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THAT TWO HANDED ENGINE

The Neutron Bomb in 'Fulda Gap', plus some more palatable extras.

"But that two-handed engine at the door,
Stands ready to smite once, and smite no more"
— Milton, 'Lycidas'

Foreword

This article makes extensive use of material from two pieces which appeared in recent numbers of 'Moves', namely a Variant on **'Fulda Gap'** by Charles T. Kamps, Jr, ('Moves' 36) and 'Airburst; Tactical Nuclear Weapons in "Fulda Gap" ' by Matthew Foster ('Moves' 40). As 'Moves' has a small circulation in Britain (about 750) and as both articles contained valuable data for rounding-out **'Fulda Gap'**, I asked Redmond Simonsen — editor of 'Moves' — for permission to use this material in an article of my own in order to bring it to the notice of a wider British readership. This permission was granted speedily and unreservedly and I would like to express my indebtedness to Redmond Simonsen and to the two authors.

What's New?

In this article (or rather, paraphrase) I intend to discuss Charles Kamps' suggestions for altering Untried Unit (UTU) ratings, especially as they relate to variations in the Warsaw Pact forces, and Matthew Foster's sensible amendments to the nuclear rules, followed by his suggested rules for simulation of the Enhanced Radiation Weapon (ERW) — "neutron bomb" in popular speech. There will also be a brief description of an actual game of **"Fulda Gap'** played using Kamps' UTU table and Foster's ERW rules, exactly as suggested by the authors. I also intend to discuss a variable air supremacy table that I have produced to reflect a more likely air war balance.

The UTU table

Charles Kamps is an officer of the United States Army, with recent experience of service in Germany to his credit. The table suggested by him is, he says, based on his own observations and my guess is that he has been an intelligence officer at a divisional or corps HQ. No, these duties do not usually include visits to the opposition in the guise of a small oaktree; rather do they involve sitting in an office studying information from a variety of sources and then distilling it for the benefit of one's own formation commander. Nor is this a cynical assessment; I have been an intelligence officer myself, during the Borneo war, and very interesting it was too.

Enough digressing — what of the table?

Rating	*NATO*	*Warsaw Pact*
B	British (D)	
C	W German regulars (E)	
D		Soviet forces (less 50th Div) (G)
E	US (F)	
F	French 1st Div (G)	
G		Poles (G)
H		E German (G)
J	Belgians (H) W German HSK (E) (Home Guard)	
K	Remaining French forces (G)	
L		Soviet 50th Div (G)

'Standard' UTU ratings shown in brackets

This gives the British brigade and the Bundeswehr a marked lift and a lesser one to the US forces and the French Ist Division. The Belgians and the rest of the French go down, the latter quite considerably, and the German HSK are now rated well below the regular forces (regular in the sense of being full-time, that is). Soviet units not only go up three levels but also top the Americans: the Poles remain unchanged and the East Germans drop one, but both now come well behind the Soviet forces.

From using this table in play my own opinion is that it tilts the balance markedly in favour of the Warsaw Pact (WP). Although the British and Bundeswehr, reliable enough on the 'standard' table, become tougher than ever, this affects only one brigade and three divisions, less than a third of the total NATO force. The Soviet forces on the other hand total ten divisions, increasing to twelve (not counting the weaker airborne division) in the basic order of battle and twelve increasing to fourteen if the Soviet Main Effort reinforcements are added, even consigning the deplorable 50th Division to the discard pile they form over two-thirds of the WP force. A 'D' rating gives a slightly better than 20% chance of doubled CF and slightly better than 40% of achieving normal level, i.e. no step-loss; there is now only a 35% chance of step-loss, compared with a 51% chance on the Soviets' original 'G' rating. As a result the Soviet divisions become very reliable, a division at full strength being the 'norm' and a good proportion of those divisions having the added bonus of at least one doubled regiment. This combination of numerical superiority and reliability lends considerable extra clout to the steamroller, especially that part of it consisting of motor rifle divisions, hitherto of dubious value as assault formations. And when this clout is applied to that part of the front held by US or French units there is a very good chance of a WP walkover, particularly in the Tripwire scenario. The Commentary in the game rules says, "If the Soviets really are as good as NATO, then NATO will lose," and Kamps, taken undiluted, comes near to this.

