

## **THE CLUB SANDWICH BATTLE**

“164. With all military resources acting in concert, the offensive battle must be founded on the basically simultaneous neutralization of all depths of the enemy’s defence.

PU-36 (Soviet Field Service Regulations 1936,

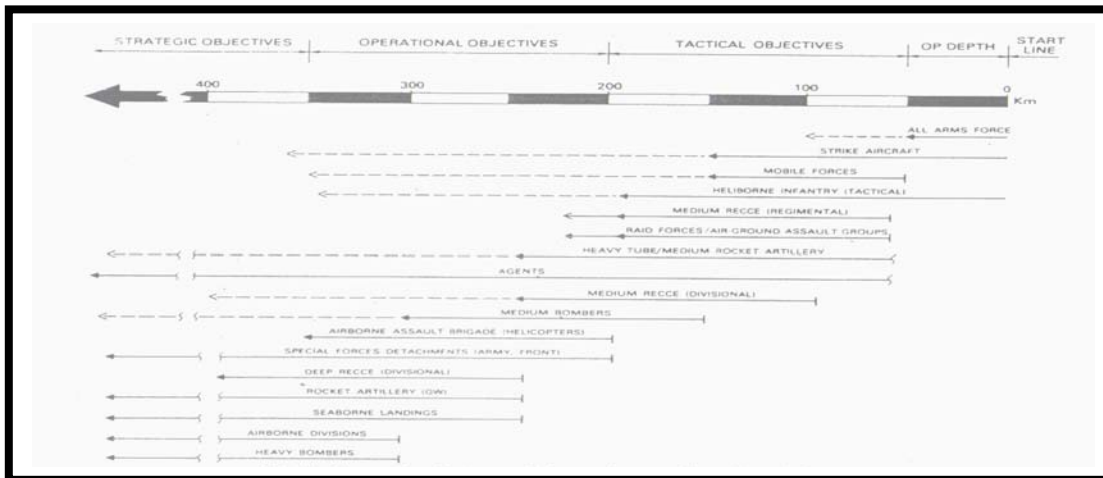
## **INTRODUCTION—SIMULTANEITY**

My search of the past for a parallel with the club sandwich battle of the future led me back, courtesy of Liddell Hart and Arrian (Flavius Arrianus), to Alexander the Great’s decisive victory at Arbela (or Gaugamela) in 331 B.C. I refrain from quoting this, as the three paragraphs describing the opposing forces’ dispositions are about as gripping as the genealogical passages of Kings. The only other analogy that occurred to me was the description of orgies in Steven Marcus’s delightful book *The Other Victorians*, memorable because of the resemblance between the mechanics of these performances and the complex steam-engine valve gears invented by Stephenson and others.

So I decided to approach the discussion through the Soviet principle of simultaneity. Soviet authorities from Tukhachevskii onwards accept this principle as fundamental, while Western masters of manoeuvre still tend to pooh-pooh it. I believe this is in part due to the radically different way in which Soviet and Western commanders approach operational planning (pages 107/ 108). The Russians think inwards from the extremities and thus on the time scale of the operation as a whole. I am fairly certain that Western generals, including Germans of Wehrmacht vintage, envisage the operation as

se deroulant and apply time scales appropriate to each phase. In Soviet eyes, simultaneity, like interchangeability (page 137), is something between a practical aim and an ideal—a useful way of looking at the problem. Both came to fruition in the heyday of the battlefield nuclear weapon. Since then, advances in mobility and in conventional firepower have made both valid for conventional warfare too.

Because of Western incredulity, I explored this question in some depth in *Red Armour*, and have analysed it further since. Since discussion of simultaneity of action calls for simultaneity of expression, I have drawn my thoughts together in Figs. 39 and 40. The first of these charts compares the “forces and resources” available to the modern Soviet front and theatre commander with typical depths for offensive operations and for strategic actions. The full line shows the preferred depth zone (or range zone) for employment of each, the broken line their physical capability of quasi-simultaneous action beyond this. From this chart one sees at a glance that the whole concept of deployment and employment of the various elements turns on simultaneity; and that simultaneity in turn depends on acceptance of interchangeability. Given this, the various means of bringing pressure to bear make up a well-balanced and continuous spectrum over the full operational—and indeed strategic—depth. On the other hand, simultaneity, again like interchangeability, needs to be taken with a pinch of salt.



