INTRODUCTION

It is 05:40 hundred hours, (sixty one minutes after dawn), Sunday 21st July 1861. The battle of (First) Bull Run (or Manassas) • has already begun. Brigadier General Daniel Tyler sounded reveille for his division at 02:00 hundred hours. Thousands of men have been on the move under the diffusing moonlight since 03:00 hours. Sometime around 04:30 hundred hours the first small arms fire happened. In the pre-dawn half-light two Confederate videttes fired at some of Tyler's skirmishers before spurring their horses away. The game starts seventy minutes later and ends fifteen hours after that at 20:40 hundred hours (ten minutes after sunset). The action took place in the North American state of Virginia. In the country between Chestnut Lick in the north west, and the Occoquan River and Fairfax railway station in the south east. In Prince William County. The battlefield map represents an area of circa 160 square miles (414 square kilometres). Superimposed on it is a hexagonal grid. Each hexagon represents an area circa of one hundred and ten yards (circa one hundred metres diameter) across.

Each picture of an infantryman, artilleryman, flag bearer, cavalryman or horse represents one man or one horse. There

are also pictures for individual smoothbore or rifled artillery pieces.

A player is allowed to take five minutes to play a turn. This turn represents five minutes of battle time. It is a remorseless pace. If you are close to the enemy you won't have much time to think things through. Regimental movement *en masse* will often be necessary simply because you will not have time to move companies individually. At the completion of a turn play halts for the server to calculate new dispositions. This takes circa ten minutes.

COMPANIES I

Infantry are grouped into companies of between 76 and 84 men. This assumes that 20% of the paper strength of an infantry company (nominally 101 men in the U.S. Army) were absent on the day of the battle. Union cavalry are grouped into companies of 72 men each. The figure of 72 reflects the notion that 18% of the paper strength of the US cavalry company (88 men) were absent on the day of the battle. Confederate Cavalry are grouped into companies of 64 men. The figure of 64 assumes that 15% of the paper strength of a cavalry company (there was no fixed paper strength for Confederate cavalry in July 1861

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The game is fought to completion in twelve weekly episodes each episode represents one and a quarter hours of the battle (fifteen turns) and so takes three and three quarter hours to play allowing for server processing time. Server processing time will vary (between circa seven to thirteen minutes depending on how much is going on). Each episode starts at 06:00 hours Pacific Standard (Los Angeles) Time, 14:00 hundred hours Greenwich Mean (London) Time and 12:00 midnight Kilo (Brisbane) Time on a Saturday.

Army orders and despatches use the *US Declaration* font. Map labels and terrain features use Gauge font. Order menus & unit names Munson font. This rule book

COMPANIES II

but 75 men was average), were sick or absent on the Sunday of the battle. On 8 July 1861 the actual combined infantry and cavalry figure in the Confederate Army of the Potomac (Beauregard's) was 18% under strength. Companies are the basic manoeuvring unit of the game. Although players control the number of sections (each company has four) deployed to the skirmish line, and issue orders to individual flag parties and officers most orders are issued to the companies or perhaps even more often to regiments.

Optima font •• This book is available in game as are key tables distilling the information in the rule book into a handier form. There are also discussion videos on Youtube.

DIVISIONS

Regiments are grouped mostly into brigades. Usually commanded by a Brigadier-General with two to four regiments per brigade. Brigades are not manoeuvred as a single unit. In order to manoeuvre a brigade (or higher unit such as a Federal division) multiple players have to collaborate or failing that at least follow orders.

REGIMENTS

Companies are grouped into regiments. It is possible to issue a manoeuvring (movement and deployment) order to whole regiments who then manoeuvre as a single unit. Indeed, with only five minutes to play each turn there often won't be time to issue orders to individual companies. A key reason why companies were drilled to manoeuvre as regiments in life was, as it is in the game, to speed things up for the commanding officer (usually a Colonel).



