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#### **Editorial Lines**

# A View of the Europa Community

Luiz Cláudio Duarte

Afew months ago, Ralph Sunley brought up in the *Europa* Association mailing list a query about the members of that community. The results of this research can be seen in this issue.

The answers showcase the great variety that can be found in the *Europa* community. This is good; homogeneity often means stagnation, and the *Europa* community is by no means stagnated, as is obvious to whomever peruses the mailing lists or the fine articles submitted to this fanzine.

Speaking of which, there is a most welcome addition to *Line of Communications*' roster of authors: John M. Astell, bringing an updated version of an article that ran in *TEM* 86 ("All Calibers Grest and Small") about the calibers of WWII guns. Please heed the copyright notice that accompanies this article and do not copy it elsewhere.

Steve Bristow offers an interesting solitaire replay of the Battle of Bulge scenario for *Second Front* from *TEM* 67.

In the second part of Duncan MacLean's new aircraft counters, we have the counters for *Project Icarus* (form *TEM* 65) and for *Balkan Front*.

Replays

# **Battle of the Bulge**

Steve Bristow

Irecently watched the film "Battle of the Bulge" with Henry Fonda and Robert Shaw, and also saw a programme called "Great battles of World War 2" that covered the Ardennes offensive. Afterwards I remembered that there was a Europa scenario covering this extraordinary battle in *TEM* 67.

I have yet to play a full length *Europa* game from start to finish, mainly because I am a slow solitaire player for the time being fitting in the odd game turn in between full time work and family life. This scenario however gave me a chance to play out this exiting battle while getting some good *Second Front* rules exposure. Previously I have played through one other scenario from the Eastern Front, "The Battle for Kiev" which I was delighted to see appear in *TEM* 70.

Scenarios like this are a great way to learn the key rules for a game and I should like to thank all of you who put so much time into the games and to Luiz for his excellent *Lines of Communications*.

#### December 1 Allied

The scenario starts with the combat reaction phase of this turn as a way of simulating the initial surprise of the German assault.

Having set up both sides and studied the map for a while, my first thought was just how on earth did Hitler ever think that he would reach Antwerp? Model saw Hitler's plan and apparently said "this damn thing doesn't have a leg to stand on!" Von Rundstedt is quoted as having declared "if we had reached the river Meuse we should have got down on our knees and thanked God".

5 Panzer Army seems to have the best initial opportunity for attack and movement. 58 Panzer Corps and 86 Infantry Corps lead the way with an assault into the rough terrain of 1724 which if successful would also see the Liege to Luxembourg road cut and German troops back on Belgian soil. A DR result see tanks from the green 9 Armoured Division pulling back into 1624 keeping the route to the river Meuse blocked. Troops from the 106 Infantry Division pull back into the woods at 1725 along with other miscellaneous units. 116 Panzer Division leads the advance from the West Wall to the edge of the Ardennes.

5 Panzer Army's other main thrust is spearheaded by the 47 Panzer Corps attacking into 1824 which is defended by another brigade of 9 Armoured Division and a regiment of from 28 Infantry Division. The terrain here is more favourable to the defenders being wooded rough. Beyerlein's powerful Panzer Lehr Division supported by 2 Panzer Division lead the attack shattering the American defensive screen with a DE result and Manteuffel orders Von Luttwitz, the corps commander to unleash his tanks into the gap in 1 Army's lines.

Dietrich's 6SS Panzer Army appears to be more constricted in its start line positions, making it difficult to bring its full strength into play during the crucial initial assault. 2SS Panzer Corps is in overstack.

LSSAH Panzer Division leads an attack that sees two regiments of infantry from 106 Infantry Division eliminated by a DH result and the 14 Mechanised Brigade is lost having to retreat through German ZOC. This creates room for a subsequent two hex attack on the American 99 Infantry Division which is blocking the route to Liege.

Finally for this combat reaction phase, 7 Army launches an attack from Trier into Luxembourg. DAS aiding 4 Infantry Division cadre and an Armoured Brigade from 9 Armoured Division means that the cross river attack by 53 Infantry Corps can only manage a 2:1 (-1) and a roll of 2 means an AR result! Considering the impending threat from Patton's 3 Army in the south, this is a dismal start for 7 Army and the left flank of the German offensive. This area may need strengthening by the Germans and stronger support from 11 Jagdkorps if Luxembourg is to be secured

In the exploitation phase, the Americans reel from the shock of the attack. Middleton's 8 Corps has lost three regiments of infantry, two armoured brigades and an anti tank battalion. The scope and objectives of the attack are not yet known, but the immediate effect is to see the abandonment of the assault by the American 1 and 9 Armies from the Aachen area



Three members of an American patrol cross a snow covered Luxembourg field on a scouting mission. White bedsheets camouflage them in the snow (US Army Center for Military History).

towards the Rhur and the 3 Army's attack in the Saar. Henry Fonda says "I told you so," and Hodges tells Middleton to hold his ground while reinforcements are switched to 8 Corps sector.

The only immediately available reserves are 82 and 101 Airborne Divisions refitting at Rheims. As per history, 101 Airborne goes to Bastogne arriving just ahead of 47 Panzer Corps, and 82 Airborne and 705 TD Battalion move into the woods at 1725.

Patton reluctantly sends 10 Armoured Division and 609 AT Battalion to 1925 to maintain a threat to the German left flank, particularly in light of 7 Army's poor start. Simpson sends 7 Armoured Division and 814 AT Battalion from 9 Army into 1624 to block 58 Panzer Corps route to the river Meuse. The British 30 Corps, under Montgomery's orders and realising the importance of not allowing the Germans to cross the river Meuse, sends an armoured brigade from 11 Armoured Division into 1525.

#### December 11 Axis

19 Tactical Air Command supporting 3 Army commits to harassment operations, achieving a level 2 hit on 1923 and 1823 in the hope of making it difficult for Army Group B to reinforce 7 Army and 5 Panzer Army spearheads. 1xP47D25 and 4xMe109G10's are aborted in air combat.

The order of march for 6SS Panzer Army is crucial at this stage. 67 Corps and 1SS Panzer Corps put their infantry divisions into overstack. 911 Assault Gun Brigade and FG Panzer Division add to 67 Corps strength while the Das Reich and 9SS Hohenstauffen Panzer Divisions join the LSSAH SS Panzer Division as 1SS Panzer Corps spearhead. These three elite divisions, together with massive artillery support, move into 1724 to be in position to take on the American forces including 7 Armoured Division in 1624, which are blocking the best route to the river Meuse. The success of this assault will be instrumental in determining the overall success of the offensive. This means that 58 Panzer Corps and 86 Infantry Corps move into 1723 to support 67 Infantry Corps attack against 1623. As this happens 62 Infantry Division and an infantry regiment from 560 Infantry Division go into overstack while the FB and 3 Panzer Grenadier Divisions join 58 Panzer Corps in 1723. Finally this Corps is reinforced by 506 Heavy Panzer Battalion equipped with King Tiger tanks. Technically the 1SS Panzer Corps is now under the command of 5 Panzer Army, which in reality Hitler may have been reluctant to allow despite the fact that this clearly gives the best opportunity for a breakthrough to the river Meuse south of Liege.

47 Panzer Corps with Panzer Lehr and 2 Panzer Division as spearhead, swings north of Bastogne and runs head on into the 82 Airborne.

Despite harassment missions, the left flank of 5 Panzer Army is secured as 3 Parachute and 18 Infantry Divisions supported by 244 Assault Gun Brigade join 26 Infantry Division in 1924. 7 Army units move back into the West Wall at Trier.

The crucial attack goes in....A savage air battle rages overhead as 1SS Panzer Corps slams into 7 Armoured Division. An A26B is destroyed and a B26G is aborted while the Luftwaffe

have an Me109G10 aborted and an NA JU87D is aborted by anti aircraft fire. All of which means that 9 Airforce has got through enough DAS to bring the attacking odds down from 3:1 to 2:1 (0DRM). A roll of 5, wow! A great result for the Germans and a disaster for 8 Corps and 1 Army. The 9SS Hohenstauffen Panzer Division is cadred due to required losses, the Americans lose the 526 Mec Commando Battalion, C Armoured Brigade, 99 Mountain Battalion, 814 Motorised Anti Tank Battalion, 179 Artillery Brigade, 820 and 825 Anti Tank Battalions, 111 Engineer Brigade and, most importantly, 7 Armoured Division is cadred and retreats into 1625 in an attempt to block any German armoured exploitation.

1SS Panzer Corps sends LSSAH and Das Reich Panzer Divisions into the gap at 1624 sending shock waves through SHAEF as Tiger and Panther tanks move up to the banks of the river Meuse.

With SS armour surrounding it from the west, 99 Infantry Division and its supporting units are hit in 1623 by 58 Panzer Corps and 67 Infantry Corps. A huge air battle occurs with Messerschmidts and Focke-Wolf fighters taking on Spitfires and Typhoons. 11 Jagdcorps comes off worse with 2x Fw HF190A and 1x Fw190A8 and 1x Me109K killed, an Fw190 is aborted and 2x Fw190A8's are returned. 2 Tactical British Airforce has 1x Spit16 aborted and 1x A20G20 bomber returned. Fortunately for Dietrich's armour AA fire brings down 1x Msq6-2 aborted and another returned. 1x Msq6-2 gets through to provide DAS while 1x Ju87D adds GS. The odds however remain an impressive 6:1 for the Germans and a roll of 2 means a DR. 801 Anti Tank Battalion, 187 Artillery Regiment and 102 Mech Brigade are all eliminated having to retreat through ZOC. 99 Infantry Division is cadred and retreats into Liege where it goes into overstack. 6SS Panzer Army leaves 67 Infantry Corps in 1622 facing the American 5 and 7 Corps while 58 Panzer Corps leads the charge to the river Meuse at Liege and occupies 1623 with 12HJSS Panzer Division, 116 Panzer Division and 3 Panzergrenadier Division along with heavy artillery support.

47 Panzer Corps hits 82 Airborne and support units in 1725. In the air battle overhead an Fw190A8 is returned, as are 2x B26F attempting to provide DAS. One B26F gets through and the odds are brought down to 1.5:1. Under pressure from Hitler, Manteuffel pushes the Panzer Lehr and 2 Panzer Divisions forward. An AR result sees the panzers reeling back to the edge of the woods. In an attempt to keep up the pressure,7 Army pushes 53 Corps into Luxembourg again against the tanks of 9 Armoured Division, 4 Infantry Division and smaller 8 Corps units. 5 Panzer Army diverts 3 Parachute and 18 and 26 Infantry Divisions to aid the assault from 1924. The skies over Luxembourg see 1x Me110G NHF and 2x B26G killed. 1x B26G gets through to provide DAS while 11 Jagdcorps gets 3x Fw190A's through to support the attack (9 Airforce concentrated on defending its own bombers rather than attacking Luftwaffe bombers). 53 Corps uses massed artillery to lessen the effectiveness of the river Mosel. The odds are 4:1 (-1ACED) and a roll of 6 means DH that sees 8 Corps lose 4 Infantry Division cadre, 803 Motorised Anti Tank Battalion and 802 Anti Tank Battalion. The armoured and artillery brigade that survive retreat into 2025. 7 Army's infantry march into Luxembourg to protect the southern flank of the offensive.

#### **Reaction Phase**

Ninth Army units failed to activate

The main concern for 8 Corps is to reinforce 7 Armoured Division cadre in 1625 which is vunerable to overrun. 82 Airborne obliges. 3 Army also sends 35 Infantry Division and X11 Artillery Brigade into Luxembourg to block any further advance of 7 Army. It is not possible to blow the bridge at Liege and it is decided that Hodges will use some of the forces preparing to attack the Rhur dams to come to the aid of 8 Corps and all available bombers are required. So, 7 Corps hits the German 74 Corps of 15 Army at Duren to squeeze the northern flank of the offensive and also in the hope of forcing the commitment of the panzer reserves at Cologne (9 Panzer and 15 Panzergrenadier Divisions) into the defence of this area, rather than being used in the offensive spearhead. A lone Fw190D climbs to face the five A20 and B26 bombers supporting the attack. It is aborted without scoring any success. However, after calculating the attack odds at 2:1, Hodges decides that a potential AH or AR result is not worth the risk and the attack is called off.

## **Exploitation**

9SS Panzer Division moves up into 1624 to rejoin the spearhead of 1SS Panzer Corps. The tanks of 47 Panzer Corps move up into 1724 and are joined by FB Panzergrenadier Division. Meanwhile hex 1823 is reinforced by a battalion of King Tiger tanks (506) and 15 Panzergrenadier Division, while 9 Panzer Division advances into 1723

#### Dec 11 Allied

Simpson releases the 2 Armoured and 30 Infantry Divisions, two artillery brigades and 747 Tank Battalion from 9 Army, which move to the threatened area of the river Meuse at 1525 in order to support the British position there.

- 8 Corps also moves 10 Armoured and 609 Anti Tank Battalion into 1725 to help try to contain the 1SS Panzer Corps.
  - 35 Infantry and 101 Airborne Divisions both move up to strengthen 1824.
- 3 Army also sends 4 and 6 Armoured Divisions plus supporting units into 1925 and 2025.
  - 1 Army is still not strong enough to try a full scale assault against the SS panzers as yet.

An attack against 7 Army is considered using 4 and 6 Armoured Divisions, however, using maximum possible air support, only a 2:1 attack is possible. It is decided not to rush into a hasty counterattack. Hodges feels that he may now have contained the Germans so he decides to consolidate 1 Army's positions and decides to let the Germans wear themselves down in further New Year attacks before hitting back.

#### **Reaction Phase**

1 Army's defence line along the river Meuse already feels too strong to attack directly, so 1ss Panzer Corps changes direction and joins 47 Panzer Corps in an attack on 10 Armoured

Division in 1725. The odds are 5:1 (-3) with a roll of 2 seeing the attack stopped in its tracks. This is despite Manteuffel throwing in LSSAH, Das Reich, Lehr, 2 and 9SS Panzer Divisions with heavy artillery support. It is clear that the weather and reduced AEC really do make a telling difference to the cutting edge of the German attack. 5 Panzer Army's offensive has perhaps already reached its high tide mark and seems unable to break out into open country. Here it has in effect been stopped by one armoured division dug in with a few supporting units and artillery.

# **Exploitation**

One artillery and two heavy antiaircraft brigades move to strengthen the line held by 82 Airborne Division in 1625 and an engineer brigade moves up from Bastogne to support 10 Armoured in 1725.

#### Jan1 Axis

With the spearheads of the offensive seemingly blunted, Von Rundstedt puts forward the case for the "small solution" to Hitler. This would see an assault on the Allied salient around Aachen and the forces there that are threatening to break into the Cologne plain. At the same time 13 ARP's still available see the return to battle of 5x Me109 fighters 5x Fw190 fighters, 1x Ju87 and 1x Me110. Generalmajor Pelz is ordered to implement Operation Bodenplatte.

The results of Bodenplatte are 3xFw190 and 1xJu88 are eliminated and 3x Me109 and 1x Fw190 are aborted. Allied losses are 1x P61, 1x P47D, 1x B25D and 1x Tyfn eliminated ad 2x P47D, 1x P38, 1x A20, 1x Temp5, 1x Tyfn and 1x A20G aborted. This is dismal as the Luftwaffe will not be able to make good these losses before the end of this scenario so this operation seems to hand the Allies 24 victory points, while only giving the Germans 15. Perhaps the Luftwaffe should have conducted this operation earlier to allow some air units to be repaired, thus not incurring the extra -1 victory point for each unit shot down during the operation that has not been repaired by the end of the game.

Meanwhile, Dietrich wheels 6SS Panzer Army around to hit the American 5 Corps. 1SS Panzer Corps is withdrawn from 1624 and moves into 1623 and 58 Panzer Corps moves into 1622. Hitler agrees that the spearhead of the assault has no chance of crossing the river Meuse and can see from the map that his cherished SS panzers are threatened from four sides and need to be withdrawn before they are attacked and forced to retreat through an enemy ZOC. In reality of course this reasonable course of action would probably have been vetoed by Hitler who would have insisted on a continuation of the attack, but isn't this one of the reasons why we play this fabulous game...to run through the "what ifs" of a battle? 67 Corps forms the reserve for this assault with 9 Panzer and 15 and FG Panzergrenadier Divisions, a battalion of Tiger tanks and two assault gun brigades. 167 Infantry Division moves into the West Wall at 1823. The 410 Artillery Brigade and 741 Assault Gun Battalion go into reserve at 1722. 79 Infantry Division and 9 Den Infantry Division go to 15 Army.

It is now important to destroy as many Allied units as possible to disrupt their plans for an assault into the Rhur rather than to chase a dream in Belgium.

The attack goes in at Verviers, 4:1,-1, the result is an exchange. This is bad for 5 Corps which sees 2 and 78 Infantry Divisions cadred and 5 Infantry Division cadre wiped out along with two artillery brigades and three anti tank battalions destroyed. 6SS Panzer Army loses 9SS Panzer Division cadre, 101 Tiger tank Battalion and a rocket artillery brigade. 5 Corps retreating elements go into overstack across the river Meuse at 1423. The cream of the German armour, LSSAH, Das Reich and HitlerJugend Panzer Divisions move into 1523, outflanking the American 7 Corps to the west. Units including 2SS Panzer Corps HQ that were in overstack in 1623 remain there to defend the flank of the attack (this includes 277 and 12 Infantry Divisions). 1SS Panzer Corps has put its head into the lions mouth in an attempt to encircle the 7 Corps at Aachen and to recapture the city. This would be a major psychological blow to the Allies, it would help to secure the route into the Cologne plain and possible allow some panzer formations to be transferred to the Eastern Front in time to meet the coming Soviet offensive.

#### **Reaction Phase**

A success roll of 6 means that the Allied 9 Army can attack and this is bad news for the SS tank men.

1 and 9 Army launch an assault against 1SS Panzer Corps at Verviers from Liege, 16 Corps from 1423, 19 Corps from 1422 and 7 Corps from Aachen. Massive air support flies overhead and a P47D is lost. However the Luftwaffe loses 2x Fw190 fighters and a Me109 is aborted. This air support sees the odds come in at 3:1 -2. A roll of 4 means an EX! This is the end for Sepp Dietrich's 6SS Panzer Army and spells doom for Army Group B as a whole. Dietrich fumes and blames everyone but himself while Von Rundstedt has long since prepared himself for such news. Two artillery brigades are destroyed while LSSAH, Das Reich and HitlerJugend Panzer Divisions are reduced to cadre initially then subsequently destroyed having to retreat through enemy ZOC. Hitler stares wide eyed as his staff officers remove 1SS Panzer Corps from the situation map. He takes comfort only in the high price he feels the Allies have paid for their victory. The 9 Infantry Division is wiped out while 83 Infantry Division is cadred. 5 Armoured Division cadre is also lost as are other miscellaneous units including five artillery brigades, three tank battalions, two anti tank battalions, one heavy anti aircraft brigade and three combat engineer brigades. The butchers yard that is Verviers causes both sides to pause and hold their breath while 3 Armoured Division and 1 Infantry Division wearily move up to occupy the town.

