

Europe's Earliest *Kriegsspiel*? Book Seven of Reinhard Graf zu Solms' *Kriegsregierung* and the 'Prehistory' of Professional War Gaming

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ABSTRACT

*The history of professional war gaming is usually understood to have begun around the turn of the 18th to the 19th century and mainly associated with the Prussian *Kriegsspiel*, with chess-based predecessors traceable down to a game published in 1664 by Christoph Weickmann. Yet already a century before Weickmann and more than two centuries before the invention of the Prussian *Kriegsspiel* a Hessian nobleman published a game of cards that was intended to be used both for preparing young noblemen for military decision-making and for supporting command and control in the field. It thus may well have been the earliest professional war game of the post-medieval period.*

Introduction – why war gaming matters

The decades following the end of the Napoleonic wars saw significant technological progress, setting a process in motion that would eventually change the nature of warfare quite dramatically. Throughout the 19th century, innovations appeared in rapid succession, often making newly introduced technology obsolescent after a mere decade. To take but one example, during the half-century between the end of the Napoleonic period and the emergence of Prussia as continental Europe's foremost military power at the end of the Franco-Prussian War of 1870/71, the Prussian infantryman's main weapon would develop from a smoothbore musket with an effective range of less than 100 yards to a bolt-action rifle capable of hitting targets at up to 1,000 yards, completely changing the dynamics of infantry combat.¹ Moreover, by 1870 rifled breech-loading artillery was able to keep up a high rate of fire at ranges of 3,000 yards and beyond.² By the end of the century, armies had thus

¹ For an introduction see Hans-Dieter Götz, *Militärgewehre und Pistolen der deutschen Staaten 1800-1870* (Stuttgart: Motorbuch, 1978).

² For a good introduction to German artillery developments of the period see Hermann von Müller, *Die Entwicklung der Feld-Artillerie in Bezug auf Material, Organisation und Taktik, von 1815 bis 1870* (Berlin: Robert

changed almost beyond recognition compared to the century's early decades, and while ceremonial uniforms could still hark back to these earlier days, European armies around 1900, equipped with modern artillery, machine guns and magazine rifles, had very little in common with their forerunners of the first half of the 19th century. Yet despite the rapid technological and tactical progress that was to continue up and into the First World War, one innovation that had its roots even in pre-Napoleonic times not only never lost its relevance due to technological progress – its importance actually increased steadily ever since its original introduction: the Prussian *Kriegsspiel*.

For half a century the *Kriegsspiel* set the Prussian army, which was alone in regularly employing professional war gaming as a training aid even though it had seen discussion already in the 1830s and 1840s in Bavaria and Austria, apart from all other major European military arms.³ It was only after the Prussian victory in 1870/71 that the use of professional war games did finally spread throughout Europe, and rapidly so.⁴ Yet despite these slightly uneasy beginnings, the importance of professional war gaming can hardly be overestimated. As armies have used war games ever since and are likely to do so for the foreseeable future, the *Kriegsspiel* is probably the Prussian army's most important and longest-lasting legacy. To this day, military establishments all over the world use conflict simulations, or war games, to train military decision-makers. At the end of the Cold War, a study commissioned by the US Department of Defense identified well over 300 different war games, war game scenarios or war-game-related models employed at the time by the US military alone.⁵

In fact, the use of war games as a training aid for the military could well be the most enduring Prussian contribution to the art of war at all. Indeed, one may speculate that when in 200 years other Prussian contributions, ranging from *Auftragstaktik* down to goose-stepping, have long sunk into oblivion, military establishments will still

Oppenheim, 1873). For the importance of the Prussian artillery in the war of 1870/71 see Geoffrey Wawro, *The Franco-Prussian War. The German Conquest of France in 1870–1871* (Cambridge: Cambridge University Press, 2003), pp. 57-60.

³ See for example Wilhelm Freiherr von Aretin, *Strategonon. Versuch, die Kriegführung durch ein Spiel anschaulich darzustellen* (Ansbach: Dollfußische Buchhandlung, 1830) or Thomas Ignaz Leitner von Leitentreu, 'Über Kriegsspiele und deren Nutzen', in *Österreichische Militärische Zeitschrift* 1847/6, pp.253-279 and 1847/7, pp. 26-39; in both cases however, war gaming failed to gain official recognition. Unfortunately, this part of the history of professional war gaming in the 19th century has almost completely failed to attract scholarly attention; it is briefly mentioned in Bernhard Berger, 'Gespielte Vorbereitung auf den Ersten Weltkrieg. Die operativen Kriegsspiele in Österreich-Ungarn', in *Österreichische militärische Zeitschrift*, vol. 38 (2000), pp. 595-604, p. 595.

⁴ Konstantin von Altrock, *Das Kriegsspiel. Eine Anleitung zu seiner Handhabung* (Berlin: Ernst Siegfried Mittler und Sohn, 1908), p.166.

⁵ *Catalog of Wargaming and Military Simulation Models. 11th Edition*, (Washington, DC: Force Structure, Resource, and Assessment Directorate, 1989).

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employ war games in some way or another to prepare their decision-makers for future conflicts. To put it slightly differently, war games matter quite a lot to military decision-makers and, as a consequence, it would be quite unwise for military historians to ignore them. After all, the results of military decision-making feature rather prominently in military history.

Ever since the first volumes of rules and sets of gaming aids, the so-called *Apparate*, were distributed among Prussian regiments in the summer of 1824, professional war games have been used for two distinct yet equally important purposes.⁶

First, they allowed officers to gain experience in handling formations in anything from small skirmishes to large-scale battles whenever 'proper' manoeuvres could not be staged, be that for reasons of adverse weather, financial constraints, or anything else. In fact, given that throughout the first decades of the *Kriegsspiel's* existence manoeuvres during winter time were usually avoided, many Prussian officers probably had spent more time at the war gaming table than on the training ground. The officers who successfully commanded large formations in the 1866 and 1870/71 wars had learned their trade to a considerable degree by means of the *Kriegsspiel*, and they were quite aware of the fact and ascribed considerable importance to its value as an instructional tool.⁷ The employment of the *Kriegsspiel* may in fact have influenced operational and strategic planning even before the 1866 war as the very first strategic war game in Prussia, played in 1847 by the officers of the Berlin garrison, focussed on a hypothetical war between Austria and Prussia.⁸ On a lower level, with the *Kriegsspiel* becoming a regular feature in the mess life of many a regiment in the Prussian army, the importance of having proper maps and being able to make the most out of them was drilled into the participants of the *Kriegsspiele*, although this could sometimes have side-effects not always entirely conducive to the furthering of military proficiency.⁹

⁶ Ernst Heinrich Dannhauer, 'Das Reißwitzsche Kriegsspiel von seinem Beginn bis zum Tode des Erfinders 1827', in *Militair-Wochenblatt*, no. 59/56 (1874), pp. 527-532, pp. 529-530.