FOG OF WAR

A character of generalship, namely, insight into the enemy despite ignorance, for example, because of the smoke and dust which obscured vision at First Bull Run even of what was close to hand, is at the heart of this game. As is the emphasis in my design on dealing with other people. In these ways the game is quite unlike, and more real than, many other computer games. Thirdly, the design is attentive to detail. Historical Engineering aims to bring the subject of its models to life, in part, by verisimilitude.

REALISM

• The Brigade Commanders (Chain-of-Command)

At *First Bull Run* the Union Army of North Eastern Virginia attempted to outflank the Confederate Army of the Potomac reinforced by elements of the Confederate Army of the Shenandoah so combined into a new, as yet unnamed, army. This Union outflanking manoeuvre was of great promise but was frustrated. It was stymied by the fact that it took longer than planned. In a sense this was because it followed an unintended route a decision for which there was a logic, proabably false, which in turn was brought on by the route not having been adequately scouted. Despite this the battle could easily have been a Union victory. In this sense the delay was not of itself decisive. More important was the initiative shown by certain Confederate brigade commanders. Perhaps most spectacularly by, as Colonel Cocke, correctly referring to him by his pre-battle rank, called him, "Major" Evans. Nathan Evans was referred to by his subordinates as "General" (he was promoted such circa November 1861). Evans referred to himself, in after action reports, as Colonel (he was brevet promoted such circa 25-Jul-61 confirmed circa August 1861) and so this was not necessarily hubris. Regardless of how he was hailed Evans showed the initiative necessary to stall the Union threat. If Evans were to be criticised it would be for not following sooner his instinct to abandon the position he had been deployed, before the start of the battle, to defend. He was not alone among brigade commanders in seizing the initiative. Bee, Bartow and Jackson were also crucial, by acting decisively and beyond their orders, to the Confederate victory. Bee, for example, was ordered toward the Stone Bridge but took it upon himself, while in the latter stages of being en rout there, to move instead toward the sound of guns (to support Evans) arriving just in time to prevent the Confederate position being overwhelmed. Hampton, say and by contrast, albeit in his defence having only just arrived by a circuitous rout from Richmond, moved to support Evans by virtue of orders to do so from Beauregard. But Hampton too had already displayed some initiative by ordering his cavalry and guns to follow him independently by road from Richmond so that he could at least get his infantry to Manassas Junction in time (which he did arriving about 02:30 hundred hours) for the battle.

Less locally, and earlier, General Johnston also showed initiative, in the nick of time (though it would have been even more decisive if he had set off 24 hours earlier), by bringing most of the Army of the Shenandoah to the battlefield, to reinforce the Army of the Potomac, by train. Without this movement the Union would have won perhaps spectacularly. Strategic redeployment by train on interior lines was an action first proposed (in the North American context) in writing, to his credit, by Colonel Cocke of whom it could be said, less generously, that at the battle he showed rather a lack of initiative. General Johnston slipped away from Harper's Ferry, fifty

Convincional Officer carrying the United Cropping IIIN 1861 Battle Flag Hardee Hat for dress uniform was associated with Secretary of War (future Confederate President) Jefferson Davis. In the South the hat was unsurprisingly known as the "Jeff Davis". But in the North it was the "Hardee Hat" after Captain William J Hardee 2nd Dragoons (appointed Commandant of Cadets at West Point 1856), the author of the era's best known drill manual: "Rifle and Light Infantry Tactics for the Exercise and Manoeuvres of Troops When Acting as Light Infantry or Riflemen".

> Sergeant (Non Commissioned Officer) of the Regimental Flag Party (in this instance he has failed to loop his hat) ...

Before 1861 field officers, infantrymen and artillerymen were to loop up the left of the hat. From 1861 only infantry to avoid the weapon usually carried by the left hand at either shoulder or support arms.

Cross Straps brass buckle.

FIGURE 4. **US Colours (Battle Flag)**

miles to the north west of Manassas, without the Union General Patterson (b. 1792 d. 1881) •••• who was deployed to his front realising that he had gone. Only in a game with players interacting at distance, and the breakdowns in communication this will cause, can the importance of individual initiative on the 19th century battlefield be brought alive.

