunition and food and be in dire need of general stores? So they say that priorities are predicated upon need and further that only the shipper, or the owner and user of the material, can determine need. This issue I hope to see settled in the very near future and settled by the establishment of the policy that need determine priority.

No discussion of traffic management would be complete without consideration of the newest medium of transportation, namely, air lift, and on no subject in the field of transportation is their wider divergence of opinion, than there is on the matter of air lift. First, we have those who advocate it because they believe in anything pertaining to air, and those who oppose it because they have never been satisfied that the airplane is here to stay. There are those who distort the incomplete statistics of air lift during the war to prove any point of view they may happen to take, but air lift is here and it is here to stay. The question to be answered is, to what extent can it be relied upon and how can it best be used. The statistics of the last war are really of little help. First, few statistics were collected because people were more interested in getting the job done than in recording what it took to get it done. Next, air lift just grew and it grew in an unplanned but surprisingly rapid fashion. And, third, there were many flagrant misuses of air lift, some through lack of understanding of its potentiality and of its cost and some through downright selfishness. There are many of us who operated in overseas supply fields during the war who remember being denied air lift for vitally needed supplies only to find that the next incoming plane was loaded with a mahogany bar and slot machines for some air field being established, or with wolf bait for some VIPs in the big cities of the ETO. Be that as

it may, the recent war convinced us that air lift was a factor in modern logistics.

As of the present our approach to air lift is not too intelligent and our thinking on that score can be illustrated by the conclusions reached by a certain clergyman who found himself confronted by a couple desiring to be united in matrimony. Their appearance led him to inquire of the groom his age, and when the response came forth, "75," the clergyman asked "and why, sir, do you desire to be married?" The prospective groom said "Because I want an heir." The clergyman then turned to the prospective bride and asked her age. When told that she was 68, he asked her why she wanted to be married, and she said that she too wanted an heir. This led the clergyman to come to the conclusion that the couple were "heir-minded," but not "heir-conditioned." And so it is with our thinking. We are air minded but not air conditioned. We ship by air in part as an attempt to make up for mistakes in planning. We ship by air because we know that air travel is fast. We have yet to analyze our air lift and find out to what degree it is dependable, when air cargo is grounded how rapidly can we move the cargo to other means of travel, what is the true cost of air lift, what actual saving in time can be counted upon and what categories of material are best suited for air lift? When we have the answers to these questions and we apply them properly, air lift will be on a much firmer and more satisfactory footing.

The true cost of our military air lift today is staggering. The reliability is very low. The average time saved is very little, but if we take the time to do some research, we will find our present cost of military air lift well worth while, and when I speak of research I am speaking of research in the actual operation of a carrier service and in the actual traffic management which accompanies it. I am not one of those who believe that in the next war

we can dispense with supply depots and we can dispense with ships, all because everything will be brought by air immediately from the factory to the consumer's hands. I am one of those who believe that substantial quantities of high priority cargo will and must be transported by air, and to do this satisfactorily we must have uniform documentation, we must have a route pattern to serve the customer's needs, operational performance must be measured in terms of customer satisfaction not in terms of pilot satisfaction. Parenthetically I define pilot satisfaction as on-time departures plus flight safety plus a high degree of aircraft utilization and similar factors. And, finally, we must have some rules of thumb by which we can readily determine when the expenditure of fuel and the use of expensive equipment involved in air lift are warranted. In other words we must know when we should ship by air and when we should not ship by air. We need cargo aircraft designed for specific ranges and specific loading and discharge conditions. In short what I have said about air lift is that it is an infant, a lusty infant it is true, but nevertheless an infant.

Many of the schemes to achieve economy, which have been presented to the Department of Defense in the name of unification, would be perfectly sound if the Department of Defense were a business, the objective of which was to show a profit. But when they decrease the effectiveness of the Department of Defense as a military organization, they are without merit and definitely detrimental. The flaw in many of the schemes pertaining to logistics lies in the fact that all areas of logistics must be responsive and responsible to the tactical and strategical commanders, and these schemes do not recognize this fact. Transportation, being one of the components of logistics, must be also responsive and responsible to command. This is true in peace of traffic management and in war it is true of both carrier-operations and traffic management. It is for this reason that I stated earlier that the three military departments are already of the opinion that it would be unwise to centralize the traffic management of

the three military departments in any other agency of the Government. This is also the reason why each of the three military departments in establishing the Central Military Land Transportation Office reserved unto themselves the most important functions of traffic management. It is a self-evident fact that the efforts of the strategists and of the tactician are of no avail even though with the utmost brilliance they bring their forces to bear at the critical point and at the crucial time if those forces are without reserves and without supplies. The military commander must have assurance that his reserves of personnel and his requirements for supplies are delivered to him when and where he wants them, as well as in the quantities that he requires. It is transportation which gives time-place utility to material and personnel. It is time-place utility that the commander requires. He must be completely sure, therefore, of his transportation and in order to be completely sure his transportation must be a component of his command subject to his will.

During the recent war the Army established a Transportation Corps. It was the mission of this Corps both to operate carrier services on land and sea and to act as traffic manager for the material and personnel of the Army when in transit. The people who constitute this Corps are exceptionally able in their field. The job they did during the war was outstanding, but having moved abroad, returned to the United States and then moved elsewhere abroad fabulous quantities of material and tremendous numbers of persons, these people made the mistake of believing that they were operating a distribution system, particularly with respect to supplies, and since the war ended they have spent a great deal of time developing what they call the "factory-to-soldier program." They are excellent traffic managers and I have pointed out that traffic management requires skilled technicians in a highly complex field, but they have overlooked the fact that the control of the distribution of material

requires just as highly trained technicians in a field quite as complex and possibly more extensive. Careful analysis will show that traffic management is a tool of supply just as carrier operations are a tool of traffic management.

In summation I wish to stress the following points:

(1) Transportation is a large part of logistics, and logistics, according to Field Marshal Montgomery, is 85% of modern war.

(2) Transportation is a function of command.

(3) Transportation is a chain, and in times of maximum use its links should be of equal strength.

(4) The traffic manager must be a highly trained and skillful technician for traffic management is very complex indeed.

(5) Effectiveness being the all important criterion of a military machine, consolidations predicated upon economy without effectiveness are fatal.

(6) The shipper should be able to exact from the carrier the service he requires and the services of the carrier should be predicated upon the needs of the shipper and not upon the convenience of the carrier.

(7) In modern traffic management air lift should be neither over-emphasized nor ignored. It is an infant whose growth should be watched and stimulated.

(8) Transportation is a tool of supply, not the director of supply.

(9) Finally, I offer the point that the logistician must have a real appreciation of traffic management, but he should not attempt to be a traffic manager. The man who defends himself in court has a fool for a client, and the logistician who does his own traffic management is no logistician.