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CENTRAL INTELLIGENCE AGENCY
WASHINGTON 25, D. C.

IRONBARK

2806

MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : MILITARY THOUGHT (SECRET): "The Use of Minor Automation and Mechanization Equipment in Troop Control", by Colonel G. Grigoryants

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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[redacted]

Richard Helms
Deputy Director (Plans)

APPROVED FOR RELEASE
DATE: DEC 2004

Enclosure

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The Director for Intelligence,
The Joint Staff

The Assistant Chief of Staff for Intelligence,
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COUNTRY : USSR

SUBJECT : MILITARY THOUGHT (SECRET): "The Use of Minor Automation and Mechanization Equipment in Troop Control", by Colonel G. Grigoryants

DATE OF INFO : August 1961

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Following is a verbatim translation of an article entitled "The Use of Minor Automation and Mechanization Equipment in Troop Control", which was written by Colonel G. Grigoryants.

This article appeared in Issue 5 (60) of 1961 of a special version of the Soviet journal Military Thought which is classified SECRET by the Soviets and is published irregularly. Issue 5 (60) was sent to press on 25 August 1961. [redacted]

[redacted] Military Thought is published by the USSR Ministry of Defense in three versions, classified RESTRICTED, SECRET, and TOP SECRET. The RESTRICTED version has been issued monthly since 1937, while the other two versions are issued irregularly. The TOP SECRET version was initiated in early 1960. By the end of 1961, 61 issues of the SECRET version had been published, 6 of them during 1961.

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COMMENT ON A PREVIOUS ARTICLE

The Use of Minor Automation and Mechanization Equipment in Troop Control

by

Colonel G. Grigoryants

(Results of a Military-Scientific Conference)

In June of this year, a military-scientific conference was held in the Military Academy i/n M. V. Frunze. This conference was devoted to the results of a test exercise in troop control on a corps-division-regiment level, using new minor automation, mechanization and communication equipment.

The effectiveness of about 40 different means of control were evaluated at the conference, from the simplest devices facilitating hand work by staff officers to electronic computers for the automation of fire control processes of missile troops and artillery.

Since the effectiveness in the use of automation and mechanization equipment largely depends on the organization of control points, considerable attention was paid to this problem. The opinion was expressed that in the existing organization of corps and division control points (PKP, KP and TPU) there is a limit to the role of command posts, at which a large part of the personnel of the staff and the bulk of the means of control are located, since in practice troop control is not carried out from them. Chiefs of staff at command posts become recorders of events, and do not actively assist commanders in directing troops. At the same time, the commanders of large units who are at the PKP with a small group of officers and with less,

powerful means of control than at KPs, are unable to cope with their tasks in the complex conditions of modern combat.

Therefore it was not by chance that all commanders and chiefs of staff who spoke at the conference said that they needed to be together and at the main command post. If the commander must go to some battle area, he can do so by using a BTR-50pu command and staff vehicle or a helicopter and keep a small operational group with him. In this case, he will control the troops not so much directly as through his staff (KP) with whose help he receives necessary information, assigns tasks to the troops, and controls the execution of these tasks.

The obvious conclusion is that the organization of a PKP does not justify itself. It is more advisable to have an alternate command post, commanded by the deputy commander of the large unit, who must be in constant readiness to take over the direction of troops.

There was also discussion of the problem of selecting the type of vehicle which could be used as a mobile control post. Besides a high degree of roadability and protection from enemy fire, additional requirements were demanded of them. It is necessary that these vehicles be able to accommodate all the necessary technical means of control and contain the essential facilities for the work of the commander and staff officers. The fact that mobile control posts are, on the one hand, command and staff BTR-50pu tracked vehicles that can leave the roads and, on the other hand, wheeled vehicles that are restricted to the roads, necessarily causes control posts to be broken up during a move. At the same time, because of the overloading of BTR-50pu command and staff vehicles with personnel and radio sets, the bulk of the new minor automation, mechanization and communications equipment is on wheeled vehicles in the command post column, and, in fact, is not used by the commander. It was assumed that tracked and wheeled vehicles would be combined only in areas where

control posts made brief halts, which did not always occur in the exercise but will be an even more difficult matter under actual conditions of a rapidly changing situation.

One proposal for eliminating this shortcoming was to set up mobile control points on tracked vehicles only, but this did not receive general acceptance. Taking into account that road conditions in the most probable western theater of operations permit control elements to move compactly along single routes, the mixed nature of transport will not be a hindrance. Moreover, the availability of wheeled vehicles for commanders saves them from the need of being constantly in armored carriers, which is extremely tiring and which can lead to a loss in efficiency on long moves. It was acknowledged that mobile control points needed tracked vehicles only for conducting operations in northern and desert areas.

The conference considered the question of the advisability of using the new BTR-60p wheeled, armored carrier as a command and staff vehicle, since it is more capacious and has a number of other advantages. However, it was not possible to make any kind of definitive conclusion about this on the basis of one exercise.

In analyzing the effectiveness of the minor automation, mechanization and communications equipment, the following preliminary conclusions were reached.