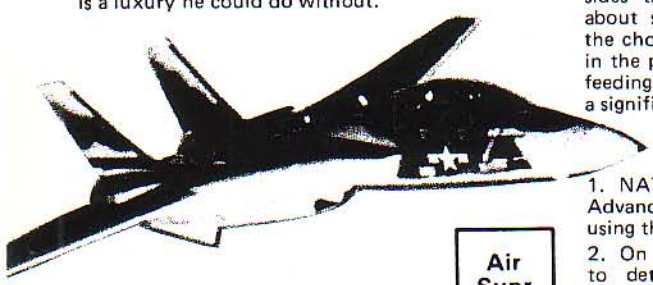
Nevertheless the Kamps revised UTU table provides not only food for thought but also a yardstick for a less drastic reappraisal. To rate the Poles and East Germans below the Soviet forces is very realistic; while both Poles and Germans have proved themselves to be valiant and hardy in war for a national cause their enthusiasm for going into battle on the tail of Ivan's greatcoat is likely to be less than 100% — and the Poles will be invited to fight old allies, the Germans their own countrymen. A lower rating, even a distinctly lower rating, is not to be taken to reflect low military worth but rather lack of reliability as Russia's allies. The upshot is to make the WP player chary of using the WP allies in crucial attacks and to prefer to employ them in a defensive or follow-up role; in addition he will take good care to ensure that the Polish and East German divisions are spread amongst Soviet ones and not grouped as national forces — which is what Soviet doctrine is likely to be.

It is realistic too that the West German HSK should not be at the same level as the active Bundeswehr — the quality of the men as individuals will be much the same but unit cohesion and standards of training will not, especially at the outset of hostil-

ities. In assigning HSK units to guard key points or to block isolated Soviet thrusts along east-west routes the NATO player will be taking something of a gamble, which is as it should be.

The French? Perhaps Charles Kamps is rather hard on them but the fact remains that many French officers (who are a pretty professional body of men) say openly – and that to a visiting Brit – that their army is of variable quality. "The Legion, the Paras and some of the Coloniales, yes – but the Metropolitans ...." has been said, almost word for word, to me more than once. All the same, while the French Army of 1940 proved to be a shadow of that of 1914 yet I think that the French Army of 1979 is not that of 1940; I consider that 4, 7 and 8 Divs should be pulled up to somewhere nearer 1st – say H as opposed to F.

My own advice on modifying the UTU is to keep NATO much as they are while pulling the Soviets up a little and letting the Poles and East Germans drop: there is no reason why adjustment for NATO need not be made on a different sliding scale from that of WP forces. Try pulling the Soviet divisions up to F, level with the Americans on the 'Standard' table, while dropping the Poles to H and the East Germans to J. The HSK should drop too – say to H or, if you consider that too great a differential from the regular army, to G. As for the French, try raising the 1st Division to F and either keeping the remainder at G or dropping them to H. The effect of all these shifts will be to make the WP allies a less-reliable element of the Soviet-controlled force and to put a question-mark against the HSK long-stops and the French hastening to shore up the NATO line; factors which will give both players cause to think about whom they allocate to what tasks and where. The WP player is likely to find the shoe pinch that bit more as he needs every division he can lay hands on as either a spearhead or a reliable reserve, and the presence of doubtful units is a luxury he could do without.



Air Supr

A Variable Air Supremacy Table

The Air Supremacy Table in **'Fulda Gap'** is an abstract rendering of the struggle for the air above the battlefields, he who gains a sufficient degree of air supremacy being able to penetrate to the battle and bring on air units to support the ground forces or to make nuclear strikes. Each side can secretly allocate up to six Air Supremacy Points (ASP) per turn, at a cost in Victory Points (VP), the player who exceeds the other being able to throw the dice in the hope of then being able to move a counter along the Air Supremacy track until at last he reaches the point where he can place air units on the map.

