

**KONINKLIJKE
VERENIGING
TER BEOEFENING
VAN DE
KRIJGSWETENSCHAP**

OPGERICHT 6 MEI 1865 *

Ereleden

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MARS IN CATHEDRA

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IN DIT NUMMER

Mededelingen van het bestuur
In memoriam generaal Van
Veen 1440

Bijeenkomst te Den Haag, dins-
dag 17 mei 1977 1440

Soviet theatre forces in Europe
and 'combined-arms' concepts,
voordracht door Prof. J. Erick-
son, Director of Defence Stu-
dies, University of Edinburgh 1441

Discussie 1457

MEDEDELINGEN VAN HET BESTUUR

In memoriam generaal Van Veen

Met leedwezen kwijt het Bestuur van de Koninklijke vereniging ter Beoefening van de Krijgswetenschap zich van de treurige plicht, melding te maken van het verscheiden op 3 augustus jl. van

Hendrik Johan van Veen

luitenant-generaal der Infanterie b.d.,

die het voorzitterschap van de vereniging heeft bekleed van 18 mei 1972 tot 14 november 1974 en die gedurende die relatief korte periode zijn werkkraft onverpoosd heeft ingezet tot haar nut en welzijn.

Het was diezelfde eigenschap, die ook uit anderen hoofde reeds van hem bekend was geworden, die hem in de tijd waarin hem de voorzittershamer was toevertrouwd, deed funge-

ren als de drijvende kracht voor wie geen hindernis te hoog en geen obstakel te lastig bleek; hij schroomde niet zich volledig in te zetten voor de verwezenlijking van initiatieven die hij het verwerkelijken waard oordeelde.

Zijn reeds op zeventienjarige leeftijd — niet ongebruikelijk voor de cadet die was bestemd voor het Koninklijk Nederlandsch Indische Leger — op 29 september 1931 aangevangen militaire loopbaan bracht hem zowel hoogte- als dieptepunten. Hij diende o.m. op Atjeh, onderging sinds 15 februari 1942 de verschrikkingen van de Japanse krijgsgeschiedenis tot hij op 15 augustus 1945 in Siam daaruit werd bevrijd, bekleedde staffuncties in de U-brigade en bij het Troepencommando Oost-Indonesië, studeerde aan de Hogere Krijgsschool en ging in juli 1950 over naar de Koninklijke landmacht. De voortzetting

van zijn loopbaan bij dat krijgsmachtdeel bracht hem in een reeks van functies, o.a. Hoofd G3-HKGS, Chief Plans Branch (Log. & Adm.) Landcent, SC-GS en plv CGS/BLS, C-1 Div en ten slotte Voorzitter Personeelraad, tot hij op 1 juli 1970 met functioneel leeftijdsontslag ging.

Zijn vele verdiensten voor de militaire organisatie werden officieel erkend blijkens de hem toegekende Koninklijke onderscheidingen van officier in de orde van Oranje-Nassau met de zwaarden in 1963 en van ridder in de orde van de Nederlandse Leeuw in 1970. De Koninklijke vereniging ter Beoefening van de Krijgswetenschap kan slechts die erkenning beamen en daarom het heengaan betreuren van haar gewaardeerde lid en verdienstelijke oud-voorzitter. Dat zo velen aan hem zo goede herinneringen mogen behouden, moge zijn gezin mede tot troost strekken.

Bijeenkomst te Den Haag

dinsdag 17 mei 1977

De voorzitter zegt in zijn openingswoord verheugd te zijn met de opkomst van tal van belangstellenden voor deze bijeenkomst, waarvoor de convocaties eerst kort van tevoren konden worden verzonden doordat de noodzakelijke regelingen met de inleider omvangrijker waren en meer tijd vergden dan gebruikelijk. Hij is zeer ingenomen met de aanwezigheid van een ruim aantal leerlingen van de stafscholen der drie onderscheidene krijgsmachtdelen, en met de interesse voor het hedenmiddag te behandelen onderwerp die eveneens blijkt uit de komst van verscheidene

staffunctionarissen. Hij spreekt daarbij de hoop uit dat de geste van de Koninklijke Vereniging, deze en soortgelijke bijeenkomsten ook toegankelijk te doen zijn voor belangstellende niet-leden, van de zijde der aldus geïntroduceerden moge worden beantwoord met een daad die hen ook in de toekomst het recht zal geven aan alle activiteiten van de Koninklijke Vereniging deel te nemen, de daad namelijk zich op te geven als lid.



Vervolgens verwelkomt hij de gast-

spreker, professor Erickson, wiens internationale faam als expert terzake van het in te leiden onderwerp hem reeds veel eerder was ter ore gekomen. Hij prijst zich dan ook gelukkig dat het bestuur hem heeft bereid gevonden voor deze bijeenkomst speciaal naar Nederland over te komen, en spreekt de verwachting uit dat de aanwezigen een uiterst leerzame voordracht zullen voorgeschiedeld krijgen. Met het verzoek, die verwachting te willen waar maken, verleent hij vervolgens het woord aan professor Erickson voor diens inleiding.

Soviet theatre forces in Europe and 'combined-arms' concepts

Prof. J. Erickson

Director of Defence Studies, University of Edinburgh

There has been latterly a great deal of excitement over the Soviet military build-up at large and the build-up of theatre forces in Europe in particular. From the outset, this presents a number of puzzles involving both sides, Soviet and non-Soviet alike: there is, for example, this very belated recognition in western European public circles (that is, outside the confines of the intelligence community¹) of a Soviet build-up which has been continuing for two decades at least, while on the Soviet side there is a complex relationship of numerical expansion, modernization and re-equipment phases, not to mention the adjustment to revised tactical notions and the elimination of perceived shortcomings. Little ad-

vantage accrues simply from enumerating additions to Soviet weapons and equipment, if only because this totally ignores the problem of constraints on Soviet performance: equally, that same simple tally does not take account of the modernization cycles and the operational-tactical reasons for them (both of which factors remain largely unexplored in the open professional writing on the Soviet military).

It is this background which informs this lecture, to look not only at numbers but also at Soviet *performance* with particular reference to *combined-arms* — in other words, what is the Soviet command trying to attain and implement? In a sense, this is to ignore the question of a 'build-up', which in any event must be broken down into

¹ I have *no* access to classified information of any kind.

Professor Erickson staat bekend als een bij uitstek deskundige op het gebied van de militaire en politieke doelstellingen van de Sovjet-Unie en het Warschau-Pact, het onderwerp van zijn leeropdracht aan de Universiteit van Edinburgh. Na aanvankelijk te hebben gekozen voor een wetenschappelijke loopbaan als historicus — hij studeerde daartoe van 1946 af met een zg. Open Scholarship aan het St. John's College in Cambridge — werd zijn belangstelling gaandeweg steeds sterker getrokken naar de contemporaine geschiedenis van Oost-Europa en haar achtergronden. Om die reden vervolgde hij zijn oorspronkelijke studie in 1952 en 1953 met de studie in de Slavische talen, in het bijzonder Pools en Tsjechisch, en in aansluiting daarop studeerde hij in 1953 en 1954 Oosteuropese talen en geschiedenis aan de Universiteit van Wenen.

In Engeland teruggekeerd stelde een daartoe strekkend research-scholarship hem in staat zich gedurende twee jaren in Oxford bezig te houden met wetenschappelijk onderzoek, waarna hij van 1958 tot 1961 als wetenschappelijk hoofdmedewerker was verbonden aan de Universiteit van St. Andrews, waar zijn leeropdracht de Russische en

Oosteuropese geschiedenis omvatte. De daarop volgende vijf jaren was hij verbonden aan de Universiteit van Manchester als wetenschappelijk hoofdmedewerker en lector in Soviet Studies. Hij legde die functie neer in 1967, toen hij een gast-hoogleraarschap aanvaardde aan de Universiteit van Indiana in de Verenigde Staten. In datzelfde jaar belastte de Universiteit van Edinburgh hem met zijn huidige taak: Director of Defence Studies. Het is ondoenlijk in kort bestek een opsomming te geven van de vele publikaties van zijn hand. Een der bekendste is wel „The Soviet high command”, dat zowel aan de RMA te Sandhurst als aan het Staff College te Camberley tot de verplichte, en veelvuldig gehanteerde, literatuur wordt gerekend. Ook de samenstellers van de kortelings verschenen encyclopedie van Russische uitrusting en strategie, „The Soviet war machine” (geregenseerd in de Mil. Spect. van aug. jl.) maakten dankbaar gebruik van zijn deskundigheid. Hij is momenteel doende een standaardwerk te schrijven over de oorlog tussen de Sovjet-Unie en het Derde Rijk; het eerste deel daarvan, „The road to Stalingrad”, verscheen in 1975, het tweede deel, „The road to Berlin”, zal naar verwachting nog dit jaar het licht zien.

several components and multiple phases. For this reason, I have chosen to look at Soviet *resources* in general in relation to theatre warfare, *force structures and the combined-arms requirement, operational forms* (including the Soviet debates on operational-tactical methods) and, finally, some questions of *tactical handling* (with specific reference to the BMP² MR Regiment and the reinforced MR Battalion). Let me explain the inner and outer logic of this exposition: the question of *resources* obviously encompasses Front/Army and even division levels, involving not only gross numbers but also that vital question of 'assets', while operational forms and tactical handling bring the discussion down to *regiment and battalion*. Lest the reader should despair at this point, I will advance my conclusion in terse fashion: in relation to combined-arms, there is an acute problem in the 'decentralization' of this mode from army/division level down to regiment/battalion and it is in this context that 'performance' becomes a critical factor. What will be the role of the BMP-equipped MR regiment? Can the regimental commander handle the diversified work load and how will combined-arms operations work at this level? How effective is the integration of manoeuvre, fire-support and logistic elements, again at regiment and battalion? And not least in importance, where does *tactical air* fit into this picture)

Soviet force levels: organization and deployment

For more than two decades the Soviet command has maintained a high minimum of force levels in the forward deployment area in east-central Europe: here Soviet forces deployed 'combined-arms' and mechanized armies (the former consisting of 2-3 corps each with 2 rifle divisions and 1 mechanized division, the latter of 4 divisions, i.c. 2 tank and 2 mechanized). The Group of Soviet Forces in Germany (GSFG) amounted to no less than 2 'combined-arms' armies and 4 mechanized armies³ with a total strength of 22 divisions (10 mechanized, 8 tank and 4 rifle); in

² BMP (*Boevaya mashina pekhoty*): IFV, infantry combat vehicle, high-speed tracked vehicle, with 73 mm guns, ATGM, MGs and firing ports for MR troops. This vehicle will be discussed in detail in the course of this lecture.