# **Exploitation**

Exploitation sees 15 Panzergrenadier Division move up to reinforce 58 Panzer Corps at 1622 and 9 Panzer Division is transferred to 15 Army's sector which up until now has been left dangerously weak.

These are of course defensive measures in expectation of further Allied attacks as it is now clear to everyone except for the most deluded that the offensive must now be called off at the end of Jan1 Axis Turn.

Here at this point I had to pack up this game, which in effect was over as far as the German offensive was concerned. Here however are some general thoughts and observations......

- 1. Although the Allied casualties appear horrific they can of course be quickly made good. In real life however such high losses sustained during an unforeseen enemy offensive may have had serious political repercussions, perhaps seeing the removal of Middleton or Hodges or even Bradley with Montgomery becoming even more self assured and Eisenhower more inclined to listen to his advice despite Arnhem still being fresh in his mind.
- 2. Patton's 3 Army's performance here was lacklustre but the full weight of his army was not committed to this battle. Simpson's 9 Army took on the heavier fighting, helping to block the route to the river Meuse and finally blunting the attack of 6SS Panzer Army.
- 3. The Allied losses, particularly in non divisional units could be made up very quickly from overstacks and reinforcements, not forgetting the impending arrival of 11 Armoured, 17 Airborne and 75 Infantry Divisions. The Germans however cannot make good their losses which are permanent. The cream of the panzer troops has been lost and with 3 Army not fully committed it remains strong enough to repel the impending Nordwind offensive with impunity. Hitler would have no doubt insisted on seeing this attack through and I doubt whether the Germans would have fared any better here than Himmler did in real life.
- 4. Operation Bodenplatte seemed like a waste of time as would any attempt by the Luftwaffe to regain air superiority in the West at this stage of the war. Using paratroops as anything else but elite infantry is pointless as Allied air superiority is overwhelming.
- 5. I suspect that I may have misunderstood some of the rules around reaction and movement restrictions for the Allies and I think I gave more thought to the German moves than to the Allied. I think though that this made little difference overall. I hope that my general ignorance and newness to Second Front rules does not impair the overall feel of the scenario.
- 6. Advancing into the wooded terrain around Bastogne served no strategic purpose for the Germans, who need to be going all out in only one direction, Antwerp. A strategic victory was after all what was required and nothing else would do for Hitler at this stage of the war. Hitler had always instructed his commanders to avoid Liege and to cross the Meuse to the south of this city which I think caused them to go off course. However this game showed me just how strongly Liege could be fortified making direct cross river attacks here seemingly impossible, so maybe he had a point here.
- 7. The best that Von Rundstedt could do here was to try and destroy as many Allied

- units as possible while then having to leave his troops somewhat exposed to Allied counterblows. Ultimately such a trade off serves the Allied cause much better than the Germans. Such heavy losses to Army Group B meant that the transfer of the 6SS Panzer Army to the Eastern Front was not possible and the best that Guderian could hope for here was probably reinforcement by a single panzer corps which would not have been nearly enough to stop the Soviets in Poland or to relieve Budapest.
- 8. In reality as the Allied commander I could have happily let the Germans reoccupy most of the Ardennes east of the river Meuse as long as the Rheims-Brussels road remained secure. This would have provided the Allied armies with many more tactical opportunities for destroying Army Group B, particularly if I used the Allied airforce more aggressively. There was little to be gained for the Germans in the Ardennes itself. Politically however this type of backhand stroke would have been no more acceptable to Eisenhower in 1944 than it had been to Hitler on the Eastern Front in late 1943.
- 9. There was really little room in which the Germans could move their still formidable panzer divisions. There were just too many piled up in one small area. An inability to break out of the Ardennes meant that these divisions could not be effectively employed and were consequently underused as I think was historically the case with long armoured traffic jams clogging up narrow woodland roads.
- 10. In this scenario the Germans are not saddled with the political or military constraints that in reality would have been imposed by Hitler. For him this attack was "all or nothing" and the small solution was not an option. It is most likely that he would have seen the 6SS Panzer Army bled to death on the banks of the river Meuse pressing forward with futile attacks. In the end however the overall result was not that much different with the SS panzers dying in a defensive battle rather than an offensive one. Looking again at the map it seems that the best line of attack would have been to assault the American 7 Corps and to pinch out the Aachen salient as Model had proposed when trying to talk Hitler out of the Antwerp objective.
- 11.I found the on air demand system better than the old one as it gives a more immediate and responsive form of play
- 12. Finally, it took me several weeks (believe it or not .....life, work, kids etc) to play this through in 2003 and years to finally type up my notes so I hope it has come out as a coherent piece of work. Finally, I want all of you out there who work so hard on developing *Europa* games to know that most of all, I had FUN. I enjoyed musing over the possibilities for the Germans and the potential Allied reactions. I would like to say a big thank you to all of you who put so much effort into keeping this terrific gaming concept and its community alive.

#### Hard Data

# The Calibers of War

John M. Astell

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Note: This is a much revised and expanded version of an article that ran in *The Europa Magazine* a few years ago

If you are familiar with modern military weapons you know that the metric system dominates, with almost all weapon calibers being measured in millimeters or centimeters. That wasn't quite the case in World War 2. While metric measures were widely used, including for some US and British weapons, two other systems were in use. For many weapons, the US and the British Empire (Britain, its colonies, and the British Commonwealth dominions) used a measure derived from traditional English units: the inch. (In WW2, US customary and British Imperial units actually differed slightly due to separate US and British measurement reforms in the 19th Century, but for inches the difference was trivial.) The British Empire also used "pounder", based on the weight of the shell a gun could fire, for some weapons.

Histories of the war typically use the measurement in official use for a weapon, such as Soviet 76.2mm tank guns, US 3-inch AA guns, and British 17-pounder antitank guns. It's certainly not obvious that these three weapons all have the same caliber! For another example, how does the 25-pounder, backbone of British divisional artillery, compare to US or German divisional artillery, which was a mix of 105mm and 155mm tubes? The 25-pounder's caliber was 87.6mm and delivered less HE per round than the 105s/155s, which helps explain why a British division had 72 of them versus 48 tubes (36 105s and 12 155s) in a US division.

The table in this article lists the calibers of many WW2 weapons, ranging from 6.5mm rifles and machineguns to 800-914.4mm monster guns and mortars.

Caliber is a key measure of the size and effectiveness of a gun. Even without knowing the examples from the historical accounts, you could guess that an 88mm antitank gun packed a bigger punch than a 37mm one. Of course, many other factors also help determine gun effectiveness, like rate of fire, accuracy, round characteristics, crew training, firing technique, and manufacturing quality (of the tube, the mounting, the optics, the rounds, etc.). For this article, however, these other considerations are ignored.

"Caliber" traditionally means the measure of the inner width (diameter) of a weapon's barrel. Spigot mortars, however, were different, since the mortar round fitted over the spigot, so the rounds' calibers were larger than the mortars' calibers. Some countries would designate the caliber of a spigot mortar based on the spigot while others on the size of the outer round, so care must be taken with these weapons!

For rocket calibers, I use the size (diameter) of the rocket's warhead, rather than the caliber of rocket launcher tube, since many rocket launchers did not use barrels or tubes. For

example, large German rockets were launched from crates in 1941, while many Soviet rocket launchers used rails.

WW2 countries that measured caliber using metric measurements often based their weapon designations on caliber. Confusingly, caliber could be rounded off or renamed in the designations. For example, a "28cm" gun could have a caliber of 283mm. The Japanese 8cm AA gun was actually 76.2mm.

The British Empire was one of the last places to use the traditional system of designating weapons by the weight of their shell in pounds: the "pounders." ("Pdr" is the abbreviation for "pounder" while "lb" is the abbreviation for pounds, the unit of mass.) The 17-pdr antitank gun fired a 17-lb shell. Actual shell weight varied depending upon the type of shell used. APC and APBC shells for the 17-pdr were 17 lbs, while the AP shell was about 16.7 lbs and APDS shells ranged from about 7.5 to 8 lbs.

While "pounder" can look odd and outdated, it does convey some information. For example, a British 17-pdr antitank gun and a US 3-inch antitank gun were both 76.2mm, but the US gun fired a 15-lb shell. It is not surprising, therefore, that despite equal calibers the British 17-pdr had better armor penetration than the US gun.

The pounders were my original motivation for creating this caliber list. I was often forgetting the mm calibers of the 2-pdr, 6-pdr, and 17-pdr, and it was quicker to look them up in a special list than to go to a reference book. Over time the list grew to include the caliber of many WWII artillery and other weapons. Where possible, the actual calibers of weapons are used instead of the nominal calibers based on weapon designations, but I would not be surprised if there are some rounded off calibers in the table.

The list reflects my main interests: WWII-era ground and aircraft weapon calibers used in the greater European theater. I've included calibers of many naval weapons from all theaters and weapons in general from the Asia-Pacific theaters, but these may not be as comprehensive. I've tried to include calibers of weapons that were actually in service somewhere in the war, which thus excludes many experimental or prototype weapons. I've mostly ignored weapons that were no longer in service by 1936-39 and were not brought out of retirement when the war started, but some may be on the list. I likely missed some WWI-era calibers that were still available in WWII but were not in general use or were in non-belligerent inventories.

I have tried to include older weapons that were issued for home defense purposes but did not see action, as these would have been used if the home defense forces had been attacked. I believe the British 3-pdr antitank gun is in this category. However, there were many old, obsolete weapons that were in storehouses, and sometimes they were even used during the war. Some dated back to the 1870s, such as old Tsarist-era Model 1877 guns issued to some Red Army units during the emergency of 1941. Allegedly, some neutral countries had fortress artillery dating back to the 1850s still on hand, but whether these guns could actually have been used in WWII conditions is unknown! I've ignored these really old weapons.

I haven't restricted the listings just to the combatants in the war, but on the other hand I haven't made much effort to list all the older weapons still in the inventories of countries like Turkey or Paraguay.

Machinegun calibers later made the listing because of aircraft armament. So, I then took the next step and included many submachinegun and rifle calibers, too. The listing does **not** track the calibers of military pistols, however (although many of these will be the same caliber as rifles or SMGs).

As you go through the list, you'll notice the great variety of calibers. From 80 to 85mm alone there's 80, 81, 81.3, 81.4, 82, 83.5, 83.8, 84, and 85! Despite this diversity, some "magic numbers" appear, like the 3-inch/76.2mm caliber that was used for many weapons. Just look at all the weapons listed for 76.2mm.

Less obvious are some semi-magic numbers, such as the maximum calibers of weapons allowed for warships by the interwar Washington Naval Treaty. For example, capital ships were limited to a maximum gun size of 16 inches (406.4mm). Japanese guns designated at smaller calibers than they actually were, to appear to be in compliance with the treaty, are listed at their real calibers. (Germany also mislabeled the calibers of some of its naval guns, although it wasn't a signatory of the naval treaty as it was already limited by the Versailles Treaty. These guns, too, are listed in their correct calibers.)

I wouldn't be surprised if there are some errors in the table, so use it for your own interest but don't base anything important solely on this data! I suspect that occasionally the number to the right of the decimal place is incorrect for some mm calibers. For example, a number of weapons were called "150mm" or "15cm" but had actual calibers of 149.1mm, 149.2mm, 149.3mm, 149.7mm, and 150mm! Many sources often don't distinguish calibers to this detail, and some get them wrong. Some of these errors may be repeated here.

Abbreviations used in the table are explained at the end of the list.

#### Caliber Listings

Metric	Inches	Pounder	Notes and Examples
( <i>mm</i> ) 6.5	(in)	(pdr)	
6.5	0.256	,	Rfl: It 6.5mm Rfls (M91, M38 rebarreled from 7.35mm)
	(".25")		Jpn 6.5mm Rfls (Types 38, 44, 97)
			Svt Fedorov "Avtomat" auto-rifle (few)
			MG: It 6.5mm MGs (Breda 24, 30, 42)
			Jpn 6.5mm MGs (Types 3, 11, 91, 96)
			TkG: Jpn 6.5mm MG (Type 94 Tankette)
	0.076		Other: Jpn Type 2 RflGL (adapted Type 38 Rfl; grenade "çaliber" > 6.5mm)  MG: Fr 7min Hotchkiss M1924 (used by various countries)
7.35	0.276		MG: Fr 7mm Hotchkiss M1924 (used by various countries)
7.5	0.295		Rfl: Fr 7.5mm Rfls (MAS M1936, Berthier M1907/15 M34)
			Swiss K31 Rfl
			MG: Fr 7.5mm MGs (FM 24/29 "Chatellerault", MAC M1931 "Reibel", MAC M1934 a/c
			MG)
			TkG: Fr MAC M1931 "Reibel" (AMR 33, many AMR 35)

7.62	1.3	Rfl:	Svt Rfls (Rfl M1891 or "Mosin", Carbine M1907, Rfl M1891/30 or "Mosin", semiauto
7.02	1.5	KII.	AVS-36, Carbine M1938, semiauto SVT-38, semiauto SVT-40 or "Tokarev", auto-rifle
			AVT-40 (few), Carbine M1944, semiauto SKS-45)
			US Rfls (Springfield M1903, various models; M1917 "US Enfield", some to WW2 Br;
			semiauto Rfl M1 "Garand"; semiauto Carbine M1; semiauto Johnson Rfl M1941, USMC,
			few)
		SMG:	Svt SMGs (PPD-34, PPD-34/38, PPD-40, PPSh-41, PPS-42, PPS-43)
		MG:	US .30-in MGs (Browning M1917, Browning M1919, Johnson M1941)
			Svt 7.62mm MGs (Maxim M1910, Maxim-Tokarev M1921, DP, DS-39, SG-43
			"Goryunov", DPM, PV-1)
		TkG:	Svt 7.62mm MGs (T-37, T-38; each with 1x MG)
			US .3-in MGs (Marmon-Herrington CTLS with 3x MGs)
		Other:	US Browning Automatic Rifle (M1918 and other models, the BAR; designed as an
			automatic rifle but often used as a lt MG, although inferior to purpose-designed lt MGs)  Caliber of Mauser C96 pistol
7.63	0.300 0.301 .303	Note: SMG: Rfl:	Caliber of Mauser C96 pistol
7.65	303	Rff:	Fr SMGs (PM STA M1924, PM MAS M1938) Br .303-in Rfls (Lee-Enfield Rfl No. 1, aka "SMLE" from Short, Magazine, Lee-Enfield;
			Rfl No. 4; Rfl No. 5, aka "Jungle Carbine")
			Jpn 7.7mm Rfls (Type 99, 100, 2)
		MG:	Br .303-in MGs (Maxim, Vickers, Lewis Gun, Bren, Vickers-Berther, Vickers K or VGO)
		MG.	It 7.7mm MGs (Scotti 38, Breda-SAFAT)
			Jpn 7.7mm MGs (Types 92, 97, 99, 1)
		TkG:	Br .303-in MG (Infantry Tk: some A11 Matilda I)
		TKG.	
7.92	0.312	Rfl:	Jpn 7.7mm MG (Type 92 Tankette) Czech ZH-29 (in Chinese service)
			Czech Rfl M33 (in Ger service as Rfl 33/40(t) for mtn troops)
			Ger 7.92mm Rfls (98K; semiauto Rfl 43; para-auto-rfl 42 (few), auto-rfl "SMG" 43, auto-
			rfl "SMG" 44, assault rfl 44 ["SMG" indicates the auto-rifles were designated as SMGs,
			since they appeared at a time when auto-rfl development supposedly had ceased)
			It M38 Rfl (Africa, rechambered for Ger ammo)
		MG:	Br BESA 7.92mm MG (Czech-designed 7.92mm MG used by Britain despite being a
		MG.	different caliber than most British MGs which were 7.7mm/.303-inch)
			Ger MGs (MG 08 various models, MG 34, MG 42; a/c MGs: MG 15, MG 17, MG 81)
		IAT:	Ger 7.92mm ATRfl 39 (also see note for 13.2mm)
		TkG:	· · · · · · · · · · · · · · · · · · ·
			Ger 7.92mm MGs (Pz I with 2x MGs)
		Otner:	Ger 7.92mm RflGL 39 (when 7.92mm ATRfl 39 was retired, some were adapted to launch rifle grenades; grenade "caliber" > 7.92mm)
8	0.315	Rfl:	Fr 8mm Rfls (Berthier M1916, Lebel M1886/93, Berthier M1907/15, semiauto RSC
			M1917 and M1918, Berthier M1892 M16, Mousqueton Lebel M1886/93 R35)
		SMG:	Jpn Type 100 8mm SMG
		MG:	Danish 8mm Madsen (used by various countries)
			Fr 8mm MGs (Chauchat M1915, Saint-Etienne M1907, Hotchkiss M1914)
			It 8mm MGs (Fiat 14/35, Breda 37, 38)
		TkG:	Fr 8mm Hotchkiss M1914 MG (WW1-era FT-17, apparently all c. 500 FT-17 in French
		I KG.	service in 1939-40 were the MG version, with no 37mm gun version available)
			It 8mm MGs (L5/21 aka Fiat 3000 M21 with 2x MGs; L3/33 aka CV 33 with 2x MGs
			[some instead had 6.5mm MGs]; L3/35 aka CV 35 with 2x MGs
		VohC:	It 8mm Breda 38 (Lince ACar, used by Italian Social Republic, Axis puppet state formed
		vend.	
8.8	0.346 0.354	SMG:	after It surrender) It Beretta 38A
9	0.354	SMG:	Australian SMGs (Owen Gun; Austen, "Australian Sten")
			Austrian MP34 (in Jpn service as "Bergmann" since it derived from Ger WW1 Bergmann
			MP18)
			Br SMGs (Sten, Lanchester)
			Finnish Suomi KP-31
			Ger SMGs (SMG 28, 35, 38, 40)
			It 9mm SMGs (Beretta 1918, Beretta 1938A, Beretta 38/42)
			Swiss SIG M1920 (in Jpn service as "Bergmann" since it too derived from Ger WW1
			Bergmann MP18)
			US UD 42 (used by OSS and anti-Axis resistance fighters)