• Aide de camp (Communications)

When players wish to communicate they must dispatch an aide-de-camp with written messages or move a played-forcharacter to talk. The flow of communication across the battlefield is constrained, as it was in reality, by the time it takes to do this and the skill with which authors state their case in writing or utterance (players can video chat when close on map). Only like this can the nature, and importance, of 19th century battlefield communications be made real.

• Fire by rank and mid 19th century tactics

Infantry officers sought to withhold fire for as long as possible in order to maximise fire effect by volleying at the shortest possible range for maximum effect before smoke got in the way. On the other hand, holding fire for too long might result in rout if the enemy fired first with sufficient effect. In this design, in which the emotions of general officers are decisive, such tactical weighing of the scales is represented.

Holding fire until the last moment was also vital in repelling bayonet charges but dangerous if one's own men bolted first. Bayonet charges rarely resulted in significant, or indeed any, casualties. One side usually routed before the two came to blows. Therefore a sense of the morale of friend and foe was also characteristic of the better field commanders. For example, in the fighting for Matthews Hill most historians believe that Evans, who I was so careful to praise, threw Wheat's Tigers, the Louisiana Special battalion, that formed part of his demi-brigade at the Union Line because he thought it was wavering. This would have been timely if it had been true. And the attack did disrupt the Union attack that was preparing. But it only delayed the attack failed to rout them and actually broke the Tigers. The Tiger's then routed.

• The Regiment

Infantry were drilled to act by section, platoon, company, regiment or brigade. Much fire and movement on the battlefield will have been by company and even more so by regiment obeying orders that had been drilled into the men hitherto at least ideally. Regimental movement characterised warfare even though, as battles unfolded, regimental organisation tended to break down. This was because following practiced actions was simple and fast. Deployment orders in the game allow