⁷ The Austrian colonel Edmund Edler von Mayer, writing in 1871 of his impressions of the 1870/71 war was not alone in his opinion, yet he may have put it most pointedly in stating that *mit Hilfe ... [des Kriegsspiels] können alle Gebiete des militärischen Wissens ... gleichsam praktisch angewendet werden und zwar mit Berücksichtigung von Factoren, welche kein anderer Lehrbehelf instructiver und der Wirklichkeit angepasster zur Anschauung bringen kann* (emphasis in original text; Edmund Edler von Mayer, *Eine Studie über das Kriegsspiel* (Vienna: Verlag des militär-wissenschaftlichen Vereins, 1874), p. 5).

⁸ Friedrich Wilhelm Beutner, *Die Königlich Preußische Garde-Artillerie, insbesondere Geschichte des 1. Garde-Feld-Artillerie-Regiments und des 2. Garde-Feld-Artillerie-Regiments. Erster Band* (Berlin: Ernst Siegfried Mittler, 1889), pp. 308-309.

⁹ Franz von Zychlinski, *Geschichte des 24ten Infanterie-Regiments. Zweiter Theil: 1816-1838* (Berlin: Mittler's Sortiments-Buchhandlung, 1857), pp. 198-199, describes how the younger officers of *Infanterieregiment 24* during a *Kriegsspiel* at the officers' mess became what may probably best be described in the words of Thomas Hughes as 'beastly drunk'.

Apart from helping shape future military decision makers, the *Kriegsspiel* also served as an important medium for transmitting the effects that technological progress could have on warfare to those taking part in it. From the surviving *Kriegsspiel* rules, it is clear that right from the beginning the rules designers were putting considerable effort into using real-world data as the basis for the *Kriegsspiel*'s combat resolution mechanics. While the very first *Kriegsspiel* of 1824 was based on weapons performance data accumulated between 1800 and 1812 and published in 1813 by Gerhard von Scharnhorst, successive war games rules adjusted the effectiveness of gunfire and musketry according to the rapidly-changing technology of the period.¹⁰ Thus, while the Prussian infantry went through seven different infantry rifles between 1824 and 1888, the *Kriegsspiel* saw at least 16 different sets of rules down to the end of the century, testifying that great care was taken to make the *Kriegsspiel* experience as realistic as possible.¹¹

The *Kriegsspiel* as well as professional war games outside Prussia are therefore essential for understanding how military establishments in and beyond Europe reacted to the impact of technology on war. While the history of technology is an important part of military history, studying the hardware alone is quite insufficient. Instead, it is important to analyse what the decision-makers actually made out of the capabilities of the hardware at their hands, and one of the key instruments of learning how to do so was the employment of professional war games. Military history abounds with examples of innovative and potentially highly capable technology that failed to live up to its expectations because it was employed in a way that prevented it from being used to its full potential.

The Prussian *Kriegsspiel* and its (pre-)history

Given its importance it is obvious already that when trying to understand the Prusso-German army of the 19th century, which one would hardly call an under-researched subject, it is rather important to understand the *Kriegsspiel* as well. One could therefore be forgiven for assuming that the study of professional war games is

¹⁰ Gerhard von Scharnhorst, *Über die Wirkung des Feurgewehrs*, (Berlin: G.E. Nauck, 1813). For successive updates see, for example, *Anleitung zur Darstellung militairischer Manöver* (Berlin: Ernst Siegfried Mittler, 1846), pp. iii-iv; Wilhelm von Tschischwitz, *Anleitung zum Kriegsspiel* (Neisse: Joseph Graveur, 1862), p. iii; Wilhelm von Tschischwitz, *Anleitung zum Kriegsspiel. Zweite, verbesserte Auflage* (Neisse: Joseph Graveur, 1867), p. iv; Thilo von Trotha, *Anleitung zum Gebrauch des Kriegsspiel-Apparates zur Darstellung von Gefechtsbildung* (Berlin: Ernst Siegfried Mittler, 1870), pp. iii-iv. Already the 1828 *Supplement* to the original *Kriegsspiel* had adjusted the effectiveness of artillery firing canister according to actual experience, as they had been considered too powerful in the 1824 rules: see 'Supplement zu den bisherigen Kriegsspiel-Regeln', in *Zeitschrift für Kunst, Wissenschaft und Geschichte des Krieges*, 1828, vol. 13, pp. 68-105.

¹¹ The list in Altröck, *Kriegsspiel*, pp. 162-174, on which most of the existing research into the early history of the *Kriegsspiel* is usually based, is incomplete and lists only thirteen.

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already an integral and well-established part of military history. That however is far from the case, even if a significant amount of literature on designing, running and analysing professional war games does exist.¹² In fact, despite its huge impact on the Prussian military in particular and on military history in general, the Prussian *Kriegsspiel* has seen fairly little scholarly attention in the past. Outside general overviews, of which there are only a handful currently extant and which usually focus on developments in the 20th century,¹³ research has mostly concentrated on what is generally assumed to have been the 'original' invention by a Prussian artillery officer, Baron Georg Heinrich von Reisswitz.¹⁴ Reisswitz had based his game to a considerable degree on an earlier invention by his father Georg Leopold which dates back to 1812.¹⁵ Unfortunately, studies into these *Kriegsspiele* are often based on mid- to late-19th-century literature and only rarely on an analysis of the actual publications.¹⁶ Also, while they certainly had a significant amount of novel features they did anything but come out of the blue, a fact that Georg Leopold von Reisswitz openly and repeatedly acknowledges.¹⁷ Instead, the *Kriegsspiele* of 1812 and 1824 had a fairly complex 'prehistory', so to speak. This prehistory has so far failed to attract scholarly interest; as a result, it lies now largely in the dark.