Unfortunately, as I remarked in my review of the game in 'Phoenix' 13, the system advocated in the game is rather simplistic; the basic system allows both sides an infinite number of ASP, allowing each player to allocate six per turn as long as he reckons that he can stand the loss of VPs and therefore tending to stalemate. The rules do give an alternative whereby both sides have a finite number of ASP but suggests that this is done by giving the Soviet player X points and the NATO player 2X; quite apart from the fact that there may be some difficulty in deciding on just what X will be, the Soviet player may feel that this scheme is just a little weighted in favour of his opponent! Having since played **'The Next War'**, in which a separate game-phase features the struggle for the air, using actual air units and giving one a much better insight into SPI's thinking and rationale, I offer a variable air table for **'Fulda Gap'** which is simple to apply, reflects the balance between Soviet quantity and NATO quality, and still brings some element of chance into the air battle.

As you can see, the table is very simple, each side rolling at the start of Turn 1 to determine how much airpower the ground commanders can expect to be allocated to that sector of the front. The higher the roll the more squadrons are deemed to be assigned; at each level NATO have the edge, reflecting better pilot training, better avionics and a higher sortie-rate per squadron. Before someone says "Well, what about the 6-roll then?", remember that only the Soviet player may allocate ASP on Turn 1 and must therefore spread his butter on a bigger slice of bread. The effect is to make both sides think more about allocation of ASP and about second-guessing the enemy and also offers the choice of trying to seize supremacy by flinging in the points or of denying it to one's opponent by feeding in just enough to prevent him from having a significant excess on any turn.

Suggested variants are:-

1. NATO add 1 to the die-roll when using the Advance Warning scenario; the Warsaw Pact when using the Main Effort option.

2. On Turn 5 both sides throw two Average dice to determine air reinforcements available; the figure obtained is the number of extra ASP to be added to the original figure. However no more than 6 ASP may be used per turn even if this means that there will be some left over at the game's end. (To use normal dice tends to yield ridiculously lavish figures when two are used, peanuts when one is used).

3. Instead of rolling dice each player picks a numbered chit (1-6 series) from a cup, keeps his draw secret and retains the chit. The air battle goes on as normal and in Turn 3 or 4 both sides reveal their draw – pilots' reports and Intelligence having yielded an indication of what is on the other side of the hill. Use two sets of chits; most of you should have two or three sets kicking around as several games include them in the counter-mix as an alternative to the die.

There, then, is my suggested ASP table. It's use, combined with Variant 1 helps to reflect the balance of NATO quality against Soviet quantity and introduces those factors of uncertainty and " what's he up to?" which spice a wargame. It is not the last word – I am no air warrior and, as anyone who has played against me can testify, I am no mathematician either – and if any reader can improve on my efforts I, for one, will be most grateful.

'FULDA GAP' VARIABLE AIR TABLE

	ASP ALLOCATION	
Die-Roll	*NATO*	*Soviet*
1	24	18
2	27	21
3	30	24
4	33	27
5	33	30
6	36	36
7	42	40

Use of Nuclear Weapons

The present nuclear rules not only place no restrictions or penalties on the use of nuclear weapons but they also seem to assume that when the rules are invoked both sides will start blasting away at each other; this is the interpretation I put on the remarks about pre-plotting in Rules 24.5 and 25.3, both of which refer to the use of nuclears on Turn 1 and the necessary planning for this. A more realistic postulation is, in my opinion, that both sides would hold this card in reserve and would be unwilling to play it except in case of absolute necessity. The Soviet attitude is not easy to assess, one school of NATO thought holding that if they are prepared to use gas they are prepared to use tactical nuclear weapons as a matter of course, while another believes that the Soviets have confidence in the battle-winning power of their massed armoured formations. NATO is very likely to avoid the early use of nuclears but would be prepared to use them, after giving due warning to Russia, if the Soviet advance was succeeding and likely to continue to succeed.