Poland the 'Northern Group' was made up of 1 tank and 1 mechanized division, with Rumania and Hungary each holding 2 mechanized divisions (and Austria 1 rifle division) — a grand total of 29 divisions, the core of a strike force which has never fallen below 24-26 first-line divisions and with a numerical superiority of roughly 3:1 even in those days. Some 80 divisions were also held in the western regions of the Soviet Union, though these were held in various states of readiness. It is altogether a truism that this deployment pattern has been continued and is likely to continue, with further changes in the direction of increasing 'shock-power' and mobility, a process set afoot seriously in the mid-1950s, which also signalled an unequivocal shift to offensive operations, the seizure of the initiative and the exploitation of surprise.

Leaving aside immediate technical developments, this striking force has responded to three main influences: the first is the post-war application by the Soviet command of the 'operational norms' (rate of advance, 'density' and fire-power) derived from a continuous analysis of the major breakthrough operations of 1944-45, the second is military technology itself (new weapons, such as the battlefield missile) and the third is a compound of utilizing large-scale exercises (such as DNIENR in 1967, where the 'manoeuvre area' corresponded more or less in size to a large chunk of western Europe) and adapting foreign military experience (witness the extensive Soviet analysis of US operations in Vietnam or the examination of the 1973 Middle East war, which forced the Soviet command to the conclusion that more tanks were needed on the battlefield). The first — the establishment of 'norms' — is of undoubted importance and is accompanied by extensive application of *typologies* (including the assessment of loss rates and the maintenance of sustained combat capability, particularly in tank formations): a prominent feature of this work is the extensive use of statistics and the application of mathematical methods. The second element is self-explanatory, though as I have said earlier there are mysteries surrounding modernization

³ GSFG: 6 field armies — 3rd Shock, 3rd and 8th Guards Army, and 1st, 3rd and 4th Mechanized Army; in addition 24th Air Army. Wartime tank armies were converted to 'mechanized armies'.

phases, which need much greater investigation: the BMP is also an excellent example of a fighting vehicle designed for a 'battlefield' — predominantly a nuclear battlefield — which may not comprise the actual form of encounter and where heavy breakthrough fighting could be a marked feature of operations (for which the BMP is *not suited*). There is a reflection of this dilemma (common to all military establishments) in the Soviet military R&D controversy: one group says, in effect, show us the battlefield and we will specify the weapons, while the other insists that weaponry will itself prescribe the form of the battlefield. As for major exercises and foreign experience, this will be considered under the discussion of Soviet operational forms, for here operational experience (or the substitute for it) is debated at length by the Soviet command and not without acrimony.

Other considerations, however, have steadily intruded on Soviet priorities for their theatre forces, a process which is spread over at least the past decade. Slowly but steadily, the Soviet command has moved away from tank-heavy formations suited (in their view) to the nuclear battlefield alone: the acceptance of a non-nuclear battlefield, or at least one in which the *initial phase* may involve some extended mode of conventional operations, directed greater attention to the motor-rifle division (MRD) which could be committed to 'gnawing through' (in General Shtemenko's phrase) enemy defences in the absence of nuclear-cleared passages and corridors for Soviet armour; in view of the increasingly urbanized aspect of the territory upon which Soviet forces would have to operate, not to mention further afforestation, there is also a case for using the MRD in the first echelon and using armour to exploit the breakthrough. On the other hand, it must be stressed that there is still a strong Soviet preference for the armoured breakthrough and here the tank/MRDs are involved in a complex and evolving relationship.

As for Soviet preferences at large, these seem to have shifted in the direction of the *in-place, unreinforced attack* (given political circumstances which preclude a deliberate, massive and pre-planned mobilization of the Warsaw Pact *in toto* — by which time the political objective might well have been achieved without recourse to

military operations). This same in-place offensive would probably be mounted in a non-nuclear mode in its initial phase, with extensive use of EW as a deception measure, and could conceivably utilize CW on a *limited tactical* scale (for example, the seizure of specific vital tactical objectives). While I think it justifiable to say that the Soviet command realises that it will not be allowed any nuclear pre-emption, CW on this limited scale could be feasible, with authority for its use delegated to *divisional level*.

Soviet theatre forces are eminently well prepared for CW in both offensive and defensive modes, with some 30 per cent of force loadings in the European theatre forces comprising chemical munitions. (They can also be considered as a substitute for small-yield nuclear weapons, though Soviet interest in the latter is advancing apace; at the same time, Soviet CW could be a form of 'response' to NATO's PGM, with CW directed against specific battlefield targets or used as a means of interdiction, particularly the non-persistent agents with the BM-21 providing a very useful weapon for delivering high concentrations of HCN.)

In this general context, it is worth looking at the Soviet MRD and its support. Over the past decade the MRD has been the singular beneficiary of a major improvement programme: though a new tank has been introduced only slowly, five new artillery systems, five mobile battlefield air defence systems, a new family of IFVs and associated vehicles (such as the BMP-R/reconnaissance, the BMP artillery radar and command vehicle), and a wide variety of new equipment for combat engineers and logistical vehicles have all preceded the new tank. To describe this as a 'build-up' (save in the gross numerical sense) seems to me to be slightly misleading: the exercise of the late 1960s showed up a number of substantial defects — well advertized on the Soviet side — which have been steadily corrected, including the absence of protection for attacking columns (and here the SA-8 seems to have filled an important gap, the substantial shortage of guns for preparatory fire (with only 65 per cent deployed, not to mention the shortage of ammunition stocks) and, of course, the shortage of infantry on the axes of armoured advance.

BALTIC

GSFG
Group Soviet Forces Germany

3 tank armies (1 and 2 Tank,
3 Shock)
2 motor-rifle armies
(8 and 20 Guards)

16 Air Army
(900 combat aircraft)
370,000 men
7,000 tanks
2,350 infantry fighting vehicles
(BMPs)
133 helicopters

Rostock

2 GUARDS TANK ARMY

9 Tk Div
32 MR Div
94 Gds MR Div

● Neubrandenburg

6 Gds MR Div
14 Gds MR Div
19 MR Div

● Eberswald

20 GUARDS ARMY

34 Arty Div

BERLIN

Frankfurt a. Oder

Stendal

3 SHOCK ARMY

25 Tk Div
12 Gds Tk Div
10 Gds Tk Div
47 Gds Tk Div
207 MR Div

● Magdeburg

16 AIR ARMY

● Cottbus

● Weimar

8 GUARDS ARMY

20 Gds Tk Div
20 Gds MR Div
39 Gds MR Div
57 Gds MR Div

1 GUARDS TANK ARMY

● Dresden

6 Gds Tk Div
7 Gds Tk Div
9 Tk Div
11 Gds Tk Div
27 Gds MR Div

Soviet logistics no longer present that weakness in sustained combat performance which it was common to quote a number of years ago. Even at this moment the Soviet command seems to be having second (or third) thoughts about provision for a sustained campaign in both the European and Far Eastern theatres, though the prevailing trend had been to furnish logistical support for *phases* of heavy breakthrough fighting as opposed to an extended conventional campaign in the European theatre. In terms of stocks, GSFG maintains at least 37 days of conventional ammunition holdings and 16 days of POL (all without drawing on the extensive East German strategic stocks): in line with the possibility of an 'in-place' offensive action, Soviet divisions roll out from their stations with fixed stocks and Soviet commanders know all too well they must fight with what they take with them (hence the emphasis on this aspect of 'combat readiness', loading and despatching trucks to full efficiency).

The Soviet soldier even in his training is accustomed to certain shortages, if only to inculcate in him the sense that on the battlefield he must make do with what he has got; otherwise, there are set ammunition, POL and ration 'norms', related to stocks held on vehicles: POL calculated in 'refills' (*zapravki*); division, regiment and battalion holdings in 'units of fire' (*boekomplekty*); and expenditure rates for ammunition which can be calculated in *URAL-375* (with trailer) load equivalents.

What do these resources amount to in terms of forward-deployed, combat ready formations?

Soviet forces in GSFG amount to five armies (2nd Guard Tank, 20th Guards, 3rd Shock, 8th Guards and 1st Guards Tank Army), amounting to 20 divisions (10 tank, 10 MR), 370,000 men, 7000 main battle tanks (with 600-800 of the new T-72s, the first consignments going to 20th Guards to replace the T-55 still held in the tank

TABLE 1
Distribution of Soviet forces
1st and 2nd Echelons

1st Echelon		
1. GSFG	See map	
2. Northern Group (Poland)	HQ Legnica	37 Air Army 20 Tank Division 38 Tank Division plus 1 Tank/MR Division
3. Central Group (Czechoslovakia)	HQ Milovce	10, 13 Tank Divisions } Western Group 16 Guards MR Division } 51 Tank Division } Eastern Group 55, 66 MR Divisions }
2nd Echelon		
1. Carpathian Military District	57 Air Army; one artillery division; 8th Gds, 13, 38 Army: 18, 23, 117 Gds Tank Divisions; 70 Gds, 15 Gds, 128 Gds, 318 Gds, 17 Gds, 17, 24 MR Divisions	
2. Baltic Military District	30 Air Army; two artillery divisions; 11 Gds Army: 1st, 28 Gds, 24 Gds Tank Divisions; 1st Gds, 23 Gds, 56 Gds, 26 Gds, 30 Gds MR Divisions; 31 Gds Airborne Division	
3. Belorussian Military District	1st Air Army; one artillery division; 7 Gds, 5 Gds, 28 Army: 27 Gds, 8 Gds, 3 Gds, 8 Gds Tank Divisions; 120 Gds, 50 Gds, 22 MR Divisions; 103 Gds Airborne Division	

units), 2350 modern APCs, 170 helicopters (sufficient for a 10-battalion assault lift); see the map and table 1. Babayev's 16th Air Army, with 900 first-line combat aircraft and a war strength of some 1200 machines, is assigned for support, coming under the operational control of GSFG. (It should also be remembered that two East German corps, with two tank and four MR divisions are operationally subordinated to the Soviet command, but it is conceivable that East German formations will not be committed beyond the German frontier but will be deliberately held back to 'contain' a West German 'counter-thrust' aimed at Berlin: equally, this powerful and well-trained fighting force could be utilized alongside Soviet formations, but my own interpretation is that GSFG at the moment prefers to 'go it alone'.)

GSFG with an 'in-place' offensive has the resources to attempt some 8-10 breakthrough operations, though probably only two main thrusts could be successfully accomplished: using some of Central Group forces (Czechoslovakia) about 200 battalion-size combat groups could be committed, though the Soviet command will be constrained by route access and traffic marshalling: it is worth remembering that there must be some 35,000 vehicles in GSFG. Taking 3rd Shock Army as an example, this formation can field 55,000 men, 1198 tanks, 1100 infantry combat vehicles, backed by at least 18 SCUD and 408 guns; and this formation faces one of the three 'free routes' into the Federal Republic (routes not obstructed by gross urbanization or forestation)! Combined with Central Group and using Northern Group (Poland) forces, the Soviet command has a first echelon of some 28 divisions, though it is likely that in Central Group Czechoslovak units may be used in the first assault echelon while the body of Central Group waits for the Carpathian Military District to close up on it (taking some three days); in the Northern Group this holding force would also hold until the Baltic MD closed on it, though its own tactical air army (the 37th) would operate offensively. This term 'echelon' furnishes some difficulty: in practical terms, all Soviet forward-deployed forces operate as a single attack echelon (with logistical support being pushed forward with the assault formations, as

opposed, for example, to British A and B echelons).