Only one of the immediate predecessors of Georg Leopold von Reisswitz, the Brunswick mathematician Johann Christian Hellwig, has received more than token

¹² For general introductions see, for example, Philip Sabin, *Simulating War: Studying Conflict through Simulation Games* (London: Continuum, 2012); Peter P. Perla, 'Why Wargaming Works', in *Naval War College Review*, vol. 64 (2011), pp. 111-130; Peter P. Perla and Michael C. Markowitz, *Conversations with Wargamers* (Arlington, VA: Center for Naval Analyses, 2009); Peter P. Perla, *The Art of Wargaming* (Annapolis, MD: United States Naval Institute Press, 1990).

¹³ See for example Martin Van Crefeld, *Wargames: From Gladiators to Gigabytes* (Cambridge: Cambridge University Press, 2013), pp. 145-153; Milan Vego, 'German War Gaming', in *Naval War College Review*, vol. 65(2012), pp. 106-147; Berger, *Gespielte Vorbereitung*; Daniel Hohnrath, 'Prolegomena zu einer Geschichte des Kriegsspiels', in Angela Giebmeier and Helga Schnabel-Schüle (ed.), 'Das Wichtigste ist der Mensch'. *Festschrift für Klaus Gerteis zum 60. Geburtstag* (Mainz: Philipp von Zabern, 2000), pp. 139-152; Werner Knoll, 'Die Entwicklung des Kriegsspiels in Deutschland bis 1945', in *Militärgeschichte*, no. 20 (1981), pp. 179-189, Francis J. McHugh, *The United States Naval War College Fundamentals of War Gaming*, 3rd ed. (Newport, RI: Naval War College Press, 1966), pp. 2/1-2/58.

¹⁴ Georg Heinrich von Reisswitz, *Anleitung zur Darstellung militairischer Manöver*, (Berlin: Trowitzsch und Sohn, 1824).

¹⁵ Georg Leopold von Reisswitz, *Taktisches Kriegs-Spiel oder Anleitung zu einer mechanischen Vorrichtung um taktische Manoeuvres sinnlich darzustellen* (Berlin: Gebr. Gädicke, 1812).

¹⁶ Accounts of the *Kriegsspiel*'s early history are usually based on Dannhauer, *Das Reißwitzsche Kriegsspiel*, and Anonymous, 'Zur Vorgeschichte des Reißwitz'schen Kriegsspiels', in *Militair-Wochenblatt*, vol. 59/73 (1874), pp.693-694. Notable exceptions are Jon Peterson, *Playing at the World: a History of Simulating Wars, People and Fantastic Adventures from Chess to Role-Playing Games*, (San Diego, CA: Unreason Press, 2012), pp. 221-247 and Spenser Wilkinson, *Essays on the War-Game* (Manchester: Manchester Tactical Society, 1887), pp. 7-14.

¹⁷ Reisswitz explicitly calls his own invention [eine] *Art des Helwigischen Spiels* (Reisswitz, *Taktisches Kriegs-Spiel*, p. ix).

attention in recent years, and one could be forgiven for assuming that designing professional war games was a fringe activity, with Georg Heinrich von Reisswitz simply having a stroke of luck in gaining official recognition for his invention.¹⁸ In fact, however, it was quite the opposite, indeed designing professional war games could almost be described as something of a fashion around the turn of the 19th century in Germany, with a surprisingly large number of persons with very different backgrounds involved in the preparation or publication of war game rules.¹⁹

The already-mentioned Hellwig, who served at the Brunswick court as a master of pages and lectured at the officer training institution of the Brunswick army, had published a first version of his war game in 1780. The game was not only clearly designed as a training instrument for young officers; that a large number of Brunswick, Danish and even British officers could be found among its subscribers also suggests it was seen as such by the military professionals of the time.²⁰ Hellwig continued to work on his game over the following two decades, publishing a supplement to his rules in 1782 and a completely revised version in 1803.²¹ Hellwig had evidently taken chess as his starting point, and although he had tried to break with as many chess traditions as possible, his game even in its fully-developed 1803 version could not deny its direct descent from chess. While the game board now incorporated various terrain features, it was still composed of squares, with the figures moving according to rules very similar to those for chess pieces. The game also lacked any combat resolution mechanism beyond the simple taking of pieces in range.²² Even so, Hellwig's game would nevertheless exert considerable influence on later inventors.

¹⁸ See for example Rolf F. Nohr and Stefan Böhme, *Die Auftritte des Krieges sinnlich machen. Johann C. L. Hellwig und das Braunschweiger Kriegsspiel* (Braunschweig: Appelhans, 2009).

¹⁹ To give but one example, Georg Leopold von Reisswitz mentions in his *Anleitung* not only his predecessors Johann Christian Hellwig, Johann Georg Julius Venturini and Johann Ferdinand Opiz, who had all published rules between 1780 and 1806 and are discussed in some detail below, but also his contemporaries Carl Phemel, a Berlin official, and Philipp von Wussow, a lieutenant in a Berlin guard regiment (Reisswitz, *Taktisches Kriegs-Spiel*, p. xii), as well as the Breslau cleric Johann Ferdinand Hagen and a financial official named Tschiersky (p. ix-x) who were all involved in the design or the modification of rules for war games.

²⁰ Johann Christian Ludwig Hellwig, *Versuch eines aufs Schachspiel gebaueten taktischen Spiels* (Leipzig: Siegfried Lebrecht Crusius, 1780); for the list of subscribers, see pp. v-x.

²¹ Johann Christian Ludwig Hellwig, *Versuch eines aufs Schachspiel gebaueten taktischen Spiels. Praktischer Teil*, (Leipzig: Siegfried Lebrecht Crusius, 1782); Johann Christian Ludwig Hellwig, *Das Kriegsspiel: Ein Versuch, die Wahrheit verschiedener Regeln der Kriegskunst in einem unterhaltenden Spiele anschaulich zu machen* (Braunschweig: Karl Reichard, 1803).

²² This is most obvious in Hellwig, *Versuch*, p. 17; Hellwig, *Kriegsspiel*, pp. 28, 34-36 offers a somewhat refined version in that it includes separate rules for close and ranged combat, though both are based on the principle of a direct and predictable result.