I will come back to this aspect soon enough; now for Matthew Foster's views. He makes the very sensible point that there should be a factor which deters a trigger-happy player from using all the warheads he can on every turn he can. This factor is the simple real-life fact that even a low-yield tactical nuclear weapon is destructive, its chief agents being searing heat and a Pentecostal blast to produce concentric devastation, destruction and then severe damage within the radius of effect of its warhead. Thus a nuclear-prone attacker captures rubble, a nuclear-prone defender holds rubble: if that rubble was formerly Frankfurt or Wurzburg or some other industrial or communications centre the winner will have sawn off his own toes. The simulation; he who uses nuclear weapons loses Victory Points (i.e. his opponent gains them) on the scale of X per warhead used. Matthew Foster's suggested X is:

2 VP per warhead used in an Urban hex
1 " " " " " a City hex
½ " " " " " any other hex (drop fractions after totalling losses)

My view is this is a first-rate idea but that it could be taken further: I suggest that cost in VP is *trebled* to 6, 3 and 1½. Consider. On Foster's scale one nukes a unit in a city hex, using four warheads to make fairly sure of a damaging hit. The cost in VP is 4 *but* if the target unit is destroyed the attacker is likely to pick up between 10 and 16 VP, even if the unit's value is not doubled due to its being destroyed without a line of communications: net gain, 6 to 12 VP. The Foster scale is too low in comparison to the VP scale of the game; make the user pay much more for his fireworks – if he destroys Wurzburg in order to save it he should be made to realise something of the consequences of such an attitude. This should deter even the player who carries on in a way which makes one thankful he isn't a real-life commander or the type who plays the game-system for all it's worth and **** military reality. Another suggestion of mine, borrowed from **'Next War'** is a one-time additional loss of VP levied on the player who first resorts to nuclear weapons – say 30 VP.

Foster also points out that the use of nuclears will be a 'political' decision and offers a suggestion for the simulation of the willingness or otherwise of the politicals. Quite simple: prior to Turn 1 roll *one* die – this roll affects both players. On a roll of 1, nuclears are available from Turn 1, on 2-3 from Turn 2, on 3-5 from Turn 3, on 6 from Turn 4. Foster assumes that both sides will then start nuking away, but I cannot agree; the weapons are *available*, yes, but that doesn't necessarily mean that they have to be used.

Which brings me back to what I said at the beginning of this section. The basic nuclear rules appear to assume an immediate and bipartisan resort to nuclear weapons on Turn 1, both players being allowed to pre-plot allocation of warheads. But how can this pre-plotting be tailored to fit a situation wherein one or both players are determined to avoid the use of the horrid things save *in extremis* or in retaliation to a strike by the other side: bear in mind that, under Rule 19.0 – Procedure, "warheads not used during plotted game-turns are automatically expended." The solution adopted by me seems to be both simple and justi-

fiable — scrap the necessity to pre-plot while keeping to the restriction on quantity and types of warheads laid down in the appropriate scenario rules. After all, why should plotting the use of X quantity of warheads for a turn mean that X is automatically expended? If a company commander on active service says in his orders for a particular operation that the scale of ammunition will be X belts per GPMG, Y magazines of 20 rounds per SLR, Z magazines of 30 rounds per SMG and ZZ grenades per section. that does not entail the expenditure of these munitions; if the company returns from the operation not having fired a shot (A very frequent occurence in internal security and counter-insurgency operations, I assure you) then X, Y, Z and ZZ are returned to the ammunition compound. The same for the bigger bangs, surely?

As a matter of interest **'Next War'** does not require expenditure of nuclears plotted and not used, although it does have a pre-plotting rule. However in 'Moves' 42, page 14, Stephen Donaldson writing on **NW** — which he did much to develop — admits that pre-plotting is a 'dead letter' as both sides will, once the game goes nuclear, allocate the maximum warheads available to them as they are able to keep those not used. The extension of this to **Fulda Gap** seems sensible.

Enhanced Radiation Weapons

A nuclear warhead is a destructive weapon, its characteristics being heat, blast and radiation; there can also be fall-out. The searing heat produced by the fire-ball will set buildings on fire, explode exposed ammunition and inflict fatal burns on exposed human beings: the tremendous blast follows seconds after the heat, a great, thrusting wind that races first outwards and then back as air pours into the vacuum created by the explosion — it is often this second blast that pushes tottering structures into collapse: the radiation, over in a split second, consists chiefly of gamma rays which are fatal to exposed human beings if absorbed in sufficient quantity. Fall-out is produced when the fire-ball touches the ground and sucks dust and debris up into itself; this dust and debris, now radio-active, drifts downwind for miles, settling as it goes. The bigger the warhead and the lower the point of burst above Ground Zero (GZ) the more likely the fireball is to touch.

