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CENTRAL INTELLIGENCE AGENCY  
WASHINGTON 25, D. C.

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MEMORANDUM FOR: The Acting Director of Central Intelligence

SUBJECT: MILITARY THOUGHT (SECRET): "Fortification and Its Tasks in Modern Warfare", by Major-General of Engineer Troops P. Ogorodnikov, Colonel Ye. Maykov, and Lieutenant-General of Engineer Troops A. Smirnov-Nesvitskiy

1. Enclosed is a verbatim translation of an article from the SECRET Collection of Articles of the Journal "Military Thought" published by the Ministry of Defense, USSR, and distributed down to the level of division commander.

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*Richard Helms*

Richard Helms  
Deputy Director (Plans)

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DATE: DEC 2004

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Following is a verbatim translation of an article entitled "Fortification and Its Tasks in Modern Warfare", by Major-General of Engineer Troops P. Ogorodnikov, Colonel Ye. Maykov, and Lieutenant-General of Engineer Troops A. Smirnov-Nesvitskiy

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COMMENT ON A PREVIOUS ARTICLE

Fortification and Its Tasks in Modern Warfare

Lately, in the pages of the periodical military press, views are being expressed concerning fortification and its significance in modern warfare which are of great interest for developing the theory of military science and the practice of building the armed forces.

As is correctly pointed out by a number of authors, in our postwar literature the expression of erroneous opinions concerning fortification could be observed. In some cases the right for fortification to exist as an independent science, entering into the general system of military science, was denied, and in others it was asserted that the working out of the theoretical bases of fortification detracts from the performance of vital practical tasks. In some historical papers questions of employing fortifications in combat, in an operation, or in a war were ignored. Improper scientific terms were used ("defensive structures", "non-explosive barriers", "special construction", etc.) just to avoid the use of fortification terminology.

All this could only reflect negatively on the state of the theory and practice of fortification, which in turn complicated the practical development of new equipment and forms of fortification that correspond to the present nature of warfare. The development of the theory of comprehensive protection of the armed forces and the country as a whole from the action of modern means of mass destruction has not yet received proper development in our military science. The practice of carrying out protective measures is conducted without due theoretical generalization

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and unified control, by separate departments.

For some time even incorrect and harmful theories began to appear, on the "absoluteness" of nuclear/missile weapons, the impossibility of creating an operable system of antinuclear protection, the futility of efforts to reduce losses in a nuclear war, etc. These "theories" deny the need to develop comprehensive protection in the system of engineer preparation of the country for war, in the building of the armed forces, and in the creation of new means and methods of armed combat. They also give rise to various one-sided theories of "protective maneuver", "dispersal" or "duplication" as the only means of protection that it is supposedly worth employing in a future war.

Fortification is a military-technical science with specific practical tasks, with definite theoretical principles and with methodology and terminology that are inherent in it. It creates a special type of military-engineering equipment--fortification structures, that directly support the conduct of combat or of protection. It occupies itself with questions of planning and erection of fortification structures and systems of them, employing them in a battle, operation or war as a means for conducting armed combat. Here fortification enters into the field activity of military science and becomes a composite part of it. At the same time it represents one of the aspects of construction, and for that reason its theory and practice are based on the physico-mathematical, general-technical, and construction sciences, and on the various fields of the technology and economics of construction. In this it does not differ from the other military-technical sciences that enter into the composition of military science and connect it with those, or other branches of production or construction.

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We do not share the opinion of those authors who consider that fortification emerges as the applied part of tactics, operational art and strategy. This mechanical merger of fortification with the theory of military art would be wrong. The latter explores conformity with the law of conducting armed combat, and therefore occupies a leading position in relation to the military-technical sciences that develop definite branches of military equipment and methods for employing it in a battle, operation, and a war. Their similarity and the differences between them are determined by mutual agreement and the contradictions of tactics and the technology of armed combat.

Obviously something should also be said concerning the military-engineering art, which organically belongs to tactics, operational art, and strategy, and therefore occupies the leading position in relation to fortification and other military-engineering sciences, but does not merge with them mechanically.

The correlation of weapons and fortification arises from the requirements for conducting a battle. The appearance of new weapons immediately calls for the need to create appropriate positions that ensure effective operation of these weapons, to organize protection from the effect of enemy weapons, to set up barriers that paralyze the movement of enemy weapons on the battlefield, and that create favorable conditions for the operation of our weapons, i.e., to build fortification structures.