This first attack echelon is supported by a second strategic echelon of 31 divisions drawn from the Carpathian, Baltic and Belorussian MDs: 11, 10 and 10 divisions respectively, with 2 airborne divisions in support (31 Guards in the Baltic MD, 103 Guards in the Belorussian MD; see table 1). There are also three air armies in support: 57th, 30th and 1st respectively. The function of this echelon is evidently to 'fill up' the stations vacated by the forward echelons, a pattern which was partially developed during the Soviet invasion of Czechoslovakia.

As for the non-Soviet elements of the Warsaw Pact, this can only be a matter for speculation: obviously, any in-place surprise attack could not be preceded by a long mobilization period (and, in any event the Warsaw Pact does not have a mobilization apparatus), though the lack of a fully mobilized force reduces the multiplicity of possible breakthrough operations. But even without formal mobilization, the Soviet command possibly reckons on using certain 'earmarked' non-Soviet Warsaw Pact formations, such as the Polish amphibious brigade and 6th Polish Airborne Division, plus 3-4 tank and MR divisions, while the Czechoslovaks would contribute one special airborne brigade, 2-3 tank divisions and about 4 MR divisions. (The oft-quoted total of some 58 non-Soviet Warsaw Pact formations scarcely seems to make sense, unless it is a question of assembling gross figures.)

The forward attack echelon would probably consist of 25 plus Soviet divisions, augmented by select non-Soviet Warsaw Pact formations, in the order of 10-12 divisions, a number of them highly specialized in function, including East German special service para-commando battalions. At the same time, this must be set against probable 'loss co-efficients' in any large-scale operations — 20 per cent for MRDs, 30 per cent for tank divisions — (inflicted losses which will still preserve combat capability). Above all, the Soviet command will pay the closest possible attention to the loss rate in the *first 10-15 km of advance*, after which 'stopping' a Soviet offensive thrust involves a hideously high rate of AFV/vehicle attrition — in the case of 3rd Shock Army, it would mean neutralizing at least 120 artillery

batteries and eliminating 2400 armoured vehicles (assuming four axes of advance and thus blocking all attempted breakthroughs). To hold a single breakthrough attempt means the destruction of at least 30 artillery batteries and 800 armoured vehicles.

Force structure and the 'combined-arms' concept

Combined-arms is not a new concept in Soviet thinking: the term — *obshchevoiskovoi* — has been in use since the 1920s and Marshal Tukhachevskii has written a very illuminating piece on 'combined-arms and artillery tactics' (in a study on 'Manoeuvre and Artillery', dated 1924). The 'combined-arms' army was brought into being during the Great Patriotic War (and the true CA formation may be dated from 1943 with the addition of SP guns to its complement; the 11th Guards Army of 1943 can be counted among the first and the most powerful, or 3rd Army in the Bobruisk operation of 1944 with 225 SP guns, 319 tanks and 2000 guns and mortars). What most seizes the Soviet command is the problem of densities, that is, ratios of force to space (*plotnost'*): a combined-arms army would normally deploy one RD per 2-2.5 km, 50-100 guns and 50-100 tanks per 1 km of front, mounting 'operations in depth' up to 100 km, all with an advance rate of 10-15 km per day for a rifle division and 40-50 km for tank and/or mechanized formations.

In the mid-1960s Soviet interest in 'combined arms' began to revive: it is certainly not an accident that General Kurochkin's important study on combined-arms armies in offensive operations appeared in 1966, accompanied by other related discussions. 'One variant war' — nuclear operations only — was slowly being modified and then finally rejected by the Soviet command. The shift in the direction of 'combined arms' has been steady and even spectacular with respect to the MR division, which has undergone a very considerable transformation in the past few years and which now incorporates a high degree of flexibility, as well as fire-power, tank fighting strength and 'shock power'. A Soviet *tank army* will usually consist of four tank divisions, one MR division and combat/logistics support, while the *combined-arms army* is made up of three MR

divisions, one tank division, combat and logistics support, one Scud brigade, an artillery brigade, an artillery observation regiment, two Sam regiments, one radar jammer battalion, an early warning battalion, one engineer regiment, one pontoon bridging regiment, one assault river crossing regiment plus reconnaissance units (including a reconnaissance company and EW units) as well as a helicopter squadron.

The emphasis on the combined-arms concept is the Soviet response to the changed circumstances attending the tank, no longer the undisputed master of the battlefield: the tank can no longer 'go it alone' but must be an element of a whole system which furnishes its own added fire-power and protection. The Soviet 'combined-arms' build-up encompasses *four* main elements: manoeuvre, fire suppression, organic defence, combat support. Armour, infantry fighting vehicles and reconnaissance vehicles form the core of the *manoeuvre element*; *fire suppression* is furnished by artillery, MRLs, close air support, mortars, missiles and helicopter gunships; *organic defence* takes in both anti-air mobile battlefield systems and anti-tank defence; *combat support* furnishes logistical support, combat engineer resources and bridging or assault river crossing elements all on a very handsome scale.

While this presents problems of co-ordination, it does (at least in theory) afford considerable flexibility and rapid redistribution and re-allocation of *assets* at *Army and division level*. It presupposes, of course, mutually supporting activities between target acquisition systems and artillery (with extensive ESM support for target acquisition and electronic support both for signals intelligence/Elint and steerage for jammers, manoeuvre units, engineering and logistics elements and organic defence (air/anti-tank). Independent assets at Front and Army level can be assigned to echeloned divisions as the situation demands, while in turn *division* can either echelon its own assets or re-allocate them — in the case of supporting a breakthrough, or for the exploitation of a breakthrough (reinforcing tanks with additional artillery and combat engineers) or by stripping the artillery (or other elements) from echeloned units to support successful axes of advance. For example, divisional artillery holding can be increased rapidly (by redistributing from

second echelon units) from 72 pieces to over 400.

Let us now look at this combined-arms principle at army and divisional level, what I would call 'centralized combined-arms' for it does undoubtedly work on centralized, highly centralized principles. At Army level there is a generous supply of artillery and combat engineer assets, while it is necessary to pay particular attention to the *MR Division* and to compare it with the Soviet tank division. The MRD is a highly flexible and powerful instrument, with a strength of some 13,500 officers and men, three MR regiments, a tank regiment and an independent tank battalion, amounting to 266 main battle tanks, 22 PT-76 (due for replacement), 218 BRDM, 322 BMP/BTR-60PB infantry fighting vehicles; the artillery component consists of 1 Frog battalion (4 launchers), 72 D-30 122 mm guns (or 6 122 mm and 18 122 mm SP guns), 54 120 mm mortars, 18 BM-21 MRLs and 18 T-12 anti-tank guns: the anti-air regiment is made up of artillery plus 16 SA-9s and 128 SA-7s, all with extensive combat engineering and logistics support. By way of brief comparison, the *tank division* has a complement of 11,000 officers and men, three tank regiments (each an attached MR company in GSFG), one MR regiment, 333 main battle tanks, 22 PT-76, 152 BMP/BTR-60PB and 200 BRDMs (scout, reconnaissance and communication vehicles), 36 122 mm guns, 1 Frog battalion, 18 120 mm mortars and an anti-air regiment, again with combat engineer, bridging and logistics support. It can be seen at a glance that the MRD has a powerful tank component, reinforced with its independent tank battalion (with 51 T-62 tanks), no doubt to increase the *number* of tanks available to the divisional commander and ready for independent assignments or to distribute.

Though this is somewhat out of direct context, it is impossible not to mention the importance of the two types of MR regiment: the BMP-equipped regiment and the BTR-60PB regiments, the former (the BMP regiment) being equipped with new self-propelled artillery (122 mm pieces), 18 SP guns in the BMP regiment, as opposed to 18 towed pieces in the BTR-60PB regiments. In fact, the evolution of the MR regiment is itself quite as interesting as the MR division itself, and the MR regiment (as will be seen shortly) forms

TABLE 2
Soviet motor-rifle regiments compared

	BMP Regt	BTR-60PB Regt
Personnel (officers and men)	2300	2400
AFVs (T-62)	40	40
PT-76	5	3
BMP	102	—
BTR-60PB	—	105
BRDM	28	34
Fire Support		
122 mm (self-propelled)	18	—
122 mm D-30	—	18
120 mm (mortars)	18	18
ZSU-23/2	—	6
ZSU-23/4	4	4
SA-7	30	30
SA-9	4	4
RPG-7	267	197
SPG-9	6	6
BRDM (Sagger/Swatter)	9	9
Sagger (manpack)	12	12
Combat support		
Minelayers	3	3
KMT-4	9	9
Bulldozers	4	4
Trench diggers	3	3
Motorboat	1	1
MTU (bridging)	1	1
K-MM	4	4
Vehicles (excl. trailers)	520	560
Transport capacity	350 tons	270 tons

the focus of the discussion of what I have chosen to call 'decentralized combined-arms', that is, implementing this mode at regiment and battalion. The comparative structures of the two types of MR regiments are set out in table 2; table 3 shows the general evolution of the MR regiment: notice the climb in the artillery component beginning in the late 1960s and the inclusion of organic air defence. Table 4 gives some details on the BMP-2.