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Near the end of the century, Johann Georg Julius Venturini published a new war game, again with a number of Brunswick and Danish officers among the subscribers.²³ Venturini was a productive military theoretician who had published several studies on various aspects of military tactics, strategy and military history and apparently seen service in the Brunswick army as well; on the frontispiece of his 1798 war game publication he calls himself *Herzoglich-Braunschweigischer Ingenieur-Leutnant*.²⁴ There is a direct connection between Hellwig and Venturini in that Venturini's teacher, the German liberalist, officer and Brunswick professor of military science Jakob Eleazar de Mauvillon, had been both a colleague and a friend of Hellwig and, after Hellwig had overcome some initial scepticism, highly interested in the new war game.²⁵ Hellwig eventually bequeathed the game to de Mauvillon's son, Friedrich Wilhelm de Mauvillon, a Prussian army officer and prolific writer, who republished it in 1822.²⁶ It is hardly surprising then that Venturini saw his own game mainly as an addition to and an improvement over Hellwig's invention and stated so in his introduction.²⁷ Venturini further refined the map used by Hellwig (although he also stuck to terrain squares), included logistics in the game, and introduced terrain as a factor in his combat resolution mechanism, which also allowed for units getting 'wounded', losing most of their combat capability in the process.²⁸ Despite these new inventions, however, the basic mechanism still owed much to chess, and just like Hellwig, Venturini also had chosen a very large and abstract scale for his game, with one figure representing a brigade of infantry or a formation comparable in size.²⁹

In the few general accounts that do exist about the prehistory of the *Kriegsspiel*, Hellwig and Venturini usually get some mention as the direct forerunners of the Prussian invention. A third important inventor, however, is nowadays all but forgotten, probably because he had no connection whatsoever to the Brunswick war

²³ Johann Georg Julius Venturini, *Beschreibung und Regeln eines neuen Krieges-Spiels, zum Nutzen und Vergnügen, besonders aber zum Gebrauch in Militair-Schulen* (Schleswig: J. G. Röhbß, 1798); for the list of subscribers, see pp. ix-xii; it also included the Prussian *Ingenieur-Akademie*, which ordered three copies.

²⁴ Johannes Kunisch, *Gerhard von Scharnhorst. Private und dienstliche Schriften. Band 3: Preußen 1801-1804* (Cologne: Böhlau, 2005), p. 59, n. 1; on Venturini, see also Lee W. Eysturild, *The Formative Influences, Theories, and Campaigns of the Archduke Carl of Austria* (Westport, CT: Greenwood Press, 2000), pp. 32-33.

²⁵ On Mauvillon, see Jochen Hoffmann: *Jakob Mauvillon. Ein Offizier und Schriftsteller im Zeitalter der bürgerlichen Emanzipationsbewegung* (Berlin: Duncker & Humblot, 1981); Hellwig, *Kriegsspiel*, p. iv.

²⁶ Friedrich Wilhelm de Mauvillon, *Ueber die Versuche die Kriegführung durch Spiele anschaulich darzustellen* (Heiligenstadt: J. C. Dölle & C. Brun, no date); originally published in 1822 in the *Militairische Blätter*, pp. 54-55. On Friedrich Wilhelm de Mauvillon see Bernhard von Poten, 'Mauvillon, Friedrich Wilhelm von', in *Allgemeine Deutsche Biographie*, no. 20 (1884), pp. 714-715.

²⁷ Venturini, *Beschreibung*, p. xviii-xx. The best introduction to Venturini's game is Peterson, *Playing*, pp. 217-221.

²⁸ Venturini *Beschreibung*, on logistics see pp. 34-43; on combat resolution see pp. 75-88, on "wounded" units see pp. 17-18, 66-68.

²⁹ *Ibid.*, p. 16.

game designers. In 1806 a certain Giacomo Opiz published another *Kriegsspiel* that had been designed by his father, a Bohemian bank official by the name of Johann Ferdinand Opiz. According to Johann Ferdinand Opiz, the game was originally invented in the 1740s, thus predating the games of Hellwig and Venturini, both of whom were naturally quite unaware of Opiz's game as its inventor never got around to actually publishing it until his son produced the 1806 edition.³⁰ It is probably due to a damning statement by Konstantin von Altröck that Opiz's *Kriegsspiel* never saw any serious scholarly attention.³¹ Von Altröck notwithstanding, this is not easy to understand as, after all, Georg Leopold von Reisswitz explicitly mentioned Opiz more than once as an important inspiration of his game.³² In fact, Opiz's *Kriegsspiel* was a significant improvement over the other two games. While it was also based on a map made up from terrain squares, Opiz not only included terrain as a factor but also introduced for the first time dice in order to determine casualty numbers.³³ Over a total of 90 paragraphs, Opiz provided detailed rules covering various scenarios including the taking of prisoners or the use of barges and pontoon bridges. The scale of Opiz's game was still fairly large – for infantry he used battalions as basic units – but he had already arrived at employing actual units, as opposed to the fairly abstract large bodies of men used by Hellwig and Venturini, and thus was well on his way to the later *Kriegsspiel*.³⁴ Likewise, his tokens also already had the abstract, rectangular shape typical of the *Kriegsspiel*, even if the design differed in detail.³⁵

Together, Hellwig, Venturini and Opiz form the last phase of the *Kriegsspiel*'s prehistory and provided key inspiration for Georg Leopold von Reisswitz when designing his 1812 war game. Of the three, Opiz's *Kriegsspiel* occupies a special position as it is the likely origin of von Reisswitz's decision to employ dice for casualty determination, something that was a key feature of the *Kriegsspiel* until the emergence of the so-called *Freies Kriegsspiel* in the mid-1870s. The prehistory of the *Kriegsspiel* can however be traced back in time well beyond these three war game designers, although it has attracted little interest in the recent past.

³⁰ Giacomo E. Opiz, *Das Opiz'sche Kriegsspiel, ein Beitrag zur Bildung künftiger und zur Unterhaltung selbst der erfahrensten Taktiker. Ausführlich beschrieben von dem Erfinder Johann Ferdinand Opiz* (Halle: Hendels Verlag, 1806). Despite its importance for the invention of the Prussian *Kriegsspiel* which was acknowledged by Georg Leopold von Reisswitz (Reisswitz, *Taktisches Kriegs-Spiel*, p. xiv), Opiz has been all but forgotten nowadays.

³¹ Altröck calls it *taktisch minderwertig* (Altröck, *Kriegsspiel*, p. 161).