And of all these effects the two most potent and immediate are heat and blast: the least potent is radiation, dug-in troops and troops in armoured vehicles being unlikely to receive serious, let alone fatal, doses even at surprisingly close ranges to GZ. This means that to achieve a knock-out blow in a given area your warhead has to have marked heat and blast effects, effects which will destroy or seriously damage *everything* within their radius of effect, not merely military targets.

As a result much thought has gone into low yield warheads, certainly as low as 1 kiloton (KT) — the Hiroshima bomb was 20 KT — and possibly lower still; these low-yield weapons are still very destructive within their effective radius, even though that radius is much less. In addition just as much thought has gone into low yield weapons designed for a particular task. which brings us to the Enhanced Radiation Weapon, better known as the Neutron Bomb. The target: formations of armoured fighting vehicles massed for the breakthrough or for the follow-up after that breakthrough. The problem: find a warhead which will knock out these formations without devastating thousands upon thousands of square yards of territory, certainly on one's own side of the Iron Curtain, probably that of West Germany. A 20 KT weapon will probably knock out a massed tank division but it will also obliterate much else besides and, if exploded at a height suitable for mass destruction of the division, produce fall-out. A 5 KT weapon will be much less destructive but may well not deliver a knock-out blow, especially as an armoured vehicle gives considerable protection from its radiation. A cluster of exactly-placed 1 KT weapons might be the best choice, but is simply not feasible.

The ERW is a warhead which, in proportion to its size, produces little heat and blast (about 17% of that of 'conventional' nuclear weapons of the same KT value, according to Matthew) but *intense* neutron-radiation over a well-defined area; it is this last that is the killer. The neutron flux lasts an infinitesimally small fraction of a second and is quickly stopped by nitrogen nuclei in the air: that of a 1KT ERW will start to decline steeply at one mile from GZ and will be ineffective at 1½ miles. But effective neutron radiation is *not* stopped by armour — 70% passes through and the 30% held in the armour turns it radio-active, causing it to emit gamma rays. Armoured vehicles exposed to the neutron-flux become contaminated and stay contaminated for a considerable time. Physical destruction, on the other hand, is much less and is confined within a limited area: a diagram in 'The United States War Machine' indicates severe damage up to 400 yards, some damage up to 800 and thereafter nothing.

This makes the ERW a potent weapon against, say, a tank division deployed for a breakthrough and Matthew Foster has devised an ingenious set of rules to simulate its use. He stated that "these changes are strongly based on fact and doctrine" and let us take him at his word: presumably, like Charles Kamps, he has inside knowledge of his subject. Certainly the ERW rules he offers seem to be soundly enough based on the ERW's supposed characteristics. As a matter of interest the ERW rules incorporated in **'Mech War 2'** indicate radii of damage and of radiation similar to those which I have outlined above.

What I have done is to take Foster's rather 'chatty' and discursive presentation of his rules and rephrase them in SPI style. He fails to state whether resolution of attacks and contamination (which affects *units)* is by individual units or by the hex; taking Rule 19.2 as a precedent I have deemed that each unit in the target hex is rolled for separately. The restriction on use of ERW is Foster's: the optional rule whereby the NATO player rolls for authorisation to use ERW, the die roll being affected by the level of Warsaw Pact success, is my own. It was devised to make the ERW a chancier option for the NATO player, having regard to its effects on play. In addition (the fault is mine) I should have made it clear that the penalty of loss of VP per warhead used does not apply to the use of ERW and that the rules for authorisation are quite independent of the 'political' die-roll for other nuclear weapons. Now read on!

Clear the Track: Let the Bulgine Run

A game was played using Charles Kamps' UTU table and Matthew Foster's ERW rules; the scenario used was the Tripwire and the Soviet player was allocated no extra units. It went as follows:-

Turn 1. Nothing unusual in this turn; apart from the attacks on the brigade of 2 (GER) Division near Gottingen and on the 11th (US) Armoured Cavalry at Fulda (both of which were successful) there was no contact between the opposing forces.