10.15	0.400	SOME	OBSOLETE RIFLE CALIBERS
10.13	0.409	Rfl:	All these were mid-19th century rifle calibers of various countries. While these rifles
10.4	0.420		were out of date by WW1, some were used then. I believe none were left in front-line
11	0.420		service by any country in WW2 but some were used by secondary forces. 10.15mm
14.66/11.43	.577/.45		was a Norwegian caliber; a very few rifles perhaps were used by Norwegian resistance
14.00/11.43	.5777.45		fighters. Rear area troops of minor countries and some guerrilla forces used some 11mm
			rifles in WW2. 10.67mm was a black-powder Berdan used by Russia and then Finland,
			including a few in Finish home defense and service units in the Winter War. 10.4mm was
			a Swiss rifle. I know of no 10.4mm rifles being used in WW2, but some might have been
			if Switzerland had been invaded577/.45-inch was a .577-inch cartridge (an even older
			caliber) necked down to a .45-inch bullet, used for various British black-powder rifles.
			These were obsolete by WW1 but occasionally used. None were used that I know of in
11	0.433	MG:	WW2, but some might have been if enemy forces successfully landed in Great Britain. Fr 11mm Hotchkiss MG (This was a Hotchkiss MG that used 11mm Gras cartridges.
			Produced in WW1 for use in French Colonial forces, I do not know if any were used in
11.42	15	CMC	WW2.)
11.43	.45	SMG: MG:	WW2.) US SMGs (Thompson M1A1 "Tommy Gun", Reising M50, M3 "Grease Gun") Br Vickers .5-in MG
			It 12.7mm a/c MG (Breda-SAFAT)
			Jpn 12.7mm a/c MG (Ho-103)
			Svt 12.7mm MGs (DK, DShK-38, DA, ShKAS, BS, UB, UBT, UBS)
			US .50-in MG (Browning M2)
		TkG:	Br Vickers .5-in MG (Lt Tank: Mark VIA, VIB, both also had 1x 7.7mm MG; Inf Tk:
			some A11 Matilda I)
			Svt 12.7mm MGs (T-40, 1x 12.7mm and 1x 7.62mm MG)
		VehG:	US .50-in MGs (M3 Scout Car, M20 ACar; M16 MGMC SP AA HT with 2x MGs; M16
			MGMC SP AA HT with 4x MGs) Many 13.2mm-caliber weapons are sometimes called 13mm.
13	0.512	Note:	
13.2	0.520	MG: IAT:	Ger a/c MG (MG 131) Note: Ger 7.92mm ATRfl 39 was developed with a 13.2mm cartridge necked down to
("13")	(".52")	IAI.	7.92mm, which causes some to mistakenly classify this weapon as 13.2mm or 13mm. The
(13)	( .52 )		13.2mm round was designed in WW1 for the Mauser T-Rfl, a 1918 Ger ATRfl, which (as
			far as I know) was not used in WW2.
		MG:	Fr 13.2mm MG M1929
		IVIG.	It 13.2mm MG M1929
			Jpn Type 93 13mm MG
		TkG:	Fr 13 2mm MG M1929 (some AMR 35)
14	.55	TkG: IAT:	Fr 13.2mm MG M1929 (some AMR 35) Br Boys ATRfl (aka 14mm ATRfl in Finn service, 13.9mm ATRfl Ger-captured Boys; .55
			inches is 13.97mm.)
14.5	0.571	VehG:	Br 17-pdr ATG (ACars)
14.5 15	0.571	IAT: MG:	Svt 14:5mm ATRfls (PTRD-41, PTRS-41) Br BESA 15mm MG (used on tanks and other vehicles)
			Ger 15mm MG 151/15 (a/c gun, later developed to 20mm as MG 151/20)
		TkG:	Br BESA 15mm MG (Lt Tank: Mark VIC, also had 1x 7.7mm MG)
20	0.787	IAT:	Finn 20mm ATRfl Lahti L-39
			It Solothurn ATRfl
			Jpn Type 97 ATRfl
			Swd 20mm ATRfl M42 (recoilless)
		A/cG:	Fr Hispano-Suiza HS.404 (used by many countries)
			Ger 20mm A/cGs (MG FF, MG 151/20)
			Jpn 20mm A/cGs (Type 99, Ho-1, Ho-3)
			Svt 20mm (ShVAK, B-20, UB-20)
			Swiss (Oerlikon) 20mm Gun (as Ger MG FF, Jpn Type 99)
		AAG:	Br Posten 20mm AAG/Nvl AAG
			Ger 2cm AAGs (AAG 30; Quad AAG 38)
			It 20mm Breda M35, 20mm Scotti
		TI-C	Swiss (Oerlikon) 20mm Gun (used by Br, US)
		TkG:	Ger 2cm TkG 30, 38 (Pz II)
			It 20mm Breda M35 (L6/40)
		Valor	Svt 20mm TkG TNSh (T-60)
		venG:	Ger 2cm AAG 38 (SdKfz 151/17 AA HT; Flakpz I AA SPG) Ger Quad AAG 38 (SdKfz 7/1 AA HT; Flakpz IV "Wirbelwind" AA SPG)
			Ger 2cm TkG 30, 38 (various ACars)
23	0.906	A/cG:	It 20mm Breda M35 (AB 41 ACar) Svt 23mm Auto-Cannons (VYa, also used by Svt Navy; B-20)
		TkG:	Svt 23mm TkG PT-23TB (not deployed)

25	0.984		I AAG:	Fr 25mm AAG M1938
23	0.90-		AAU.	Jpn Model 96 AT/AAG (including Nvl AA)
			ATG:	Fr 25mm ATG M1934, M1937
			7110.	Jpn Model 96 AT/AAG
			Rkt:	Jpn 25mm "Rocket Gun" (?)
			TkG:	Fr 25mm TkG M1935 (some AMR 35)
			VehG:	Fr 25mm TkG M1935 (some AMR 35 built as turretless AT SPGs; Panhard 178 ACars)
25.4	1		AAG:	Jpn Type 96 25mm AAG
("25")	1.102		AAG:	Svt 25mm Auto-AAG M1940 (72-K) US 1.1-in/75 Nvl AAG
	("1.1")		ATG:	Ger 2.8cm ATG 41 (taper-bore, 28mm to 20mm; designated as ATRfl but really ATG)
			VehG:	Ger 2.8cm AAG 41 (some SdKfz 221 ACar) Fr 29mm ATG APX (taper-bore, 29mm to 20mm)
29	1.14			
			Mor:	Br 29mm Spigot Mor ("Blacker Bombard", 1940 emergency weapon, round larger
30	1.18		A/cG:	caliber) Ger 30mm A/cGs (MK 101, MK 103, MK 108)
				Jpn 30mm A/cGs (Ho-15, Ho-155)
			AAG:	Ger 3cm AAG 38/103
27	1 46	2 mdn	A/aC:	Ger 3cm Quad AAG 38/103 Svt Auto-Cannon NS-37
37	1.46	2-pdr	A/cG:	US 37mm Gun M4
			Mor:	Svt 37mm Mortar-Spade M1939 (37 RM-39) (dual purpose mortar and entrenching tool!)
			1	Br QF 2-pdr Nvl AAG ("Pom-Pom", obsolete, different weapon than 2-pdr ATG)
				Fr 37mm AAGs
				Ger 3.7cm AAGs (AAG 36, 37, 43, Nvl AAGs)
				It 37mm AAGs (37/54)
				Jpn 37mm A/cGs (Ho-203, Ho-204)
				Svt 37mm Auto-AAG M1939 (61-K)
				US 37mm AAG M1A2
			ATG:	Ger 3.7cm ATG 34(t), 36
				Jpn Type 1 37mm ATG
				Svt 37mm ATG M1930 (1-K) (few)
			D1 C	US 37mm ATG M3
			RlsG:	US 37mm Rls "Rfl" M18
			Mor:	Svt 37mm Spade Mor M1939 Fr 37mm InfG M1916 TRP
			Art:	It InfG 37/10
				Jpn Type 94 37mm InfG
				Svt 37mm Airborne Gun M1944 (few)
			TkG:	Fr 37mm Gun 18 (some Char D1 [North African service]; FCM 36; Hotchkiss H35;
				Renault R35)
				Fr 37mm TkG M1938 (Hotchkiss H39; Renault R40)
				Ger 3.7cm TkG 34(t), 38(t) (Pz 35(t); Pz 38(t))
				Ger 3.7cm TkG 36 (early Pz III)
				It 37mm TkG 37/40 (L5/30 aka Fiat 3000 M30; M11/39)
				Jpn 37mm Type 94 TkG (Type 97 Tankette; Type 95 Lt Tk)
				Jpn 37mm Type 100 TkG (Type 98 Lt Tk)
				Jpn 37mm Type 1 TkG (Type 2 Lt Tk; Type 2 Amphib Tk)
				Svt 37mm TkG M1930 PS-2 (early T-26; early BT-2)  LIS 27mm TkG M5 (Lt Tk, M2A4 M2 "Strong" M5 "Strong" Mod Tk, M2 "Crong" or
				US 37mm TkG M5 (Lt Tk: M2A4, M3 "Stuart", M5 "Stuart"; Med Tk: M3 "Grant" or "Lee" else with 1x 75mm)
				"Lee" also with 1x 75mm) US 37mm TkG M6 (Airborne Lt Tk: M22 "Locust")
			VehG:	Ger 3.7cm AAGs (AA Mot; various AA HTs)
			, viii.	Ger 3.7cm AAG 38 (Flakpz IV "Moebilwagen" AA SPG)
				Ger 3.7cm AAG 43 (Flakpz IV "Ostwind" AA SPG)
				Ger 3.7cm ATG 36 (SdKfz 250/10, 251/10 ATG HTs)
				It 37mm Gun ? (AB 611 ACar)
				US 37mm ATG M3 (M6 GMC "Fargo" Mot AT, this was a light unarmored truck with an
				ATG mounted on the truckbed)
				US 37mm TkG M6 (M8 Lt Arm Car "Greyhound"; some LVT(A) armored amphibious
				tractors)
				US 37mm AAG M1A2 (M15 MGMC SP AA HT with 1x 37mm and 2x MGs)

40	1.57	2-pdr	A/cG:	Br Vickers S
		•		Jpn 40mm A/cG (Ho-301)
			AAG:	Ger 4cm Nvl AAG (Norwegian-made version of Swd Bofors)
				[Swd] 40mm Bofors L/60 (licensed, modified, and used by Br, US)
			ATG:	Br QF 2-pdr ATG
			Art:	Br 2-pdr Nvl Gun
				It 40mm Nvl Guns (licensed Br 2-pdr nvl gun)
			TkG:	Br QF 2-pdr TkG (Lt Tk: Mark VII Tetrach, Mark VIII Harry Hopkins; Cru Tk: A9, A10,
				A13, A13 Mark II, A13 Mark III Covenanter, A15 Crusader I, II, [Can] Ram I; Inf Tk:
				A12 Matilda II, Valentine I-V, [Can] Valentine VI, VII, A22 Churchill I [with 3-in How as
				secondary gun], II)
			VehG:	Br QF 2-pdr TkG (Br & South African ACars)
42	1.65		ATG:	[Swd] twin 40mm AAG (US M19 GMC SP AAG) Ger 4.2cm Lt ATG 41 (taper-bore, 42mm to 28mm) Jpn Type 5 45mm RL (experimental? or limited production? Often called a RIsG, it
42 45	1.77		IAT:	Jpn Type 5 45mm RL (experimental? or limited production? Often called a RIsG, it
				apparently was a HEAT weapon somewhat like a panzerfaust.)
			A/cG:	Svt NS-45 (few, on Yak-9K)
				Svt 45mm Nvl AAG (21-K)
			ATG:	It ATG 47/32
			3.6	Svt 45mm ATGs M1932 (20-K), M1937 (53-K), M1942 (M-42)
			Mor:	It 45mm Brixia M35
			Art:	It InfG 47/32
			TkG:	Svt 45mm TkG M1932 (20-K) (later T-26, later BT-2, BT-5, early BT-7, some T-35 with
				2x45mm as secondary armament) Set 45mm The M1027 (52 K) (final T 26 later PT 7 PT 8 come T 25 with 2x45mm as
				Svt 45mm TkG M1937 (53-K) (final T-26, later BT-7, BT-8, some T-35 with 2x45mm as
				secondary armament, T-50, T-70) Syt 45mm Tl-G VT 42, VT 43 (T 80, fav.)
			VehC:	Svt 45mm TkG VT-42, VT-43 (T-80, few)
46 47	1.81		Mor:	Svt 45mm TkGs M1932, M1937 (ACars) Polish 46mm Mor M1936 Czech 4.7cm AAG M37
47	1.85	3-pdr		
			ATG:	Br QF 3-pdr ATG (obsolete)
				Czech 47mm ATG M36 (used by Ger as 4.7cm ATG 36(t))
				Fr 47mm ATG M1937
				It Gun 47/32 M35, M? Jpn Type 1 47mm ATG
			Mor:	Swd 47mm Mor M40
			Art:	Belgian 47mm InfG FRC (optional 47mm barrel that could replace the standard 76.2mm
			1111.	barrel on the 76mm InfG FRC)
			TkG:	Br QF 3-pdr TkG (Med Tk: many Mark II)
				Fr 47mm TkG M1934 (some Char D1 [North African service]; Char B1, which also had a
				75mm gun; Char D1; some Char D2)
				Fr 47mm TkG M1935 (Char B1bis, which also had a 75mm gun; AMC 35; some Char
				D2; Somua S35)
				It 47mm TkG 47/32 (M13/40, M14/41)
				It 47mm TkG 47/40 (M15/42)
				Jpn Type 1 47mm TkG (Type 3 Amphib Tk, Type 1 Med Tk)
			VehG:	Ger 47mm ATG 36(t) (Pzjgr I AT SPG)
50	1.97		A/cG:	It 47mm TkG 47/32 (Semovente 74/32 SP ATG) Ger 50mm A/c Cannon BK-5
	1.71			Ger 5cm AAG 41
			ATG:	Ger 5cm ATG 38
			Mor:	Fr 50mm Mor M1937
			1.101.	Ger 5cm Lt Mor 36
				Jpn Type 89 Mor
				Svt 50mm Co Mor M1938 (50 RM-38), M1940 (50 RM-40), M1941 (50 RM-41)
			TkG:	Ger 5cm TkG 38, 39 (later Pz III except Pz IIIN)
50.0			VehG: Note:	Ger 5cm TkG 38 (SdKfz 10 ATG HT: SdKfz 234/2 (8-wheel) ACar) Br 2-in Mor actually 51.25mm, see below.
50.8	2		Note:	Br 2-in Mor actually 51.25mm, see below.
("51") 51.25	2.02		Mor:	Br OML, SBML 2-in Mors
("51") 55	("2")			
55	2.17		A/cG:	(Ger MK 112 under development but not ready by end of war; planned as aircraft and
				light AFV gun)

57	2.24	6-pdr	A/cG:	Jpn 57mm A/cG (Ho-401)
			ATG:	Br QF 6-pdr ATG
				Svt 57mm ATG M1941 (ZiS-2) (few), M1943 (ZiS-2)
				US 57mm ATG M1
			RlsG:	US 57mm Rls "Rfl" M18 (few)
			Rkt:	Br 2-in AA RL
			Art:	Br QF 6-pdr Nvl/Cst Gun (different from the AT/Tk gun)
				It CstGs 57/30, 57/43
			TkG:	Br QF 6-pdr TkG (Cru Tk: A15 Crusader III, A24 Cavalier, A27L Centaur I, A27M
				Cromwell I, III, IV, [Can] Ram II; Inf Tk: Valentine VIII-X, A22 Churchill III, IV)
				Jpn Type 90 57mm TkG (Type 89 Med Tk)
				Jpn Type 97 57mm TkG (Type 97 Med Tk)
				Svt 57mm TkG ZiS-4, ZiS-4M (T-34-57, few)
			VehG:	Br QF 6-pdr ATG (Deacon AT SPG)
				Svt 57mm ATG M1941 (ZiS-30 SP ATG, few)
(0)	2.36		IAT:	US 57mm ATG M1 (T48 GMC, almost all as Svt SU-57 AT SPG) US 2.36-in RL M1A1 ("Bazooka")
60	2.30		Mor:	
			IVIOI.	US 60mm Mor M1 (This was based on a French 60.7mm mortar design but apparently
60.7	2.39 2.5		Mor:	was adapted to 60mm.) Fr 60mm Mor M1935
60.7 63.5 65	2.5		Other:	Br 2,5-in Northover Projector (emergency grenade launcher made in 1940) It 65mm Nvl AAG
	2.30		Art:	Fr 65mm Mtn Gun M1906 (typically used as inf gun in WW2)
70	2.76		Mor:	It Gun 65/17 (at least some pack) Jpn Type 11 70mm Mor
			Rkt:	See 74mm Rkt.
			Art:	It Mtn Gun 70/15
73	2.87		Rkt:	Jpn Type 92 79mm Btl Gun German Foehn (AA rocket in limited production by the end of the war for the Ba 349
13	2.67		IXXI.	
74	2.91		Rkt:	rocket-engined interceptor) Jpn Type 4 7cm RL (experimental, but some sources claim several thousand were
				stockpiled for defense of Japanese home islands. Apparently had a HEAT round so might
				be considered a 2-crew IAT.)