³² That Opiz does indeed find mention in Spenser Wilkinson's 1887 sketch of the early history of professional war gaming might let one wonder whether other research on Georg Leopold von Reisswitz's *Kriegsspiel* that fails to mention Opiz is actually based on more than only a very superficial reading of the original publication.

³³ Opiz, *Kriegsspiel*, pp. 44, 74-76.

³⁴ *Ibid.*, p. 59.

³⁵ *Ibid.*, pp. 51-55. Opiz did not totally rely on abstract tokens, though, employing small mounted figures for generals: see p. 56.

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Usually, the history of professional war gaming is understood to be an offshoot from the history of chess, which, given the nature of the games of Hellwig, Venturini and Opiz, is quite understandable. Going back in time beyond Hellwig, one finds one of the earliest attempts at designing a war game dating to the year 1664. Then Christoph Weickmann, a wealthy Ulm merchant famous for assembling and making accessible to the public one of Germany's oldest collection of art and curiosa, published the *Newerfundenes grosses Königsspiel*.³⁶ Yet while it cannot be denied that chess was important in the development of wargames, the early history of chess also shows that it was not exclusively designed for wargaming purposes. During the 17th and early 18th century there also existed a tradition of card-based war games, the most famous one probably being Gilles de La Boissière's 1698 *Jeu de la guerre* which saw several reprints and translations well into the 18th century.³⁷ While these card-based games obviously lacked the complexity of games derived from chess, they achieved a somewhat higher degree of visualization compared to games utilizing rather abstract markers. As the card-based games tried to represent different types of units by actually depicting them, one could argue that they have a rather early place in the development of what nowadays is understood as miniature war gaming.

It is this tradition of card-based games which can be traced even further back than the 17th century. Already about a century before Weickmann's *Königsspiel* and La Boissière's *Jeu de la guerre*, a fairly well-known military professional of his time had turned his mind to simulating certain aspects of warfare by means of a game of cards, thereby designing what appears to be the earliest war game in post-medieval Europe. It is on this game, which so far has seen very little scholarly attention, that the present paper will focus.³⁸

Reinhard Graf zu Solms – military engineer and author

Reinhard zu Solms was born in October 1491 in the central Hessian town of Lich as the eldest son of an old German aristocratic family; his father, Philipp zu Solms, was

³⁶ Christoph Weickmann, *Newerfundenes grosses Königsspiel* (Ulm: Balthasar Kühn, 1664). On Weickmann and his game see Hilgers, *Kriegsspiele*, pp. 32-38.

³⁷ Gilles de La Boissière, *Le Jeu de la guerre ou tout ce qui s'observe dans les Marches et campements des armées, dans les batailles, combats, sièges et autres actions militaires, et exactement représenté avec les définitions et les explications de chaque chose en particulier* (Paris: J. Mariette, 1698).

³⁸ The only substantial description of the game extant can be found in Friedrich Uhlhorn, *Reinhard Graf zu Solms, Herr zu Münzenberg* (Marburg: N. S. Elwert Verlag 1952), pp. 187-190. Uhlhorn, while giving a fairly detailed account of the game, was mainly interested in its position within the literary oeuvre of zu Solms and did not put it into the context of the history of professional war gaming. See also Friedrich Uhlhorn, 'Die hessische Kriegswissenschaft im 16. Jahrhundert', in *Hessenland*, no. 51 (1940/41), pp. 179-190, p. 188 with Abb. 167.

actively involved in the politics of his time and a staunch supporter of the emperor.³⁹ Reinhard's early years lie mostly in the dark. He first gained military experience when he entered the service of Franz von Sickingen in 1516. Again, few details are known about this period; he took part in von Sickingen's campaign against Antoine, Duke of Lorraine, and spent some time in France after Francis I had hired von Sickingen.⁴⁰ Already his time in France appears to have gained him the reputation of an expert on artillery, as he was invited to Prussia in 1518 in order to inform the *Hochmeister* of the Teutonic order about recent developments in the field. It is not known whether he actually went to Prussia.⁴¹ Despite initial sympathies for Franz von Sickingen's cause, he did not join him in the Knights' Revolt in autumn 1522.⁴²

During the following years Reinhard zu Solms, who had married in 1524, became regarded as something of an authority on military matters. From 1531 he was involved in the reconstruction of the fortifications of the city of Hanau and in 1534 he took part in the siege of Münster during the Münster Anabaptist rebellion.⁴³ When in 1536 the Italian war broke out, he joined the imperial army of the Count of Nassau, who put him in charge of his artillery and had him supervise the mining operations during the, ultimately unsuccessful, siege of Peronne. From 1538 onwards, he was then in charge of redesigning the fortification of the city of Ingolstadt and spent the following years in the city, turning the medieval city walls into modern fortifications capable of mounting artillery. Although financial constraints prevented him from completely turning his design into reality, he was widely seen as the 'founder' of Ingolstadt fortress; accordingly, in 1839 an equestrian statue of Solms was put up on the outside of the newly reconstructed *Äußere Kreuztor*.⁴⁴

He left Ingolstadt in 1543 and soon joined the service of Emperor Charles V, who again put him in charge of the artillery and the siege train. During the summer of 1544 he directed the bombardment and mining operations during the siege of St Dizier, which fell on 17th August.⁴⁵ When two years later the Schmalkaldic War broke out, he was promoted to *Feldmarschall* and put in charge of the logistics of the imperial campaign, while in the following year he was commanding the city of Frankfurt.⁴⁶ Throughout these troublesome years zu Solms was also repeatedly employed on diplomatic missions by the emperor and after the military collapse of

³⁹ Uhlhorn, *Reinhard*, pp. 10-14.

⁴⁰ *Ibid.*, pp. 18-19.

⁴¹ *Ibid.*, p. 20.

⁴² *Ibid.*, p. 27.

⁴³ *Ibid.*, pp.44-48.

⁴⁴ Anonymus, 'Nachrichten vom Juni. Skulptur', in *Morgenblatt für gebildete Leser – Kunst-Blatt*, no. 33/61 (1839), p. 244.

⁴⁵ Uhlhorn, *Reinhard*, pp. 67-68.

⁴⁶ *Ibid.*, pp. 74, 84.

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Schmalkaldic league was tasked with overseeing the razing of fortifications in Hessen.⁴⁷ His reputation as an expert on fortifications may have been one of the reasons for this assignment.