**Fig 39. Chart to show Soviet use of 'forces and resources' to achieve simultaneity**

SPEED ORDER OF (KPH)	MEANS	NATURE OF DIFFERENCE	TEMPO RATIOS
$10^4$ (HIGH THOUSANDS)	PROJECTILES FIXED WING { FAST JETS TRANS ACFT	PHYS MOB	4-5:1
$10^3$ (LOW THOUSANDS)			
$10^2$ (HUNDREDS)	ROTOR { OP FORCE TAC GP	PHYS MOB	2-3:1
$10^1$ (TENS)	TRACK { FAST TRACKS HEAVY TRACKS	PHYS MOB	2:1
$10^0$ (UNIT)	BOOT HOLDING FORCE	HANDLING	2-3:1
		PHYS MOB OPPOSING FORCE	2:1

**Fig. 40. Speeds of means of conveyance projection, and desirable tempo ratios between them.**

It is patently nonsensical to imagine this vast complex of elements all impinging on their initial objectives or targets precisely at H hour. Some of the most important, like the main mobile force, the tactical heliborne force, or the raid forces, depend on the initial success of other components. Others require preliminary action to achieve a suitable air or electronic warfare situation. To convince the down-to-earth Anglo-Saxon that simultaneity is a genuine and workable principle, one must try to explore what the Russian mind makes of the

term. Just as in the case of interchangeability, relativity comes into play.

If one is eating out, one expects the meat and vegetables to be served at the same . Here a delay of only a minute or two is enough for the meat to start getting cold, the sauce to begin congealing, and the diner to look round for the waiter. If one is conducting some kind of three-sided negotiation by letter, one might fairly say “I heard from X and Y at the same time” meaning on the same day or even on successive days. If one goes into hospital for an operation and arranges to have some other minor condition treated “at the same time”, this just means “while I am in hospital”— perhaps a matter of weeks. The common factor here is not chronometric time but the time needed to complete a change-and-response cycle, response time, or the “decision loop” as the Americans call it. The . evidently regard two actions as “exerting simultaneous pressure” if one follows the other within the enemy’s response time at the level affected. I suggest this may be a useful understanding of simultaneity both in the military context and generally.

## **RELATIVE TEMPOS**

Even so, the ability to achieve simultaneity of pressure over a depth of several hundred kilometres evidently depends on the relative tempos of the various components of the manoeuvre theory model. Grouping the elements of Fig. 39 by their means of locomotion or projection, one arrives at Fig. 40. While the order of magnitude into which (fixed-wing) transport aircraft fall depends on the unit of speed chosen, the gradation by orders is otherwise clear-cut, bearing out the notion of a club sandwich. In Chapter 6 (pages 101-409) we discussed the relative velocities of the components of a manoeuvre theory system in general terms and went on to substitute tempo for velocity. We now need to look in more detail at the nature of these differences in tempo and at the tempo ratios between successive elements of the system.

The physical mobility of its equipment sets an upper limit on the tempo a force can achieve. The transport aircraft which carry airborne troops cannot deviate greatly from the tempo represented by their cruising speed. Helitroops can vary their tempo downwards. But if they fly from their departure area to their objective below “range speed” (about 90 per cent of maximum speed for modern machines) they reduce the chance of surprise, expose themselves avoidably and waste fuel. More important perhaps, their combat worth is so dependent on tempo—in other words on surprise and shock—that it is substantially degraded by slowing down.

With ground troops, by contrast, there is no difficulty in operating below the tempo set by physical mobility unless they move so slowly as to lose much of their indirect protection. The light armoured force mounted in fast tracks with good trafficability is a borderline case. When faced by an enemy with main battle tanks, a force of this kind derives much of its ability to survive from indirect protection as opposed to armour, and not a little of its combat worth from tempo. So it can only be handled in slow time when some extrinsic multiplier such as thick cover or tactically strong ground favours it.

In most advanced armies, however, the holding and mobile elements of the main mechanized force now have the same major tactical vehicles. By the same token, their structures are becoming ever more similar. Over the past 10 years, the tank—infantry ratios in the principal types of Soviet division have converged. When tank battalion strengths as well as numbers of battalions are taken into account, the mechanised division is now almost balanced; and the tank division has a ratio often battalions to six as against the previous ten to three. By the nineties, as already mentioned, these two types of division may well have been merged into a single “shock division”. The United States “ROAD” armoured and mechanised divisions of the sixties will be reorganizing as Types A and B Heavy Divisions as this book appears, with Type A just six to four tank-heavy and Type B

balanced. The Federal German Army still has armoured and mechanised divisions with a tank-infantry ratio of about two to one and one to two respectively. But trends in doctrine, force structure and equipment suggest that this could well change in a few years' time. The "armoured" division is now the British Army's only type of mechanised formation; it is balanced, albeit at a level which does more for politicking and peacetime promotion than for combat worth.