	A REAL PROPERTY.	11
TABLE 1. What if?WHAT IF?The base probability of Confederate independence is taken to be 12.4% in 1861, 10% in 1862, 7% in 1863, 2% in 1864, 0.1% in 1865		In Theatre [Virginia (16,200), Maryland, Delaware, New Jersey (8,000 the three), Harpers Ferry (14,300) and Pennsylvania (15,700)]
A. Probability of Confederate (C.S.) independence following a C.S. victory, at First Bull Run, with a 25% chance of happening, twice as great as in reality - Union casualties & captured (6,200) and Confederate casualties (3,030). In this case 28,200 Union troops (of the initial 34,800) survive to fall back (with 9,200 reserves inc 7th Mas) on 3,800 militia (inc. 200 Clay Guards) in Washington giving it a garrison of 41,200 • • • •	x1.01% (12.6%)	28-Jul-1861 Federals 79,200 Confederates 46,200
B. Probability of C.S. independence as a consequence of a decisive Confederate military victory at First Bull Run, with a 6% chance of happening, four times as great as the real victory so with Union casualties (12,400) and Confederate casualties (4,040). In this case 22,400 Union troops survive Bull Run to fall back on Washington and make a garrison of 34,400 too formidable a force to assault if entrenched within Washington's fortifications.	x1.02% (12.7%)	28-Jul-1861 Federals 72,400 C.S. 45,200
C. Probability of independence as a consequence of a crushing Confederate military victory at First Bull Run, with a 2% chance of happening, eight times as great as the real victory so with Union casualties & captured (24,800) and Confederate casualties (5,050). In this case 10,000 Union troops survive Bull Run to fall back on Washington and make a garrison of 22,000. A siege, or high risk assault, of Washington would have been possible.	x1.06% (13.2%)	28-Jul-1861 Federals 60,000 C.S. 44,200
D. Probability of Confederate independence as a consequence of a Confederate 19th century Cannae at First Bull Run, with a 0.5% chance of happening, about ten times as great as the real victory so with Union casualties (31,000) and Confederate casualties (6,060). In this case 3,000 Union troops survive Bull Run to fall back on Washington and make a garrison of 15,000. In such a case Washington could have been taken by assault. But if not a siege would probably have been instituted. Moreover, such a victory might have sucked Federal reserves into the vortex so that Washington might have been left even more exposed. By 11-Aug-61 US reinforcements would be 2,000. Confederate 1,300.	x1.10% (13.7%)	11-Aug-1861 Federals 55,800 Confederates 44,500
E. Increased probability of C.S. independence if B (above) or C (above), result in the Confederacy occupying Maryland and Delaware including Wilmington (the largest place of Union warship construction ahead of Brooklyn), while putting Washington D.C. under seige. I take it if B happened there would have been a 10% chance of these outcomes by 11-Aug-61 and if C a 20% chance.	C+ Cx 1.07% (14.1%)	11-Aug-1861 Federals 63,200 Confederates 45,500
F. Increased probability of C.S. independence as a consequence of D (above) resulting in the Confederacy occupying Maryland, Delaware, including Wilmington, Washington D.C. New Jersey and the city of Philadelphia by 11-Aug-61 at a 20% chance.	D+ Dx 1.16% (15.9%)	11-Aug-1861 Federals 44,800 C.S. 45,500
G. Probability of C.S independence if D (above) resulted, with a 10%% probability, in the Confederacy occupying, by 18-Aug-61, Maryland, Delaware, including Wilmington, Washington D.C. New Jersey, the cities of Philadelphia, New York and Brooklyn	Dx 1.43% (19.6 %)	18-Aug-1861 Federals 41,800 C.S. 45,500
H. Probability of C.S. independence if D (above) resulted in the Confederacy occupying Maryland, Delaware, including Wilmington, Washington D.C. New Jersey, the cities of Philadelphia, New York and Brroklyn, and the states of Kentucky and Missouri	Gx 1.27% (24.8 %)	25-Aug-1861 Federals 41,600 C.S. 48,500
I. If Maj-Gen. Polk had, on 03-Sep-61, forbidden Brig-Gen. Pillow from enering Kentucky leading, at a 10% (the state was Unionist albeit 19.5% enslaved) chance, to Kentucky remaining neutral for twelve months longer until 04–Sep-1862. The impact is halved as Kentucky was moving towards intervention anyway so that Confederate restraint might not have made a difference.	x1.10% (13.56%)	
J. Probability if Davis had, in April 1861, purchased 400,000 bales of cotton for warehousing in England and gradual sale.	x1.02% (12.7%)	
K. If, in combination with G, Davis had, in Apr. 1861, purchased 400,000 bales of cotton for warehousing in England and gradual sale.	G x1.02 (20%)	
L .In March 1861 the Foreign Minister stated that Spain would recognise the C.S. if France did. Spain was afraid of the consquences of siding with the C.S. if the C.S lost. In March 1861 Spain annexed Santo Domingo which became a major distraction. As did Mexico (where Spain lead allied forces) from 12–Nov-1861. Spain would have recognised the C.S. if Spain thought the C.S would win.	x1.20% recognition (14.9%)	01-Aug-1861 (half of this 20% effect is deemed to be the effect on France)