He spent many of the following years spent at his home in Lich, every now and then serving as a special envoy for the emperor, mostly for the purpose of recruiting troops.⁴⁸ During this time he also developed a keen interest in various administrative matters and in both the organisational and technical aspects of minting coins, which led the emperor to make him one of his *Münzkommissare* in 1549.⁴⁹ Two years later the conflict between the emperor and the French king resulted in yet another war in which several German Protestant princes sided with France. Zu Solms, who was a prominent imperial loyalist, was captured by Hessian noblemen in February 1552 and released only in September of the same year. After his release he joined the emperor's forces and served again as *Feldmarschall*, now with the army of the Duke of Alba who laid siege, ultimately unsuccessfully, to the fortress city of Metz in winter 1552/53. In 1554 he travelled to England and from 1557 onwards spent some time with the English contingent in Northern France, taking part in the Battle of St Quentin in August 1557.⁵⁰ After his return he continued to be actively involved in the politics of his time, though after the abdication of Charles V in 1556 he ceased to be directly employed by the emperor. Instead, he served from 1560 onwards as the colonel of the Upper Rhenish Circle. In September 1562, zu Solms died and was buried in the *Stiftskirche* in Lich.

The “Kartenspiel”

In an age when military literature, which had been all but unknown in the medieval period, was prospering again, it comes as little surprise that a successful soldier like zu Solms also was to some extent a man of letters.⁵¹ He left a small oeuvre of works, only a part of which have been published. Apart from a small collection of dialogues, the writings of zu Solms can be categorized into works covering military and military technology matters and works of a general political nature.⁵² The latter focus on the history, role, privileges and obligations of nobility in society and include the *Beschreibung vom Ursprung, Anfang und Herkhomen [sic] des Adels*, which was first published in 1561 and apparently proved so popular that after zu Solms' death it was

⁴⁷ Ibid., pp. 90-97.

⁴⁸ Ibid., pp. 112-118.

⁴⁹ Ibid., p.113.

⁵⁰ Ibid., pp.136-37.

⁵¹ Rainer Leng, 'Zum Verhältnis von Kunst und Krieg in den illustrierten Kriegslehren des 15. und 16. Jahrhunderts', in Jutta Nowosadtko and Matthias Rogg (ed.), „*Mars und die Musen*“. *Das Wechselspiel von Militär, Krieg und Kunst in der Frühen Neuzeit* (Münster: Lit-Verlag, 2009), pp. 33-58, pp. 36-42.

⁵² Uhlhorn, Reinhard, pp. 145-52.

reprinted in Frankfurt, without authorisation by zu Solm's heirs.⁵³ His military writings reflect zu Solms' own career and specialisation and thus it is hardly surprising to find a treatise on fortifications as his first publication; first appearing in 1535 it saw a second, revised edition in 1556.⁵⁴ Beside his interest in fortifications, he also wrote on administrative aspects of warfare. His main military work however was the *Kriegsbeschreibung*, an encyclopaedic study of military science, aiming at covering all relevant aspects of warfare. The *Kriegsbeschreibung* was printed in stages from 1559 onwards by a printing press zu Solms had established at his residence in Lich, and by 1562 eight books and parts of a ninth were published.⁵⁵ A typical representative of military encyclopaedias of the time, the *Kriegsbeschreibung* covers a wide array of different subjects from military history to the casting of guns.⁵⁶ Where it differs from contemporary works of a similar nature is in its seventh book, which is of particular interest for the historian of war gaming. This book is nearly exclusively devoted to a game of cards, simply called the *Kartenspiel*. In the publication, zu Solms both describes the game in some detail and provides various templates for the cards, which makes it possible to get a fairly precise idea about it.

The basic setup of the game is simple. Each card represents either a military 'unit', meant here simply as a body of a given number of fighting men, or a higher-ranking officer together with his retinue. The cards come in two different colours, red and black, and two different designs, one providing a small miniature and in some cases additional numerical information, the other with plain text, in some cases also giving the name of the officer commanding the unit. The names are taken from the history of the Punic Wars, with the red set representing the Carthaginians and the black set the Romans, giving the cards a slightly anachronistic feel.⁵⁷ In all, there are seven different officers represented by the miniature cards, with an eighth present in those providing only text, as can be seen in fig. 1.

⁵³ Ibid., pp. 155-57; his surviving sons sued the publisher, but without success.

⁵⁴ Ibid., pp. 160-61.

⁵⁵ Ibid., pp. 170-71; as a result, the *Kriegsbeschreibung* is not continuously paginated; instead, the individual books are paginated, with the *Kartenspiel* numbered from 1r to 18r. On the *Kriegsbeschreibung*, see also Uhlhorn, *Kriegswissenschaft*, pp. 185-189; Rainer Leng, *Ars belli: Deutsche taktische und kriegstechnische Bilderhandschriften und Traktate im 15. und 16. Jahrhundert*, vol. 1 (Wiesbaden: Reichert, 2002), pp. 308-315; Leng, *Verhältnis*, p. 55.

⁵⁶ Leng, *Verhältnis*, pp. 40-41, n. 28.

⁵⁷ Of course, it could be argued that a 'nobleman Syphax' involved in running the artillery (*Syphax ein Edelman der Artolorei*, Zu Solms, *Kartenspiel*, 6v) is, given the importance artillery had already had in the Hellenistic period, perhaps not too far from reality after all. An ancient reader familiar with the exploits of Attilius Regulus in North Africa during the First Punic War, who is said to have pummelled a huge snake which was making a breakfast out of Roman soldiers trying to access a water hole with his artillery (Oros. 4.8.11), would probably not have taken issue.

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<u>Miniature card</u>	<u>Text card</u>
<i>Veldoberster</i>	<i>Oberster Kriegsherr</i> ^B
-	<i>Veldhauptman / Leutenant</i>
<i>Veldmarschalck</i>	<i>Veldmarschalck</i>
<i>Capitan der Artolorei</i>	<i>Oberster Artoloreimeister</i> ^C
<i>Edelman der Artolorei</i>	<i>Edelman der Artolorei</i>
<i>Wagenmeister</i>	<i>Wagenmeister</i>
<i>Wagenburgmeister</i>	<i>Wagenburgmeister</i>
<i>Capitan der lustitien</i> ^D	<i>Capitan der lustitien</i>

^A spelling variants omitted

^B *Veldoberster* in Roman set

^C *Artoloreimeister* in Roman set

^D roughly comparable to the position of provost marshal

Fig 1. Comparison of officers on miniature cards and text cards

There are 21 other miniature cards present providing different types of cavalry, infantry and artillery. Also present on the cards are wagons carrying supplies as well as ammunition and pontoons. Compared to the miniature cards, the text cards offer only 16 units, resulting in a slightly different 'mix' of units. Given the peculiarities of the miniature cards which are discussed below and do not find a parallel in the text cards, it is obvious that the miniature cards are at the centre of the game.