There are in fact very strong arguments, some of which we saw in Chapter 6, for the holding force and the initial (heavy track) mobile force having the same physical mobility, and indeed being found from the same type of formation. To develop the leverage which is the key to the turning operation, the holding force must close up to the enemy and maintain contact with him. Ideally it should draw him forward; in the early stages at least it must hold him forward. But sooner or later he is going to pull back. He will either fight a delayed action or attempt a clean break followed by a rapid withdrawal. The holding force must have the physical mobility to maintain contact with him, even in the pursuit situation. The tempo of his withdrawal should be slowed down as a result of envelopment by the mobile force or the insertion of a blocking force; but it may not be. To allow for friction, the holding force should be able to operate at twice the tempo of the opposition. And to ensure maintaining contact even in the opening stages of a rout, most of this advantage should be provided by physical mobility rather than handling. This establishes for the holding force both a minimum physical mobility, and a handling tempo in the holding force role-the level above ground, so to speak, of the bottom rung in the mobility ladder.

We saw in Chapter 6 that, much as common sense would suggest, healthy development of the lever arm requires the mobile force to work at a tempo between two and three times that of the holding force. If it is less than twice, the mobile force will not be able to get clear fast enough to establish a turning situation, or to maintain that situation if the holding force and the enemy main force come onto

the move. If the ratio is much over three, the lever arm may break simply through over stretch, and the hinge between holding force and mobile force becomes dangerously vulnerable to counter-attack.

Achieving this ratio by handling alone poses a very severe training problem. . There are certain evident differences in tactics and procedures, many of them well exemplified by Soviet practice. In tank divisions the tanks practice fire and movement by companies, a whole company moving together. (In British jargon, the company is the “tactical unit”.) In the mechanised division, the tank companies are larger, and the tactical unit is the platoon. Introducing this lowest level offer and movement theoretically halves tempo. In the tank division, the mechanised infantry fights mounted unless or until the tactical situation forces it to dismount. In the mechanised division, it normally dismounts for the final stages of an attack, and in defence. In tank formations and battle groups, only the initial orders are given orally and supported by the “operation document”; after that control is exercised by radio. In mechanised battalion groups, certain operations are covered by standing operating procedures (SOPs), but for the rest traditional infantry battle drills (reconnaissance groups, orders groups and so on) are generally followed. I have accumulated a good deal of evidence to suggest that this may temporarily lower tempo by as much as a factor of ten. So on paper there is evidently scope for achieving a twofold or threefold increase in tempo by different handling.

On the other hand, the two types of handling are the outward and visible signs of two different modes of thought. The tank man halts between moves; the infantryman moves between positions. I know of only two examples of the necessary duality of approach and technique having been achieved. One was Manteuffel’s Panzergrenadier Division Gross-deutschland ; the other was the British motor battalion—a concept in the true Sir John Moore tradition, realised by the regiments now gamated as the Royal Green Jackets, and destroyed because its excellence was more than the egalitarianism of postwar Britain could stomach. Having spent much of my service with troops in the infantry

support role, I am brutally familiar with this problem in the British Army. It was just as striking in the Bundeswehr, even in the early days when tank and mechanised infantry commanding officers (and some company commanders) were Wehrmacht-trained; now it is even more marked. It has long been a running sore in the United States Army; and a visit I recently made suggests that this is far from healed. In the Soviet Army, inter-arm rivalry burst into the open with the controversy which followed the introduction of BMP I , and has stayed exposed throughout the 15 years or so over which the all-arms ' battle concept has been developed and pro-mulgated. Since this problem stems from the fact that standing armies are social rather than rational structures, it is unlikely to go away.

Rotor tempo is between five and ten times that of a mobile force based on heavy tracks. This suggests an uncomfortably wide gap between these two rungs—an indication borne out by evident Soviet caution over the operational employment of heliotropes. The arguments are precisely the same as those on the ratio between holding force and initial mobile force, and the effect is (or at first was) to restrict the scope of the airborne assault brigade to the tactical-operational borderline. The need is for an extra rung, with a tempo ratio to the initial mobile force of about two to one. This is one of the main arguments for a light mechanised force mounted on fast tracks, the other being the need for it in theatres to which heavy tracks cannot be brought or in which they cannot operate. In principal theatres, a force of this kind fits very neatly into the club sandwich battle; it would be passed through after the initial mobile force had established a turning situation, just at the stage when both theory and historical examples suggest that tempo starts to accelerate.