And now we come to *artillery*, which is in almost all essentials a subject in itself. Though there seems to be an understandable fixation about Soviet tank strength (admittedly formidable), it can be argued (and is argued by several Soviet military authorities) that the powerhouse of the Soviet offensive is artillery, especially *suppressive fire*, designed to destroy NATO fire weapons (nuclear battlefield support systems, CPs and fire

TABLE 3
General evolution of the MR regiment: 1967-1977

	1967 MR regiment	Early 1970s MR regiment BTR-60	1976 MR regiment BMP
Personnel (officers & men)	1800	2400	2300
AFVs	31 T-54/55	40 T-62	40 T-72 (replacing T-62)
PT-76	3	3	5
BMP	—	—	102
BTR-152	66	—	—
BTR-60	—	105	—
BRDM	10	34	28
Artillery	nil	18 122 mm towed	6+6+6 = 18 122 mm SP
Mortars	9 82 mm	18 120 mm	18 120 mm
Organic air defence	nil	4 ZSU 23/4	4 ZSU 23/4 4 SA-9 (also SA-8)

TABLE 4
BMP-2

Vehicle characteristics	
weight	12.5 t
length	6.75 m
width	3.— m
track	2.54 m
clearance	4.— m
engine	V-6, 280 hp, diesel, 6 in-line cylinders
speed (land)	55 km/hr
speed (water)	8 km/hr
ground pressure	0.57 kg/cm ²
armour	14 mm
crew	3
MR troops	8
Armament	
main gun	73 mm smoothbore short-recoil low pressure (HEAT projectiles); 30 rounds; elevation + 20, depression — 5; 360° traverse
ATGM	AT-3 (Sagger); 4 rounds
MG	7.62 PKT; 1000 rounds

control centres), neutralization of anti-armour defence, plus the suppression of artillery and mortars. Round allocation is related specifically to the damage levels intended: *porazhenie* (annihilation of defensive positions) and *poddavlenie* (destroying up to 30 per cent of defensive positions and manpower). The effectiveness of the artillery fire is also governed by ammunition fusing, localization and delivery errors and deployments, including movement for battlefield

protection (reducing fire output by some 10 per cent). Soviet round allocation can be estimated from the many studies which are available for the instruction of Soviet artillery officers: a fire plan would assign 1000 rounds for NATO's anti-tank defensive weapons, 500-1000 rounds for command posts, 200 directed against mortars, up to 2000 rounds against NATO artillery and 1000 against missile launchers, if deployed forward. With breakthrough sectors some 4-8 km

in width (and up to 12 km in depth), the distribution of targets can account for barrage totals varying from 15,000-35,000 rounds; in fact, a Soviet fire plan against 26 targets (using Soviet round allocation figures) and the classification of target priorities gives a round figure of 29,960 rounds.

Improved performance (including range and rates of fire) has added substantially to the effectiveness of Soviet artillery: increased range has also facilitated greater battery separation (up to 2 km) thus affording greater protection while bringing NATO defences under a wider arc of fire. The increase in artillery strength also improves the distribution of 'assets' to execute fire plans: if a fire plan as outlined above requires 300 guns and howitzers, the MR division can itself contribute a maximum of 90 guns (counting the BM-21 MRL as the equivalent of a single artillery piece), 72 guns can be drawn from second echelon tank formations, and Army will provide an additional 54, Front adding the further 84. (Soviet heavy mortars and tactical air can also supplement this barrage output.)

It is obvious that there is an overriding need to integrate fire suppression and the operation of the manoeuvre elements, with considerable Soviet attention directed towards the battlefield survivability of the MR elements and the BMP itself. In theory, the lead elements penetrate enemy defences to the greatest possible depth, supported by the artillery of the first echelon divisions (augmented in turn by artillery and MRLs drawn from second echelon divisions, as well as Army and Front assets): this gives an availability of some 50-70 manoeuvre units, with mobile battlefield air defence systems for the protection of vehicles, the risk of massing manoeuvre units being diminished by massing for only a short period of time and also by the fire suppression of NATO's nuclear means. All this is to say in somewhat abrupt form that 'centralized combined-arms operations' (army/division level) can be expected to function after the expectation of the Soviet command, but even allowing for effectiveness at this level there are important arguments — and significant misgivings — within the Soviet command about the nature of this battlefield, the significance of 'manoeuvre', the claims of Soviet artillery to effect 'reliable fire suppres-

sion' and the problem of the 'survivability' (*zhivuchest'*) not only of the artillery but also the BMP and the degree to which the efficacy of a 'combined-arms' operation is necessarily slowed down by the presence of subordinate units... and, indeed, a further range of problems. It is to this Soviet 'debate', highly ramified and certainly quite sophisticated, that we must now turn.

Operational forms: some disparate views

The increased interest in 'combined-arms' (itself an outcome of abandoning 'one-variant war', the nuclear battlefield alone) led to the growing (and continued) emphasis on motor-rifle troops and artillery, which, not unnaturally, form the focus of the Soviet 'debate' on battlefield organization and operational-tactical forms. Not that the Soviet command has ignored the AFV, whose latest form is embodied in the T-72 (or the T-64): the experimental model (T-70) mounted a 115/55 mm gun similar to the T-62, but the T-72 has a new armament, possibly a 122 mm gun with long barrel and thick side walls, firing spin-stabilized projectiles (with slow rotation due to the rifling of the initial part of the bore). The T-72 also uses the 'Vickers system' with small track-carrying rollers and more numerous road wheels, using also rubber treads for the first time, all with the aim of bettering cross-country performance and improving the vehicle as a gun platform. The automatic loader holds 28 projectiles ready with 4 more in the turret (which is cast and therefore not suited to 'spaced armour', like the rest of the vehicle); the other significant feature is the stereoscopic range-finder, lacking on other Soviet tanks (and which Egyptian tank crews found such a disadvantage). Weighing 40-43 tons, the T-72 has an impressive power-to-weight ratio (25 hp/t) and a good speed, much depending on that speed factor as we shall shortly see.

Like other armies the Soviet Ground Forces cannot dispense with the tank, but it must now be accommodated to a changed battlefield; but in what manner? The Soviet tank theorists argue that, given the exploitation of the improved speed of the tank, the AFV can be used with great and overwhelming success, for the 'high speed attack' will reduce the effectiveness of the defenders' fire

by 'more than one half'. Under these circumstances the infantry attack goes in *mounted*. The debate, however, does not centre on the AFV itself but rather on the *BMP* and the survivability of motor-rifle troops. Tracked and weighing 12.5 tons, the *BMP* was conceived in the early 1960s and developed to fight over a nuclear battlefield where nuclear strikes would have 'loosened up', if not actually dispersed the opposition: the *BMP* carries three AT systems of its own, the 73 mm low-pressure gun (which lacks a stabilizer), Sagger ATGM and an RPG-7 AT launcher (fired from inside the vehicle); in addition to lacking a stabilizer, the 73 mm gun fires a round with a slow time to target, while the Sagger ATGM presents a fire hazard; though the *BMP* has NBC protection for the riflemen, it can only shield itself against 12.7 mm fire. However, it is undeniably a high speed vehicle (when driven properly) and packs quite a punch, even if the riflemen have a restricted field of fire from within the vehicle. The earlier Soviet assumption had been that *BMP*-mounted infantry could overwhelm NATO defences with these IFVs, supported by *indirect* artillery fire. However, the recognition of the vulnerability of the *BMP* to anti-tank weapons caused drastic revision of this picture and a shift from the mounted to the *dismounted* attack; but this, in turn, exposes the MR troops to greater destruction. Where to now?

The artillery lays claim to being able to carry through a 'reliable suppression' of enemy fire means, but out of sheer practical necessity Soviet commanders remain sceptical: the *dismounted* attack will carry infantry through enemy defences, but enemy fire means left undamaged can still inflict heavy losses on the *BMPs* and the infantry itself will be exposed to destructive fire from enemy artillery, small arms fire and anti-personnel mines. Even if the artillery can 'deliver the goods' by way of suppressive fire, this involves a long 'pounding' which gobbles up not only time but also ammunition; the suppression of enemy AT defence requires 'co-ordinated application' but the greatest responsibility falls on the artillery (whose own 'survivability' is sometimes called into question, though this is hotly disputed by the artillerymen who insist that they can be there with the requisite number of guns).

All this, however, does not satisfy the *tankisty*. Their chief complaint is directed towards the *dismounted infantry attack*, since *dismounted MR troops* — often *dismounted unnecessarily*, in the view of some MR and tank commanders — will be at some distance from the attacking armour and thus the tanks are deprived of support during a close combat phase and at that very juncture when the tanks are facing 'the principal mass' of enemy AT weapons. On the other hand, to bring tanks and MR troops together at the same time and at the forward edge of the defensive system means slowing down the tanks, thus 'intentionally limiting their combat potential'. In sum, the argument of the Soviet tank commanders is that the attack should under all circumstances be speeded up rather than slowed down, exploiting the speed of the tank and the *BMP* alike. The threat of AT defences poses several severe problems for the Soviet command, and they take the threat seriously. A straight all-out frontal assault could only be mounted against a dispersed defence and the main instrument in achieving that — nuclear strikes — is less credible: the breakthrough battle as such, with *dismounted infantry* supported by massed artillery, holds little real appeal (though it might be necessary under certain circumstances).

To find a way out of this dilemma the Soviet command has been placing *greater emphasis on manoeuvre*, but once again there is the problem of defining manoeuvre to the satisfaction of all concerned. Some while ago Colonel Savkin, the *enfant terrible* of the orthodox establishment, pointed out that there is much confusion over 'manoeuvre': some thought it simply movement, others confused it with mobility. In a narrower context, the Soviet argument has concentrated on 'manoeuvre' as being a mode likely to be employed, not *after* the breakthrough had been accomplished and the exploitation was in full swing, but '*at the very beginning of the offensive*'. This highlights the significance of the *meeting engagement* and here (with some excusable exaggeration) a theatre campaign might be seen as a gigantic meeting engagement in its own right, with the emphasis on high-speed movement and manoeuvre. The element which is so intimately connected with manoeuvre is *surprise*; and thus we arrive at a formulation whereby manoeuvre

manufactures the condition of tactical surprise, in fact it furnishes the very foundation and adds up to *gaining time*, above all in the meeting engagement. (Incidentally, the emphasis on manoeuvre and surprise has led in the course of time to a modification of the views relating to 'superiority norms'. And, again, Colonel Savkin emphasized that Soviet troops might be *operating without numerical superiority*; a very radical statement which went largely unnoticed in many circles.)

At the same time, however, this 'manoeuvre mode' (if I might call it that) places a premium on the 'combined-arms' concept, involving the 'working out and the perfection of the methods of operations of motor-rifle units or APCs, their co-operation with tanks, artillery and tactical air...'. Not that this has escaped criticism: in spite of the current emphasis on manoeuvre (or perhaps because of it), there are some who argue that manoeuvre is yet another feature which can only slow down 'the attack'. Why manoeuvre? Why not just high-speed movement in its own right? It is clear that there is a deal of confusion in Soviet circles about just what manoeuvre implies. In fact, 'manoeuvre' is being used in a specific context which has little to do with 'manoeuvre' as such, namely as a synonym for a 'pre-emptive assault'; and here *I am quoting verbatim*. Striking 'the first blow' can achieve superiority in a *given sector*: '... superiority is achieved by the side which first secretly executes manoeuvre and launches a surprise attack against the other'.

It has to be admitted that 'manoeuvre takes some time to prepare and execute'. Must it then slow down the offensive, entailing 'a waste of time'? *Quite the contrary, manoeuvre is one of the key factors contributing to a high rate of advance.* It has been argued that the highest rate of advance is sustained by a straight line with battle formation adopted at the beginning of the engagement and 'moving rapidly forward in a body without delay'. But the very 'irregularity' of the modern battlefield makes this very suspect: there must be manoeuvre with fire, manpower and equipment and, in any event, the modern combined-arms operation is characterized by '*considerable depth of action*', the depth depending on 'troop mobility, mastery of manoeuvre and adequate leadership'. Manoeuvre is also the key to maintaining 'continuing superiority over the

enemy in manpower and equipment'. But the final outcome must be *the assault*: decisive results depend on a combination of *manoeuvre, firepower and assault*.