12 transferrent benefat Baukatenet is soon to memory **MORE WHAT IF?** TABLE 2. The base probability of Confederate independence is taken to be 12.4% in 1861, 10% in 1862, 7% in 1863, 2% in 1864, 0.1% in 1865 More What if? M. Effect of the Lincoln Administration not issuing the proclomation of emancipation until 01-Jan-1864. The military effect, owing to weaker Union forces as a result Base x 1.2 of no black enlitstments (0.18 million of whom circa 0.07 million in 1863 and 0.15 million in 1864-5 in reality), is x 1.04. The effect owing to the greater probability (14.9%)of British recognition of the Confederacy is x 1.16 summed to x 1.2 and applied to G. N. If the Davis administration had authorised operations over the border, with Lee as field army commander, ten months earlier (May 1861) than it did (May 1862). x1.5 (18.6%) O. If the Lincoln Administration had issue the procolmation of emancipation on 01-Jan-1862 (as Secretary of Sate Seward favoured). x0.84 (8.4%) P. Effect on the probability of Confederate Independence if the Davis administration had authorised military operations over the border, with Jackson as field army x 1.56 commander, six months earlier (January 1862) than, it did. The assumption is that Jackson is a 20% better (less fond of the frontal assault) general than Lee but that (19.3%)the benefit of Lee being potentially given the main field command six months earlier than it could conceivably been given to Jackson offsets that by 80%. Jackson Q. If there had been no ban on the export of cotton from September to December 1861 and an all exports tariff of 12.5% the Confederacy could have obtained, x 1.05 (13.0%) circa, \$34 million p.a. from it. In fact the Confederacy enacted an import tarriff of 12.5% in May 1861. Of a hypothetical export tarriff on (\$40 million) of cotton the export ban would therefore have cost the government \$5 million. In practice the loss would have partially occurred anyway owing to the Union blockade which, we might estimate, would have caught circa 30% of exports (40% of weapons imports were caught in 1862) reducing de facto revenue loss to \$3.5 million. Assuming the economy accounted for 40% of the Union advantage a reduction in Confederate expenditure of \$1.5 million annualised amounts to circa 2.5% of the Confederate military economy in year one of the war (expenditure being circa \$50 million May to November 1861). This was, however, a hypothetical loss. The government did not propose a tarriff on exports but on imports. An absence of exports was not directly hurting its revenue at all. The measure will have indirectly hurt both confidence and the economy with a net effect on the war of, say, 0.5%. The more significant impact of the measure was the damage it did to relations with the British Empire where even a slight nudge in sentiment might have made the difference between recognition and not. Nov 61' x 3.3 R. If the French Empire had, at a 40% chance, allied with the CSA in Nov. 1861 or, with a 20% chance, from 07–Jan-62 (by which date 10,000 French troops (40.9%), Jan 62' were tied down at Vera Cruz which their, at the time, Spanish allies had secured 17-Dec-61). Alternatively, with a 13% chance, after the French invasion of x3 (30%), Apr Mexico began (18-Apr-62) and after the Union occupation (25-Apr-62) of New Orleans. Fourthly, from circa 15-Aug-62, after 30,000 French reinforcements 62' x 2.6 (26%) reached Mexico (taking the forces in theatre to 40,000), with an 8% chance, and fifth, after the preliminary emancipation proclamation 22-Sep-62, with an 5% Augt 62' chance of France entering the war. Sixth at 4% in Feb. 1863. Of the 200% impact of French intervention in Nov. 1861 40% derives from the US navy being x1.8 (18%), Sep destroyed by the French and 20% from blockade breaking. 30% of the impact is from change in the naval balance of power. The 200% figure assumes initial 62' x1.7 (17%), French intervention would have been half hearted and that year one French infantry would not exceed 90,000 and never exceed 270,000 (in year three). S. Probability if the British, at a 20% chance, entered the war as Confederate allies in November 1861, with a 6% chance from 01-Apr-62 or 2% chance from Nov 61' x 5 22-Sep-1862. An intervention by both the French and British empires would increase the probability by +120% effect to the first three percentages in Q. (62%), Apr 62' x T. Probability of C.S. Independence if Dixie had embraced 5% emancipation. For example if, with effect from January 1862, two years earlier than was x 1.25 (15.5%) advocated (for all slaves) by Confederate Arkansas Major-General Patrick Cleburne (who was politely ignored) in January 1864, emancipation of male slaves 61' aged 18-23 upon completion of a five year conscription had been implemented. The Confederate army would have been 12-16% larger. U. Probability of Confederate Independence if the Seven Days Battles to 01-Jul-62 had led to the destruction, with a 10% chance of happening, of 90,000 Union 6% mili. + 6% troops for Confederate casualties of 30,000 (the reality was 18,000 Union casulaties for 19,000 Confederate). If Jackson had followed Lee's orders the chance of fore. affa. = xthis happening would have been, say, 40%. Benefits in foreign reaction similar in wieght to military effect. 1.12 (12% 62')