For intervention in secondary theatres, where this light mechanised force would form the initial mobile force, very possibly the holding force as well, environmental and logistic friction are likely to slow tempo down. In any event, the combat worth of a light mechanised force has almost the ideal balance of mass and tempo for



extreme flexibility. The technical advance needed to give a force of this kind teeth has already happened. It is the “light mobile protected gun” (to use the American term)—in effect an amphibious light tank with something very like the firepower of a main battle tank, and mobility matching that of the infantry fighting vehicle in all respects. Extraordinarily, at the time of writing, a vehicle of this kind (a successor to PT76) has not yet made a public appearance in the Soviet Army.

I shall revert to this light mechanised force shortly, in the highly controversial context of airborne forces. Before that, I want to develop the picture of the club sandwich battle up to the layer in which helicopters are used operationally.

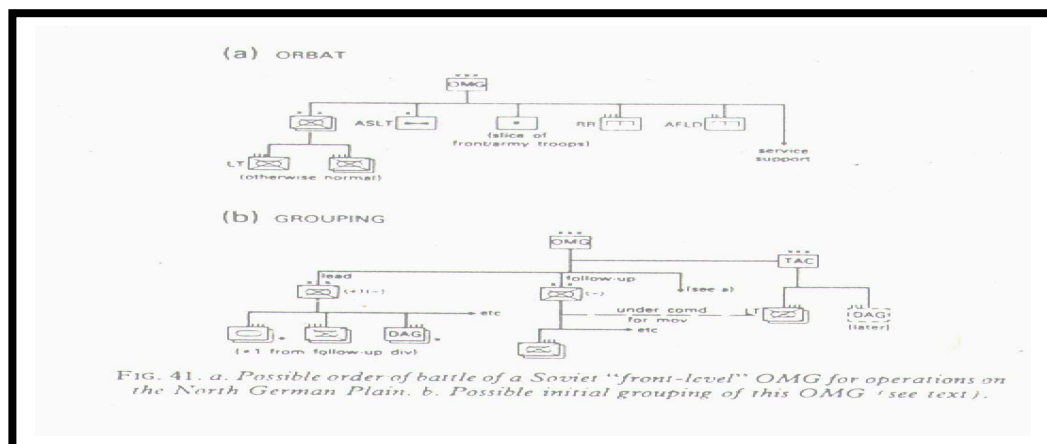
### **THE CLUB SANDWICH**

One must I think serve the military club sandwich with two large caveats on the side. The use of simple mechanical analogies gives a wholly false impression of firmness on the one hand and rigidity on the other; any operation of war is subject to uncertainties, and its course is often confused. More important, while comprehensiveness makes the club sandwich “with all the works” an invaluable model, complexity makes it a most improbable reality, a Pantagruelian chimera. One might look on it not so much as the sandwich itself, rather as the menu from which the military gourmet can pick fillings to suit the occasion. Once again the ambience will have to be Russian because it is the only one currently on offer; and just as inevitably, the North German Plain (Fig. 13, page 75) will have to serve as a table.

Let us envisage then, a Soviet front opening an offensive operation with a holding force of two all-arms armies less two mechanised divisions. Let us suppose—for I am reasonably sure this will happen soon—that the mechanised division has a “light regiment”, in which the main battle tanks are replaced by a mix of light mobile propelled guns and tank destroyers (missile), both having the same

mobility as the infantry fighting vehicle, by this time BMP3. These two divisions (both mechanised rather than tank because of the terrain), plus the front's airborne assault brigade and a standard slice of front and army artillery, an army bridging park and an airfield engineer battalion, form the front-level operational manoeuvre group under a corps-level OMG headquarters established as part of the front's order of battle (Fig. 41a). The tank army is held as a third echelon, but the front commander has put an earmark on its airborne assault brigade; and theatre (or probably "principal theatre" has allotted him an additional airborne assault brigade based in Kiev Military District and available on the Elbe by D+1.

Thanks to excellent operational intelligence, the all-arms army on the right was able to launch a successful slashing attack down an inter-allied corps boundary, and to insert its tank division as an "army-level" OMG by noon on D Day. Although this division is referred to as an OMG and has Bremen airport as an operational objective, its priority task is a tactical one—to detach conventional raid forces or air—ground assault groups (page 47) to deal with NATO C 3 centers and artillery capable of delivering nuclear weapons and stackable minelets. Despite this group's swinging northwards off the main thrust line, the shock effect of its insertion opened a corridor across the Luneburg Heath and clear of the Hamburg-Hanover autobahn. The front-level OMG was moved up, and launched across that autobahn at 03.00 on D + 1 . And there our story begins.