The argument is obviously very complex and the 'debate' (which has been severely compressed here) protracted; nor is it resolved, save in the sense that 'manoeuvre' appears to be understood as 'pre-emption' in a conventional mode. There are obvious inconsistencies and contradictions; one is the equating of manoeuvre with movement (high-speed movement), the other is diminishing the vulnerability of the BMP by exploiting it the more heavily and yet another concerns assumptions about performance and co-ordination at the sub-unit level (regiment/battalion, properly speaking), 'the correct use in battle of sub-units equipped with BMPs' able to carry through operations of a manoeuvre character and with great suddenness all to a great depth and at high speed. Here we come directly to 'decentralized combined-arms' operations.

Tactical handling: the BMP MR regiment and the reinforced MR battalion

Previously the focal point of combined-arms integration was the *divisional level*, but latterly Soviet interest has been directed to the regiment (and hence the battalion), above all, the BMP-equipped regiment and its possible use in the context of *reidovaya taktika*, 'raiding tactics' which will involve them in accomplishing significant tactical assignments, penetrating to some depth into enemy defences and operating 'without lateral communications' with neighbouring units. This not only speeds up the battle, combining manoeuvre with surprise, but also keeps the battlefield 'fluid'; in many respects, this is an elaboration of the pre-war theories of *glubokaya operatsiya* ('operations in depth'). Meanwhile General (now Marshal) Kulikov called for an improvement in combined-arms tactical efficiency, coupled with greater attention to deception and surprise. If BMP units are to operate along independent axes, then it must be in a 'combined-arms' mode, reinforced with tanks, artillery and engineers, while there is the burning question of the *co-ordination of the tank, the helicopter and the BMP*. Fire support (artillery, tactical air and

'gunship' helicopters) must go along with the BMP regiment and its sub-units, though this time it is the tank which is outpaced by the BMP, as is even self-propelled artillery and certainly towed artillery; and the BMP combat team is liable to be held back by these very supporting units! (There is also the problem of the divisional commander handling not only the BMP regiments but also the BTR-60 regiments, though no doubt these are intended to be complementary and may be used variously in varying terrain and in differing tactical circumstances, just as SP guns are backed up by towed artillery, rather than supplementing it.)

The BMP regiment commander has 40 AFVs and 102 BMPs at his disposal, with 18 122 mm SP guns, 18 120 mm mortars, organic air defence (ZSU 23/4s and SA-9s, now supplemented by the formidable SA-8s), nine ATGM (Sagger) BRDMs, 267 RPG-7s, three minelayers, 9 KMT-4s, one MTU, over 500 vehicles and provision for a lift of some 350 tons (and 160 m³ of transport capacity), in addition to the trucks dispersed among his sub-units. To build up for combined-arms operations, the regiment would probably receive additional tanks with one tank battalion, additional reconnaissance elements, more organic air defence (increasing the number of SA-9s) and both combat engineer and logistics support. This, of course, *complicates* the regimental commander's task in co-ordinating his manoeuvre elements, fire support and combat support, all of which have now been considerably swelled. In addition, the commander must take account of the need to co-ordinate the fire support supplied by helicopters, he must react very speedily to time-sensitive reconnaissance data, keep his columns moving at high speed and ensure the timely detaching of sub-units to carry out the necessary flanking manoeuvres.

One of the key questions is providing the requisite fire support, for a number of 'fire gaps' seem to open up under these circumstances: certainly, artillery can be subordinated from division, but that can only deplete divisional resources, while the BMP regiment does need increased fire support in order to neutralize anti-tank defences; and here the artillery answer is the use of the *direct fire* mode, utilizing SP guns '*conducting direct fire at great range*'. Soviet artillery spe-

cialists are well aware of the advantages of 'shoot and scoot' with SP guns, which can leave the firing position and 'get out from under' in some 10-15 minutes: between 3-5 times as many rounds are needed to eliminate a battery of SP guns, whose disposition is changing constantly, as opposed to guns disposed in a line! SP artillery is thus well placed to carry out its own 'anti-tank assault' when using direct fire. The artillery wants to have it all ways; a battalion of SP guns (122 mm) is attached to the BMP MR regiment, with batteries decentralized to MR battalions. The characteristics of the SP gun increase its survivability on the battlefield and the decentralization of direct fire capability ensures the successful penetration of enemy defences. On the other hand, decentralization does hinder co-ordination, not least with tactical air strikes and could thin out the resources for 'fire manoeuvre'.

The argument over the tactical utilization of the BMP and the BMP regiment is by no means over and the problems of co-ordination are, if anything, magnified at the *battalion level*, particularly the reinforced MR battalion. Here the problem of varying vehicle speeds — and that of the dismounted infantry — is exacerbated, with tanks firing on the move at up to 30 km per hour, the BMP moving faster, SP guns also travelling with varied speed and combat engineer elements assuming their own pace. Separation is bound to develop, a difficulty with which Soviet military analysts have continued to wrestle: for example, the BMP — before disgorging its infantry — should speed up to catch up with the tanks in the lead and then dismount the riflemen immediately behind the tanks, the riflemen forming a skirmish line and fight behind the tanks, which are in turn supported by the BMPs; the dismount should take place at no greater distance than 500 metres from the FEBA, so that it can be covered by artillery, tank guns and the BMP's own weapons; the BMP then continue to support the riflemen but out of range of AT weapons, in all a kind of 'leap-frogging' process.

Since the BMP can travel faster than the tank, then the tanks should move out of their waiting areas first and drive across the start line ahead of the BMPs, which will then join up with the armour just ahead of the attack line. One proposed solution, which seemed to enjoy some

favour, involves a combat formation (*boevoi poryadok*) of 'lines' (*linii*), with battalion sub-units attacking in *two or three lines* (as opposed to echelons): the first line made up of tanks followed by BMPs set off at a distance of 50-100 metres, the second line 200-300 metres behind and formed from tanks, artillery pieces and AT weapons (company and battery CPs behind this second line) and finally a third line with BMPs and sundry elements, also set off at a distance of 200-300 metres from the line ahead of it. Success here depends on the blow delivered by the first, leading 'line', supported in turn by the second line which furnishes not only support but supplies target acquisition. However, this is purely a *mounted mode* of attack. Mounted or dismounted, however, the essence of the combined-arms problem is the timely and correct *division of targets* between armour, artillery and MR sub-units: tanks attacking with MR sub-units should go for the targets which can hold up the motor-rifle elements, mounted MR units mean that the tanks should concentrate themselves on AT weapons, above all ATGMs, while in the dismounted mode the tanks neutralize enemy artillery, mortars and machine-guns. MR units in their turn afford protection to the armour by engaging ATGMs, close-range AT weapons and recoilless rifles, while the artillery is assigned to destroy enemy strong points, bringing its heaviest fire on ATGMs and enemy reserves designed for counter-attack.

To turn to the *reinforced MR battalion* is to look at this from the point of view of the basic assault unit (with some differences between the BMP-equipped and BTR-60 equipped battalions). Normally, the MR battalion has its three companies with 99-100 men or so per company (each with three platoons and three squads to a platoon): the MR company becomes the 'manoeuvre element' of the MR battalion. The BMP battalion has a mortar battery, an anti-tank platoon, an anti-air platoon, a signals platoon, a supply platoon and a medical post by way of combat support: this could amount to a strength of 33 officers, 60 NCOs and 403 men (rising to 496 men if a tank company is attached). Indeed, it is difficult to be very precise about strengths, for the MR battalion may be augmented with a variety of support to conduct particular opera-

tions, including assault in built-up urban areas. This reinforcement can come directly from division or from regiment. It is worth noting the *minute size of the battalion HQ staff*: this consists of four officers, one NCO and eight men, which involves the battalion commander in a heavy work-load.

The reinforced MR battalion can be built up by attaching a company of tanks (13 battle tanks), by attaching more artillery (a battery of 6 guns or a full battalion of 18 guns), an additional mortar battery, further anti-air (ZSU 23/4s or SA-9s), an ATGM platoon, reconnaissance units (including NBC reconnaissance), plus combat engineers depending on the type of operation, the terrain and the nature of the opposition. This gives a total of some 13 tanks, at least 30 BMP, 154 Sagger AT-3, 27 RPG-7s, 6 120 mm mortars, 1 battery of 122 mm guns (6 guns), numerous ZSU 23/4s and 10 SA-7s, 60 LMGs and 356 assault rifles with the riflemen. Thus filled out, the reinforced battalion would number up to 700 men at least. Just imagine the difficulties in command and control, especially considering the manpower shortage in HQ staff.

The specific assault role of a reinforced MR battalion can be seen in the context of an armoured attack, which has found its own enveloping movement faced with a prepared defence and difficult terrain: here MR units are used to break open a corridor for the tanks, all in the absence of nuclear weapons. The initial assault is assigned to the MR battalion, reinforced in the fashion indicated above with tanks, artillery, mortars and the first echelon made up of two MR companies and combat engineers: the second echelon consists of the tank company and the third MR company, supported by artillery and mortars. Covered by fire from divisional artillery, the battalion adopts approach march formation and, taking advantage of the ground, dismounts the riflemen 500-600 metres from the enemy defences, at which point the artillery shifts its fire to the depth of these positions. This first wave is committed to destroying enemy ATGMs and direct fire AT weapons, with the engineers clearing AT obstacles; the second echelon then moves in mounted to break right into the rear of these positions, the tanks taking on targets which are still a danger to the

BMPs all in the distribution of targets indicated earlier.

Over-simplified though this description is, it is meant to indicate the importance attached to the infantry assault as a means of penetrating defences dangerous to armour. Though the prepared and deliberate massed attack is not a favourite with the Soviet command, the dismounted infantry attack cannot be ignored. Indeed, as I have indicated, there is considerable concern within the Soviet command that MR sub-units dismount their riflemen too readily. The role of the BMP has not, however, been wholly and finally clarified: while an excellent vehicle in many respects, its chief weakness lies in its own vulnerability to AT weapons, though its speed, good handling and its low silhouette (with its fire-power) offer the MR battalions the opportunity to attack alongside the armour and thus to implement a much greater degree of 'combined-arms' co-ordination. If there is any Soviet preference — and there *is* manifestly such a preference, I should add — then the *reinforced Soviet MR battalion will carry through a mounted combined-arms attack from march column*, with armour in the van and with the BMPs following behind at a distance of a few hundred metres. Whether the Soviet command is prepared to *lose BMP regiments* in strength on independent tactically crucial missions is at this juncture to my mind a somewhat moot point, though the BMP is certainly suited to fulfilling independent missions.