Turn 2. Despite some delay caused by the 11th Armoured Cavalry the Warsaw Pact advance was progressing famously. Contact had been made with NATO forces east of Giessen, in the central area and at Wurzburg, and the improved Soviet UTU table had proved to be just what the (Soviet) doctor had ordered; most units were at normal CF, with several Doubled results — one entire tank division had double CF. The NATO line was holding well at Giessen, where no major offensive had yet developed, but in the central area it was a very different story. Here the Americans had shown up badly, the 3rd Armoured and (incomplete) 8th Mechanised Divisions having been hit hard and bounced out of their positions, leaving the crossroads at Hex 3222 — about 30 miles east of Frankfurt — in Soviet control. Worse, the two divisions were in no shape to withstand a further assault, judged on their showing, and a Soviet breakthrough to Frankfurt by Day 3 of the war seemed likely. As one of the objects of this game was to test the ERW rules in action it was agreed that the use of ERW would be brought forward to Turn 3: it was feared that otherwise there might be few or no US units left to use them!

Turn 3. Maintaining a holding operation on the Wurzburg front, the Warsaw Pact forces closed with the NATO defence along the line Giessen-Aschaffenburg, the main thrust being aimed at Frankfurt. Then came the ERW strike.

KAPOW!!! Oh, my.

3rd and 8th Divisions, backed by the 10th Artillery Group, launched attacks on five Soviet-occupied hexes, their targets the tank divisions. Two strikes had little immediate effect but elsewhere a tank regiment was eliminated and several others lost steps and fell back in disorder. Heavy contamination of most units, even those which had suffered no initial loss, boded ill for the maintenance of the momentum of the assault. Nonetheless the Soviets pressed home their attacks as best they could: in the north the Germans were pushed back to Giessen itself and were pinned all along the front while in the central area those Soviet units still effective were able to drive a salient to Offenbach .... But the contamination proved to be deadly: at the turn's end five tank regiments were gone, mostly as a result of Contamination results on top of step-losses caused by the strike itself; and four tank divisions had lost divisional integrity — four out of six, including an unreliable East German one.

Turns 4 and 5. The Warsaw Pact did its best in the north but the Germans were tough and hard to shift: in the centre there was no question of continuing the assault for the time being — indeed, some of the advanced Soviet units were cut off; at Wurzburg a second, lesser series of ERW strikes nullified the threat to the city. At the end of Turn 5 a NATO counter-offensive in the centre had broken the WP front beyond repair, the Polish reinforcements displaying little stomach for a war always unpopular and now a ghastly fiasco for the Pact — the VP score stood at 291, a decisive victory for NATO. On the evening of D+4 the Soviet commander on the Central Front asked for the armistice, well knowing his position to be hopeless. The rest is still a nine days' wonder .... the popular uprisings in Eastern Europe .... the restorations of the ancient kingdoms of Poland and Bohemia .... the reunification of Germany under the Hohenzollern crown .... and, a fitting climax, that moment a few months after the armistice when the pealing of the bells of St. Basil's Cathedral and the thunder of the guns from the Kremlin told the waiting multitudes in Restoration Square — and the world — that, after sixty-three years, a Romanoff sat once more on the ancient throne of his fathers.....

OK, OK, I'm awake now. Shame really, I was having the most *marvellous* dream.

Summing Up

A revision of the UTU table certainly gives spice to **'Fulda Gap'** though, as I have shown, to adopt Charles Kamps' alternative neat gives the Soviet forces too much of an advantage over the Americans, so much so that, given no *deus ex machina* in the form of ERW, the Tripwire Scenario is all too likely to be a Warsaw Pact romp, the more so as the French reinforcements are mostly poor-quality. However the Kamps table is certainly a basis: there is no need to integrate the relative values of NATO and WP forces but each can be put on a sliding scale of their own, with the Soviet units the equal of the US for a more balanced game. Polish and East German units should then be two to three columns lower than Russian in order to restrict their usefulness to the WP player. On the NATO side the HSK really should come behind the regular forces and some thought can be given to lowering some of the French divisions by one notch.