75	2.95	AAG:	Br Vickers 75mm AAG (used by several countries but not by Br)
			Fr 75mm AAGs/Nvl AAGs
			It AAGs 75/27, 75/50 (two models), 75/53 M30
			It 75/46 M34 (dual purpose AAG/ATG)
			Jpn Type 88 75mm AAG
		ATG:	Ger 7.5cm ATGs 39, 40
			Ger 7.5cm ATG 41 (taper-bore 75mm to 55mm)
			It ATG 75/27 (75/25 field gun with HEAT ammunition)
			It 75/46 M34 (dual purpose AAG/ATG)
		RlsG:	Ger 7.5cm RIsG 40
			US 75mm Rls "Rfl" M20 (few)
		Art:	Fr Gun 75mm M1897/33
			Fr 75mm Mtn Gun M1928
			Ger 7.5cm Fd Gun nA (WW1 7.7cm guns recalibered to 75mm standard)
			Ger 7.5cm InfG 18
			Ger 7.5cm Nvl Gun
			Jpn Type 38 7cm FdG
			It (Mtn) How 75/13 (ex AH 75mm How M1915, later produced in It)
			It How 75/18 M34, M35, M40
			It Guns 75/27 M06, M11, M12
			It Gun 75/34 (few)
			US 75mm Gun M1917A4
			US 75mm Pack How M1A1
		TkG:	Br QF 75mm Gun (Cru Tk: A27L Centaur III, A27M Cromwell V, VII, VIII; Inf Tk:
			Valentine XI, A22 Churchill VI, VII)
			Fr 75mm TkG M1935 (short barreled, secondary armament of Char B1 and Char B1bis)
			Ger 7.5cm TkG 37 (early Pz IV, Pz IIIN)
			Ger 7.5cm TkG 40 (later Pz IV)
			Ger 7.5cm TkG 42 (Panther)
			It Gun 75/34 (P40, few and mostly used by Ger after It surrender)
			Jpn Type 3 75mm TkG (Type 3 Med Tk)
			US 75mm How M2 (Med Tk: M3 "Grant" or "Lee", both also with 1x 37mm)
			US 75mm TkG M3 (Med Tk: early M4 "Sherman")
		77.1.0	US 75mm TkG M6 (Lt Tk: M24 "Chaffee")
		VehG:	Fr 75mm AA Gun M1913/1934 (AAG mounted on truck bed)
			Ger 7.5cm AG 37 (SdKfz 250/8, 251/9 Gun HTs; early StuG III AG; SdKfz 233 (8-wheel)
			ACar)
			Ger 7.5cm AG 40 (later StuG III AG, StuG IV AG)
			Ger 7.5cm ATG 40 (Marder I, II, III, AT SPGs; SdKfz 234/4 (8-wheel) ACar)
			Ger 7.5cm TkG 51 (SdKfz 234/3 (8-wheel) ACar)
			Ger 7.5cm ATG 40 (SdKfz 251/22 ATG HT)
			Ger 7.5cm ATG 39 (Pzjgr 38(t) "Hetzer"; early Jagdpz IV AG)
			Ger 7.5cm ATG 42 (later Jagdpz IV AG) It How 75/18 (and models) (Semovente 75/18 AG)
			It Gun 75/18 (Semovente 75/18 AG)
			US 75mm Gun M1917A4 (M3 GMC SPG HT)
			US 75mm How M1A1 (T30 HMC SP How HT)
			US 75mm How M1A1 (130 HMC SP How H1) US 75mm How M2 (M8 HMC "Scott" SP Art)
			US 75mm How M2 (some LVT(A) armored amphibious tractors)
			OS /Shini How M2 (some DY 1(A) armored ampinologs tractors)

76.2 ("76")	3	17-pdr,	AAG:	Br QF 3-in AAG
70.2 ( 70 )		17-pdr, 13-pdr,	AAU.	It 76mm Nvl AAGs
		13-pdr, 12-pdr		It AAGs 76/40, 76/45
		12-pai		Jpn Type 98 8cm Nvl AAG
				Jpn Type 4 8cm AAG
				Svt 76mm AAGs M1914 (8-K), M1915 (8-K), M1915/28 (9-K), M1931 (3-K), M1938
				(3-K)
				US 3-in AAG M3
			ΔTG:	Br 17-pdr ATG
			7110.	US 3-in ATGs M5, M7
			RlsG·	Svt 76mm RIsG M1935
			Mor:	Br ML 3-in Mor
			Rkt:	Br 3-in AA/Barrage RL (64-rocket MRL)
			TCICC.	Br 3-in RP-3 (air-to-ground rockets)
				Br UP Nvl AA Rocket (20-rocket MRL)
			Art:	Belgian 76mm InfG FRC
			1110	Br QF 12-pdr Nvl AA/Cst/Nvl Gun
				Br QF 13-pdr FdG
				Br QF 3-in How
				Br Smith Gun (1940 emergency design; 3-in smoothbore gun firing mortar rounds; in
				Home Guard service)
				Jpn 8cm Nvl Gun
				Svt 76mm Rgt Guns M1913, M1927, M1943
				Svt 76mm Mtn Guns M1909, M1938
				Svt 76mm Div Guns M1902, M1902/30, M1933 (F-20), M1936 (F-22), M1939 (USV,
				F-22USV), M1942 (ZiS-3)
				US 3-in Cst Gun M1903
				US 3-in/50 Dual Nvl/AA Gun Mark 22
				US 3-in/23, /23.5 Nvl Guns
			TkG:	Br 17-pdr TkG (Cru Tk: A30 Challenger, Sherman "Firefly")
				Br 77mm HV TkG (17-pdr adapted for tank turret, caliber actually 76.2mm but
				designated 77mm to avoid confusion with 17-pdr as ammunition was not interchangeable)
				(Cru Tk: A34 Comet)
				Svt 76mm TkG KT (T-35 main gun)
				Svt 76mm TkG KT-28 (early T-28; KT-28 was a version of 76mm Rgt Gun M1927)
				Svt 76mm TkG L-10 (later T-29, L-10 was improved KT-28, L/26 instead of L/16.5)
				Svt 76mm TkG L-11 (early T-34, very early KV-1, KV-1S)
				Svt 76mm TkG F-32 (early KV-1)
				Svt 76mm TkG F-34 (later T-34)
				Svt 76mm TkG ZiS-5 (later KV-1)
				US 76mm TkG M3 (Med Tk: later M4 "Sherman")
			VehG:	Br 17-pdr ATG (Archer AT SPG)
				Svt 76mm Gun ZiS-3Sh (SU-76, SU-76M SPGs)
				US 3-in ATG M7 (M10 GMC "Wolverine" AT SPG)
765	2.01		1	US 76mm TkG M1 (M18 GMC "Hellcat" AT SPG) Czech 8cm AAG M28
76.5	3.01		AAG:	
77	3.03		Art: AAG:	Czech 8cm Guns It AAG 77/28 M1918 (ex AH FdG adapted for AA role?)
			Art:	Ger 7.7cm FdG 16 (in Turkish service in WW2)
				It Gun 77/28 (ex AH, four models) Swd Bofors 8cm AAG (used by a few countries)
80	3.15		AAG:	Swd Bofors 8cm AAG (used by a few countries)
81	3.19		ATG:	See 81.4mm, "Other" category. "81mm" mortars were actually 81.3mm or 81.4mm, see below. Cz 8cm Mor M36
81 81.3	3.19		Note: Mor:	Cz 8cm Mor M36
("81") 81.4	3 20		More	Fr 81mm Mor Brandt M1927/31
("81")	3.20		Mor:	Ger 8cm Hv Mor 34
( 01 )				
				Jpn Types 97, 99 81mm Mors US 81mm Mor M1
			VehG:	Ger 8cm Hv Mor 34 (SdKfz 250/7, 251/2 Mor HTs)
			velio.	US 81mm Mor M1 (M4, M21 MMC SP Mor HTs)
			Other	Ger 8cm AT Launcher 600 (high-low pressure light gun that launched HEAT and HE
			Other.	rounds; sometimes mistakenly called a mortar or a rocket launcher; few; sometimes called
				an 80mm antitank gun)
				un commi unitialità Sunj

82	3.23		IAT:	See SPG-82 in Rkt below.
			Mor:	Svt 82mm Btl Mor M1936 (82 BM-36), M1937 (82 BM-37), M1941 (82 BM-41), M1943
				(82 BM-43)
			Rkt:	Ger 8cm Mot MRL (SS version of Svt BM-8-48; few; many sources claim as 80mm)
				Svt M-8 Rocket (used with M-8-6, 6-rocket static Mtn MRL; BM-8-24, 24-rocket Mech
				MRL; BM-8-36, 36-rocket Mot MRL; BM-8-48, 48-rocket Mot MRL; BM-8-72, 72-
				rocket RR MRL)
				Svt RS-82 Rocket (aircraft weapon)
				Svt SPG-82 RL (POST WAR but sometimes listed as wartime; 1-rocket; HE or HEAT
				rockets. HEAT-capability sometime causes this 2-crew weapon to be listed as IAT. Some
				sources claim it was a RlsG, as the Svt B-10 RlsG was developed from it, but RL seems
02.5	2.20			correct.) Czech 9cm AAG
83.5	3.29		AAG:	
83.8	3.3	18-pdr	Art:	Czech 9cm Gun Br QF 18-pdr Gun
("84") 84		- P -		
84	3.31		Art:	Swd 8.4cm Cst Guns (various models)
85	3.35		AAG:	Swd 8.4cm (Fd) Gun M94 Svt 85mm AAG M1939 (52-K, KS-12), M1944 (KS-18)
	5.00		Art:	Svt 85mm Div Gun M1944 (D-44) (very few)
			TkG:	Svt 85mm TkG D-5T (a few T-34-85, KV-82, IS-1)
				Svt 85mm TkGs S-53, ZiS-S-53 (most T-34-85)
			VehG:	Svt 85mm Gun D-5S (SU-85, SU-85M SPGs)
86 87.6	3.34 3.45	25-pdr	VehG: Rkt: RlsG:	Ger 8.6cm Nyl RL Br RCL 3.45-in RlsG (few; only in operational testing in Burma 1945)
07.0	3.43	23 par	Art:	Br QF 25-pdr Gun (actually a gun-howitzer)
			1111.	Australian 25-pdr Short Mark I ("Baby 25-pdr", pack version of Br 25-pdr for jungle
				warfare)
			VehG:	Br OF 25-pdr Gun (Bishop, Sexton SP Art) Ger Al REs (RL 43, inspired by US Bazooka; RL 54)
88	3.46			
			AAG:	Ger 8.8cm AAGs/Nvl AAGs (AAG 18, AAG 41)
				Jpn Type 99 8cm AAG
			ATG:	Ger 8.8cm ATG 43
			RlsG:	Ger Pueppchen (fired 88mm AT rockets per Ger IAT weapons above)
			Art:	Ger 8.8cm Nvl Gun
			TkG:	Ger 8.8cm TkGs 36, 43 (Tiger I, Tiger II) Ger 8.8cm AAGs (various AA HTs)
			vend.	Ger 8.8cm ATG 43 (8.8cm ATG 43 "Nashorn" AT SPG; Pzjgr Tiger(P)
				"Fardinand" "Flanhant" AT SPG: Jaadnanthar AG
88.9	3.5		IAT:	"Ferdinand"/"Elephant" AT SPG; Jagdpanther AG) Br PIAT
00	2.54		Rkt:	US 3.5-in FFAR (aircraft anti-ship rockets) Fr 90mm AAG/Nvl AAG M1926
90	3.54		AAG.	It 90/53 (dual purpose AAG/ATG)
				US 90mm AAG M1
			ATG:	US 90mm ATG M2
			AIG.	It 90/53 (dual purpose AAG/ATG)
			Mor:	Czech 9cm Mor M17
			14101.	Jpn Type 84 90mm Mor
			Art:	It 90mm Nvl Gun M1939
			TkG:	US 90mm TkG M3 (Hv Tk: M26 "Pershing")
				It A A G 90/53 (Semovente 90/53 SP ATG)
				US 90mm TkG M3 (M36 GMC "Jackson" AT SPG)
90.5 94.0	3.56 3.7		Mor: AAG:	US 90mm TkG M3 (M36 GMC "Jackson" AT SPG) Jpn Types 94, 97 90mm Mors Br QF 3.7-in AAG
("95")	3.7		Art:	Br 3.7-in How (sometimes called 95mm although 3.7 inches is 93.98mm)
( )3 )			7 11 1.	Br 3.7-in Mtn How
			VehG:	
95	3.74		Art:	Br 3.7-in How (A22 Churchill V, VIII, A27L Centaur IV, A27M Cromwell VI SPGs) Fr 95mm Gun M1875, M1888 (some in reserve art units)
			,,	Fr 95mm Cst Gun M1893
			Note:	See note for Br 3.7-in How

100	3.94	IAT:	Ger Faustpatrone (later enlarged to 150mm as the Panzerfaust)
100	("3.9")		Fr 100mm Nvl AAGs
	(3.9)	AAU.	It 100mm Nvl AAGs
			Jpn Type 98 10cm Nvl AAG
			It 100mm Nvl AAG (various models)
		ATC:	Svt 100mm Fd Gun M1944 (BS-3) (called Fd Gun but used as ATG)
		ATG:	
		Art:	Czech 10cm Lt How M14/19 (in WW2 Polish service)
			Fr 100mm Nvl Guns
			It 100mm Nvl Guns
			It (Mtn) Hows 100/17 M14, M16 (some used as ATG with AP and HEAT ammunition)
			It Hows 100/22 M16, M19, M33
			Jpn Type 88 10cm Nvl Gun
		Val.C.	Svt 100mm Nvl Guns M1936, M1939
101.6	4	AAG:	Svt 100mm Gun D-10S (SU-100 SPG) It 102mm Nvl AAGs
("102")			It AAGs 102/35, 102/47
		Art:	Br QF 4-in Nvl Gun
			It 102mm Nvl Guns
			US 4-in/50 Nvl Gun
102	4.02	AAG:	Svt 102mm Nvl Guns M1911, M1930, M1934 It AAG 102/47 (I wonder if this is 101.6mm like other "102mm" guns, but I have not
104	4.09	Art:	confirmed this from sources on hand.) Czech 10cm Gun M15 (ex-AH)
104	4.09		
105	4.13	AAG:	It Gun 104/32 (few; used 105/28 ammunition) Ger 10.5cm AAG 38
			Ger 10.5cm/65 Nvl AAG
			Jpn Type 14 10cm AAG
			US 105mm AAG M3
		RlsG:	
		Mor:	Ger 10.5cm Chemical Mor 35
			US 105mm Mor T13 (few)
		Art:	Fr 105mm Gun M1913
			Fr 105mm Short Gun M1935B
			Ger 10.5cm Lt Fd How 18
			Ger 10.5cm Gun 18
			Ger 10.5cm/55, /45, /40 Nvl Guns
			It Guns 105/25, 105/28
			Jpn Type 99 10cm Mtn Gun
			Jpn Type 91 10cm How
			Swd 10.5cm Cst Gun M34
		WIG	US 105mm How M2A1
		venG:	Ger 10.5cm Assault How 42 (StuH 42 SPG)
			Ger 10.5cm Lt Fd How 18 (Lt Fd How 18 "Wespe" SP How)
			It Gun 105/25 (Semovente 105/25 SP Art)
			US 105mm How M2 (T19 HMC SP How HT, M7 HMC "Priest" SP Art)
			US 105mm How M4 (M37 HMC SP Art)
106.7	4.2	Mor:	US 105mm How M4 (M4(105) "Sherman" SPG) Br ML 4.2-in Mor
("107")			US 4.2-in Mor M2
			Svt 107mm (Mtn) Rgt Mor M1938 (PM-38)
1142	1.5	Art:	Svt 107mm Guns M1910, M1910/12, M1910/30, M1940 (M-60) Br QF 4.5-in AAG
114.3	4.5	AAG:	
("114")		Rkt:	US 4.5-in Rockets M8, M12, M16 (used by ground, naval, and air forces)
("114.5")			US 4.5-in T34 ("Calliope", 60-rocket tank-mounted MRL)
			US 4.5-in T29 ("Xylophone", 8-rocket Mot MRL)
			US 4.5-in T66 (24-rocket towed MRL, for M16 rockets) US 4.5-in T27E1 (8-rocket static MRL)
			US 4.5-in T27E2 (24-rocket static MRL) US 4.5-in T27E2 (24-rocket static MRL)
			US 4.5-in T44 (120-rocket static MRL) US 4.5-in T44 (120-rocket amphibious MRL on DUKW or LVT)
			US 4.5-in "Scorpion" (144-rocket amphibious MRL on DUKW)
			US 4.5-in MRL T45 (12-rocket Mot MRL)
		A ==+.	
		Art:	Br QF 4.5-in How Br BL 4.5-in Gun
			Br QF 4.5-in Nvl Gun
			US 4.5-in Gun M1
			US 4.3-III Guit IVI I

119.4	1 4.7		AAG:	Jpn Type 10 12cm AAG/Nvl AAG
("120")	,	1	Art:	Br QF 4.7-in Nvl/Cst Gun
				Jpn Type 3 12cm Nyl/Cst Gun Jpn Type 3 12cm AAG
120	4.72		AAG:	
				US 120mm AAG M1
			Mor:	Fr 120mm Mor Brandt M1935 (few)
				Ger 12cm Mor 42
				Jpn Type 2 120mm Mor
			D1.	Svt 120mm Rgt Mor M1938 (120 PM-38), M1941 (120 PM-41), M1943 (120 PM-43)
			Rkt:	Jpn Nvl AA MRL (28-rocket MRL)
			Art:	Ger 12cm How M1905 (in Dutch service)
				It 120mm NvI/Cst Guns
				It CstGs 120/21, 120/25, 120/40 Jpn Type 38 12cm How
121.9	4.8		Art:	Svt 120mm Nvl Gun M1905 Svt 122mm Hows M1909/37, M1910/30, M1934, M1938 (M-30)
("122")				Svt 122mm Guns M1931 (A-19), M1931/37 (A-19)
			TkG:	Svt 122mm TkG D-25T (IS-2)
			VehG:	Svt 122mm How M1938 (M-30S) (SU-122 SPG)
127		(O = d=	A A C.	Svt 122mm Gun M1931/37 (A-19) (ISU-122 SPG) Jpn Type 89 12.7cm AAG/Nvl AAG
127	5	1 1	AAG:	
			Rkt:	Br 5-in RL (including Army "Land Mattress" 32-rocket MRL and Navy "Mattress Projector" MRL)
				US 5-in Beach Barrage Nvl Rocket
				US 5-in HVSR Nvl Rocket
				US 5-in FFAR and HVAR (aircraft anti-ship rockets)
			Art:	Br BL 60-pdr Gun
			7 <b>11 t</b> .	Jpn 12.7cm Nvl Gun
				US 5-in/38, /25 Dual Nvl/AA Guns
				US 5-in/54 Nvl Gun
			Other:	Svt "Ampulomet" (in effect a Molotov cocktail launcher; may have been 125mm or
				120mm instead of 127mm) Ger 12.8cm AAG 40
128	5.04		AAG:	
				Ger 12.7cm Nvl Gun (apparently designated 12.7cm but actually 12.8cm)
			ATG:	Ger 12.8cm ATG 44 (could also be used as FdG)
130	5.12		VehG: Art:	Ger 12.8cm ATG 44 (Jagdtiger) Fr 130mm Nvl Guns
	("5.1") 5.20			Svt 130mm Nvl Guns M1913, M1936 Svt M-13 Rocket, M-13UK Rocket (used with BM-13, 16-rocket Mot and Mech MRL; as
132	5.20		Rkt:	
				far as I know all M-13 launchers were vehicle-mounted, BM-13)
				Svt M-20 Rocket (used with BM-13, 8-rocket Mot MRL; same MRL as for M-13 rocket
				but only half as many M-20 rockets could be loaded in a volley. M-20s could also be fired
				from M-30 MRLs equipped with adaptors, but it is unclear if this actually occurred much
				in military operations.) Sur PS 122 Poolest (aircraft weepen)
133.4	5.25		AAG:	Svt RS-132 Rocket (aircraft weapon) Br QF 5.25-in AAG
("133") 135			Art:	Br OF 5.25-in AAG (dual-purpose AA and coast defense in Britain) It 135mm Nvl Gun M1938
135	5.31		Art:	It 135mm Nvl Gun M1938
138.6	("5.3") 5.46 5.5		Art:	Fr 138.6mm NvI/Cst Guns
138.6 139.7	5.5		Art:	Br BL 5.5-in Gun
				Br 5.5-in/50 Nvl/Cst Gun
140	5.51		Mor:	Jpn 14cm Nvl/Cst Gun Czech 14cm Mor M18
145	5.51 5.71 5.87		Art:	Czech 14cm Mor M18 Fr 145mm Gun M1916 It How 149/13 M14 (ex-AH or It production based on AH design)
	5.87		Art:	
("150")	("5.86")			It Hows 149/17, 149/19 It "Guns" 149/12 M14, M16, M16/18 (apparently designated as guns but were howitzers)
149.1	5.87		Art:	It Guns 149/35, 149/40 Czech 15cm How M37 (in Ger service)
("150")				Ger 15cm Nvl/Cst Gun
				It CstG 194/35 (ex AH nvl gun)
				It 149mm Nvl Gun
				Jpn Type 96 15cm How
				Jpn Type 89 15cm Gun
			VehG:	Jpn 15cm How (Type 1 SP How) (Source claims 149.1mm, but perhaps in error since
149.2	5.87		Art:	otherwise Jpn had a 149.2mm How, see below.) Jpn M1915 15cm How
("150")	3.67		Tit.	VPILIVITATO TOCILI TIOW
(130)				