Weapons and fortification equipment are developed in complex dialectical coordination, mutually influencing one another. This coordination cannot be limited to their simple juxtaposition to each other. New means and methods of armed combat make it necessary to create also new

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forms of fortifications. All this does not go into the formula of simple juxtaposition of fortification to weapons of destruction.

It is correct that the protection of the armed forces and the zone of interior and the safeguarding of the stability of the national fortress in a general nuclear/missile war are now becoming one of the main tasks of fortification. However the modern make-up of fortification does not limit itself only to its protective functions. Fortification arose from practical requirements for conducting a battle. Throughout the entire extent of the history of wars its combat functions developed equally with the protective functions of fortification. M. V. Frunze put the "strengthening of the firepower of our disposition"\* as one of the main missions of fortification.

From past experience we know that the casemating of weapons\* increased their effectiveness of action by 2 to 3 times.

In modern conditions the combat functions of fortifications are not lost, but are increasing, and above all the significance of fortification structures and fortifications is increasing as a means for increasing the effectiveness and stability of nuclear/missile weapon operations. For example, the construction of more improved fortification structures increases the degree of protection of missiles and, at the same time, increases their combat readiness for launching; reduces the launch time, improves conditions for ensuring accuracy of fire, stable communications, storage of nuclear warheads, etc.

\*1. M. V. Frunze, Collected Works, Volume 1, 1929, page 595.

\*2. Casemating of weapons means disposition in the casemate of a closed fortification structure on a special mounting.

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Thus, the modern tasks of fortification consist not only of the protection of the armed forces and zone of interior from the action of means of destruction, but also of the retention of the stability of the armed forces and increasing the effectiveness of their fire both on tactical and strategic scales, in supporting highly mobile troop operations in a general nuclear war. Therefore the scientific basis for fortification is not only the theory of proper protection but above all the theory of armed combat, the thorough study of the nature of modern battle, saturated with complex equipment, and the theoretical generalization of practical troop requirements. This is what determines the need to employ various kinds and types of fortifications and fortification structures, the working out of their technological diagrams, the planning and form, requirements for construction, components, equipping, and time limits and erection methods.

Taking the above into consideration, a slightly clarified definition should be given: fortification is the military-technical science regarding the creation and combat employment of special engineer structures and systems of them that ensure the conduct of a battle and the protection of the armed forces and the zone of interior in a war. Fortification is a composite part of military science.

In the past fortification was used only on a tactical scale, which was mainly explained by the limited capabilities of weapons. However, the development of the means of armed combat upset this situation. It is true that remnants of the past sometimes make themselves known; for example, fortification construction in the depth of the country, for some unknown reasons, is called special construction; they try to maintain that an antiatomic shelter built for the protection of the

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population, and not for the troops, ceases to be a fortification structure, etc. The practically unlimited operating range of modern weapons and the increased capabilities of troops spread the zone of armed combat over the entire surface of the earth. The centers of nuclear and chemical destruction, and surface and aerial battles, may develop far from the front lines. Therefore, it should be stated that the activity of fortification has gone far beyond the limits of the ground forces battlefield, and that the tasks of modern fortification are to ensure stability and effectiveness of armed forces operations over the entire theater of a general nuclear war, and to protect the zone of interior, ensuring the stability of the national economy and of the entire country during an attack by modern weapons.

The one-sided execution of any one protective measure will not be able to ensure satisfactory protection. The modern system of protection from weapons of mass destruction must definitely be comprehensive and must include the following basic elements:

-- antiair and antimissile defense (cover);

-- direct fortification protection: the construction of fortification structures, the individual protection of persons, combat, transport and special vehicles, increasing the fortification strength of designs of engineer structures and technical means, the use and reinforcement of the protective features of the terrain;

-- measures for reducing destruction and increasing viability: dispersal, camouflage, disorientation of enemy intelligence, use of maneuver or duplication, etc.

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-- the organization of antiatomic, antichemical and antibacteriological protection services;

-- measures for eliminating the effects of an enemy nuclear attack and for restoring the combat effectiveness of installations being protected.

All these elements are interconnected and mutually depend on each other; only their comprehensive employment can give the necessary protective effect. It should be added that the system of protection must be overall and continuous as regards time and area, and also concentrate on the most important composite parts of the armed forces and the zone of interior.