(27.0) Enhanced Radiation Weapon Rules

GENERAL RULE

Enhanced Radiation Weapons (ERW) are available to the NATO player only and are used by US units only. They are available in two forms, namely Divisional Sticks, supposedly fired by divisional artillerys' 155mm guns, and Artillery Sticks, fired by Corps and Army Lance missile batteries deemed to be included in the artillery units. Each US division has one stick and each US artillery unit has two. A stick may be fired into one (or more) enemy-occupied hex(es), attacking each unit in the target hex(es); effects are possible step-loss and also possible contamination of the unit(s), not the hex, results being rolled for on the standard Nuclear CRT (19.24) and Contamination Table (19.33). ERW have no effect on units, whether enemy or friendly, in hexes adjacent to the target hex. There are certain restrictions on the use of ERW sticks.

CASES

(27.1) *TYPES OF STICKS AND THEIR USE*
There are two types of ERW stick, reflecting the provision of warheads at divisional artillery and corps artillery level. Corps artillery sticks have greater range and effects.

(27.11) *US Divisional Sticks.* Div. artillery is deployed in general support of brigades and thus all US brigades have ERW capacity. At the instant of use of a divisional stick all brigades of that division may each make an ERW attack on one adjacent enemy hex. Divisional sticks are completely expended at the moment of use, whether fired by one brigade or all three. Each attack is resolved on column 3 of Table (19.24); contamination is resolved on column 4 of Table (19.33)

(27.12) *US Corps Artillery Sticks.* Each US artillery unit may attack one enemy-occupied hex which is within its 4-hex range and which is adjacent to any US unit. Artillery have two sticks, to be used in separate game-turns: when an artillery stick is fired that artillery unit may not fire FPF in the same game-turn. Attacks are resolved on column 4 of Table (19.24), contamination on column 5 of Table (19.33).

(27.13) *Use of Sticks.* Divisional sticks are used *defensively* only, i.e. they are fired during the Soviet player-turn, *after* Soviet initial movement but *before* Soviet combat. Artillery units' *first* sticks are also fired defensively, i.e. in the same manner as Divisional sticks; however second sticks may be fired either defensively or in the Nuclear phase of a subsequent turn.

(27.2) *ATTACK PROCEDURE*
(27.21) The NATO player rolls one die for each unit in the target hex, using the appropriate column of Table (19.24). Any step-losses inflicted are applied immediately.

(27.22) Any unit which suffers a step-loss must also be retreated one hex and disrupted. Effects of disruption are as laid down in Case (5.4) except that they continue until the end of the *game-turn.* This rule reflects the chaos caused by an immediately-effective ERW strike.

(27.23) ERW strikes have no effect on units in hexes adjacent to the target hex.

(27.24) As ERW strikes can be made only against enemy units adjacent to friendly (US) units, Electronic Warfare has no effect on their results.

(27.3) *CONTAMINATION*

(27.31) *Resolution.* Whether or not units have suffered step-losses as a result of ERW attack the NATO player rolls one die for each unit in the target hex, using the appropriate column of Table (19.33). This is done immediately after resolution of the ERW attack on that hex and before retreats are implemented. Contamination affects the *units,* not the hex.

(27.32) *Effects of Contamination.* Units in the target hex may suffer contamination levels of 1, 2 or 3. Place the appropriate marker on top of the unit; this marker remains on the unit, even when it moves out of the hex. ERW contamination attacks are resolved at the *end* of the game-turn, during the standard Contamination Removal phase – see Case (17.0) D. Each contaminated unit is rolled for as though attacked by a number of warheads equivalent to the level of contamination and any step-losses are implemented immediately. Contamination has no effect on a unit's ability to move or have combat.

(27.33) *Contamination Removal.* Once contamination attacks have been resolved the level of contamination of a unit automatically goes down 1. Units with a level of 1 have their contamination markers removed.

(27.4) *RESTRICTIONS ON USE OF ERW*
The use of ERW would require special authority, probably that of the President of the United States. They may not be used before Game-Turn 4.

(27.41) *First Strike Rule.* On the first use of ERW *every* US unit which is in a position to make an ERW attack *must* do so; this means every brigade adjacent to enemy units and every artillery unit within range of an enemy-occupied hex adjacent to a US unit. This reflects "shock" doctrine for initial use of the weapon.