Summary

'Combined-arms' has advanced to the degree that 'one-variant' war (nuclear operations) has receded, though the integration of the nuclear and conventional weapon still presents problems for the Soviet command. What I have called 'centralized combined arms' at army/division level certainly represents real integration and co-ordination: the present MRD is itself a formidable example of this. However, 'decentralized combined-arms' at regiment or particularly battalion level presents several problems, some of which can scarcely be disentangled from a wide range of operational problems: terrain, availability of forward routes, 'manoeuvre tactics' at large, the optimum battle-

field use of the BMP, the deployment and co-ordination of artillery, the allocation of the air effort, the role and effectiveness of deep penetrations, reconnaissance efficiency in and fire support for the meeting engagement and the timing of the introduction of nuclear weapons... if at all.

There are other, more specific difficulties. The first hinges on Soviet concern with the loss (again, particularly at sub-unit level) of the ability to control a rapidly changing operational situation; the second is the intricacy of flank manoeuvres (in the meeting engagement especially), yet these do not seem to be practised at all, to judge by photographs and accounts of Soviet military exercises; the third concerns the appropriate movement of second echelon elements to the battle. Artillery must be co-ordinated to a greater degree with tactical air, or rather the helicopter, which is making a greater appearance on the Soviet 'battlefield' as further augmentation of fire-power and suppressive AT means. Above all, there has to be much greater initiative at regiment and battalion level. Here we come to that major subject, performance or 'effectiveness', which should and must be treated separately. Nevertheless, a brief survey of constraints on Soviet 'effectiveness' demonstrates a great entanglement of doctrine, technology and 'performance' — the ill-concealed misgivings of the armoured commanders that they have to wait for full fire suppression and to absorb the delay involved in the dismounted MR attack, the ready recognition of the advantages of direct fire but the difficulties presented by decentralizing artillery resources, the co-ordination of artillery with air strikes (or helicopter 'gun-ship' support), the reliability of the speed and accuracy of target acquisition, the protection of soft targets presented by combat engineers and artillery deployed well forward, the lack of any substantial air support *in the regimental area*, the undue reliance on forces in immediate contact and on reconnaissance patrols for surveillance as well as target acquisition and, finally, the inflexibility of communications.

In sum, and to paraphrase George Orwell, 'all arms are combined but some are more combined than others!'



APPENDIX

Soviet views on *the use of the BMP* (offensive and defensive actions, pursuit, the meeting engagement, 'raid tactics' and ambush); this is intended to be a brief summary of the 'BMP discussion' appearing in *Voennyi Vestnik* (the Ground Forces Journal) since the autumn of 1975.

1. Offensive action

Ideally, the infantry will remain *mounted* in any high speed offensive, the BMPs attacking alongside the tanks without slowing the pace of the attack while nuclear weapons alone can provide effective suppression, even under nuclear conditions there must be adequate support from conventional artillery, tactical air and gunship helicopters.

In the absence of nuclear strikes, a dismounted attack may well go in, with the MR infantry bringing fire to bear on the enemy, particularly his 'anti-tank means', thereby supporting the tanks. In the dismounted attack, particular care must be taken *not* to slow down the pace of the offensive, while reducing the vulnerability of tanks and BMPs to AT weapons, safeguarding MR troops form small arms fire, obtaining maximum fire-support from the BMPs and avoiding MR troops lagging too far behind the tanks.

The line of attack should be as close as possible to the forward line of defences; MR troops dismount before reaching the line and rush into the attack right behind the tanks. Thus, the BMPs must close on the tanks before this dismount: infantry *must* keep within 200 metres of the tanks to supply effective fire support.

The distance of the dismount line from the line of attack is a matter for some dispute: a distance of 1000-1500 metres has been suggested, in order to optimize tank and BMP (with infantry still mounted) suppressive fire at long range; this is disputed as being too great a range for effective fire and the distance is reduced to 400-700 metres. Closer than 400 metres for the line of attack or the line of dismount brings tanks and BMPs into close range fire of AT weapons — both lines must be as close as possible but dismounted MR troops must be protected from enemy machine-guns/small arms fire and the BMPs protected against AT weapons, while at the same time maximizing BMP firepower.

Once the infantry has dismounted, the BMPs provide fire support both for infantry and armour and then 'leap-frog' forward; the separation distance from MR troops for this support position is variously suggested as 500-600 metres, or as little as 400 metres. However, there are problems: the infantry fails to keep up with the tanks, while 400 metres is the accepted distance for the line of attack from the objective, so that the BMP is continuously pressed back — firing at a range of some 1000 metres, when its fire is less effective. The solution (according to LGen Bondarenko) is to put the tanks in the van, keep the infantry within 200 metres of the tanks and the BMPs no more than 400 metres

behind the tanks, thus affording adequate fire density while securing the BMP from AT weapons.

This raises the question of BMP *support fire*. Bondarenko proposes either firing through the gaps in the advancing MR squads or from behind their flanks, which means a 50 metre distance between the MR squads: at a distance of 200 metres behind the MR troops, the BMPs can fire with a safety angle of 3° and not hit Soviet troops. BMP fire support is also of great importance as tanks and troops *negotiate mine-fields* and then must be protected by BMP fire, since artillery will at that time have shifted to the depth of the enemy defences. One suggestion for platoon-type actions is for one BMP to follow one tank at high speed through a cleared passage, with other BMPs covering this movement, whereupon the leading BMP takes up a good position and covers the other BMPs as they move forward in turn.

2. Repelling the counter-attack

There are two modes suggested: dismounted and mounted. If an enemy counter-attack cannot be suppressed by Soviet artillery, the platoons *dismount* and hold an advantageous line to permit other units to manoeuvre, with BMPs deployed 100-150 metres behind these dismounted units. The *mounted* solution is to advance to the attack to repel the counter-attack, with a line selected to allow ATGMs to be fired at maximum range, BMPs firing one missile each at enemy tanks as Soviet tanks close to within 1300-1500 metres and the BMPs redeploy to strike at enemy flanks.

3. The pursuit

Mounted, BMP units will drive ahead seizing important terrain features, road junctions and river crossings. Faced with an enemy strong point, the battalion commander holds from the front and steers to turn a flank with the main force, the Soviet unit attacking mounted and exploiting supporting fire.

4. The meeting engagement

Numerical superiority is not essential here and battalions will engage across a 3 km frontage, with intervals of 150 metres between the BMPs; in difficult terrain or in bad visibility, this *may mean a dismounted* attack with close-range supporting fire from the BMPs.

5. Reidovaya taktika ('raid tactics')

Subject to some variety of interpretation, 'raid tactics' generally signify operations conducted in the enemy's rear, for information/reconnaissance purposes, to create confusion and panic, destroy important objectives and seize others. General Merimskii (Deputy Chief/Combat Training) does *not* consider *reidovaya taktika* to be an operational form or concept in its own right and regards it as covering the operations of advance guards, envelopments and special units. In any event, these units will

operate independently and will be augmented with artillery, armour and combat engineers. There are others, however, who see a great future for *reidovaya taktika* as a distinct operational form involving the BMP.

6. Defence

Utilization of the BMP will facilitate the rapid creation of solid defence and the defeat of numerically superior tank/mechanized infantry forces. The BMP may well permit increasing frontages in defence — a squad holding a strong-point with a frontage of 100-150 metres and a depth of 200 metres (the BMP supporting flanks and rear) — but this is hotly contested since the Soviet squad lacks either the men or weapons to hold a perimeter or hold in depth. The integration of a system of defensive fires involves the company commander in selecting *maximum range* firing lines for his ATGMs, tank guns, BMP main guns, RPGs and automatic weapons, with *full fire* brought to bear when the *enemy is 300-500 metres away*. The BMP must be so sited that its ATGMs can be fired at *maximum range* and thus

fire as many rounds as possible: BMPs will thus be deployed deep inside the company positions, fire ATGMs and then move forward rapidly to points from which they deliver supporting fire.

7. The ambush (zasada)

Depicted usually as a *mounted* operation, the ambush involves allowing the enemy to come within close range and then be destroyed by fire from all weapons, whereupon the BMPs change firing positions. LGen Bondarenko, however, disagrees also on this score: he insists that the MR troops must dismount to observe the enemy properly and to utilize platoon fire-power to the fullest, and the BMPs must be sited to take the best advantage of their fire-power.



Note: Handling of the BMP-mounted ATGMs

See: A. Lovi and I. Gordeenkov — Strel'ba PTURS iz boevykh mashin pekhoty'. *Voennyi Vestnik* (1977)(4)100. (This is the only *specific* open discussion I have found on the actual handling of the BMP's weapons system).

Discussie

Kol b.d. van Epen. Has there lately been any indication of a possible change in the location of Soviet forces so as to prepare for eventual action in case Marshall Tito should die?

Professor Erickson. That goes back two years or more. As early as 1974 the Russians began to carry out very big exercises in Hungary in a big bend of the Danube. Not in an East-West direction but pointing South. What worries the Yugoslavs most is not the deployment of Soviet ground-forces in Hungary which they know very well, but their principal fear is of Soviet airborne divisions and helicopter units which might be used for vertical envelopment and high-speed operations on the model of Prague. For that reason the Yugoslavs keep a very close eye on the Russian transport squadrons that fly from southern Hungary, and they keep a very close eye on the helicopters as well. I remember in the Middle-East war the Yugoslavs were watching the Russians as they, without asking, actual-

ly overflew Yugoslavia. They watched intently on what height the aircraft were flying, just in case they were carrying paratroops. There is no doubt about what the Yugoslavs would be worried about most: the high-speed vertical envelopment of Yugoslavia. Their civil defence exercises, such as the one carried out towards the end of last year, also have the same kind of reflection. It is not so much a sort of land invasion from Hungary that causes uneasiness as the threat of vertical envelopment which could be very serious: take Belgrade, take Zagreb, and they could cut the links between the Banat and Belgrade, and isolate Croatia from Serbia. That could be done very quickly and therefore that is what the Yugoslavs are looking for. Yet I am convinced that at the moment they do not think that there will be any great trouble with the Russians, not now there has been some — if only a very limited — understanding which has been worked out this year, so the threat has gone down. I had the opportunity of seeing it myself,

because we lived there. Last year, in 1976, the officials were very relaxed but the population was very alarmed. Now it has changed: it seemed to me that this year the population at large was more relaxed but the officials were very uptight. In general the officials are steering a very delicate line, they seem to be rather wary. But the population have ceased to be as nervous as they were last year.

Maj Van Vuren. The Western world in these days witnesses a new wave of technology, particularly in the sphere of the so-called Precision Guided Munitions which are becoming more and more operational. How do the Soviets react to this new threat to their offensive attitude and, secondly, do they consider or develop this kind of weaponry themselves?