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regiments to alter their formation and position in an orchestrated fashion often centred on the regimental colours as would have been the case in life with the same advantage of economy adhering to *en masse* action in play as in reality. The Drill manuals laid down where individual officers and non-commissioned officers should stand in relation to the line infantry. When players take advantage of regimental movement en mass, which they need not do, these drilled positions are adopted automatically by the men so that players can focus on war fighting rather than the minutiae of company movement. Although it could be argued that many of the regiments at the battle had received very little drill regiments were mostly mustered together so that men could identify themselves in regimental terms. Even without adequate drill when the regimental commander gave an order, repeated as applicable, by the line officers men would naturally tend to seek to obey it and if unsure look to those beside them who might know how to. So a universal high standard of training was not essential to ordered movement *en masse*.

WHAT MIGHT HAVE BEEN

The idea has become popular that the Confederate States of America could not have won the American Civil War at the beginning on 21 July 1861 with a single devastating blow. The superior strength of the Union was bound to tell in the end. This idea has lent the events of the battle a patina of irrelevance.

• The idea of irrelevance is justified by reference to the US forces in reserve under New Jersey Brigadier-General Runyon in and around Washington D.C., which were indeed substantial (13,000 including 3,800 Washington D.C. militia and 2,800 of McCunn's brigade in Washington D.C. and 900 7th Massacusetts outside the capital), under US Major General Patterson on the Shenandoah (18,000) as well as the much larger forces gathering and drilling across all the Unionist states. This is one and it is about the balance of infantry power.

•The idea of inevitability is also justified by the hypothesis that the United States would still have fought on even if Washington D.C. and Maryland were lost in August 1861 which is no doubt true. It is two and is about political will.

• Also there is the insight that, following the preliminary proclamation of emancipation on 22-Sep-1862 (published 23-Sep-1862 announced in detail 01-Jan-1863), it became (though this counted for less in Paris than London it was by no

FIGURE 5. Federal infantry Un,

> Infantry were equipped with both muskets and rifled-muskets of diverse model ranging from circa 1810 to 1861.

The shell jacket was infantry issue until 1857, of wool, cotton or linen it was frequently worn in July 1861 The Federal forage cap 1859 was taller than the 1861 (or pre-1855) forage caps. In the field, dress, Hardee, hats were also often worn.

1-1-1

1861

The US Sanitary Commission (a civilian organisation supporting the US Army) specified any dark colour but specifically not white socks. The Quartermaster's office described socks as grey but this was not necessarily a requirement. The most common colour was probably blue.

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means irrelevant to the French Foreign Ministry) even more unlikely that the British Empire would enter the war• - it is three and a matter, in relation to determining the outcome of the war, of foreign (notwithstanding the importance of the 179,000 blacks who joined the Union armed forces) affairs.

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• Another reason for thinking US victory was inevitable was that President Davis, until May 1862, was opposed to offensives beyond the boundaries of the Confederate States (some argue that this was the strategy he should have stuck with though that view is mistaken). Probably Brigadier-General Gideon Jason Pillows' occupation of Columbus in Kentucky was the exception that proved President Davis' rule, but despite the Kentucky legislature voting 69 to 26 in favour of neutrality on 16-May-61 by the time Major General Polk ordered Pillow into Columbus on 04-Sep-61 circa 80% of Kentuckians were Unionist so declining to violate its neutrality was becoming redundant. That is four and is the matter of strategy.

• That the Union had two and a third times more people, nine times more manufacturing, is five and it's about economics and particularly the ability to fund a vast army. The Union fielded 57% larger an army on average throughout the war. This is actually much less than the population difference would lead one to expect. In a sense we might say that the Confederacy militarised more deeply and tried harder to win than the Union but it was not enough in the context of the Union's greater might. The Confederacy did export 30% more goods and services by value (US\$225 million - of which cotton was circa \$156 million) than the Union states (\$175 million) in 1860 but this potential advantage that the Confederacy possessed was not as great as it needed to be even if