149.3	5.88	Art:	Ger 15cm RR Gun
("150") 149.7	5.89	Art:	Ger 15cm How 13
("150") 150	5.91	IAT:	Con Pennsylvant (on a source plaints 140mm)
130	("5.9")	Mor:	Ger Panzerfaust (one source claims 149mm) Some sources mention 150mm mortars, but these probably mean Japanese 150.5mm
		1,101.	mortars.
		Rkt:	Ger 15cm MRL 41 (6-rocket MRL)
			Ger 15cm MRL 42 (Pzwerfer 42, 10-rocket HT MRL)
		Art:	Ger 15cm InfG 33
		77.1.0	Ger 15cm Hv Fd How 18
		VehG:	Ger 15cm InfG 33 (Sturmpz I "Bison" SPG, Hv InfG 33 "Grille" SPG) Ger 15cm Hv Fd How 18 (Hv Armored SP How "Hummel" SP How)
150.5	5.93	Mor:	Ger 15cm Assault How 43 (Sturmpz IV "Brummbaer" AG) Jpn Types 96, 97 150mm Mors
("150") 152.4	("5.9")	Mor:	Br SBML 6-in Mor (WW1 mor assigned Br home defense in WW2)
("152")		Art:	Br BL 6-in How
			Br BL 6-in Cst Gun
			Br 6-in/50, /45 Nvl Gun
			Fr 152mm Nvl Gun M1930
			It 152mm Nvl Guns
			It How 152/13
			It Guns 152/37, 152/45
			It CstGs 152/32, 152/50 Jpn 15cm Nvl/Cst Gun
			Svt 152mm Hows M1909/30, M1910/37, M1938 (M-10), M1943 (D-1)
			Svt 152mm Guns M1910/30, M1910/34
			Svt 152mm Gun-How M1937 (ML-20)
			Svt 152mm High-Angled How M1931 (few)
			Svt 152mm Gun M1935 (BR-2) (heavy, long-range artillery; few)
			US 6-in Cst Gun M1908
			US 6-in/53, /47 Nvl Guns
		TI-C.	US 6-in Gun M1917
		TkG: VehG:	Svt 152mm How M1938 (M-10) (KV-2) Svt 152mm Gun-How M1937 (ML-20) (SU-152, ISU-152, SPGs)
155	6.10	Mor:	Svt 152mm Gun-How M1937 (ML-20) (SU-152, ISU-152 SPGs) US 155mm Mor T25 (T meant weapon in testing, but used operationally)
		Art:	Fr 155mm Long Gun M1917
			Fr 155mm Long Gun GPF
			Fr 155mm Nvl Gun M1920 It Gun 155/25
			Jpn 15.5cm Nvl Gun
			US 155mm How M1A1
			US 155mm Guns M1917, M1918, M1A1 "Long Tom"
		VehG:	US 155mm Guns M1917, M1918 (M12 GMC SP Art)
160	6.30	Mor	US 155mm Gun M2 (M40 GMC SP Art. few) Svt 160mm Div Mor M1943 (MT-43, 160 DM-43)
100	0.30	Mor: Art:	US 160mm Cst Gun? (one source claims in the interwar-period the US had some 160mm
		7111.	coast artillery in the Philippines, although I am not otherwise aware that the US had guns
172.7			
172.5 172.6	6.80	Art:	of this caliber) Ger 17cm Gun 18 Ger 17cm Cst Gun (ex-nvl gun)
("170")			
173 177.8	6.81 7	Art: Art:	Ger 17cm RR Gun US 7-in Cst Gun (ex-nvl gun)
("178") 180	7.09	Art:	Svt 180mm Nvl/Cst/RR Gun M1932 (B-1-P and other designations)
		AII.	``
182.9	7.2	Rkt:	US 7.2-in Rocket (Army: experimental 20-rocket MRL; Navy: 24-rocket and 120-rocket
			MRLs)
190 190.5	7.48 7.5	Art:	Br BL 7.2-in How It 190mm Cst Gun (ex AH nvl gun)
	7.5	Art:	lt 190mm Cst Gun (ex AH nvl gun) Br 7.5-in/45 Nvl/Cst Gun
("190") 194	7.64	Art:	It 191mm Nyl Gun Fr 194mm Gun GPF
		1210	Fr 194mm Cst Gun (ex-nvl gun)

200	7.87 ("7.9")	Rkt:	Ger 20cm RL/Spigot Mor (engineer demolitions launcher; caliber is round size) Jpn Types 1, 2, 3 20cm RLs (1-rocket RL; Jpn Navy; different from Jpn Army 203mm
			rocket; one source claims 210mm instead of 200mm but contradicts itself elsewhere) Jpn Type 10 Rocket Motor (Navy; rocket motor and launcher for launching slightly modified aircraft bombs as rocket artillery rounds)
203	7.99	Art: Rkt:	Jpn 20cm Nvl Gun Type 3-1 Jpn Type 4 20cm RL (1-rocket RL; Jpn Army; some sources claim 202mm)
	("8")	Art:	Fr 203mm Nvl Guns
203.2	8	Rkt:	Ger 20 3cm NvI/Cst Gun US 203mm RL T53
("203")		Art:	Br BL 8-in How Br 8-in/50 Nyl/Cst Gun
			Ger 20cm RR Gun (E)
			It 203mm Nvl/Cst Guns
			Jpn 20cm Nvl/Cst Gun Jpn 20cm Nvl Gun Type 3-2
			Svt 203mm Cst/RR Gun M1905
			Svt 203mm Hows M1916, M1931 (B-4)
			US 8-in How M1 US 8-in Gun M1
			US 8-in RR Gun M1888
			US 8-in Cst/RR Gun Mark VI M3A2
209.3	8.24	Art:	US 8-in/55 Nvl Gun Ger 21cm Cst Gun (ex-nvl gun)
("210") 210	8.27	Mor:	Ger 21cm Mor 69 (few, unsafe)
		Rkt:	Ger MRL 42 (5-rocket MRL)
		Art:	It How 210/22 M35 It Siege "Mors" 210/8, 210/22 M35 (both probably high-angled howitzers; 210/22
			certainly was)
			Ger 21cm Gun 39
210.9	8.30	Art:	Svt 210mm Gun M1939 (BR-17) (very few) Ger 21cm High-Angled How 18
("210") ("211")			Ger 21cm Gun 38
211 220	8.31 8.66	Art:	Ger 21cm RR Gun 12 Cz 22cm How M32 (in Polish and Yugoslav service; called a "mortar" by some but was a
220	0.00	7111.	high-angled howitzer)
233.7	9.2	Art:	Fr 220mm Gun M1917 Br BL 9.2-in How
("234") 238	9.37	Art:	Br BL 9.2-in Cst/RR Gun Ger 24cm RR Gun
("240") 240			
240	9.45	Art:	Fr 240mm Gun M84/17 Fr 240mm Cst Guns (ex-nvl guns)
			Ger 24cm How 39
			Ger 24cm Gun 3
			Jpn Type 45 24cm How Jpn Type 90 24cm RR Gun
254	10		US 240mm How M1 It 254mm NvI Gun M1908
254	10	Art:	Jpn 25cm Cst Gun (ex-nvl gun)
			Svt 254mm Nvl Gun/RR Gun M1917
260 270	10.24	Art:	US 10-in Cst/RR Gun It (Siege) "Mor" 260/9 M16, 260/9 Skoda (ex AH) (probably high-angled howitzers) Fr 270mm "Hv Mor" M1885, M1899 (both in reserve in WW2; may have been high-
270	10.63	Art:	Fr 270mm "Hv Mor" M1885, M1899 (both in reserve in WW2; may have been high-
274	10.79	Mor:	angled How rather than Hv Mor)  Jpn Type 14 27cm Hv Mor (may have been high-angled How rather than Hv Mor)
279.4	11	Art: Art:	Fr 274mm RR Gun (ex-nvl gun) Svt 280mm High-Angled Howitzer M1939 (BR-5)
("280") 280	11.02	Rkt:	Ger 28cm Rockets (1-rocket static 28/32cm RL 40, 4-rocket static 28/32cm MRL 40,
			6-rocket towed 28/32cm MRL 41; "28/32" meant launcher could launch both 28cm and
			32cm rockets)  Gar 28/32cm MPI (4, or 6 rockets, attached SdV fz 251/1 HT; most sources mention only
			Ger 28/32cm MRL (4- or 6-rockets, attached SdKfz 251/1 HT; most sources mention only 6-rocket version but I have seen pictures of what seem to be 4-rocket versions)
		Art:	Ger 28cm RR Gun 5(E)
			It CstGs 280/9 (two models), 280/10, 280/11, 280/16 Jpn 28cm Cst Gun (M1892)
			Svt 280mm High-Angled How M1939 (BR-5) (few)

283	11.14	Art:	Ger 28cm Nvl/Cst/RR Gun
("280")	("11") 11.75		
298.5 300	11.75	Rkt: Rkt:	Swd 28cm Nyl Gun M12 US 11.75-in "Tiny Tim" Rocket (air-to-surface ground bombardment rocket) Ger 30cm MRL 42 (6-rocket towed MRL)
			Ger 30cm MRL 56 (6-rocket towed MRL; could launcher other caliber Ger rockets, too)
			Svt M-30 Rocket (used with M-30-4, 4-rocket static MRL; M-30-8, 8-rocket static MRL)
			Svt M-31 Rocket, M-31UK Rocket (used with same MRLs as above; also BM-31-12,
204.9	12	A .	12-rocket Mot MRL) Br BL 12-in How/RR How
304.8	12	Art:	
("305")			Br 12-in/35 Cst Gun (ex-nvl gun) Jpn 30cm Cst Gun? (ex-nvl gun)
			Svt 305mm Nvl/RR Gun M1907 (RR: TM-3-12)
			Svt 305mm Nvl/Cst/RR Gun M1907 (RR. 1W1-3-12)
			Svt 305mm RR Guns TM-12-2, SM-41 (both ex nvl guns)
			US 12-in Cst Hv Mor M1908
			US 12-in Cst Hv Mor M1908 (also as RR gun)
			US 12-in Cst Gun M1895
205	12.01	Aut	US 12-in/50 Nvl Gun Fr 305mm Nvl Guns
305	12.01	Art:	
	("12")		Ger 30.5cm Cst Gun (ex-nvl gun) It CstGs 305/17 M1909, 305/50 (ex AH nvl gun)
			It Siege "Mor" 305/8 M11, M11/16 (probably high-angled howitzer; ex AH)
			It Siege "Mor" 305/10, 305/17 M16, M17
			Jpn Type 7 30cm How
210	12.20		305mm How M1939 (BR-18) (very few) The Soviets had an M-31 rocket, which some sources mistakenly infer was 310mm, since
310	12.20	Rkt:	The Soviets had an M-31 rocket, which some sources mistakenly infer was 310mm, since
			the M-30 rocket was 300mm. The M-31 was actually an improved 300mm rocket, given the designation M-31 so it wouldn't be mixed up with the less effective M-30.
320	12.60	Rkt:	the designation M-31 so it wouldn't be mixed up with the less-effective M-30. Ger 32cm Rockets (1-rocket static 28/32cm RL'40, 4-rocket static 28/32cm MRL 40,
			6-rocket towed 28/32cm MRL 41; "28/32" meant launcher could launch both 28cm and
			32cm rockets)
			Ger 28/32cm MRL (4- or 6-rockets, attached SdKfz 251/1 HT; most sources mention only
			6-rocket version but I have seen pictures of what seem to be 4-rocket versions)
			Jpn Type 98 32cm RL/Spigot Mor (engineer demolitions launcher; caliber is round size)
		Art:	Fr 320mm RR Gun M17
330	12.99	Art:	<u>It 320mm M1934, M1936</u> Fr 330 mm Nvl Gun M1931
340	("13") 13.39	At.	Er 240 mm Nyl/Cet Gun M1012
340 342.9 355.6	13.5	Art:	Fr 340 mm Nvl/Cst Gun M1912 Br 13.5-in/45 RR Gun (ex-nvl gun) Br 14-in/45 Nvl Gun
	14	Art:	Ger 35.5cm Howitzer M1
("355") ("356")			Jpn (36cm Nvl Gun)
( 330 )			Svt 356mm Nvl/RR Gun M1913 (RR: TM-1-14)
			Svt 356mm RR Gun TP-1 (ex nvl gun?)
			US 14-in RR Gun M1920
			US 14-in Cst Gun M1910
270	14.57		US 14-in/50, /45 Nyl Guns Fr 370mm (RR) Siege Mor Fillioux
370	14.57	Mor:	Fr 370mm P.P. How
380	14.96	Art: Rkt:	Fr 370mm RR How Ger 38cm RL (originally an unsuccessful nvl antisub weapon, later used as a beach
			defense weapon and for the Sturmtiger)
			Ger 38cm RL/Spigot Mor (engineer demolitions launcher; very few; caliber is round size)
		Art:	Fr 380mm Nvl Gun M1935
			Ger 38cm Nvl/Cst/RR Gun
		37.1.0	It (Siege) "Mor" 380/15 (ex AH) (probably "high-angled howitzer)
381.0	15	VehG: Art:	Ger 38cm RL (Sturmpz VI aka Sturmtiger) Br 15-in/42 Nvl Gun
("380")			It 381mm Nvl Gun M1934
	15.75	DI.	It 381mm Nyl/Cst Gun M1914 (probably the 381/40 model) Jpn Type 4 40cm RL (1-rocket RL; Jpn Army)
400	15.75	Rkt: Art:	
406.4	16	Art:	Fr 400mm RR How M1915/16 Br 16-in/45 Nvl Gun
("406")			Ger 40.6cm Nvl/Cst/RR Gun
			Svt 406mm Nvl Gun/RR Gun M1937 (for canceled class of Svt BBs, at least one gun
			finished and used as RR gun, SM-36)
			US 16-in Cst Gun M1919
410	16.14	Art:	US 16-in/50, /45 Nvl Guns Jpn 40cm/45 Nvl Gun (redesignated from 41cm/45 Nvl Gun)
	("16.1")	. 11 (.	The state of the s
	1 ("10 1")		

420	16.5	Art:	Ger 42cm High-Angled How Gamma
			It 420/15 (ex AH) (not sure of Italian classification; probably "mortar" but likely high-
			angled howitzer)
			It CstG 420/12
447 457.2	17.60	Rkt:	Jpn 44.7cm RL Br BL 18-in RR How
457.2	18	Art:	Br BL 18-in RR How
("455") 460			
460	18.11	Art:	Jpn "40cm/45" Nvl/Cst Gun (mis-designated to hide its true size)
	("18.1")		
500 520 540 600	19.69	Art:	Svt 500mm Nvl Gun/ RR Gun (TG-1)
520	20.47	Art:	Fr 520mm RR How M1916
540	21.26	Art:	Ger 54cm High-Angled How Karl
600	23.62	Art:	Ger 60cm High-Angled How Karl
800	31.50	Art:	Ger 54cm High-Angled How Karl Ger 60cm High-Angled How Karl Ger 80cm RR Gun ("Dora" was not the general name of these guns. One was called
			"Heavy Gustav" and the other "Dora", although there some indication that German troops
914.4	36	Art:	in the field used "Dora" for either.) US "Little David (bomb-testing mortar sent to Europe)

#### Countries:

AH: Austria-Hungary

Br: Britain, British Empire

Can: Canada Finn: Finland Fr: France

Ger: Germany

It: Italy

Jpn: Japan

Svt: Soviet Union

Swd: Sweden

## Weapons:

AA: Antiaircraft

A/cG: Aircraft Gun

AG: Assault Gun

Art: Artillery

AT: Antitank

Btl: Battalion

Car: Carbine

Cst: Coast

Co: Company

Cru: Cruiser

Div: Divisional

Fd: Field G: Gun

GL: Grenade Launcher

How: Howitzer



New Guinea. No. 2 Gun Crew, Btry D, 208th CA AA, man their 3 inch AA gun at New Fighter Strip, Dobodura, New Guinea (US Army Center for Military History).

Hv: Heavy

IAT: Infantry Antitank Weapon

Inf: Infantry
Lt: Light

Med: Medium

MG: Machinegun

Mor: Mortar

MRL: Multiple Rocket Launcher

Mtn: Mountain

Nvl: Naval Rfl: Rifle

Rgt: Regimental

**Rkt: Rocket** 

RL: Rocket Launcher RlsG: Recoilless Gun

SMG: Submachinegun or Automatic Rifle

TkG: Tank Gun

VehG: Vehicle-mounted Gun (other than TkG)

#### Vehicle Mobility/Protection:

ACar: Armored Car

HT: Halftrack

Mech: Mechanized

Mot: Motorized (usually Truck)

SP: Self-Propelled

Tk: Tank

#### **Notes**

Numbers in red represent measurement conversions. These were typically not used as part of weapon designations except for some enemy weapons that were reused by the capturing country. Millimeters are used for all metric measurements; note, however, that some countries' designations for larger caliber weapons typically used centimeters. (For example, the famed German "88" antitank gun was designated an 8.8cm gun, not 88mm.)

If an entry has two numbers, such as 203.2 ("203"), the first number is the actual caliber and the second is what it often is called. For example, Soviet "203mm" guns were actually 203.2mm, the same caliber as US 8-inch guns.