Two aspects of the miniature cards stand out. Superficially they appear to represent military units only in a very abstract way, as although it is possible to distinguish between different types of units, there is no directly apparent scale to the cards which are all of one and the same size. However, there is one interesting exception. A body of what appears to be light cavalry comes both in the standard card size as well as in two different, smaller sizes clearly meant to represent units of the same type but of different strength (fig. 2). This allows two observations: the inventor of the game not only thought about giving the players the opportunity to break up larger formations but also had already some rudimentary concept of representing scale with his cards. For properly 'playing' the game, more cards were needed than the 21 unit and seven officer cards printed in the *Kriegsbeschreibung*.

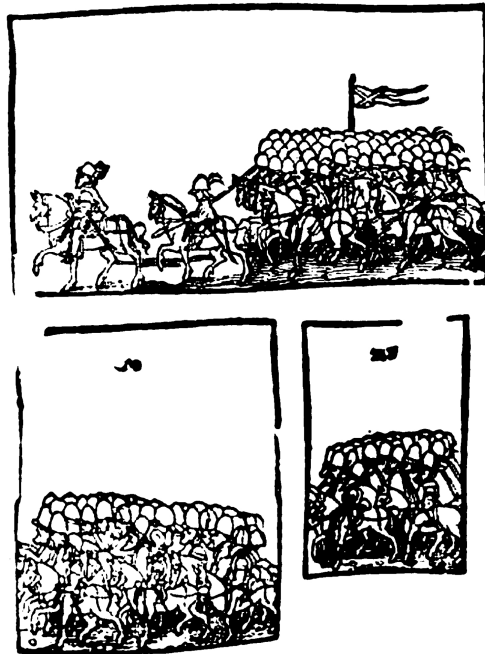


Fig. 2. Light cavalry cards of different sizes.

The second interesting aspect worth taking a closer look at is most obvious with two cards in the red set that do not have companion pieces in the black one but can also be identified with a fair degree of certainty in the latter. On one of the red cards there is a group of around 35 marching pikemen; the card is labelled 'B'. The same pikemen appear in another card labelled 'A' in a different formation; now there are only 11 of them in an angular formation with their pikes pointing upwards. Clearly, the men are not moving any longer (fig. 3a).

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Fig. 3a. *Pikemen in different formations*

The cards thus not only allow for breaking up units into smaller groups, it is also possible to depict the change of a formation with them. This is further supported by a matching group of cards in both the red and the black set which depict cavalry of a type very similar to those in the group of cards of different sizes. While one card simply shows a large body of cavalymen, another one has presumably the same men moving in columns of five (fig. 3b).

Zu Solms has little to say about the actual rules of the game, as they are absurdly simple. The participants divide the cards among them according to their assumed functions and then agree on a type of exercise; zu Solms offers a few examples, such as a fictional campaign of an army consisting of 2,000 horse, 10,000 foot and assorted guns, or the 1554 army Charles V led into France.⁵⁸ They then proceed to develop the troop dispositions required by the exercise by laying down the cards, thus putting together an admittedly rough model of the disposition in question. One might assume that this was either accompanied or followed by a discussion of the relative merits of the placing of the individual units.

⁵⁸ Zu Solms, *Kartenspiel*, 1r-2v, 11r-12r.

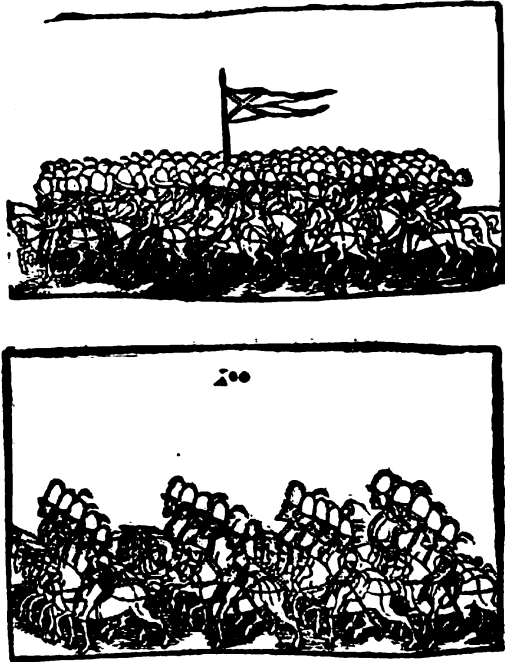


Fig. 3b. Light cavalry in different formations

Subsequent changes in a formation, for example from marching to battle disposition, could then be depicted by exchanging cards and probably also by moving them around somewhat. However there is no mechanism to model any kind of movement in the rules and nothing that indicates that the cards were meant to be used as true 'tokens'. Also, a mechanism for combat resolution is lacking. As a result, it is possible to depict the initial dispositions of a battle with the game but it is not possible to actually fight the battle.

There are two interpretations for this apparent 'incompleteness' of the game: one, it may simply not have been designed to depict combat, the focus lying exclusively on formations instead. This is not as unusual as it might at first appear. When more than three centuries later the Prussian *Kriegsspiel* was finally introduced as a training tool in the Austrian army, it was, at least initially, sometimes employed in a very similar manner, without any interaction with an enemy.⁵⁹ As there are no movement or

⁵⁹ Hugo Bilimek, 'Beobachtungen beim Kriegsspiele der Truppen', in *Organ der Militär-wissenschaftlichen Vereine*, no. 12 (1876), pp. 331-344, p. 333.

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combat rules mentioned, this interpretation seems to be the most likely one. Yet there is one other possibility: movement and combat could have been decided in some other, informal, way, perhaps by general agreement of the participants or through the involvement of an umpire.⁶⁰ Alternatively, just as the *Kriegsbeschreibung* as a whole is incomplete, zu Solms may have published only parts of the rules, withholding movement and combat rules for some reason. While this is merely speculation, it would appear justified by the fact that there are two sets of cards which are clearly meant to depict opposing forces, something simply not necessary in a game solely aimed at depicting marching and battle dispositions.