Professor Erickson. There is no reason whatsoever at the moment why the Russians should develop PGMs. In fact the very thing they want, and have developed, are aerial bombardment weapons. That is really

what they need, and that is why they have invested in the multiple rocket launcher and that kind of thing because, for the two kinds of fire which they envisage, they have very accurate artillery and good area saturation weapons. The second area which interests them now is not so much Precision Guided Weapons, it is very possibly the development of nuclear artillery and of mini nuclear weapons for the battlefield, because their nuclear warheads at the moment are quite large, very dirty and rather indiscriminate. Well, I do not see why the Russians should develop what we develop, because they do not need them; we need PGMs, because we have a defensive task which requires high accuracy, immediate delivery and immediate target destruction. If you have an aircraft which can only make one pass over a highly defended area, it is essential that the pilot should be able (a) to really make the pass and (b) to get the weapons onto the target. He cannot make a second run, not with the SS-6's the SS-8's or SS-9's and that lot: it is not possible. And even if you could do it technologically, I doubt very much if it could be done psychologically. In Vietnam it got to the point where people found it very difficult to face these alleys of missiles. And moreover we have the task of being precise in destroying acquired targets which are particular, with reference to what sort of command positions, or engineer vehicles, or whatever it is.

So these are our requirements. Soviet requirements are quite the opposite. Except for aerial stand-off weapons, being used for instance against NATO command centres — and they do have stand-off bombs — I assume it is plain logic for them to develop nuclear artillery capability and also very possibly to hold in reserve the mini nuclear weapon, just in order to blow the one single corridor through, that they want. That would better serve their ends. And in terms of air ordnance, ordnance for aircraft, again I do not see why they should rely on the PGM: they have enough aircraft; and now that the ordnance loads of Soviet aircraft have doubled, I think they have enough aircraft to carry out the tasks that are required. So I do not see

why they should produce the kind of weapons we produce: in fact many of the weapons they have are ideally suited for their purposes.

As regards the PGM and the threat to their offensive capability, the one disadvantage of the PGM, I think, which they see and which we see as well, is that as you use precision guided munitions on any scale and with any complexity, you are constantly increasing your dependence upon command-and-control. And this simply raises the Soviet incentive to strike at command-and-control centres — which is what they intend to do anyway — and while the task of suppression would remain, this would intensify their effort to knock out and destroy whatever they recognize of command-and-control centres in the whole NATO area, right down from the top to the bottom. And remember, this can be done by one thing which we do not have: in addition to Soviet artillery they have deployed about Western Europe highly capable KGB-teams, already in place and instructed. There are about 380 of these groups or teams already deployed in West-Germany and on the borders, to do precisely the job which this demands, to disrupt and disjoint the nervous system of NATO. So from that point of view I would have thought that they are not too despondent about that particular part of possible future operations, they still see it in terms of suppressing NATO's defensive capability. Therefore they would not go for PGMs in the first instance, they would go for what they have said they will go for: they will go for nuclear sites, even in a conventional mode, and they will go for command-and-control centres. And they will go for conventional fire positions, and of course for mobilization and reserve movement positions. So I don't see them changing their targeting strategy. Do you?

Maj Van Vuren. I do not see that their offensive concept is not influenced by the new types of weaponry on our side. I can agree with your explanation that they themselves are not interested in this kind of development, but they do have to react to our increased defensive capability. It is precisely this type of

weapons which is less dependent upon the perfect functioning of command-and-control systems, because these PGMs are now brought down to the lowest possible level, that is to say the individual soldier who can operate them, not all of them but certain types, in which respect I am referring to the special anti-tank weapons and the smaller type anti-aircraft PGMs that can be operated by anybody and thus are rather independent of command-and-control systems. Therefore I feel that their offensive concepts should be influenced at least in some way.

Professor Erickson. Well, it is in one sense influenced by those developments. Take the armoured school, saying 'Look, even before the NATO can we get into position. Let Russia head and disrupt everything, let us pre-empt and then make good use of high-speed manoeuvre', that would be difficult to maintain. But of course there are other things which they have examined as well. They do not just examine the weaponry; they take into consideration what is very obviously a very serious problem in NATO, which is the problem of mal-deployment which in a sense plays into their hands. To sum up the arguments as I tried to do the other day: the Russians would be far more concerned if we redeployed in NATO than if we did bring in ten thousand Milans! If we redeployed, that — if you pardon the expression — would scare the hell out of them.

If we really start redeploying, they have got major problems on their hands. If in fact we do really as the British do now: make sense of forward redeployment, move the ammunition dumps forward, and go into proper forward deployment positions, that would worry them indeed. As you may know at the moment they have a scale of reckoning the efficiency of NATO forces — quite reasonable, it seems to me — in which the Bundeswehr complete unit is 1.0, the US Army is 0.7, and the British Army is about 0.4. And from their point of view I do not earnestly believe that a single piece of weaponry is going to unnerve them. Then, also from their point of view of course, we do not really know how

they would use their kind of weapons as well; how for instance, as an argument, they might try and use anti-tank weapons in a kind of offensive role and not just as defensive weapons. They are thinking about weapon-power all the time.

All I am saying is, that I myself cannot see the advantage in any shift of precision-guided weaponry from their point of view. When you look at NATO anti-tank defences, even taking into account the PGM, they know — even if they have only watched it — the limitations of the wire-guided anti-tank missile, of which you undoubtedly know all the limitations! They know also that very many of NATO's anti-tank weapons are singularly unprotected, not covered by armour. So if you are a Soviet artillery commander, you do not want to knock the anti-tank weapons out, you just restrict yourself to getting the chaps to keep their heads down, thus putting them out of operational practice. I have read Soviet arguments where they argue that in certain suppressive roles, when they take on NATO anti-tank defences, all they will need is harassing fire; that at least is one of the arguments for the artillery support in a meeting engagement.

The third thing that is interesting, is that they do practise the NATO techniques themselves. As the Russians do not have a comparable organization, in their exercises they use a special tank-brigade which is a copy of a NATO tank brigade. They practise in a sense taking on the tank and taking on the anti-tank weapon. Now whether or not they are cooking the book I do not know, but on the whole they seem to have satisfied themselves that they can cope. So I would think from the Soviet point of view: unless the NATO package consists of a large number of related measures, such as redeploying and such as better protection for anti-tank weapons, and such as deploying reserves, and so on, so that you really form a close up defence, I do not think that the Russians will judge that their offensive priority will have to be abandoned. But the moment you redeploy they would be very worried indeed. Not just a brigade of course, but a rational redeployment

pattern. Because at the moment as you know it is simply a case of a NATO corps facing a Soviet army. I cannot answer the question definitely, but I do not expect the Russians from their analyses of a lot of foreign experiences to be too overawed by the PGM. Honestly, not really!

LtZ I Schotel. Is the Russian army trained for urban warfare? I cannot imagine that they can avoid that completely. And secondly, I read in an extract from Admiral Gorshkov's new publication *Seapower of the State* that in future the attitude of the Soviet navy will be more offensive, with especially more projection of power by means of amphibious forces. Is that correct?

Professor Erickson. The first one: yes. If you look at Soviet operations in 1944 and 1945, you will find that once every month they were assaulting a major city. They probably have more experience in street fighting than any other force in the world. But here a number of interesting features come into play. The moment you move into a city or a town, and start to blow it up, you produce a very great obstacle for yourself. There is no point in blowing up half of Dusseldorf just to fight around the ruins!

There is also a good case for arguing that, should it come to this kind of thing, some weapons might prove useless because they require specific conditions under which they can be used. Chemical weapons for instance are very good instruments for either creating a barrier, or for keeping people out or keeping people in. So the chemical weapon could be employed in a tactical sense there, allowing for any peculiar effects of urban building on the way chemical weapons operate.

The first thing is, yes, they are trained for urban fighting. It is only recently, last year, that they began to take this seriously. They now have a much more realistic training programme for urban operations, although there is a great argument going on. How seriously they take this really, I do not know. But I cannot imagine the Russians holding up their advance to fight their ways through street by

street. It is much more likely that they like to encircle and hold an area, and then use — as they say — a reinforced motor rifle battalion, which is particularly suited for this sort of operation with its assault guns, and combat engineer troops, and so on. But the final point — to change the question a little — is that they are well aware, not so much of the problem of urban assault but of the problem of moving through highly urbanized areas. And there is a say that the argument seems to have swung away from the armour — using tanks in cities is a bit wasteful — to using motor rifle divisions which are much more flexible instruments in highly urbanized territory. They have given very close attention to the problems of high speed motor rifle movement through built-up areas. They carry out, in various devious ways, what I think is a very persistent and updated reconnaissance of the kind of area over which they think they are going to move if it comes. But I would not expect great city seizures of the kind we have seen before. In fact, if it comes to urban fighting, probably what they want to do is to unlock certain key areas by high-speed tactical operations which will give them access to a particular part of a city or to a particular communications centre, or a bridge, or whatever. That seems to be much more likely and is certainly the role of some of their deep penetration operations and specialist units, trained for this.

But it remains to be seen what fortune attends the motor rifle division. I think the motor rifle division is coming on and on in the Soviet system and ultimately, perhaps rather in a re-equipment phase, we will see an amalgamation of the tank division with the motor rifle division into a new kind of Soviet shock division which is a multi-purpose, highly flexible instrument. That is the thing to watch out for at the moment. What they do now is simply to split up the divisions and provide specialist tasks within the division: streetfighting groups, special reconnaissance groups, helicopter assault groups (which must be distinguished from airborne troops proper). So they will give much attention to and will continue their training

programme of urban operations. My American colleagues are very much divided on this: there are those who say that more attention is given to urban operations, and there are others saying that less is given in Soviet thinking. One does not know the answer, except that there is a lot of signs indicating that they have made their training programmes for this type of operations much more realistic.

Now the question about the projection of naval power is very important and very interesting. In the first place one has got to try and decide whether Admiral Gorshkov — who was asked to stay on by his wartime close friend Brezhnev, although he was very ill recently and therefore asked to be retired — is really presenting a picture as it is, a picture of facts as the naval situation really is, or whether in fact he is talking about the naval situation as he would like to see it. As my personal opinion, of those two views I come down to the second one; that is, he is really writing as he would like to see the naval picture. It is a forecast for the Soviet navy in which he has put in a lot of things, in the last book he wrote, which were not in the original articles at all. So what he is saying first of all is, that the Soviet navy should be — he does not say the Soviet navy is — a seapower, a maritime power in the proper sense of the word that includes naval and civilian and oceanography and fishing, in other words, a mercantile marine.

The second thing is that, to be such a maritime power, you have got to spend money to build ships and buy ships, and generally invest in the navy. Whether he succeeded in that argument or not nobody knows; I do not think he himself knows at the moment. We will only be able to tell in the next ten years, when we see how the Soviet navy goes. Whether Gorshkov succeeded for example in getting across to the naval command his idea of a really balanced fleet. Or whether the Soviet navy will rely basically upon a naval air strike force. Because Smirnov, who is now first deputy commander and will probably take over from Gorshkov, is a submariner; and I do not know what effect particular specializations

have on Soviet naval thinkers: as in the American navy there exists a carrier lobby, and in the Russian navy they have got a very strong submarine lobby.