Conversion factors between metric and "English unit" measurements use the 1959 conversion standards:

	inch * 25.4 = mm
	inch * $2.54 = cm$
	foot * .3048 = m
m * 1.093613 = yard	yard * .9144 = m

These standards defined .0254 meter as exactly equaling 1 inch, which makes conversion easier. Different conversion standards were used during WWII, but the differences are insignificant for weapon calibers. (Also, British Imperial and US customary measures differed slightly in WWII. For example, the British inch was 2.53998cm while the US inch was 2.540005cm—the difference was important for precise scientific work but could be ignored for everyday use. For example, three US inches were 3.00003 Imperial inches.)

When converting from mm to inches:

- For calibers under 30mm, I have retained three decimal places (e.g., 20mm = 0.787 inches), to show the differences between close calibers. It illustrates why .303-inch caliber MG designations bothered with the .003, as they were different from .3-inch caliber MGs).
- For calibers 30mm and above, I have retained two decimal places (e.g., 105mm = 4.13 inches).

When converting from inches to mm, I have retained one decimal place. When two decimal places are present, that is because the round's designation actually used two places (e.g., 7.62 and 7.92, both being rifle/MG calibers).

The Notes and Examples section of the table gives examples of weapons for each caliber in each major weapon type that used that caliber (e.g., mortar, AA guns, artillery). While there are many examples in this list, there's no attempt to mention every weapon in service.

The examples often cover just the major combatants of WWII, although other countries' weapons are occasionally mentioned.

The examples typically list just the country that originally made or designed the weapon, without mentioning all the other countries that might have used it.

**Rifles:** This category includes rifles, carbines, sniper rifles, paratrooper rifles, fully automatic rifles, and assault rifles. SMGs, which were shorter ranged than automatic or assault rifles, are in a separate category. Military pistols and shotguns are ignored. Calibers for hunting rifles without a corresponding military rifle are also ignored, even though hunting rifles were sometimes used by guerrilla forces in the war.

**Submachineguns:** This includes submachineguns, which were sometimes called "machine pistols" because of their use of pistol ammunition.

**Machineguns:** This includes ground, vehicular, AA, and aircraft MGs. Some weapons in the 13-20mm range were called machineguns while others were called cannons (or autocannons or machine cannons); I've included everything at or under 15mm as MG and the rest in other categories (e.g., ATG, A/cG). Various MGs could be configured as ground or AA MGs, so I

don't bother to specify AA MGs separately. I also don't distinguish between light, medium, and heavy MGs (and indeed some MGs could be configured to be used in more than one role, such as the German MG 34).

Most tanks and many vehicles carried MGs, which in most cases I do not bother to track. One exception is when the main armament of a tank is just MGs.

**Aircraft Guns:** This covers aircraft guns or "cannon" over 15mm. These include some large-caliber aircraft guns (37mm+) but exclude aircraft-mounted antitank guns and other larger guns intended mainly for antitank or ground attack purposes.

**Infantry Antitank:** These are man-portable antitank weapons for individual infantryman (or 2-man crews), such as antitank rifles, bazookas, and spring-powered projectors (British PIATs). Calibers 20mm and smaller are antitank rifles while larger calibers are rocket or spring-launched hollow-charged projectiles. Some antitank rifles were taper bore; see ATG below for notes on this. Larger-caliber weapons called antitank "rifles" that actually required a crew are included with the antitank guns. The caliber for the PIAT is the size of projectile (3.5 inches) and not the caliber of the tube that contained the spring (0.625 inches).

**AA Guns:** Many AAGs could be used as ATGs with little or no modification, but the examples do not track this much.

A number of naval guns from about 100mm to 160mm caliber were intended for dual purpose use as both naval guns and naval AA guns. However, many of these designs were inadequate as AA guns, particularly early designs that did not anticipate the speed of WWII aircraft. As far as I noticed these, such weapons are not listed as AA guns.

**Antitank Guns:** Many ATGs could be used as tank guns with little change and the examples do not necessarily track this (but see Tank Guns below).

Some antitank guns used the taper bore (or "squeeze bore" or "cone bore") bore principal, in which the barrel tapered down in caliber, firing a special round designed to utilize this method to achieve higher velocity. Both calibers are **not** always included in the listings.

During the war, some obsolescent antitank guns were given special, larger hollow-charge rounds that could be fired on sticks fitted to the guns' calibers. This turned a weapon that by mid war was ineffective against medium tanks into a short-range tank killer that was very dangerous to reload (the loader had to leave cover to muzzle-load the weapon—not exactly a safe activity when enemy tanks were around). These rounds are not listed (although the most important examples were the German 37mm and 50mm guns with 150mm stick rounds).

**Recoiless Guns:** These cover recoilless guns (including US recoilless "rifles" and Soviet "dynamic-reaction" guns).

**Mortars:** I've tried to restrict the "mortar" category to real mortars: infantry-support mortars and chemical mortars that had HE rounds. Very large-caliber "mortars" are listed in artillery, as they were used like a form of heavy artillery (or coastal artillery) rather than for infantry support. (For example, the few WWI-era 370mm French mortars that made it to WWII are included in artillery). Also, the German *Moerser* of various calibers and the Soviet 280mm *Mortira* were not mortars (despite what the words look like and what some

translations or histories might say) but instead were a type of high-angled howitzer and thus are under artillery. Finally, "Guards Mortar" was a deception name the Soviets used for their rocket artillery.

**Rocket:** This includes rocket artillery and other rocket weaponry, such as the German Nebelwerfer, Soviet Katyusha, or British Land Mattress. Rocket artillery includes tubeless rocket launchers, such as Soviet rockets that were launched from rails or German rockets launched from crates or other devices (*Ladungswerfer*). There were many aerial and naval rockets in addition to the land-base rocket artillery.

**Artillery:** This category include guns, howitzers, and other pieces typically firing conventional HE rounds. It includes infantry guns, mountain artillery, field artillery, heavy artillery, siege artillery, railroad artillery, coastal artillery (including large-caliber coastal mortars), etc. It excludes tank guns and other vehicle-mounted guns but includes towed artillery, static guns (such as in fortresses), naval guns, RR artillery, submarine deck guns, etc.

I considered making infantry guns its own category. Their main purpose was direct fire support of infantry, while much other artillery was typically (sometimes exclusively) intended for indirect fire. However, this distinction seems to obscure things more than it illuminates them. Many artillery pieces (typically 155mm and smaller) could be used for direct fire and were used in this manner on occasion. Also, some guns fully capable of indirect fire were used mostly for direct fire: Due to various factors, during most of the war Soviet divisional 76.2mm guns were used almost exclusively for direct fire. These considerations lead me to keep infantry guns in the artillery category.

Many naval guns are included, but I do not claim the listing is comprehensive. Various naval guns, either removed from ships or taken from storage, were mounted for use on land during the war, such as for coastal artillery or RR artillery. The listings do not note all such uses, especially for the Soviets, who used many naval guns from idled ships as RR (and static) artillery. Various smaller-caliber guns were mounted on smaller ships and motor boats; these could include guns listed as "Art" (such as the WW1 Royal Navy 6-pdr, which was reintroduced for some corvettes and MTBs). It also included "AAG" (the Soviet 23mm aircraft gun, which was mounted on some MTBs), and "ATG" (such as the British 6-pdr antitank gun, which was adapted for use on MTBs).

Some guns were dual-purpose, such as Italian and Japanese guns designed for both AA and coast defense use; these may or may not be listed in all their roles in the listings. As mentioned above, dual-purpose naval/AA guns that were lousy at their AA role are usually not listed as AAG.

Various guns in the 75mm to 105mm range could be fitted to aircraft, although these guns were usually problematic to use due to factors like weight or recoil. The examples ignore these aircraft mountings.

Tank Guns and Vehicle Guns: Due to the general interest in tanks, the listings make some attempt to track tank guns (usually ignoring MGs unless the MGs were the tanks' main

armament). Guns mounted on other vehicles are listed separately, with vehicles just mounting MGs being ignored (except for some AAMG vehicles). In each case, representative examples are given, rather than an exhaustive listing. In the great majority of cases, tank and vehicle guns were derived from other weapons (typically towed artillery, towed antitank guns, or towed AA guns), with just minor adaptations to fit the gun into the turret or chassis.

"Tank" includes tankettes and light, medium, and heavy tanks. Everything else falls into the "Vehicle Gun" category, like German Jagdtigers (with a 128mm ATG), Soviet SU-100s (100mm ATG), US M-36 tank destroyers (90 ATG). Things like "support" or "artillery" tanks may be classed as tanks or as other vehicles (like SPGs), depending on whether they were used like tanks or not. For example, the US M-4 support tank (105mm howitzer) is in the Vehicle Gun category classed as a SPG.

Vehicles have their mobility and armor status indicated as follows:

- Mot: Motorized, typically wheeled like trucks. Typically unarmored.
- Mech: Mechanized, typically fully tracked. Mechanized vehicles typically are at least partially armored, but the gun or its crew many not be protected.
- HT: Halftrack, typically armored. (Trucks with removable halftrack mechanisms are considered motorized.)
- ACar: Armored cars and other similar vehicles.
- SPG, SP Art: Armored, self-propelled guns and artillery (typically fully tracked). SPGs typically are direct fire weapons and may or many not have fully-enclosed armored compartments. SP artillery typically are indirect fire weapons and often have open compartments (since they are usually not as near the front as SPGs).
- AG: Fully-enclosed, armored, turretless assault guns and tank destroyers. The difference between AGs and SPGs is often slight in many cases, other than that AGs could and were used as substitute tanks while SPGs rarely were.

#### Lines on the Sand

# Who's Who in the Europa Community

Ralph Sunley

Association group, I have often wondered just who all those people are that regularly contribute to the debates and discussions that occur. Therefore I decided to put up a mini-interview in order that we might find out a little bit about anyone who wished to volunteer their answers.

I set most of the questions to *Europa* related topics but included occupation just for general interest. 23 responses were received, and they are set out on the following pages. A wide range of people contributed, ranging from relative newcomers to Europa luminaries. To each of those people, I would like to extend my thanks. I have included everyone's complete interview, with a few minor spelling and grammatical edits here and there.

As for the answers, there was again a wide range. However, a few common themes emerged. Many people liked group historical discussions, the scale of the game, and the maps/counters. There were a number of positive comments about Glory and The Great War, and a lot of different ideas about things that could be changed. A few expressed desire for a more electronic future as well. Overall, the interviews were positive about the games and the community, with a few gripes here and there.

Anyway, I had a lot of fun compiling these and I hope you enjoy reading them!

# David H. Lippman

### Occupation

Press Information Officer, Newark, New Jersey

#### First Europa game played and when?

Marita-Merkur, 1983

#### What drew you in to Europa?

Great counters, great maps, great orders-of-battle, and the unusual subject...the invasion of Greece.

## How would you describe your role in the Europa community? Any claims to fame?

Editor of The Europa Magazine, writer of articles for it, manned GR/D stand at Origins events, contributor to discussion group.

### Are you familiar with other wargames, if so, how does Europa compare?

Very....I've been wargaming since I was 10, which is to say, 35 years ago, so I know about many of them. It's definitely superior to most of the first- and second-generation wargames, including the AH and SPI games. The art on the counters is slightly behind Avalanche Press

and other recent companies, but it's still effective. The rules are comprehensive but complex—they need to be a little more reader-friendly. The research and interaction of forces is superb, as are the many concepts the games include: logistics, armor and anti-tank effectiveness, production in the WW1 series, concepts of support, stacking, and the differences between nationalities. No rubber-stamp counters, these armies!

Also, the creativity is brilliant....War of Resistance's rule for blowing the dikes on the Yellow River and slapping down a new map section to represent the diverted river and flooding thereof is astonishing.

# If you could change one thing about the game system or components, what would it be?

Probably bring back "boot camp" rules or some other simplification of the material.

#### Describe how the Europa Community has enhanced your enjoyment of the games.

Meeting the folks who play and design and put out these games has enabled me to understand what goes into them. They are great folks.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Great War has more economic issues than Europa, while Glory's complex Chinese politics is a fascinating lens on a little-known war. I think the Great War stuff has a lot more economics, but that will obviously translate up for Europa. I suspect the Glory naval system will invade Europa, and it should...the anonymous naval units bug me as a former Navy guy. However, others point out that they're land animals, so I respect their views.

## Which type of discussions do you enjoy the most in the Europa Association group?

I like the discussions on game play and the history behind the counters and scenarios. I dislike the discussions that turn into flame wars.

#### How do you see the series evolving into the future?

It'll ramp up more economics and political factors as the games get finished...hopefully, that actually happens. Boo, Cory!

### Any other comments?

Yes, I think the Europa/Glory/Great War series is one of the very best cardboard counter wargame series I've ever seen. I'm just saddened its taking so long to get done.

#### Bill Stratton

### Occupation

Retired CIA analyst. Once a spy, always a spy :-)

## First Europa game played and when?

FitE when it first came out 19??.

#### What drew you in to Europa?

Details, details, more details!

How would you describe your role in the Europa community? Any claims to fame? Minor honorable mention in a game credit and letter to Grenadier.

Are you familiar with other wargames, if so, how does Europa compare? Yes, in particular, the old SPI monster games on WW II.

If you could change one thing about the game system or components, what would it be?

Return to full-size maps, return to FitE/SE Russian counter colors.

Describe how the Europa Community has enhanced your enjoyment of the games. I enjoy the most-times intellectual discourse on the forum.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Have them, have not had time to play them, but I like what I've seen so far.

Which type of discussions do you enjoy the most in the Europa Association group? OB information, logistics related discussions, some of the historical what-ifs.

## How do you see the series evolving into the future?

Computer GE, back to full size maps, HMS back on it's feet and publishing.

## Any other comments?

Still waiting patiently for my TEM 88 and Total War. Started gaming with Tactics II in the early '60s.

## Mike Fitzgerald

## Occupation

Retired US Govt.

## First Europa game played and when?

FITE/SE - 1988

## What drew you in to Europa?

Specific unit abilities/specialities.

How would you describe your role in the Europa community? Any claims to fame?

None - None.

Are you familiar with other wargames, if so, how does Europa compare?

Yes, began gaming about 1960 - Avalon Hill / SPI/ Rand/Conflict and others. The total package, unit specialities, etc, air, sea, just a great system.

If you could change one thing about the game system or components, what would it be?

Total incorporation of TGW rules, etc.

Describe how the Europa Community has enhanced your enjoyment of the games.

Great fun, enjoy reading about others gaming experiences.

Enjoy hearing what works and what doesn't.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

TGW. While Europa was a leap forward from the games of the period, TGW has taken another step forward in the evolution of the series as a whole.

Which type of discussions do you enjoy the most in the Europa Association group? Game reports, tactic and strategy suggestions.

How do you see the series evolving into the future?

I would like to see TGW - Bloody Eagles and Balken Web completed as my interest has switched to WWI. I would also like to see the original series continue to evolve and improve - Grand Europa holds no particular interest for me because as gamers with total knowledge of what actually happened GE will devolve into a totally different historical track being taken - to each his own!

Any other comments?

No.

## Jeffery K. McGonagill

Occupation

Purchasing Clerk

First Europa game played and when?

Case White, 1987

What drew you in to Europa?

Wanted more detail than War in Europe.

How would you describe your role in the Europa community? Any claims to fame? All Quiet on the gaming front.

Are you familiar with other wargames, if so, how does Europa compare? Apples and Oranges.

If you could change one thing about the game system or components, what would it be?

The only real issue I have with Europa is the time scale. Two weeks is too long for divisional level game and 16 miles to the hex.

Describe how the Europa Community has enhanced your enjoyment of the games. I enjoy the discussions on the lists, well most of them.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

I've played War of Resistance and enjoyed it. I would like to see at Sep 1939 campaign scenario. I have The Damned Die Hard, but haven't played it yet.

Which type of discussions do you enjoy the most in the Europa Association group?

Most.

How do you see the series evolving into the future?

I would like to see Grand Europa, designed with different levels of player control, up to and including production, different complexities of naval rules, and maps, maps and more maps for every conceivable place playing Grand Europa could take a player.

## Any other comments?

HMS needs to stop revisiting games its already produced. Bringing all maps up to one standard is great, but get all new games out.

## Joey Sabin

### Occupation

Retired USMC / City Bus Driver

First Europa game played and when?

FITE - 1989

## What drew you in to Europa?

Seen it in a hobby store. The game looked just intriguing enough to explore further.

How would you describe your role in the Europa community? Any claims to fame?

None

### Are you familiar with other wargames, if so, how does Europa compare?

Europa is one of the few strategic games that give a tactical feel through specialized forces such as engineers, commandoes etc. It allows production but keeps it very historical.

## If you could change one thing about the game system or components, what would it be?

I'd create the series on VASAL, Zuntzu, and any other medium that allows players across the globe to connect and play. Despite the feeling one gets regarding players scamming out of buying the games, the opposite is actually true. People share info on the web at far greater volumes than most old war gamers care to admit or even know of. As a result, more new blood is brought into the hobby sales increase and the rest is history...

### Describe how the Europa Community has enhanced your enjoyment of the games.

New and latest errata, latest issues & cutting edge discussions about designers' intentions make the Europa community invaluable.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

I own but have not played the glory series.

## Which type of discussions do you enjoy the most in the Europa Association group?

New and latest errata, latest issues & cutting edge discussions about designers' intentions make the Europa community invaluable.

## How do you see the series evolving into the future?

I think it's getting too detailed for a strategic game and delving into too much minutia. I'd like to see it completed as one set before major changes make the last incomplete set obsolete.

## Any other comments?

Electronic OOB's & Rules on a CD so that any updates can be easily inserted, color coded for ease of recognition

etc... The US Military is slow to change and even they have seen the cost savings and gained efficiency in e-manuals.

#### Erik Wade

## Occupation

Self-employed consultant for the pharma and biotech industries

#### First Europa game played and when?

Western Desert, around 1981 or '82

#### What drew you in to Europa?

The scale and "The Dream" of one day putting together Grand Europa

### How would you describe your role in the Europa community? Any claims to fame?

I am a dedicated fan, looking for an opportunity to contribute, but without a major contribution so far. Back on the lysator list around 1997 I triggered off a discussion of music suitable to Europa which generated quite a discussion. The topic surfaced briefly within the last year or so and someone still had the list I compiled available and reposted it. But ultimately it isn't really relevant, so I haven't tried to follow it up. I've helped Stefan Farrelly, Gar and Aurthur with some translations of German texts and am willing to do so for others who may be interested.

#### Are you familiar with other wargames, if so, how does Europa compare?

I've been wargaming since I was twelve and have a reasonably large collection. Europa is my favorite because it has always put history first and is on a scale that can be modelled in a reasonably realistic fashion. ASL, for example, is fun and the components are appealing and the system quite clever, but it is hard to imagine that it is a realistic model for tactical combat. With Europa, it makes sense to argue about whether the system is modelling reality because it is close enough that it might.