The use of secrecy devices at the tactical level of control, particularly for telephone conversations, greatly increases the efficiency of the work of commanders and staffs, as there is no need for any coding, which, apart from the unproductive expenditure of time, is usually accompanied by a large number of mistakes in the information transmitted. However, the secrecy device used in the exercise requires wire or radio-relay, i.e., duplex, channels of communications, which is far from always possible on a tactical level of control. Therefore it was recommended that, for the immediate future, use be

made of a secrecy device for telephone conversations which can work on any channel of communications and enable conversations to be held while moving.

A favorable appraisal was given an information device which is capable of high speed transmission of information on any channel of communications at the division-regiment level. To transmit commands, orders or messages, a standardized form is filled in with a pencil, inserted into the intake system, and transmission to the correspondent effected in 0.7 seconds. At the receiving end the transmitted message is presented on an illuminated panel in numeral form, and intersection on a similar form permits the contents of the message to be read quickly. A combat order of average length is transmitted on 10 to 15 forms in not more than 10 to 15 minutes. It is interesting to note that on the channels of communications used by this device, conversations and other types of transmissions can be carried on at the same time, which considerably increases efficiency in the use of communications equipment.

The information device can also be employed at the operational level of control when secrecy is required, which is quite feasible technically.

Experience in the employment of television as a means of observing the field of battle has shown that in a number of respects it still does not meet modern requirements. The depth is insufficient, the front of observation is narrow, the resolution is low, there is no tying in of the objectives being observed, and there is a great dependence on light conditions. It was pointed out at the conference that, when television is improved as a means of observation and of video communications, it will undoubtedly find wide application.

Considerable attention at the conference was devoted to analyzing the usefulness of the new VHF radio sets of the R-125b and "Parus" types, the civilian type DGU-20 loudspeakers, tape recorders and dictaphones, devices for

reproducing textual and graphic combat documents, adding machines, lacquered maps, sets of stamps and drafting accessories, and some other devices used in staff work. Testing these devices in the exercise permits a more practical approach to the solution of the problem: which of them should be introduced into the work of the staffs, and which need further improvement. There is no doubt that the overwhelming majority of the devices mentioned above will increase the efficiency of troop control.

One of the main problems, which was the center of attention of those taking part in the exercise and conference, was the problem of the automation of fire control by missile troops and artillery with the help of electronic computers (EVM) and signal coding devices (SKU).

The preparation of data for launching operational-tactical missiles was carried out in 1·5 to 2 minutes on the small EVM which a missile battalion has and which is easily mounted on a GAZ-63 vehicle. Thus, the EVM did the work of 16 highly qualified data-processing personnel, who usually took 10-15 minutes. At the same time, the errors which are inevitable in verbal calculation were completely eliminated.

Another, still more portable EVM was used in a separate artillery battalion of 130-mm guns for computing fire data and transmitting it to batteries. The computing time was 2 to 4 seconds, and the entire process — feeding in of coordinates, computation and transmission of data to the gun — was 45 seconds. It has been established in practice that by comparison with existing methods of computing, a tenfold saving of time is achieved. This same EVM can be used in preparing data for launching tactical missiles, and with some further work it will be possible to employ it with operational-tactical missile troops.

Both machines worked extremely well, and were recognized as essential for the support of staffs of

missile troops and artillery.

Also favorably received was the experiment of using a signal coding device designated for transmitting command[illegible] coded form to a missile battalion. However, an important shortcoming of this control device is the specific nature of the signal in the air which distinguishes it sharply from the background of all other radio-technical equipment. This reveals to a considerable degree the fire control system of missile troops. The opinion was expressed that in order to eliminate this defect the use of light control lines should be extended to other types of armed forces and arms of troops, and then the fire control system of missile troops will not stand out.

The exercise showed the need for the joint use of the EVM and the SKU in a missile battalion. This promises a still greater saving in time when controlling the fire of missile weapons. In this connection a proposal was made to build a fire control vehicle for a missile battalion, whose equipment should preferably include an EVM, an SKU, an electrically controlled panel for showing the readiness of missiles for launching, and other auxiliary devices.

A question arose about the advisability of the employment in the exercise of the radio-technical system for tying in of missile launching sites and artillery firing positions, and also of a system intended for reconnoitering enemy radar stations. On the whole, both received approval, even though they have some design defects.

In order to reduce the time spent on working out combat documents, set (standardized) forms were used by staffs for combat and reporting documentation which were prepared by the Academy i/n Frunze. It was presupposed that by this means it was possible to reduce by two to three times the time taken in passing information. However, in practice there was no such saving in time, which

evidently should be attributed to an insufficient working out of the models for these documents. No one objected in principle to the adoption of standardized combat and reporting documentation, for automation of troop control is not possible without this.

The exercise and the military-scientific conference were very helpful in solving problems of perfecting the methods and means of troop control. Many weak aspects were revealed in the use of automation and mechanization equipment.

Indeed, the overwhelming majority of the minor automation, mechanization and communications equipment is not suitable for working while on the move. Thus, commanders and staffs are not assisted in the most difficult conditions for troop control — on the march, in a meeting combat, and in pursuit. At the same time, when staffs are in position, which is the time when troop control is generally facilitated, all these means come into operation. Many spoke about this contradiction at the conference. It must be recognized that the search for new and greatly improved methods of control when carrying out highly dynamic combat operations has not yet been successful.

The most important task of military technical thought must be the solution of the problem of ensuring the operation of new means of control when commanders and staffs are on the move and at brief halts.