So that is how one has got to look at the Gorshkov writings as a whole. Now the second-in-command's projection of Soviet naval power is, that although he talks about projecting naval power, he yet is very careful to say 'we will only project naval power into places where it actually can be projected, and not being foolish about it. We could project naval power into sea areas which are free, open. The West is there, so we are there, and why shouldn't we?' That does not presuppose a great, big naval collision possibly resulting in naval war; he is just saying 'we are at liberty to use the sea for very much the same purpose as the capitalists, so why shouldn't we do it?'. When he comes to the actual projection of naval power, as they say it, with combined taskforces, this is beginning to shape up, and there I cannot answer your question. But, for example, a probable task force, which makes a lot of sense would be to use one of these new Kiev class V/STOL carriers, add a Kresta-II cruiser, two Kyndas and a supplyship, and you have got quite a good task force there, coupled together with, say, a battalion of Soviet naval infantry. That raises the question: what are you going to do, what are your uses for, why are you going to do it? There are not many circumstances, I think, in which the Soviet Union would be willing to put this kind of naval detachment, its naval presence, ashore unless it had made a very specific claim!

As regards the naval infantry, as far as I understand it, although they have been expanding they have not now expanded any more. There are about 15,000 men in the naval infantry, and they are divided up into 4 main brigades; each brigade is attached to a fleet, as the one in the North, in the Kola, is. The marine infantry itself, in a very specialized role, seems to be tied — as our own marines are of course — very closely to a war role. That is, to a war role in the European theatre, or a war role in the Baltic, or in the Far East. So I think, to conclude, that Admiral Gorshkov

is indulging in a bit of wishful thinking: it is how he likes to see it, but in reality it is not like that at all. And moreover, the fact that he is saying it, the very fact that he goes on saying it, means that there must be a large body of opinion, both naval and civilian too, which needs to be persuaded; if he did not have to persuade those reluctant people, he would not say it. This debate about Soviet seapower is still going on and what the Gorshkov influence will be in the future I cannot foresee. I do not think he will be able to keep his position for very long, although, as I said before, Brezhnev asked him to hang on for a while. So this, I think, accounts even more for Gorshkov making essentially this kind of testament to the Soviet navy and his appeal to the Soviet political leadership: he is saying 'we have got very far, now let us really do something with the seapower!'

Let me say finally it is very difficult for the Russian leadership to handle seapower in this sense, while they have had no experience at all with seapower. I am not talking about the navy commanders, I am talking about the political leadership as a whole, which is very unused to handling a naval instrument. The more one looks at it — as we did last week in the United States — the more the myth of a highly co-ordinated Soviet maritime policy does not stand up to examination at all. If anything, there is a lot of bureaucratic inertia and a great deal of bureaucratic competition in both the civilian and the military side, and there is a lot of not friction but lack of smooth running between the navy side and the merchant marine side; precisely, by the way, because merchant navy ships cannot do all the things that warships do. So this engine of a highly and totally integrated super Russian seapower concept, no, I say it for the nth time: that is what Gorshkov wants, desperately wants, and has worked very hard for. It does not seem to be quite the way it is shaping up at present, and I think they will be very cautious about the way in which they are going to use this marine. And I will add one thing finally: if you look at this new ship, the Kiev, although it is a very nice

ship, there are some interesting and disappointing design features about it. It is not the sort of ship they really wanted; it is an excellent ship but it did not quite come up to the scratch as it were, it has design deficiencies as well as operational deficiencies. So, as a Soviet naval argument and maybe an argument of the Naval Staff might read: 'We cannot really go ahead and do what Gorshkov wants us to do, until we have got the next generation of today's ships, and the really super carriers'. (You will remember that the Moskva and the Leningrad came first and with the two of them the Soviets experimented; then they built six of the Kiev.) So I think we are very much in a transition phase with Soviet naval development, and this is the time expressly to watch out for signs of what may take place, particularly in terms of ship replacement, particularly in terms of political manipulation of their fleets, and particularly where they show signs of trying to put the pressure on.

But what kind of pressure is it? I think it will fall far short, for a long time, of actual aimed intervention and the marines storming ashore! With one complete proviso: there could be a situation, where in a country A the local communist parties are taking overt beating from the Maoists and there is no possibility of Western intervention because the West does not care, is not interested; there the Soviet Union might for the first time use its amphibious capability, free of risk. But other than that, no, I do not think they will, until they have got this really sorted out. They will check their marines back for their war roles and war operations.

Kol. Weers. You very briefly touched upon the tactical airpower the Soviets have nowadays, as well as the helicopter force. Could you enlarge a bit on the use of airpower? You said they are fairly whirling away from the old concept of using airpower as sort of better type of artillery, I would welcome some indication as to how this will influence their concept of operations.

Professor Erickson. You are quite right, this ties in very closely with the

improved equipment. In the first place they have got new aircraft and a much improved battlefield air defence system, which has released many aircraft for offensive roles. But it seems to me — and this is a purely personal interpretation, to be taken for what it is worth — that the Russian command in the last two years has been doing something rather sensibly. Let me try to explain that. I once did a study for our air force, in which I began by saying that the Russian command had shown itself to be tactically quite unimaginative, which is very surprising because tactically the Russians are, on the contrary, very imaginative people. But when you look at what has happened in the last two years, with General Babayev in command of 16th Frontal Aviation Army (supporting the elite Group of Soviet Forces in Germany), this seems to have undergone considerable changes: instead of going in for fancy tactics they have gone in for two very important things. First, ensuring that they can handle the logistics of a really modernized air force and the fact that they have brought into East Germany something like 200 Mig-23s in the last 14 months, and have got them flying and in squadron service. That is really quite a tribute to their logistics; they certainly can do it. And the second thing I have been concentrating on — and that concerns the Soviet frontline air commanders — is improving not the tactical competence of the Soviet pilots but their airmanship, just making sure these chaps can drive these things properly. And Babayev himself jumps into his aeroplane and flies alongside the squadrons and makes sure they do it. So those two things mark a great advance on previous Soviet air force practice.

The third thing is that now ordnance and ranges have increased; the performance of the aircraft has increased. It has given the Soviet air command a chance to do one thing which they could not do before. Their air operations were limited to a pre-planned system. That had to be, they could not do it any other way. But now, with aircraft like the Su-19 and the Mig-23, and with the possibility of operating in a time-sensitive frame,

this also gives them a quite different perspective of airpower.

And of course the last point is that they do not intend to — nor is there any reason why they should — tie their tactical air to ground support in a rather limited sense, as they send off the aeroplane just in front of the tank. In the first place this would introduce a terrifically complicated sequence of command-and-control which they do not want to have at all, which they have never had, and which they do not really like. And therefore I think they intend to use the aircraft for the first time for air operations at some considerable depth, and ultimately with their quasi strategic airpower — that is both airborne transports and the cover they can provide them — will be able to strike into the entire depth of the NATO theatre, which they could never do before.

So these four things are manifestly available to them. My own guess is that the Soviet air force, the tactical frontline aviation, will in fact for the rest of this year go on improving its logistics and its airmanship, and will not come out with any of the fancy tactical stuff. There are probably two reasons for this: Babayev has now been in 16th Air Army for five years and I think it is time for him to go. He has done very well, and therefore we may as well wait for his successor to come in, and see what he is going to do. Secondly, it is also perfectly obvious that the Russians have been making the most intensive digest and appreciations of American air tactics in Vietnam, particularly the use of electronic penetration missions and the use of fighter aircraft in various types of operations. They have gone through the whole thing, and the examinations which they have made of this, at least the ones which I have read, are already very impressive. So I would think that we are going to witness the Soviet air force unveiled this year. And finally of course the big argument will be, who is to be the bearer of what we might call Soviet strike power? Will it reside, as it has done, in the ground forces with their battlefield missiles, or could it conceivably be turned over to the Soviet air force? I think the latter will be a

strong contender and certainly its prestige will rise considerably. But I do not think they will get it, though in a sense they are already getting some of it: if the Backfire bomber is used in a theatre role in Europe, it could do a lot of damage. And remember, both the ground systems and the air systems are backed up by systems like the SS-20 which is coming in. So it is a 'belt and braces' about the three systems and I expect that next year the Russians will have clarified a number of things; that is, the long-range penetration roles and long-range interdiction roles, the revise there is of the management of the air battle, perhaps some improvements on just things like procedural separations when handling aircraft over missile-defended areas. And they will also, I think, have decided definitely on the role of the helicopter in the battlefield, because I do not think they have got very ambitious plans for that helicopter, not really: I think they are interested in it and find it useful, but they know always

that the helicopter is vulnerable in the European theatre and needs a lot of protection in its own right. So I do not agree with people having visions of hoards of helicopters; this is not true actually. The helicopter will be kept in the role for which they find it useful: a gunship role and a fire assault role.

But all these things, if I may sum it up quickly, all these positions are now being laid out at the moment; they have all been prepared. None of them, and that depends on these reorganizations, have yet come to full fruition. But I am pretty certain that next year, now that all has been emplaced logistically and in command terms, we will see the Soviet tactical air force really in a sense coming to its own. I think, that next year will be the year of the Soviet air force. Because the ground has been very well prepared, and they owe a considerable debt to Katakov as an air force manager, who has managed things extremely well, and to people

like Babayev who have managed air logistics and, as I said, airmanship at large. And who will probably press, as they are beginning to press now, for improvements in the pilot training programmes. All these things come together. Then, I think, the Soviet air force steps to the front; that's it!



De *voorzitter* beklemtoont in zijn slotwoord nogmaals de wenselijkheid dat de aanwezige niet-leden tot de Koninklijke Vereniging toetreden, omdat daaraan steeds meer behoefte gaat bestaan ter verzekering van de mogelijkheid tot het doen houden van voordrachten als die van hedenmiddag. Hij zegt de gastspreker dank voor diens ongemeen boeiende inleiding en voortreffelijke beantwoording van de in de discussie gestelde vragen, en verklaart zich „much impressed by the guest-speaker's excellent knowledge in such a broad field”, een karakterisering die door de aanwezigen met dankbaar applaus krachtig wordt onderstreept.

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MEDEDELING

Maandelijks ontvangen de leden van de Vereniging de Militaire Spectator. Ten einde de toezending aan thans nog actief dienende officieren van Land- en Luchtmacht, tevens lid van de Koninklijke Vereniging ter beoefening van de Krijgswetenschap, ook na hun dienstverlating zeker te stellen, wordt belanghebbenden verzocht het secretariaat, Nassaulaan 6, Zoetermeer, in voorkomend geval in te lichten.