



Officer academy 2: Command, drill, armor

Vít Hrachový <http://kastilie1312.cz> - <http://facebook.com/kastilie1312> Feb 24, 2025
Ilustrace: Tomáš Zach

Contents

- Battle formations theory.
- Command.
 - Authority, care, psychology.
 - Situational awareness.
 - Drill commands.
 - Signals.
 - Hierarchy.
 - Banners.
- Base exercise.
- Equipment.
- Sources.
- Questions.





Formations theory

- Goal:
Maximize enemy losses.
Minimize own losses.
- Without people to lead, officer is just a man.
- Battle formation: **Tool** to get advantage.
 - Allows defeating numerically stronger enemy.
 - Adapts to terrain, numbers and weapons of both sides.
 - Plain open space leads often to victory of numerically stronger side.
 - Battle field with obstacles can prevent the advantage of numerically stronger side.
- Main target:
 - **Gain reach (or firing range) for own troops.**
 - **Reduce reach for enemy troops.**
- **Reach, initiative, speed and cooperation** are key factors.



Command: Authority, Care

- **Commander:**

- Biggest, strongest, active, can see opportunities and utilise them.
- Last to go sleep, takes care about needs and survival of his people.
- Thinks about safety of his people, sleep, rest, meal, drink.
Even before battle and between fights.
 - Example: Put down helmets, relax, drink, 10 minutes pause.
5 minutes to pause end, get prepared.
- Able to provide first aid to his people.
- Leads his people, sets an example for them, motivates them.
- Should know strong and weak sides of his people,
their current psychological and physical state.
- Don't push people into stuff you want. Listen what they want.
- Build your troop/weapons accordingly.
- Has deputy.



Command: Psychology

- **Stimulation.**
 - Plenty of new stimuli.
 - It's interesting. It's not boring.
- **Meaning in things and relationships.**
 - What I do makes sense.
 - I'm improving. We win.
- **Life security.**
 - I have my people, I belong somewhere.
 - Someone cares about me.
- **Positive identity.**
 - Praise publicly, rebuke privately.
 - Affects: Self-confidence. Determination.
- **Open future.**
 - I have something to look forward to.

Command: Situational awareness

- During combat keeps tracks of:
 - Enemy.
 - Own troops.
 - Seeks opportunities.
 - Upper command chain signals.
- **Makes decisions** advance, retreat, hold position per situation and agreed plan.
- **Constantly supports**, encourages people with voice, guidance, advice.
 - People without guidance falter and lose initiative.
- **Delegates** these responsibilities to the representative before he sets out to engage personally in combat.
 - Combat focus leads to loss of situational awareness.
 - Tunnel vision is a real thing.

Drill commands

- During exercise: Face squad.
- During combat: Right flank.
- (Address), Preparatory command, Command of Execution.
Sample: **(Squad, House or unit name), About, FACE.**
- Preparatory command should be unique, prepares squad for execution.
- 1 commander per whole unit: Everybody REPEATS the commands.
- 1 officer per 10 soldiers: Officers command, soldiers are silent.
- Trumpet, horn signals: Issued only by whole army commander.
- Banner signals: Issued by tactical unit officer (30+).
- Wounded/“dying“ officer calls out his deputy.
 - No deputy: Somebody from unit takes over command, operates independently, attempts joining his force with other officer.
 - I command: Follow the standard! Follow the senior of (House name)...

Drill Commands: Rome I

Latin	English	česky
Dirige frontem.	Line up.	Vyrovnat.
Venite.	Form up.	Seřadit.
Signum demittite.	Dismiss.	Rozchod.
Silencium.	Silence.	Ticho.
Reverte.	Cancel command.	Zruřit.
Ad gladius (conto), cline.	Right turn.	Vpravo vbok.
Ad scuta, cline.	Left turn.	Vlevo vbok.
Ad gladius (conto), move.	Right step.	Doprava krok.
Ad scutum, move.	Left step.	Doleva krok.
Procedite/Movete.	Forward march.	Krokem vpřed.
Celerate.	Faster.	Zrychlit.
Tardate.	Slower.	Zpomalit.
Unum. Duo. Tres. State.	One. Two. Three. Halt.	1,2,3. Zastavit, stát.
Cede.	Move back.	Krokem zpět.
Gradum servate.	Keep pace.	Držte krok.

Drill Commands: Rome II

Latin	English	česky
Transformate.	About face.	Čelem vzad.
Arma portate	Take up arms.	Zvedněte zbraně.
Arma demittite	Lower arms.	Odložte zbraně.
Ad arma	To arms.	Do zbraně.
Gladius stringite.	Draw swords.	Tasit meč.
Gladius recondite.	Sheathe swords.	Schovat meč.
Scuta portate/demittite.	Pick up shield.	Štít uchopit.
Scuta demittite.	Put down shield.	Štít odložit.
Percute.	Advance, close to enemy, beat.	Do nárazu.
Pila portate/demittite.	Pickup pilum	Zvednout oštěp.
Pila demittite.	Put down pilum.	Odložit oštěp.
Pila tollite.	Prepare pilum for throw.	Oštěp připravit.
Pila jactate.	Throw pilum.	Vrhnout oštěp.