The present status and tendencies in the future development of means and methods of armed combat present a series of new complex tasks for fortification. There has been a sharp curtailment of the permissible time limits for erecting fortification structures in a battle and operation. The technical solutions of protection are becoming more complex. New requirements are levied or forms of fortifications, the types and construction of structures, and means and methods for erecting them. These tasks cannot be satisfactorily performed on the basis of employing old fortification equipment and old methods of fortification construction. In accordance with this, in modern fortification two basic directions for its future development can be cited:

-- development of new technical means and methods for the fortification support of troops in a battle and operation in sharply reduced time limits (several hours), with widescale employment of means of individual

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protection of personnel and equipment, mechanized entrenching of troop subunits, combat and transport vehicles, with the use of highly portable sets of prefabricated or unitary (monoblochnaya) shelters and highly efficient engineer machinery;

-- the development of advance fortification construction and a system of engineer preparation of theaters of military operations or areas of forthcoming operations on the basis of new means and methods of modern industrial construction.

The correct combination of these two directions of fortification development, on the basis of widescale use of potential created by the scientific-technical revolution that is occurring in the production and construction of the national economy, will permit the successful performance of the new tasks posed by the modern development of means and methods of armed combat.

Major-General of Engineer Troops  
P. Ogorodnikov

\* \* \*

The problems of antinuclear protection of troops and strategically important objectives and of the entire territory of the country that have been brought up in the Collections of Articles of the Journal "Military Thought" have extremely great significance.

The fact that in a future war the basic means of mass destruction will be nuclear/missile weapons, which surpass all previous means of destruction in their destructive power, is apparent to all. Thus a regiment (battle group)

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that finds itself on open terrain may be destroyed with one burst of a nuclear warhead with a yield of 150 kilotons, and in order to destroy the basic forces of a modern army, operating on open terrain, three or four thermonuclear (hydrogen) warheads with a yield of 10 megatons each will be adequate.

It is necessary to take into consideration the unlimited possibilities for increasing the yield of nuclear/missile weapons. And as a result of their employment there can be total destruction of huge territories. For example, as a result of a 10-megaton hydrogen missile warhead or bomb, the area of destruction will amount to up to 500 km<sup>2</sup>. According to the data of the British military theorist Liddell-Hart, 5 to 10 hydrogen bombs are enough to destroy all the main industrial centers of Britain.

In a future war, economic and political centers, and strategic objectives located in the interior of the country, will naturally be subjected to the most destructive strikes. Obviously, in border areas the lower yield, so-called "tactical", but still sufficiently destructive, nuclear weapons will find employment. Even from the views stated it is apparent how important it is to find the most effective methods and means to protect the country, its economic potential, its armed forces and the population of the country from such destructive strikes.

The availability of models of nuclear/missile weapons that have higher qualitative indices than those of the enemy already appears as an effective means of defense. But at the same time, within the limits of the economic potential of the country, a lot has been done and is being done in our country by the process of capital construction, carried out by the

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Ministry of Defense in order to protect missile sites, PVO weapons and control points from enemy strikes. Therefore the demand of some authors concerning the need to create a single military-engineer center on the armed forces scale, capable of resolving specific questions on the preparation of the armed forces of the country and territory of the nation for war, causes bewilderment.

As is known, the General Staff is such an organ. In practice its ideas and plans that take into consideration the realistic requirements of the types of armed forces, based on the economic potentialities of the country, are carried out by the military-construction organs that are subordinate to the Deputy Minister of Defense, and locally, to the troop commanders of the military districts. In connection with this, there is another allegation that, at least, is not serious, that engineer control of national fortification preparation is decentralized and, in a number of cases, is found in the hands of organizations that do not have military-theoretical scientific training.

It may have been expected that the authors would show in their articles how the task of antinuclear protection and the engineer preparation of the country for a war can basically be accomplished by using the possibilities of fortification, thus avoiding certain inconsistencies between the scientific theory of fortification protection and actual practice. However, in our opinion, the periodical press lays too much stress on proving the need to preserve the term "fortification", which, allegedly, has been unjustly ignored by our military press and manuals ever since World War II. But if they were able to get along without this term for such a period of time, then it is all

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to the good. As a case in point, it is stated in the Field Service Regulations, which also ignores the term "fortification", that the basis of anti-nuclear defense of troops is engineer preparation of terrain, which includes the building of engineer structures and various types of shelters, preparation of concealed maneuver routes, and setting up barriers and camouflage.

Therefore, in our opinion, there is no need to take the concept of "engineer support and engineer preparation of terrain", firmly established for decades in Soviet military science, and identify it now with the term "fortification".