(27.42) *Units Not Qualified To Make Attacks.* The 11th Armoured Cavalry, the helicopter unit and the supply units are not divisional units and thus may not make ERW attacks; they may, however, 'spot' for artillery sticks.

(27.5) *OPTIONAL AUTHORISATION RULE*
The prohibition on use of ERW before Turn 4 is a simplification. Players who wish to use a more flexible response, based on the likely assumption that ERW would be authorised only in a deteriorating situation, may prefer to use the following alternative. This alternative makes use of the numbered FEBA Zones stretching across the map from north to south, normally use only in the D+7 scenario.

(27.51) If units of two or more Soviet divisions have penetrated into FEBA Zone 6 (i.e. the easternmost one) the NATO player may, at the beginning of the next game-turn, roll one die to determine whether or not the use of ERW has been authorised; a die-roll of 6 signifies authorisation. If authorisation is not granted he may roll again at the beginning of each subsequent game-turn; if the die-roll is equal to or greater than the number of the westernmost FEBA Zone penetrated by units of two or more Soviet divisions then the use of ERW is authorised, e.g. if elements of two Soviet divisions have penetrated into FEBA Zone 4 then a die-roll of 4, 5 or 6 triggers authorisation.

(27.52) The NATO player adds 1 to the die-roll for each US combat brigade or artillery unit which has been eliminated.

(27.53) Once authorisation to use ERW is granted it does not have to be rolled for again. The NATO player does not have to use ERW in the turn in which authorisation is obtained, but may make his first strike at his discretion, subject to the provisions in Case (27.41)

The normal nuclear rules become much more realistic if the penalty-for-use-of-warheads is added – and I really recommend trebling Matthew Foster's scale. Moreover the rolling of a die to determine availability brings another element of chance to each scenario – and, after all, war is the province of chance.

ERW. Foster says, "(Use) may tip play balance: slightly in NATO's favour." Well, yes. Runaway WP victory into NATO decisive victory *could* be construed as a slight alteration of balance: I myself would rate it a bit more strongly but, not being entirely Anglo-Saxon, I lack phlegm. Seriously, ERWs seem to be a NATO battle-winner unless the NATO player rolls some very bad dice, and their introduction turns a **'Fulda Gap'** session into a simulation to the exclusion of any more game. But it is very well worth trying! I recommend, however, that the Soviet Main Effort forces are added because the WP player is going to need every division he can get, and I recommend too that my own invention, the optional rule for authorisation to use ERW, is used as well to bring in that element of chance. After all, the President might get cold feet and delay until it is too late or nearly too late.

Charles Kamps and Matthew Foster have suggested some interesting spices to enhance an already proven dish and I hope that my little extra stirring has helped too. My thanks to 'Moves' and to RAS for letting me hold the spoon.

Footnote: Since starting to write this article I have read Peter Hatton's letter on (inter alia) the ERW in 'Phoenix' 20 and have noted with interest his remark about 'berserk Russians' with several days' fight in them before the Reaper comes. As he does not give his source for this I am unable to check it; however I do not think that bouts of vomiting and diarrhoea – part of the effects of radiation sickness – would be conducive to berserker activities. Moreover, to fight on the European battlefield in a tank or motor rifle division one must use one's vehicles and I cannot imagine anyone being willing to continue to use a radio-active steel box which will worsen his condition still more or which will turn a nasty dose of rads into a fatal one: moreover the electromagnetic pulse of the explosion would have knocked out the electronic equipment in vehicles within the effective neutron-flux and possibly beyond. Replacement vehicles then? No, Soviet logistics do not cater for re-equipping smashed-up units; these are simply leap-frogged by fresh ones.

Parting Shot: Despite my gamester's evaluation of ERW as a game-mechanic and my little flight of royalist fancy I am only too well aware of what an unpleasant toy the ERW is and I hope that we never have occasion to use it, although I am also aware that its use would be in lieu, not of conventional anti-tank defences, but of much more destructive nuclear weapons. Soldiers, especially if they have studied the enemy, actual or potential, tend to see the man – and fellow-soldier – inside the alien uniform rather more clearly than many a philanthropist, even though travel and experience have given them cause enough to detest the system for which he bears his shield.