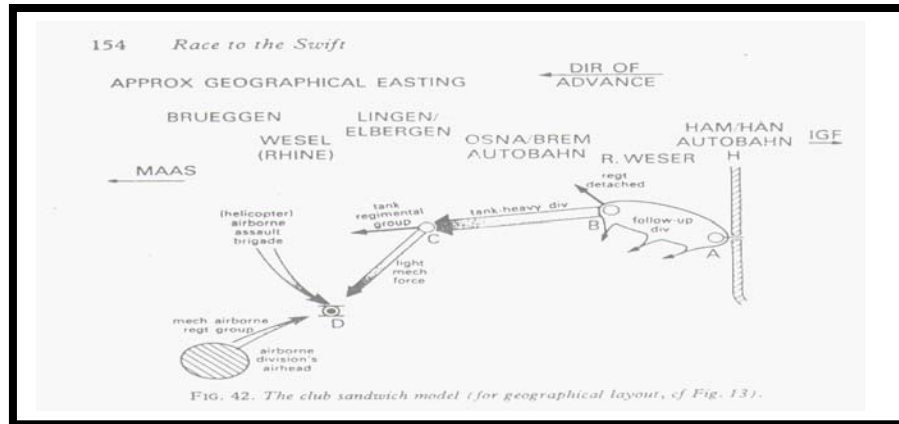


Because of the terrain and his mission, the OMG commander has ordered two regroupings (Fig. 41b). He has detached the light regiments from his two divisions, grouping them under the “forward” (tactical) element of his own head quarters and placing them under command for movement of the follow-up division. And he has switched this division’s tank regiment and divisional artillery group to the leading division, leaving it in effect with just six battalion-level task forces and minimum combat support. This weakened division has two tasks. One is to launch raids against three specified targets, in fact all to the south of its axis. The remaining mechanised regiment is to open up, secure and improve the OMG axis and, as soon as possible, a secondary route to the north of it. The OMG commander has strengthened the leading division because, having broken clear across the Weser downstream of the Weser—Aller confluence, it is to detach a mechanised regimental group down the left bank of the river, to join up with the tank division directed onto Bremen airport.

Having cleared the Weser, the leading division, now tank—heavy, has been directed onto Lingen Elbergen, where the River Ems and the Dortmund—Ems Canal run side by side. The depleted follow-up division will be pretty well spent by the time it closes up to the Weser, at least until it can recover its regiment’s worth of raid forces. In terms of our model obstacle in Soviet eyes) will lock the original hinge A, and create an (Fig. 42) the securing of two routes up to and across the Weser (a minor advanced hinge at B, on which the leading division can pivot. Until it can remobilize itself and be replaced by elements of the holding force, the I follow-up division’s task is to pass the rest of the leading division and the light mechanised group, together with its combat support and essential service support, forward across the Weser.

Once the leading division has successfully bypassed opposition astride the Osnabruck—Bremen autobahn and its leading elements are across the Elbergen—Lingen obstacle (C), the OMG commander, having checked with front, launches his airborne assault brigade onto

the bridge at Wesel, with the Rhine crossing at Rees as an alternative objective. (At this point the front commander, who has already briefed his reserve airborne assault brigade for a back-up operation on Rees, brings that brigade to immediate notice.) The ~ 0MG commander then flies up to his forward headquarters, moving with the light mechanised group.



The leading division's orders are to secure a crossing of the double water obstacle, pass one tank regimental group across, directed onto Apeldoorn and the Dutch motorway running west, then clear and secure the route for the passage of the light group under the 0MG commander himself, taking the forward divisional artillery group under command as it passes through. On our model, securing a crossing at Lingen has the effect of locking the hinge at B and creating another advance hinge at C, on which both the light mechanised group (which now has priority) and the forward elements of the original leading division can pivot.

The light mechanised group now races southwards to the Wesel—Rees area to link up with the airborne assault brigade and provide it with artillery support. (Soviet planning calls for this junction to be achieved within 6 hours of the decant.) Since the bridge (D) is a fixed geographical location of operational significance, its seizure has the effect of locking the hinge at C and making D an advanced hinge even before the link-up is achieved.

So far in this scenario, one is on reasonably firm ground—figuratively, I mean. The final layer of the club sandwich has become highly questionable; but I will add it and then examine it critically. Once principal theatre headquarters (one level up from front and responsible for the entire strategic offensive against the NATO centre) saw that the northern front-level OMG was rolling nicely, it launched the adhoc airborne corps of three airborne divisions, which the supreme command had allotted, into the Rhine—Meuse triangle—the heart of European NATO. One division was directed onto Bonn from the northwest, and one eastwards to link up with airborne assault brigades on the Rhine crossings at Dusseldorf and Cologne. The initial operational mission of the northernmost airborne division, with his airhead at the erstwhile NATO airbase at division was to launch a BMD-mounted regimental group to link up with whichever of the northerly crossings (probably Wesel or Rees) was seized and established. This division's firm base (E) provides a hinge for the airborne assault brigade seizing the crossing; likewise for the light mechanised group and other troops advancing towards it across the Rhine, and then southwestwards onto the initial strategic objectives.