The proposition expressed by some experts that fortification can give the armed forces of a country the means (underlined by us--Ye. M.) and methods for creating situations which make it possible to withstand the enemy's strikes does not correspond with reality. It is entirely obvious that fortification cannot "give" the means. It is primarily called upon to work out types and designs of constructions, and the methods of erecting them.

Experience gained from exercises has indicated that the simplest antinuclear structures which can be managed by the troops under conditions of transient combat operations of exceptionally high mobility (offensive or defensive, which now, as a rule, will occur more frequently during an offensive), are trenches, foxholes and shelters for equipment. Setting up blindages and shelters, even when ready-made structures are available, and excavation of pits by earth-moving machinery, will take several hours. But this period of time just will not be available now on the field of battle, especially to the tank units and infantry. Antinuclear protection must be constant, because strikes by

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nuclear/missile weapons can be delivered suddenly, at any time and from any direction.

A radical solution of the problem of protecting troops on the field of battle (in offensive operations) apparently must be sought in the creation of a combat vehicle which will be capable of protecting the troops from the effects of nuclear/missile weapons without any engineer preparation, and all the more, certainly, without "means" of fortification. Such combat vehicles are already being suggested by several authors and scientific collectives. A line combat vehicle can serve as the wheelbase for a command, transport, ambulance, repair, engineer, chemical, and even a missile combat vehicle.

Naturally, along with these measures there will be widespread use in operations of the protective properties of the terrain, camouflage, dispersal, antinuclear maneuver and engineer preparation of terrain.

The problems listed in the materials of the Collections, and some of the practical recommendations in the field of civil defense measures for protecting the population from the means of mass destruction, have definite value, and their introduction into the actual work of urban development can be legalized through appropriate organs. Moreover, such measures are already partially being put into practice. The suggestions regarding the timely preparation of missile positions, antiair defense means and control points should also meet with approval.

The solution to the problem of proper defense which has been raised in the pages of the press, is, we are deeply convinced, the prerogative of a narrow circle of individuals,

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probably the General Staff. Only under these conditions can we count on the requisite protection of installations, one which will correspond to the requirements of our strategy, and mainly, one carried out with due regard for the economic capabilities of the country. The protection of installations of the territory of the country is achieved, on the whole, not so much by passive measures--creating various types of shelters (We are not advocates of their underestimation), as by the intelligent, from the quantitative and qualitative standpoint, employment of nuclear/missile weapons and by carrying out countermeasures directed toward the disruption of enemy employment of weapons of mass destruction.

At the same time, it cannot be said that the existing system for managing capital construction in the interests of nuclear protection and engineer preparation of the territory of the country is ideal. But we do not see the need to change it fundamentally, as proposed by some authors. It is a question of the improvement of the system. It is necessary to centralize all the forces and means that exist in the country, scientific centers, design agencies and educational institutions that occupy themselves with construction questions in this field, and subordinate them to the Deputy Minister of Defense for Construction, and locally to the troop commanders of the military districts.

The need for the further strengthening of military-construction agencies in military districts has become critical. It is hardly justifiable that the KEO (billeting department-kvartirno-eksploatatsionny otdel) and the KEU (Billeting Directorate - kvartirno-eksploatatsionnoye upravleniye) agencies act as customers. In our opinion it would be more correct to have capital

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construction departments in the military districts, which must organize all their work in close coordination with the staff of the district.

As regards the further development of military-scientific activity, the practical workers--military builders, executing a considerable volume of work to ensure the combat readiness of our country, wait for the military engineers and fortification specialists to grasp, as deeply as possible, the development and design of more sensible, more stable from the antinuclear standpoint, and at the same time economical, types of structures that answer the specific characteristics of the new types of armed forces. It is time to think out seriously a new organization of planning, in order to eliminate the numerous existing planning organizations, the dissipation of efforts and a number of other faults.

Colonel Ye. Maykov

\* \* \*

Fortification appears to be only part of military science, but it is part of military-engineer work, engineer support of a battle and operation, part of engineer preparation of the territory of our nation, and also of the countries united by the Warsaw Pact.

Since engineer preparation of a theater of military operations is already conducted in peacetime, the question of fortification must be examined more broadly, jointly with other aspects of engineering, at the same time touching upon the structure of the engineer troops and the nature of engineer support as a whole on the scale of the armed forces.

In postwar times the tendency to underestimate the role and significance of engineer troops and engineer support has become more apparent. It is admitted that with the employment of new means of combat the role of engineer support in a modern battle or operation has increased

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significantly, but together with this there is talk about the "backwardness of engineer troops", even uselessness; in practice even their incorrect employment is permitted.