## If you could change one thing about the game system or components, what would it be?

If a realistic chance of having the idea adopted is not a constraint, I would change the time scale to one week turns. Bimonthly turns make sense for the Russian Front or North Africa, but in most other cases, the system has trouble modelling the Blitzkrieg. But this is a fundamental change that is only conceivable in the context of a major redesign, which is not going to happen, so two-week turns are good enough.

In the realm of the realistic, the definitive naval system is still in the works. TDDH is the best effort to date and can probably be used more or less universally, though perhaps as an optional subsystem for theaters or campaigns where naval operations were not terribly important.

## Describe how the Europa Community has enhanced your enjoyment of the games.

Finding enough time to actually play the games is hard with a career like mine (or most people's, for that matter). The Europa Community is a quick and easy way to keep the fire burning without committing a major amount of time. Beyond that, the shear breadth and depth of the knowledge of many of the Community is amazing. Finally, the flame wars and other abuses which may be common elsewhere are rare (but unfortunately not absent) from the Community.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

I own everything HMS/GRD has produced, so I have the other titles. WoR shines a bright light in a theater that has otherwise been neglected and is difficult to comprehend. TDDH is similar, even if the campaign is better known. With the Great War series, Eric Pierce has taken the system to something like a logical extreme. Everything is there and it is far easier to see how the pieces will fit together to give Grand Great War, but the balance between playability and simulation has been tilted heavily towards simulation. I favor the decision, but I could imagine many feel it is too complex. I am looking forward to the completion of the Great War series, particularly since detailed information about the east and southern fronts are hard to come by.

## Which type of discussions do you enjoy the most in the Europa Association group?

Discussions involving little known aspects of the war are often the most interesting. I like game summaries, but sometimes they are too long for day to day reading. Rules questions are also interesting just to see how other people tick, since I do all my gaming solo.

#### How do you see the series evolving into the future?

It seems likely that the paper and pencil approach is doomed. My generation and those older may value it enough and have the disposable income to buy the games, but it is hard to imagine a 17 year old who would spend \$200 on a paper and pencil game when he can buy the latest "shooter" for his computer for \$50. One of the (sad) lessons of the computer game market is that the mass audience demands a quick and easy start. Learning Europa is like learning a language, you make a big investment upfront, which pays off later, but for quite a while it doesn't pay off at all. Much like a language, you can teach it more effectively but it is still a large amount of material to digest and there just is no easy way.

So if Europa is going to make it into the next generation, it will need to adapt. The strength of the system, the research, is almost independent of the medium. I have never quite understood why Europa didn't become a computer-assisted game early on. JET is a nice effort but has never been treated as the future.

Some computer wargames are Europa-like but something is always lacking. Sometimes the designs get carried away with bean counting, sometimes it is hard to get a feel for the overall situation, since you can only see part of the front at one time in sufficient detail. But somehow these problems need to be solved and a computer-based or computer-assisted game developed. The partnership between Wizards of the Coast and BioWare for NeverWinterNights could serve as a model. It is unrealistic for HMS to develop the skills and assets to do the programming, but a sensible license arrangement with a competent software company with a commitment to the idea and a view of the project as a research project, rather than its next cash cow, could work.

## Any other comments?

#### Gordon Johansen

#### Occupation

Owner of *The Sentry Box* 

#### First Europa game played and when?

DNO in 1973 at the local university game club. We had to write down the locations at the end of each day.

## What drew you in to Europa?

The scope of the maps and the variety of unit types

How would you describe your role in the Europa community? Any claims to fame? Designer of the One Week Europa system.

My store mails out all the subscriptions for Canada under the name of EPAC (Europa Players Association of Canada).

I've been around forever and used to deal with Winston as both a wholesaler and I would like to think, as a friend and confidant. (I certainly miss the random phone calls from him).

## Are you familiar with other wargames, if so, how does Europa compare?

I have played other games for years but nothing compares to the overall OBs and scope of Europa

If you could change one thing about the game system or components, what would it be?

Other than going to a one week turn, putting intrinsic AA on counters would be nice.

## Describe how the Europa Community has enhanced your enjoyment of the games.

It has helped maintain the interest in the system during the slow production periods. The commentary and information from most people is usually both interesting and informative.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

I have them but have not played them

### Which type of discussions do you enjoy the most in the Europa Association group?

Pretty much all of them until they get to the point of people just repeating their point of view over and over. As long as they are polite, I enjoy them.

### How do you see the series evolving into the future?

I would expect improvements to the naval system to occur

## Any other comments?

## Wolf Broszies

#### Occupation

Online Editor/Content Manager

### First Europa game played and when?

Fire in the East - 1989

#### What drew you in to Europa?

Complexity and interest in historical simulation

#### How would you describe your role in the Europa community? Any claims to fame?

Currently inactive due to other commitments, have a website devoted to gaming articles and military history (not been updated since 2005, though :)) - www.generalstab.org

### Are you familiar with other wargames, if so, how does Europa compare?

Panzer Battles, V for Victory (PC-Games), Great Battles-Series of GMT and a host of others, Europa comes out as a little bit outdated in terms of game mechanics, but still the best quality in maps and OB research

## If you could change one thing about the game system or components, what would it be?

Change movement/reserve-movement/mech movement complex to model the importance of prepared defences and the impact of mobile reserves in the second half of war.

## Describe how the Europa Community has enhanced your enjoyment of the games.

Answered lots of questions, deepened understanding of the game and gave a lot of gaming advice, found gaming partners through the online community

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Since there are several improvements in the new series, they compare favourably, especially the Great War series.

# Which type of discussions do you enjoy the most in the Europa Association group? OB/historical discussions

## How do you see the series evolving into the future?

Hopefully going digital:)

## Any other comments?

#### Alan B. Conrad

#### Occupation

Retired library clerk

First Europa game played and when?

DNO: 1975

What drew you in to Europa?

Liked BIG games

How would you describe your role in the Europa community? Any claims to fame?

Living in Champaign Illinois, is just a stones throw down the road from Normal where GDW was. We knew and occasionally helped the guys there. I helped on the first edition of Narvik and am in the credits. Have attended all but the first Europafests, which it is likely no one else can claim. Lately we have playtested Total War some eleven times.

Are you familiar with other wargames, if so, how does Europa compare?

I have played all the older games, but fewer of the newer one (like the Gamers OSC system). But in general Europa holds up adequately.

If you could change one thing about the game system or components, what would it be?

I could go on for days about this. In general the Europa system is a game system that is 35 years old and shows it. At the bottom I have attached a letter about this that I wrote some time ago for some other post. I think it has a lot of what I feel about this.

Describe how the Europa Community has enhanced your enjoyment of the games.

In general they drive me crazy because so many of them either think the game system is handed down from god, are people that are not really as educated on World War II as well as they should be when they make comments on this list, or are people who do not understand what the difference is between a game and a simulation.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

No I have not

Which type of discussions do you enjoy the most in the Europa Association group?

I enjoy learning new things about the war I did not know before. I would enjoy even more discussions about improving the game system, but there are so few of those without getting into the diatribes from the people on the list I do not like.

#### How do you see the series evolving into the future?

I suspect the system will not change enough to be the game system I would like it to be, but I do hope that at least it gets finished if nothing else.

#### Any other comments?

No I think I have said enough.

#### As advertised:

Ah well, that is a really big question. I have never actually made a 'list' of all the needed, or possible improvements that could/should be done to Europa to make it the best possible it can be. To be sure I understand that the system must have various limitations: a paper game that has such huge scope, yet has to be able to actually be playable can only do so much. But it seems the largest obstacles to actually implementing improvements is that many players like the system the way it is, or do not understand that the game does not do what it can/should, or just are not willing to change.

I have had a few days to think about this question. Here is at least a partial list of things THAT CAN be changed, as well as some that should be changed. This list is not necessarily in order of importance, although I think I have the most feasible points listed first. Note that for some of these improvements, I can not get into too much detail inasmuch as I am a playtester for the TW game. There are some things in the playtest that apply to my points, either real changes that I would like to see or at least changes potentially in the works at this time. Also some of these points are HUGE, so rather than make this post too long I will refer those interested to a future post that can go into the details necessary.

First the system needs a variable overrun. We all know the reasons. It is easy to make some improvements, a little trickier to make it all work right. This is all I can say here at the moment.

Second we need a better Combat Results Table. We are using a 1970's era CRT and there is much that we can do to improve it. Some is easy and should have been done years ago. There is more that takes a little thought, but should also be done. See my very long CRT post for all the gory details.

Third is the Zone of Control. The ZoC is also an age old idea. It has some good points for keeping game flow in line even if the historical reasons behind it are shaky. But there are few things worth changing. See my ZoC post.

Fourth is the replacement system specifically, and how unit strengths translate into how units are used on the map more generally. The full strength, cadre strength, eliminated system needs improvement. How and when units are brought back into play is poor. To see my specifics about these points see my replacements post.

Fifth is the air system. The current system is still in flux, which is good since it really only works to a point. What air units do an how they do them does not really reflect what air power does on the battlefield. Not that this is ever likely to be easy since we are working with power projection that goes many miles in a few hours in a game system that is two weeks per turn. But we can do better. For my points see my air power post.

Sixth is the naval system. I suspect that no one really likes what is in place now. Some want it streamlined, others want a real naval system. Like the aircraft time problems I stated above, nothing here is going to be easy. I don't have any specifics here, so no further posts. But we do need to work on making naval warfare integrate into Europa better.

Seventh is logistics. Europa has very little logistics in it. This is not entirely bad since almost no one wants to go through the difficulties a true logistics sub-system would entail. But since logistics are ONE OF THE MOST IMPORTANT points of Work War II warfare, we really should put a little of it in.

There are a few easy specifics that can be changed, many off which are already mentioned in some players house rules. I don't remember most them here, but many of them I would support, but as examples: a limit to the number of REs that can run off a single rail line; and air bases must be in supply for 'full' use. For more basic logistical rule changes and out of supply rules changes see my logistics post.

Eighth is stacking. In theory the stacking rule is much too simplistic, and really has no basis in history. But on the other hand it is very easy to use, so I for one have nothing in hand that I think is ready to replace it. But I would make it even more simple by eliminated the difference between battalions and regiments. I hate all those super stacks of battalions. Therefore for the purposes of stacking all battalions and regiments are one RE.

And something must be done to allow the large numbers of units, that were at times, attacking or moving through single hex spaces historically. Like other problems that can not be solved because of our time/space paper game limitations, we will never mimic history but we should do something. SF introduced to overstack concept. But to all intents as it is written it is almost useless now. I have not tested the following change but I suspect it will work. Use the current overstack rule with these changes: units take +3 MPs to move into overstack, NONE to move out of overstack. This allows one to plan for a future attack but it takes time, and the overstack is in place to do whatever.

Also it is likely, though trickier, to let units from overstack attack. Something along the lines of: units that started a turn in overstack, and have not moved in the movement phase, may participate in an attack; their combat strengths are halved; all unit abilities, e.g. armor effects, are still calculated for the entire attack; for any relevant calculations the overstack is considered an attack from a separate hex, i.e. an attack, with an overstack participating from a single hex would calculate as two hexes for ADA fire. The ability to attack from overstack might be regulated to certain nations at only certain times.

Lastly, there are some unit strengths that should be changed. Some arguments could be made for most units, but I am mostly interested in those that really affect game play. The

two that most come to mind are German assault gun battalions and Luftwaffe AA regiments. Assault gun units are tricky since they were mostly set up as infantry support units and there the 2-1-10 ratings are fair. But players use them as panzer units and stack them to make super panzer corps, which is no the way they were used. But the Germans did use them as ersatz panzers when they did not have enough tanks so one can not prohibit them from panzer use. But when used as tanks they were better on the defensive and slower than 'real' tanks so making them a 1-8 or a 1-2-8 unit does the job.

And Luftwaffe AA regiments were much better on the defense than the offense. Even as late as June 1944 there is evidence that a Luftwaffe office had to be forced to use 'his' guns on defense, much less offense, because it was 'against proper doctrine'. So a 1-2-10 rating will make these units much less useful in mass to make the super panzer corps, they are just good support units that really should be spread out for best use.

#### Alan Tibbetts

#### Occupation

US Army (National Guard) Officer

### First Europa game played and when?

DNO, 1977/78, during Christmas break.

#### What drew you in to Europa?

The scale, operational level WWII is my favorite subject to wargame and few games do it justice.

## How would you describe your role in the Europa community? Any claims to fame?

Published several scenarios in TEM/TESM. One of several GR/D representatives to Origins (forget the number) in Philly. Winner of the TEM "Defense of Leningrad" contest.

## Are you familiar with other wargames, if so, how does Europa compare?

Very familiar with a wide range of wargames of various genres. The quality of Europa games varies somewhat from title to title. The larger games hold less interest for me because I find them lacking historical realism in certain regards. Since I have not played most of the recently publish operational level board games I don't know how Europa is standing in comparison to the competition.

## If you could change one thing about the game system or components, what would it be?

I'd cut the rules by about 50% to lower complexity/increase playability. (That is in reference to SF and newer games.)

#### Describe how the Europa Community has enhanced your enjoyment of the games.

Being a member of this community has given me a much better understanding of the rules, introduced me to some great wargamers, and provided countless hours of engaging conversation.

## Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Played a couple of turns of beta test Corps Level Europa. It was interesting, but didn't see enough to get a good comparison.

Which type of discussions do you enjoy the most in the Europa Association group? Rules and strategy.

#### How do you see the series evolving into the future?

I very much hope there is an evolving future. With so many postponements of LW the future has been put on indefinite hold. We may find out soon.

#### Any other comments?

Europa is entertaining, educating, frustrating, thought provoking and all around fun.

## Richard Stoy

### Occupation

Army intelligence analyst (retired CW5)

## First Europa game played and when?

DNO in college (1973), followed quickly by WITD, TFH, FoF, etc.)

## What drew you in to Europa?

Level of detail and fairly easy to learn rules initially.

## How would you describe your role in the Europa community? Any claims to fame?

No claims to fame, just a big fan for over 30 years (includes previous GDW/GRD non-Europa games)

## Are you familiar with other wargames, if so, how does Europa compare?

SPI, GRD, GDW, and others; historical miniatures (Napoleonic, Rennaissance, Middle Ages, and Ancients); been playing since 1963 (first board games were AH's Afrika Korps and Tactics II).

## If you could change one thing about the game system or components, what would it be?

Back to the easier rules in FitE/BF; I also play TGW series so I can handle the complex systems, just prefer easier ones to master since I don't get to play a lot so time is precious.

#### Describe how the Europa Community has enhanced your enjoyment of the games.

The discussions are great and often useful, despite the often bitter exchanges between various individuals.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

As already stated, I enjoy TGW but have no real interest in the Pacific campaign (my history degrees are in Russian and Central European history and so there lies my main interest). TGW is great, a different feel and good game system, every bit as good as the original series.

### Which type of discussions do you enjoy the most in the Europa Association group?

I like the historical discussions (Europa as History things) and the tactics for different games (especially since many of my games are played solo, or mostly solo).

### How do you see the series evolving into the future?

Hopefully not toward too complex rules systems or rules details; more refined OBs as date becomes available and the rules systems evolve; not looking for dramatic changes – I like the way things are in the series, evolution not revolution or gross mutation.

#### Any other comments?

No.

### Oscar, Oliver Uriel

## Occupation

Systems Engineer

### First Europa game played and when?

Scorched Earth, some 10 years ago.

## What drew you in to Europa?

After being a WiF player, I enjoyed "seriousness" of Europa. Good balance between chrome and simplicity on old games (SE, BF, etc...)

## How would you describe your role in the Europa community? Any claims to fame?

A tiny one... I made a Spanish Loyalist/Insurgent Naval OOB using rules on TEM 54. I helped in the organisation of both "Hispafests" made to date too, reuniting some Spanish players to play. Oh, and I created Spanish Europa Association yahoo group together with Carlos Perez. I think that is all my contribution to Europa Community.

#### Are you familiar with other wargames, if so, how does Europa compare?

Yep, many so many comparations. Actually Europa games suffer from lack of modernity in the sense that modern games avoid mathematical play while Europa is perfect game for the accountants and still be despite some rules like on-demand air support.

If you could change one thing about the game system or components, what would it be?

Maybe the supply system : I would take some ideas from OCS series.

Describe how the Europa Community has enhanced your enjoyment of the games.

By creating small scenarios that can be played when u have few time....

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Glory: TDDH is a great, great game. Time scale is better then original Europa for small campaigns, and naval "super-hexes" is a great idea, must be exported to other games; never played the Chinese one. TGW: I own all games but find them too clumsy to play. I tried several times and I got lost quickly.

### Which type of discussions do you enjoy the most in the Europa Association group?

A time ago I enjoyed a lot historical-to-game comparations, but now I almost has no time to follow threads so I simply watch game publication and rules issues. Cannot say I enjoy them though.

How do you see the series evolving into the future?

Any other comments?

None

## **Bob Pryce**

Occupation

**Teacher** 

First Europa game played and when?

Their Finest Hour, late 70s early 80s

What drew you in to Europa?

TFH I love aircraft

How would you describe your role in the Europa community? Any claims to fame?

One small article on music in TEM, once tried joining all Europa games and played without the ants solo (didn't last long)

Are you familiar with other wargames, if so, how does Europa compare?

I Like Europa, maybe a defense reaction phase could be used, the counter work needs updating -e.g. I like the article on aircraft in the latest LOC no.5 Maybe a much better looking map with the new computer graphics, I like the look of the Gamers Maps.

If you could change one thing about the game system or components, what would it be?

Air craft Counters or Naval Rules

Describe how the Europa Community has enhanced your enjoyment of the games.

Only been on it a while but good to have others I can read to see what is happening

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Yes I like them both but do they detract from Europa publishing timeines for Europa only games

Which type of discussions do you enjoy the most in the Europa Association group?

Any

How do you see the series evolving into the future?

I think TW is extremely important that it sells well and more TEMs need to come out.

Any other comments?

Still my favourite game series when all is said and done

## Dean Walton, 40yr, English

Occupation

Manager, chemical analysis laboratory

First Europa game played and when?

Narvik, 1987?

What drew you in to Europa?

Started playing 'Russian Campaign' this led to FitE at university - and onwards

How would you describe your role in the Europa community? Any claims to fame? Anonymous

Are you familiar with other wargames, if so, how does Europa compare?

Have lots of the big Victory games-love the historical accuracy, but they're jut not playable Europa has the balance. OBs, maps, playable rules. All done without absurd complicated naval rules!

If you could change one thing about the game system or components, what would it be?

Front/army level supply is SO important, its abstraction prevents historical strategic decisions.

Describe how the Europa Community has enhanced your enjoyment of the games.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Love tGW, even if I can't get the first turn to work historically. Can't wait for BE

#### Any other comments?

I love people giving advice on how to play the games. I hate the discussions/arguments on people's tricks and cheats. Wow I'm sick of Italian ferries and tiny islands off the Aquitaine coast.