Whatever the capabilities of the game were, zu Solms was quite explicit on its general purpose. He wanted to produce a game that provided morally acceptable entertainment for young noblemen, as opposed to games of dice and cards played for money, and that at the same time was useful in training them for war.⁶¹ While the latter is rather self-evident, the former might lend further support to the speculation about the game being able to depict combat in some way or another. With games of dice and cards played for money being games that allowed one side to win, one would assume that any game aiming at providing comparable entertainment also had a competitive edge to it. Yet how could one 'win' in a game focussing solely on formations?

Entertainment and training were not the only purposes of the *Kartenspiel*. Instead, after discussing at some length one example for a marching formation, he adds that his game was also intended as an aid for actually commanding forces in the field⁶² This adds another dimension to the game, even if it is impossible to decide whether this was added as an afterthought or whether zu Solms actually ever used it that way. The cards, zu Solms suggested, would represent the forces actually present, and during an orders group these could then be used for explaining, for example, the marching order of the army to subordinate commanders.⁶³

Nothing is known about the eventual fate of zu Solms' *Kartenspiel*. His *Kriegsbeschreibung* was printed only in small numbers and, while some of his treatises

⁶⁰ This would have made zu Solms' game the first 'free' *Kriegsspiel*.

⁶¹ Zu Solms, *Kartenspiel*, 1r: 'der jung Adel ... dörrft sein gelt nicht darauff wue auff Wirffeln und andern Kartenspieln setze, bedörrft der sorg auch nit daß jm ein anderer sein gelt angewinnen künde oder mit einem andern sich balgen und zweien müßt, sondern er kan sein Kartenspiel mit lust und kurtzweil wol zu bringen'; 1r, 3r.

⁶² Zu Solms, *Kartenspiel* 1v-2r.

⁶³ Zu Solms, *Kartenspiel* 3v: 'Die beschribene Karten dienen einem Obersten wol, daß er mit seinen Kriegsräthen und Bevelchbleuten sich berede, wie sie andern tag wann mann ziehen wirt, den zug mit den Regimentern vornemen wollen, auch wie sie nach, bei und neben einander ziehen wollen'.

were reprinted after his death, at present it appears that the *Kartenspiel* was not among them.⁶⁴ The game was certainly unknown to wargame designers in the 19th century, as a brief note in the *Zeitschrift für Kunst, Wissenschaft und Geschichte des Krieges* mentioning it and calling for further research shows.⁶⁵

Given, in its existing state, its lack of both movement rules and a combat resolution mechanism, naturally the first question to ask is whether zu Solms' *Kartenspiel* actually qualifies as a war game in the first place. One could rather convincingly argue that a true war game does indeed require a set of rules enabling the player to do more with his units than merely place them onto the table, that is, to move and fight them, something that could be done with Weickmann's *Königsspiel* but not with the *Kartenspiel*. Yet the latter is clearly intended as a game with which at least some aspects of military action, the organization of marching or pre-battle disposition, can be modelled with some degree of accuracy. Also, whereas chess-based games were characterised by a high degree of abstraction when it came to the individual units, zu Solms' cards were closer to reality in showing actual units, right down to different card sizes reflecting different unit strength. This 'realism' is also testified by the intended use of the *Kartenspiel* as a command and control aid, something which was clearly impossible to do with any chess-based game. The *Kartenspiel*, while lacking key elements already present in games like Weickmann's *Königsspiel*, thus was in some areas actually a step ahead with regard to realism. Therefore it is probably best called a 'proto-war game'.

With the *Kartenspiel*, zu Solms appears, at present at least, to have been the first military professional to design a war game. His interest in educating young noblemen in the art of war also falls into a period which would eventually see the emergence of a new form of institutionalized education at the end of the century. About a generation after the publication of the *Kartenspiel*, the Huguenot captain François de la Noue published his famous *Discours politiques et militaires*, in which he called for the establishment of academies to provide young noblemen with an education that traditional institutions could not offer.⁶⁶ This was to include an introduction to the art of war, including the reading of military classics from antiquity, the study of the history of war and an introduction to the art of siege warfare.⁶⁷ In Germany, de la Noue's work exerted considerable influence on the establishment of *Ritterakademien*,

⁶⁴ Uhlhorn, *Reinhard*, p.171.

⁶⁵ Anonymus, Ein Kriegsspiel vom Jahre 1559, in *Zeitschrift für Kultur, Wissenschaft und Geschichte des Krieges* 77/9, 1849, p.259.

⁶⁶ François de la Noue, *Discours politiques et militaires du Seigneur de la Noue*, (Basel: François Forest, 1587).

⁶⁷ De la Noue, *Discours*, p. 127.

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academies aiming at providing exactly the type of education de la Noue had in mind.⁶⁸ While zu Solm's work lacks the systematic approach of de la Noue, the *Kartenspiel* already displays a considerable didactic interest, as it aimed at providing an introduction to the art of war that was both useful and morally acceptable.

Conclusion

Reinhard Graf zu Solms' *Kartenspiel* deserves interest not only because it is currently the oldest post-medieval 'war game' known in Europe. It also represents a small yet significant step in the development of the rationalization of warfare, which in Germany would result not only in the establishment of the *Ritterakademien* but also of the very first *Kriegsschule* by Johann VII von Nassau in Siegen in 1617.⁶⁹ Finally, given its decidedly non-chess character, its importance also lies with the fact that the early *Kriegsspiel* history may well be much less closely associated with the history of chess and much more varied than is currently assumed. At present, it is impossible to state whether Graf zu Solms' *Kartenspiel* was unique in being a proto-war game not based on chess. Thus it might be a good idea to look closer at the pre-Weickmann period for other traces of *Kriegsspiel*'s prehistory.

⁶⁸ Norbert Conrads, *Ritterakademien der Frühen Neuzeit*, (Göttingen: Vandenhoeck & Ruprecht, 1982), pp. 87-104; on the earliest *Ritterakademien* in Tübingen and Kassel, see also pp. 105-131.

⁶⁹ Conrads, *Ritterakademien*, pp. 131-136; the *Kriegsschule* proved to be short-lived and did not survive the death of Johann VII in 1623.