## **THE FUTURE OF AIRBORNE FORCES**

As well as giving body to the concept of a ladder of tempo ratios, this admittedly idealized model throws up two questions of the highest importance. The first is the employment in opposed or risk landings of large airborne forces carried in transport aircraft. We saw in Chapter 7 how the effect of linearity on the tactical drop denied paratroops on their feet enough concentration in time and space to organise themselves fast enough to ward off the enemy's immediate reaction. Crete apart, paratroops have only made a successful contribution to high-intensity, high-tempo operations when they have been used in a tactical role at very limited depth. This was even truer of the Red Army's few drops into unsecured territory than it was of the drops in support of the Normandy landings and the Rhine crossing.

The Soviets, with Tukhachevskii's concept of mechanised airborne forces firmly in mind, overcame this limitation by going first to motorization, then to partial and later complete mechanization with the BMD. But this represents a manifold increase both in total lift and in the proportion of specialized aircraft required. And the specialised freight lift is further increased in substantial degree if armoured vehicles and other heavy equipment have to be parachuted in rather than landed. A view which I arrived at by rough calculation and which a number of Western experts in airborne operations seem to have reached by feel is that a Soviet BMD mounted regimental group (with its immediate combat and service support, that is) is the largest formation that could be dropped by parachute into unsecured territory.

Quite apart from problems of the control of air space, the large number of aircraft needed and the linearity implicit in assembling, loading and dispatching them raise two further question marks of Damoclean significance, the hair by which both these sword 5 hang being the maintenance of operational, or even tactical surprise.

Let us take the less severe of the two problems, the fly-in, first. Suppose the force flies on a b-b-b profile direct from the east across Germany to, say, the Rhine—Meuse triangle. Its head will have to fly for 35 to 40 minutes over NATO territory, which is likely to contain observers and ground sensors even if overrun; and the tail will be exposed to risk for significantly longer. An indirect route with full payloads would involve air refueling, a technique which still seems to present problems at very low levels. And just one aircraft coming up for even a second into radar cover, or acquisition of the force by shipborne radar, Would give the game away and expose the force to the full weight of surface-to-air and air-to-air attack without benefit of escort.

The second and still more critical problem is detection of the force on the ground by airborne and satellite-borne sensors. In current

practices aircraft and troops reassembled at a small number of air fields, perhaps one airfield to a brigade requiring a life of two hundred or more machines Refuelling and checking the aircraft, preparing and loading heavy equipment, and battening the troops into loads ("chalk numbers") is no small matter. Conventionally assembly begins at least 24 hours before the operation is launched, and this is preceded by a considerable period of abnormal air movements and ground activity. One has to agree, that, with modern surveillance, surprise is bound to be lost—the more so if all this is going on at several airfields at once, to mount a divisional or larger operation. One is thus forced to look at new tactical concepts and mounting techniques for fixed-wing airborne operations into unsecured territory.

The whole idea of dropping onto or very near the objective, assembling, and seizing the objective before the enemy could make any substantial response stemmed from the fact that, once down, paratroops had the mobility of the boot. Incapable of manoeuvre and short of heavy equipment, they were at the mercy of even the lightest mechanised security force until they had completed their mission and dug in or evaded. By contrast, the last thing mechanised airborne troops want to do is to drop onto or near their objective, forfeiting tactical surprise and exposing themselves to battle when at their weakest. Ideally they should go in at a point an hour or more from two or three possible objectives, before the development of friendly ground force or rotary-wing action discloses which is the most probable one.

If it is going to organise it self actually and execute a controlled move or a manoeuvre, a mechanised airborne force will do far better to fly into an airhead than to be dropped. What is more, loading men (and more particularly heavy equipment) at landing scales as opposed to parachute scales achieves an important economy in lift because parachutes, containers and platforms are not needed—and this economy lies mainly in the requirement for general and specialised freight aircraft. Let us suppose that, for a divisional operation, one brigade at manpack scales were to be parachute-loaded to drop on and

seize the airhead. That brigade's heavy equipment and the rest of the division would be loaded, non-tactically if needs be, for landing as opposed to dropping, and flown in.