The reasons for such a situation, in our opinion, are: first, the underestimation of the role and significance of engineer troops and engineer support on the part of a number of responsible and leading military chiefs; secondly, indifference on the part of the leadership of the engineer department to such underestimation; thirdly, disagreement in opinions on engineer support in the leadership of the types of armed forces.

As a result, engineer troops are actually regarded as special troops of the ground troops, at a time when engineer support embraces all types of troops, and not only the ground troops. The appearance of new types of armed forces -- PVO and missile troops -- and the development of the types that existed earlier (ground troops, air forces and navy) do not reduce, but on the contrary, increase the role and significance of engineer support.

While it is expedient to divide the armed forces into types and to create corresponding independent central organs, the decentralization of the engineer support of these types of armed forces is clearly inexpedient. This is confirmed by the daily work of the military districts and groups of forces.

Engineer support has acquired a different, higher quality, and it is simply impossible to perform all its tasks with the forces and means of the engineer troops that are presently included in the ground troops. The new types of armed forces require consolidation of engineer support and a considerable increase in the number of engineer units, and not narrowly parochial, piecemeal actions for their engineer support.

Large units and formations of the types of armed forces cooperate at the tactical and operational level, striving for the achievement of

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the overall goal of an operation, but for the full engineer support of these operations there are no forces and equipment. Engineer support has to be carried out piecemeal, even though it is known that a small-scale operation in any field is unprofitable and uneconomical.

Since the engineer troops of the Soviet Army were incorporated into the ground troops, they have been reduced in numbers to the point where they cannot fulfill modern tasks. The organic structure of engineer subunits and units, organized without consideration for realistic equipping of the engineer troops and the requirements of equipment, is such that it does not even ensure the servicing of organic engineer machinery. Poor knowledge of modern engineer equipment on the part of the command echelon leads to the fact that, for example, MDK excavation machines are replaced by roadbuilding machines (BAT) in the T/O & E of units. Experience has shown that the latter, when used as excavation machines, break down quickly. Therefore, by a directive of the Chief of the Engineer Troops, the use of roadbuilding machines as excavating machines is prohibited, but the T/O & E approved by the Deputy Commander-in-Chief of the Ground Troops states that MDK excavating machines must be replaced with BAT machines. In our opinion, this contradiction shows the parochial resolution of the question and lack of concern for the missile troops, not to mention the inexpedient use of new engineer equipment.

The transfer of the engineer troops to the subordination of the Ground Troops led to the fact that the interests of other types of armed forces for engineer support are not being considered. At large exercises and operational games no one occupies himself with the engineer support of such types of armed forces as aviation, PVO, missile troops and the navy. Still, all cal-

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culations in them are based on the engineer troops in the composition of the Ground Troops.

Let us take aviation as an example. It does not have forces for sweeping airfields captured during an offensive for mines, to reconstruct them, to prepare approaches to them, and, of course, for building landing strips. Existing engineer battalions are not trained to execute these tasks and are unable to fulfill them. So how will aviation support ground troops during swift tempos of their advance? The experience of exercises shows that in order to support front air army operations it must be allotted 10 to 12 engineer battalions. And where can they be obtained? At the expense of army or divisional engineer units? This means to leave the ground troops without engineer support, which will lead to the disruption of the tempo of the advance and failure to fulfill the task.

It is clear that aviation must be supported from an engineer standpoint and the liquidation of the engineer service in the air forces is completely unjustified. The construction of new airfields cannot be managed without the participation of engineer troops. In the experience of the Group of Soviet Forces in Germany, the mine-sweeping of terrain, the repair and replacement of engineer machinery, assistance of aviation with appropriate machines and crews from the engineer troops, and other measures, have become standard practice. In this way the engineer troops must and undoubtedly will be brought in for engineer support of aviation during offensive operations, as it was in World War II.

The first steps in the life of the new types of armed forces --- PVO and missile troops --- show that they too cannot manage without engineer support. The preparation of positions, decorative and dummy camouflage, construction of routes and

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crossings, and mine-sweeping in siting and waiting areas will require a lot of work.

The preparation of engineer cadres, especially for missile units and subunits, was not ever thought of in the ground troops. One of the three engineer schools was closed. The Leningrad school that prepared driver-mechanics for engineer machinery was transferred to Kaliningrad. A large sum of money was expended for the relocation. The educational-materials base created over decades has been destroyed, and as a result the engineer officers that are required by aviation, artillery, missile troops and other types of armed forces are not available. In the Ground Troops the attitude is taken that two schools will be enough for them, and let the appropriate commanders worry about engineer troops for the other branches of the armed forces. This parochial approach gave birth to the unnecessary splintering not only of the preparation of cadres, but also of engineer support, and led to a decrease in the role of engineer troops in the modern phase.