### How do you see the series evolving into the future?

I used to dream..... Now given up on a full on Grand Europa. All of the arsing about and lack of any action in the past few years has really dampened my ex-fanaticism

#### Any other comments?

The guy who introduced me to Europa died 7 years ago - never even saw the SoS maps that he would have loved

## Vincent François

## Occupation

Web technology consultant

## First Europa game played and when?

Winter war, around 2000

### What drew you in to Europa?

Wargame addiction and friends sharing the same pathology

## How would you describe your role in the Europa community? Any claims to fame?

No role. Fame: when, as Allies west player, I let enter 10 Panzer and PanzerGrenadier divisions into Sicilia and closed the pack, taking Messina. One turn after the reddition of the Italia, the Germany surrendered too...;-)

Are you familiar with other wargames, if so, how does Europa compare?

Yes, a lot. Europa is still for addicted player. The system is pretty old and cumbersome, especially the air system, naval system and lot of other details. We play it more for love reason that objective ones.

If you could change one thing about the game system or components, what would it be?

Air system, and maybe simplify some parts.

Describe how the Europa Community has enhanced your enjoyment of the games.

Recently, I found very useful the Europa Gamebox. It permitted to me to play solo the East front 1942 scenario while playing it in ftof with friends. I was able to train myself with the mechanism and test an overall - winning - strategy.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

No.

Which type of discussions do you enjoy the most in the Europa Association group?

Answer to rules questions, game strategy, historical information around the played period.

How do you see the series evolving into the future?

Don't know.

Any other comments?

Nothing.

### Tom Johnson

Occupation

President, Tom Johnson Games, Inc.

First Europa game played and when?

DNO, 1972 or 73.

What drew you in to Europa?

Scale, detail, OB.

How would you describe your role in the Europa community? Any claims to fame?

Started out as just a player, then contributed a bunch of articles to "Nuts & Bolts" a newsletter ran by Gary Stagliano until it was absorbed into TEM. Formed the demonstration team and worked for GDW & GRD setting up the game at major conventions, and getting new folks to try it. Contributed several articles to TEM, and developed "Master Europa",

as a rules and charts replacement taking the game in different directions, and completing the series with a strategic air, and global naval game as well as a 'grand' module.

#### Are you familiar with other wargames, if so, how does Europa compare?

I find it to be at the best operational level game on the market, there are many games that are superior to it at the lower levels, and at the higher, but nothing currently available can compete with it.

## If you could change one thing about the game system or components, what would it be?

As I am marketing a rules and charts replacement currently, I will just let that stand as my answer (grin).

### Describe how the Europa Community has enhanced your enjoyment of the games.

The community in general consists of a great group of folks who want to get things right, and are more than willing to share historical data, game results, and rules ideas to try and move things forward. There seems to be much less 'ego' and more 'us' in it.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

No, have them, but have not played them.

Which type of discussions do you enjoy the most in the Europa Association group? Rules, and historical matters.

### How do you see the series evolving into the future?

Right at this point its evolution or extinction (as a series) are about even in possibilities. The right decisions taken will continue it, the wrong ones will ensure a fade away unfortunately.

### Any other comments?

No

#### Mark Solomon

### Occupation

Self employed translator/interpreter

## First Europa game played and when?

Fire in the East - late 1970s

## What drew you in to Europa?

The detailed maps and lots of counters!

#### How would you describe your role in the Europa community? Any claims to fame?

A vital cog in the machine ie a player and purchaser of the titles! Only claim to fame is having been insulted gratuitously by John Astell on list without an apology being required because 'he was more important'...

### Are you familiar with other wargames, if so, how does Europa compare?

Have lots of other wargames. Europa is far more complicated and far more detailed -however, in all its incarnations, the companies producing Europa have been both incompetent and inefficient and that seems to be continuing. A good product ruined by lousy production. People running Europa are both over sensitive and arrogant and unlistening and far less approachable than the other people in the industry I have been in touch with.

## If you could change one thing about the game system or components, what would it be?

Bring back the GDW era standard rules.

#### Describe how the Europa Community has enhanced your enjoyment of the games.

It hasn't really, rather the contrary as it has made me determined not to hand over any money to them directly but to buy the games second hand at reduced prices. Rules clarification via the community is priceless though, the only reason I continue...

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Yes. Even more complicated and unplayable if that were possible!!

# Which type of discussions do you enjoy the most in the Europa Association group? Those about WW1; strategic what-ifs.

### How do you see the series evolving into the future?

Does it have a future?? I would LIKE to see GE finally being completed as promised nearly 40 years ago without any more unnecessary diversions, reissues of previously done games or further complications of the rules or maps necessitating purchasing the same games or components for the third or fourth times. Unfortunately I can see exactly the opposite taking place...

## Any other comments?

I have decided I will not buy any more reissued games covering subjects already dealt with - they are 'taking the piss' now by doing the Russian front '41 again. I will buy GE and I will buy future games in the Glory/TGW series, but not I fear direct from HMS.... they are probably the lousiest bunch of thin skinned unresponsive to customers guys I have ever dealt with in something that is supposed to be a fun pastime. Hate to say it but there we are!

## Stefan Farrelly

### Occupation

Unix Team Leader

## First Europa game played and when?

FitE - a long long time ago...

#### What drew you in to Europa?

Love the scale of the game and maps and rules pretty simple too.

### How would you describe your role in the Europa community? Any claims to fame?

Wrote a lot of articles for TEM and now an editor of TEM and I like HMS so much I invested money in them! Also did a fair bit of research on the Italians for Wavells War.

## Are you familiar with other wargames, if so, how does Europa compare?

Started with Avalon Hill's France 40 and Europa is much much better.

## If you could change one thing about the game system or components, what would it be?

Bigger maps!

### Describe how the Europa Community has enhanced your enjoyment of the games.

Having a community to discuss options and history and ask rules questions with rapid replies is really great.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Tried the Great War and Glory, have all the games, but like WW2 in Europe the most.

## Which type of discussions do you enjoy the most in the Europa Association group?

Grand Europa discussions. what if - but based on historical limitations at the time - not fantasy Europa.

## How do you see the series evolving into the future?

Finish the Russian Front series then into GE - Mussolini's War next covering the med for the duration of the war. Working on research for it now...

## Any other comments?

#### Luiz Cláudio S. Duarte.

#### Occupation

Lawyer.

#### First Europa game played and when?

Hm. I think it was War in the Desert, in 1997.

#### What drew you in to Europa?

The grand tactical/strategical scope of the series.

How would you describe your role in the Europa community? Any claims to fame? Just publishing LOC, I think.

#### Are you familiar with other wargames, if so, how does Europa compare?

Yes. Europa is the right command level for me --- not as low as the Operational Combat Series (for instance), not as high as World in Flames. The only comparable series is Struggle for Europe.

If you could change one thing about the game system or components, what would it be?

Less chrome.

### Describe how the Europa Community has enhanced your enjoyment of the games.

The Europa community is very, very friendly, and the Europa players have helped me (1) understand the games and (2) evolve my level of play.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

I have just bought some of them, but I haven't played them yet.

Which type of discussions do you enjoy the most in the Europa Association group? The discussions on how to better play the games.

## How do you see the series evolving into the future?

I'm not waiting avidly for Grand Europa, I think the series does not need it. That said, I think the most likely path for Europa is the publishing of link-up modules, like Wavell's War.

## Any other comments?

Not for now.

### Mark Royer

#### Occupation

Electrical Engineer

### First Europa game played and when?

Fall of France, circa 1980

#### What drew you in to Europa?

Subject matter - I'd played AH A3R extensively and Europa seemed like a monster version of that. 'course, it turned out to be much more!

How would you describe your role in the Europa community? Any claims to fame?

Weserubung scenario in TEM 30

Various TEM articles

Playtested several Europa games

Designed and Developed War of Resistance

Are you familiar with other wargames, if so, how does Europa compare?

Europa is #1

If you could change one thing about the game system or components, what would it be?

Standard rules throughout

Describe how the Europa Community has enhanced your enjoyment of the games.

I play the games for the social aspect - and the community provides exactly that.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Yep - they compare favorably - same quality

Which type of discussions do you enjoy the most in the Europa Association group?

Historical alternatives

How do you see the series evolving into the future?

Hopefully it can be completed and not continue to evolve.

## Any other comments?

I really miss the Europafests that Winston Hamilton used to run. Those were among the most fun vacations I've had.

### Stan Warrington

#### Occupation

Math and History Teacher

#### First Europa game played and when?

Drang Nach Osten Sometime in the fall semester of 1973.

### What drew you in to Europa?

The scale of the game.

### How would you describe your role in the Europa community? Any claims to fame?

I just got back into this a few months ago, so I couldn't say that I have a role. I can't say that it is a claim to fame, but DNO hadn't been out very long at all when I first played it. The owner of the game said that bought it as soon as it came out. He saw me playing PanzerBlitz and asked me if I was interested in a game that was played on a "slightly larger scale". Nobody had been willing to play him, so I helped punch out the pieces of one of the very first games.

#### Are you familiar with other wargames, if so, how does Europa compare?

I've played several different games on differing scales. Other games are frequently more playable, but none as informative.

## If you could change one thing about the game system or components, what would it be?

I hadn't played a Europa game since the mid-70's until I played Scorched Earth a few months ago. From that experience I would have said that the air rules needed total revamping, but I've since seen the Second Front air rules and I find them vastly superior. Since these games, Unentschieden and The Fall of France are the only ones that I've looked at so far I'm not knowledgeable to the point that I can intelligently comment on needed rules changes.

### Describe how the Europa Community has enhanced your enjoyment of the games.

The different points of view expressed are interesting. If I read several emails I almost always learn something interesting.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

No.

## Which type of discussions do you enjoy the most in the Europa Association group?

I learn a lot of useful factual information from OB type comments, but I enjoy the flights-of-fantasy commentary.

How do you see the series evolving into the future?

Any other comments?

## Ralph Sunley

#### Occupation

Computer technician

#### First Europa game played and when?

Narvik, 1984

#### What drew you in to Europa?

The maps and counters were just unlike any other game I'd ever played until then. The games have really given me a lot of insight into WW2 that I didn't previously have.

### How would you describe your role in the Europa community? Any claims to fame?

Fame, well hmm not exactly. A published letter in one of the first TEMs, a couple of LOC articles and occasional posts on the Association list. Basically just a long time player.

## Are you familiar with other wargames, if so, how does Europa compare?

I'm familiar with quite a few others, I do enjoy World in Flames for its political and production aspects, but the OBs and maps of Europa are second to none. Plus no other system provides a relatively consistent interface for all the major European campaigns.

## If you could change one thing about the game system or components, what would it be?

I'm not totally happy with the naval rules but the thing I would like to change is exploitation. I think cavalry should have limited exploit capability, and I also think infantry should in certain situations (ie if they do not move before attacking)

## Describe how the Europa Community has enhanced your enjoyment of the games.

The magazines and Association group really provide extra dimensions to the games. The people in the community have such a wealth of knowledge that I learn something almost every time I take a look.

# Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

No, I haven't had the chance.

Which type of discussions do you enjoy the most in the Europa Association group?

What-if scenarios and historical discussions

#### How do you see the series evolving into the future?

I think we will have a GE one day. A dream would be a computerised version with full AI capability.

#### Any other comments?

Europa has provided me with many hours of enjoyment, even though I don't often have a chance to play ftf games any more. Look forward to its continued development.

#### Lee Hanna

#### Occupation

House-dad, or stay-at-home father. Someday, I will infect, er, instruct my sons into Europa.

## First Europa game played and when?

Narvik, 1982, give or take a year. It was at the convention of the Ohio State game club (always held around my birthday). My brother bought that, and I bought Star Fleet Battles, and I've been hooked on both monsters since then.

#### What drew you in to Europa?

The idea that one could play more than one theater with the same rules. It meant to me and my brother that one could try different strategies, but compare them across different campaigns. It also meant we could concentrate our allowance money on a single series, without risking money on a loser. I think we bought WD and FoF within a year of Narvik.

### How would you describe your role in the Europa community? Any claims to fame?

I've been a mailing list member for years, a participant in many years' worth of Origins Europafests, and I am the Rules Judge volunteer for the Glory games. I participated in the playtests of Scorched Earth, War of Resistance and Total War.

### Are you familiar with other wargames, if so, how does Europa compare?

Not so many games, as I like to sink my money into one system and play that over & over. Having said that, I do like the OCS series and hate the GMT Barbarossa games.

## If you could change one thing about the game system or components, what would it be?

Something to streamline the naval system, but that eludes me, too.

## Describe how the Europa Community has enhanced your enjoyment of the games.

I've made contact with the Guru and had many questions answered, met many friends and opponents for PBEMs.

Have you played any of the spin-off titles from Glory or The Great War? How do

#### they compare to the original series?

I've played each series' games a handful of times, and I like several of the concepts seen there. Some have crept into Europa games as experiments.

#### Which type of discussions do you enjoy the most in the Europa Association group?

The ones where someone muses about a choice not made, and other provide lots of little-known information about why or why not things happened the way they did. When they go well, without sniping or posing, they are the best of reading.

#### How do you see the series evolving into the future?

My hope is to see game production resume. I would really like to see the Glory and TGW series completed.

#### Any other comments?

It's been a great time.

#### Paul Bove

#### Occupation

High School History Teacher

#### First Europa game played and when?

DNO/UND

## What drew you in to Europa?

I liked the idea of a campaign sized game with the player having near complete operational control.

## How would you describe your role in the Europa community? Any claims to fame?

I have written one article for the Europa Magazine and go though periods of being a heavy contributor to the list.

### Are you familiar with other wargames, if so, how does Europa compare?

Yes. I love Europa's high level of accuracy, but would like to see some updates of to the Europa system that could be engineered without revising existing games, in other word things that could be distributed as on-line rules editions, but would not require replacing an existing game.

## If you could change one thing about the game system or components, what would it be?

I think there need to be more logistical constraints in the major games. Like some sort of method of tracking attack supply, but perhaps without the counters used in War in the Desert or for Whom the Bell Tolls.

Describe how the Europa Community has enhanced your enjoyment of the games.

It's given me a lot of insight into how to effectively play the games and potential fixes for the various problems.

Have you played any of the spin-off titles from Glory or The Great War? How do they compare to the original series?

Although I have a game from each of these series, I haven't had the opportunity to play them.

Which type of discussions do you enjoy the most in the Europa Association group? I'm fond of game reports, strategy tips and the historical discussions.

How do you see the series evolving into the future?

I'd like to see more linking scenarios starting with one of 1939-1940.

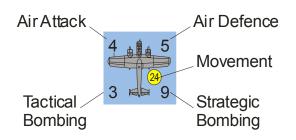
Any other comments?

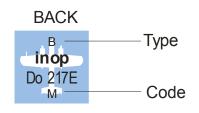
## **Counters, We Need More Counters**

## **Aircraft Counters for Balkan Front and Icarus**

Duncan MacLean

This article rounds up Duncan's set of new aircraft counters for Europa. See the previous issue for more details.

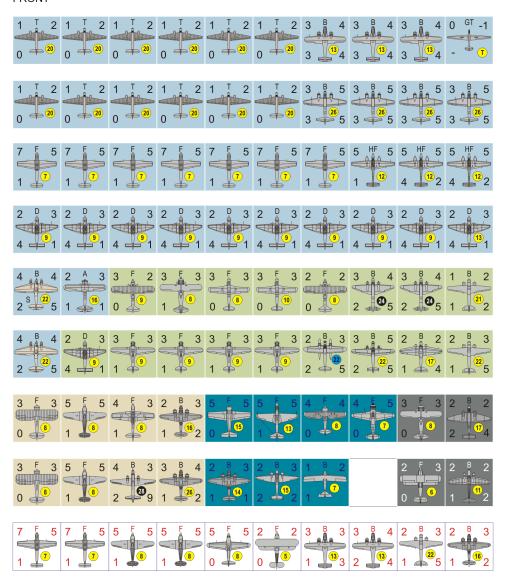




- Night Capable
- 29 Jet Propelled
- Rocket Propelled
- Floatplane/Flying Boat
- Carrier Capable

#### **BALKAN FRONT AIRCRAFT**

**FRONT** 

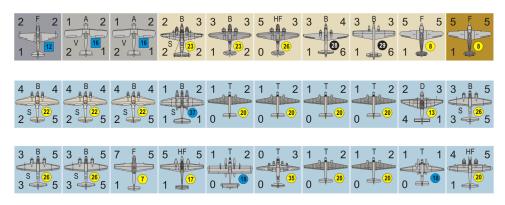


BACK

| inop<br>DFS 230 | inop<br>Do 17Z  | inop<br>Do 17Z  | inop<br>Do 17Z  | inop<br>Ju 52   |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| inop<br>Ju 88A1 | inop<br>Ju 88A1 | inop<br>Ju 88A1 | inop<br>Ju 88A1 | inop<br>Ju 52   |
| inop<br>Bf 110D | inop<br>Bf 110D | inop<br>Bf 110C | inop<br>Bf 109E |
| inop<br>Ju 87R  | inop<br>Ju 87B  |
| inop            |
Mxd B	BR.20M	BR.20M	Mxd F	G.50bis	G.50	CR.42	CR.32bis	Mxd A	He 111H4
SM.79-I	SM.81	Z.1007b	Z.506B	MC.200	MC.200	MC.200	MC.200	Ju 87B/R	He 111H4
Ju 86K	CR.42	MB.151	P.24F	P-40B	F4F-3A	Blen 1	Mxd F	Hurri 1	Glad
Mxd B	inop B.534		inop Mxd B	Mxd B	Mxd B	Blen 4	inop Well 1C	inop Hurri 1	inop Glad
Blen 1	inop SM.79-I	Do 17Kb	Do 17Ka	inop Fury	inop IK-Z	inop Hurri 1	inop Hurri 1	Bf 109E	Bf 109E

## **OPERATION IKARUS AIRCRAFT (TEM #65)**

FRONT



**BACK** 

inop	inop	inop	inop	inop	inop	inop	inop	inop	inop
Hurri 1	Hurri 1	Whit 5	Well 1C	Blen 4F	Blen 4	A 28	Sword	Sword	Mxd F
inop	inop	inop	inop	inop	inop	inop	inop	inop	inop
Ju 88A1	Ju 87R	Ju 52	Ju 52	Ju 52	Ju 52	He 115B	He 111H4	He 111H4	He 111H4
inop	inop	inop	inop	inop	inop	inop	inop	inop	inop
Ju 88C2	Ju 52see	Ju 52	Ju 52	Mxd T	Mxd T	Bf 110D0	Bf 109E	Ju 88A1	Ju 88A1