This radical change could be reflected to equally good effect in the mounting of the operation. The men of the assault brigade could be loaded at a number of dispersal airfields and strips, thus avoiding protracted concentrations or disturbance of normal patterns of movements and activity. The rest of the mounting could probably be masked within the whole pattern of military and civil air movements, especially in a country such as the Soviet Union whose everyday life depends heavily on air travel. Heavy equipment could be preloaded well in advance and at great depth— beyond the Urals, say—and staged forward to dispersal fields over a period. Troops could in fact be concentrated under cover at airports and embarked in civil aircraft already positioned for scheduled civil flights.

Despite the existence of first-rate opinion to the contrary, I feel reasonably sure that sizeable fixed-wing airborne operations against Un-secured territory will remain feasible if an airhead is established as a forward base for the mechanised airborne force, and if semi-clandestine techniques, supported by positive deception, are employed in mounting the operation. I am convinced this is so in a situation of strategic surprise. What is less certain is the scale on which this type of operation would be feasible. This is the kind of problem where “staff check” accuracy is not of much help; but the scope of Soviet airborne operations against the NATO centre would provide an entirely programmable computer exercise, and probably an extremely worthwhile one. Quite apart from feasibility, though, a well-~ equipped and well-balanced airborne mechanised brigade group might well prove to have a higher combat worth than a more scantily equipped and more unwieldy division. Having established in the previous chapter that combat worth is relative, one needs to take account not just of the number of combat troops likely to be available in the enemy's rear areas, but of their limited physical fighting power and quality.



The weak point in this concept is evidently the seizure of an airhead by dropping a force of men on their feet, relying on fixed-wing aircraft for fire support, particularly when the fly-in will have given at least 30 minutes' warning of a parachute attack. This could far better be done by a rotary-wing assault brigade, particularly if this force was trained and equipped to operate on the "main battle air vehicle" principle (page 121).

There seems every indication that, as increased physical fighting power and higher tempo enhance the combat worth of mobile forces, the key level at which types of formation are differentiated will fill from division to brigade. One might therefore envisage an airborne division, or more probably an ad hoc divisional-level task force, made up of four brigade groups—a rotary-wing assault brigade, a light (non-motorized) parachute brigade with a significant free-fall capability, and two airborne mechanised brigades, each type of brigade group having appropriate combat and service support organic to it. Since the dismounted brigade could take over the airhead as a forward base, freeing the helicopter force for a further offensive operation, this force could well have the same operational capability as the ad hoc Soviet corps of two to four partly mechanised airborne divisions which features in most seventies and eighties scenarios.

### **THE HELICOPTER-LED STRATEGIC ACTION**

This brings me to a far more radical and interesting line of thought still; and to uphold credibility I should like to make the reader privy to the way I embarked on it. I followed very much the sequence I used earlier in this chapter to construct the Glub sandwich model on the NATO centre table. As I remarked earlier, the resulting heap struck me as very hard to prepare and almost certain to fall over sideways when being eaten.

At this point the Rhine became my Rubicon. If you could gain control of the key crossings north of the Rhine Gorge, I thought, insert a substantial mechanised airborne force into the heartland of the Rhine—Meuse triangle, and perhaps back this up with a sea borne landing in the Schooled Estuary, what went on east of the Rhine would really not have too much strategic significance. Even without strategic surprise, the main NATO land forces would be caught the wrong side of the Rhine, facing or even moving the wrong way. Of course the Soviets' mechanised might in its baroque masses would poise it self threateningly and roll across the Inner German Frontier. But taking an "indirect direct approach" to the strategic objectives would change the whole emphasis of the offensive. (Where would one be without Irish?) In terms of manoeuvre theory, the entire Warsaw Pact land force would become the holding force (Sun Tzu's "ordinary force"), its operational manoeuvre groups becoming tactical manoeuvre groups, while ~ the rotary and fixing airborne forces, together perhaps with their sea borne back-up, would constitute the decisive mobile force ("the extraordinary force"). I felt at the time, and am still inclined to think, that, given the strategic surprise which would be fairly easy to obtain if they led, these 'fixed and rotary wing forces could be inserted without too much difficulty.

## **THE IMPACT OF SUBMARINE CARRIERS**

Then a piece of information published in 1983 made this line of thought more interesting still. The Soviet Union was reported to be building the first of a series of four or five submarine catamarans the size of the largest United States aircraft carriers. True, later information about a vast (surface) aircraft carrier being built in two halves on the Black Sea cast some doubt on the 1983 report. Be this as it may, though, large nuclear-powered submarine carriers, equipped with both "silent" and high-speed submerged drives, are undoubtedly feasible. Their signatures could well be masked by an escort of hunter-

killer and/or missile submarines navigating above and around them. These large craft could undoubtedly carry both rotary-wing forces and amphibious light mechanised forces in substantial strength; and they would need to spend only a matter of minutes on the surface to fly or float these forces off. Let me stress that this small, specialised force operating semi-clandestinely on the borderline of the strategic and operational levels is as different as chalk from cheese from the tactical ship-to-shore movement off surface carriers practiced by British, Soviet and United States marines.