A similar situation prevails in the navy. During World War II engineer support played no small role, especially in the operations of the Baltic Sea, Black Sea and Northern Fleets.

In modern operations the rear area will require engineer support that is great in volume and varied in nature. Without touching upon all the measures of engineer support of the rear area, let us take bridge support as an example. The modern tempos of an offensive require constitution of engineer subunits that ensure the forcing of water barriers in 3 to 4 hours. Consequently, the rear area must be provided with pontoon-bridging subunits and units with parks of floating bridges

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that can be assembled quickly.

The splintering of engineer control gave rise to yet another department in the army-- construction and the quartering of troops, in which the "customer" and "contractor" are combined. In time this will lead to overfulfillment of construction plans and the absence of funds for billeting troops. Moreover, repairs and construction work carried out by troops are not always of good quality. This establishment also carries out other work that is not integral to it, connected with the preparation of the theaters of military operations (TVD) from an engineer standpoint. And the authors of some articles correctly state that in a number of cases the preparation of TVD is in the hands of organizations that do not have military-theoretical training.

The apparatus for construction and quartering must be reorganized. The functions of the engineer department--special construction, should be excluded from it, and the billeting-housekeeping directorate should be handed over to the rear services. A military-construction directorate should be created, instead of this apparatus, in the role of a "contractor", then the mode of life of the troops will improve and the "customer" will make firmer demands, not worrying about soldiers' honor, the troops will live better, and there will be savings for the state.

Questions of engineer support force us to refer to the lessons of World War II. In its first period we suffered great losses, and in our opinion one of the reasons was the underestimation of military-engineer work in the army. Soon after the start of the war, in November 1941, the order of the Supreme High Commander came out "On the Underestimation of Military-Engineer Work in the Army", which noted faults in engineer

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support and indicated ways to correct them. However, some front and army troop commanders interpreted the order formally and did not strive for wider understanding of engineer support, thereby reducing its influence on tactics. These efforts did not get any support then, but after the war they influenced to a certain degree the depreciation of the role of engineer troops and engineer support.

Many engineer troop officers have lost the prospect of growth. All the principal positions in the troops: commanding officers of battalions, divisional engineers, chiefs of staff of regiments and brigades, deputy commanders of brigades--are no higher than lieutenant-colonel. This is an obvious injustice toward engineer cadres. Throughout the entire existence of the Soviet Army the divisional engineer had the rank of colonel, and this was the highest level that engineer troop officers could attain. The chiefs of staffs of engineer brigades and deputy commanding officers of brigades also had room for advancement, and now it is lost, growth is impeded and naturally all this is felt in the service.

And another thing--in the past, when the engineer troops and arms of troops were equipped with a combat engineer spade and simple engineer equipment, the chief of the district engineer troops had a deputy for equipment. And now, when the arming and equipping of engineer troops with materiel has become a fact and machinery has entered firmly into engineer support, when there is more than 85 HP of machinery per person in the engineer troops, this position has been abolished. The reduction occurred at the moment when the question is being raised of introducing engineers for repair and use of equipment into the T/O of engineer directorates of districts and groups

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of forces. With this attitude toward the new equipment of the engineer troops, a great deal of damage will be done to engineer support and to the economy of the country. And what is more expensive: keeping an extra 20 engineers on the T/O or the premature wearing out of expensive equipment? This question cannot be left without attention.

And finally, our probable enemies, namely the American Army, are creating powerful equipment and forces for engineer support of a battle and operation, are centralizing the management of them and are detaching them from the composition of all arms of troops. And we, having forgotten the lessons and mistakes of the initial period of the last war, are implementing anew the dispersal of forces and equipment.

In accordance with our firm belief, it is necessary to reexamine the T/O of the engineer troops and to bring them into conformity with the equipment with which they are provided. And above all--to end the indifference and neutrality of the engineer department toward their troops and their affairs.

The urgent need has arisen to eliminate the splintering of engineer control in the Armed Forces and to remove the engineer department from the Ground Troops, creating a Chief Military-Engineer Directorate of the Ministry of Defense with the appropriate directorates and departments.

Lieutenant-General of Engineer Troops  
A. Smirnov-Nesvitskiy

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