My layman's interpretation of the naval side of the Falklands War—like that of a good many others outside the Royal Navy—was that surface naval units of any size would not remain viable for much longer; and that, since nuclear propulsion could fit the submarine for every naval role, navies would eventually go underwater. Among other indications, the recent successful launch of a cruise (as opposed to a ballistic) missile from a submerged submarine encourages this view. I could not begin to estimate how many helicopters or light armoured vehicles a submarine carrier might handle. But rule of thumb extrapolation from various known points suggested that a battalion group's worth of either type of force would be a realistic cockshy, perhaps a conservative one.

The mind boggles at the material and human resources the creation of a submarine-borne operational mobile force of this kind would call for. But this has to be viewed in the perspective of the strategic power it would confer and the cost of the "baroque" naval, land and air forces it could replace. The potential of nuclear-powered submarines is well known. I thought I had adequately exposed the potential of the helicopter in Chapter 7, but new facets of it keep on coming to light. The scope offered by combining these two widely different but essentially complementary military systems looks almost boundless.

## **CONCLUSION**

Three things emerge clearly from the discussions in this chapter. The tempo ratio between two successive components of a manoeuvre system is critical; this makes it difficult to dispense with one or more layers of the club sandwich without destroying its integrity. On the other hand, the “full works” club sandwich, however valuable as a model, is patently not a practical proposition. Even if the resources needed to create an army of this shape were available, dispersing them over so many types of organization and equipment could scarcely represent the best use of them. And even if such an army could be formed, its employment would be unmanageably complex .

However, one cannot relate these tempo ratios simply to physical mobility. In certain cases flexibility requires some if not all of the difference in tempo to be obtained by different handling techniques. This in turn means that some types of formation will be operating well below their maximum tempo for some, or indeed for most of the time. To maintain their combat worth under these conditions, the contribution made to it by physical fighting power must be high. On the other hand, the potential of very high tempo is too great to be ignored.

This suggests that the tendency will be towards polarization, exemplified by the probable Soviet move towards a shock division on the one hand, and helicopter and mechanised airborne brigades on the other. In place of the unmanageable club sandwich one will have two courses—a main course based on physical fighting power and thus on mass; and a dessert, better perhaps a savory, deriving most of its effect from surprise and momentum. The heavy force and the light force will each be capable within itself of applying manoeuvre theory at operational level, of forming a holding force and a mobile force. And the two will interact in this manner at strategic level. The determinant equipment's of the one will be the main battle tank and the (heavy) infantry fighting vehicle, with the helicopter filling a range of supporting roles; of the other the helicopter and, probably, the light

armoured vehicle, amphibious and airportable. In the heavy combat environment the infantryman on his feet will be hard put to it to survive; within the light force he will have both the traditional task of holding ground (the forward base), and a spectrum of light infantry roles ranging from mountain warfare to special force operations.

This is a tidy picture with a cosy image of progressive conservatism, of socially acceptable evolution. What is more, it fits conventional wisdom about a primary though improbable threat and a viper's nest of more vs probable secondary threats calling for worldwide intervention. So, once the advanced armies have seen the club sandwiches they are currently preparing topple over or collapse sideways even on manoeuvres, it may well come about.

But even the rather naive scenario we looked at above served to bring out the irrelevance of the heavy forces to the strategic decision once they are turned or otherwise dislocated. Once the helicopter and the light armoured vehicle can be given high and semi-clandestine strategic mobility— something that is technologically feasible and is likely to happen sooner rather than later—they can be employed anywhere in the world with strategic surprise, just as the government-sponsored terrorist can be today. One does not yet have a clear enough picture of warfare within or based on inner space to assess how that would interact strategically with a force of this kind. But what the combination of submarine and helicopter would certainly do is to restore the situation which prevailed up to the eighteenth century, one in which the main problems were to guess the enemy's intention and whereabouts. In Part 5 I shall argue that a submarine-borne force of helicopters and light armour represents not the light but the massive end of the probable spectrum of future warlike activities. Heavy forces, preferably without a nuclear arsenal but possibly in conjunction with it, will for some time provide an unusable deterrent, matching the understanding of military strength held by politicians and their electorates, and providing by its inertia a much-needed stabilizing force.