Drill Commands: Rome III

Latin	English	česky
Ad unum.	One rank.	Jednořad.
Ad duo.	Two ranks.	Dvouřad.
Ad quattuor.	Four ranks.	Čtyřřad.
Junge.	Close up.	Srazit řadu.
Large.	Open up.	Roztáhnout linii.
Mutare.	Replace 1st rank.	Rotace řad.
Murus.	Shield wall, 2nd at 45 deg.	Zed'.
Tela.	Roof. Shield wall with roof.	Střecha.
Ad cuneum.	Wedge.	Klín.
Ad testudinem.	Tortoise.	Želva.
Undique servate. (Orbis.)	Circular defense.	Mlýnské kolo.

Drill Commands: Strategikon

Silentium. Nandata captate. Non vos turbatis. Ordinem servate. Bando sequute. Nemo demittat bandum et inimicos seque.	Silence. Do not worry. Keep your position. Observe orders. Follow the standard. Do not leave the standard and pursue the enemy.	Ticho. Ničeho se nebojte. Každý na svém místě. Poslouchat rozkazy. Za praporem. Držte se praporu, nepronásledujte nepřítel.
Ad octo. Exi.	Divide by 8, March.	Rozpůlit, po osmi.
Exi.	Halve/by 4.	Rozpůlit. (po 4, po dvou..)
Dirige frontem.	Straighten front.	Vyrovnat.
Junge.	Close ranks.	Srazit řadu.
Ad fulcon.	Form foulkon.	Hradba.
Parati.	Ready.	Připravit.
Adiuta . . . Deus.	Help Us. O God.	S Boží pomocí.. Do toho!
Medii partitis ad difallangiam.	Divide in the middle. Form double phalanx.	Rozpůlit. Dvojitá falanga.
Primi state, secundi ad difallangiam exite.	Primi halt, secundi march out. Form double phalanx.	První stát. Druzí pochodem zpět. Dvojitá falanga.

Drill Commands: Strategikon

Reverte.	Return to prev formation.	Návrat do původní formace.
Ad conto clina.	To the lance, face.	Za zbraní, v bok.
Move.	March.	Vpřed.
Ad scuto clina, move.	To the shield, face. March.	Za štítem, v bok. Vpřed.
Undique servate.	Face in all directions.	Formace Mlýnský kámen.
Depone au dextra/ au senestra.	Change to the right/left.	Formace Vpravo/Vlevo.
Largia ad ambas partes.	Move out to both sides.	Rozvinout obě křídla.
Intra.	Enter.	Zdvojit (hloubku formace).
Acia in acia.	File in file.	Formace ve formaci. Hloubka 32, ztráta šířky.
Muta locum.	Change place.	Přední vojáci dozadu.
Transforma.	About face.	Formace - čelem vzad.

Drill Commands: SP, EN, CZ

Aragonese/Catalan	Castilian	English	Czech
De advocación		Addressing:	Oslovení:
almogavers, milites, homs, homens, servents, gents, gents d'armes	almogávares, soldados, hombres, sirvientes, hombres de armas	almogavars, soldiers, men, servants, gentlemen, men at arms	almogavaři, vojáci, muži, služebnictvo, pánové, zbrojnoši
De posición		Position:	Pozice:
davantera	delantera,avanguardia	vanguard	předvoj
mitjania	medianera	centre	střed
reraguarda, reassaga	retaguardia, zaga	rearguard	zadní voj
De armas y de su uso			Zbraně, použití
llança	lanza	lance	kopí
apuyada, apuyat	apoyada, apoyad	support	podpora
dards, escona, esconeta	dardo, azcona	darts	šipky, oštěpy
coutell, cortell	cuchillo	knives	nůž, tesák
colp	golpe	beat	bijte
a armes	a las armas	at arms	do zbraně
escuts	escudos	shields	štíty

Drill Commands: CZ Hradec 1

Česky	English
Formace	Formations
Řada. Dvojřad. Trojřad.	Rank up. Two ranks. Three ranks.
Linie. Dvě linie. Tři linie.	Line up. Two lines. Three lines.
Formace klín, Kruhová obrana, Byzanc.	Wedge, Wheel, Byzantine Formation.
Zed'. Šípy.	Wall formation. Roof formation.
Vyrovnat.	Line up.
Srazit řadu.	Close up.
Zdvojit řadu / linii.	Double rank / line.
Šikmá pravá / levá.	Right / left flank oblique forward.
Rotace.	Replace first rank / line.
Zástup. Dvojstup, trojstup...	Column. File by two, three.
Za korouhví, za pánem z ...	Follow the standard. Follow senior of ...
Po družinách.	Split companies.
Po skupinkách.	Wolf packs.

Drill Commands: CZ Hradec 2

Česky	English
Přesuny	Movements
Otočit vpravo, vlevo, vzad.	Right turn, left turn, about face.
Směry: Vpřed, vzad, vpravo, vlevo.	Directions: Forward, backward, right, left.
Krokem - směr.	(direction) March.
Klusem - směr.	(direction) Double March.
Volným krokem - směr.	(direction) Easy March.
Zastavit - stát.	Halt.
Hop.	Step.
Kosmo pravá / levá.	Right/left Wheel March.
Překážka.	Obstacle.
K boji.	Arms ready.
Do nárazu.	Ram up.
Šturmem.	Pursue, fast.
Zapřít - tlačit.	Support front - push forwards.
Volno, sednout, přilby dolů, napít se.	Rest, sit down, helmets down, drink.
Na pochod / do boje připravit	Get ready for march / fight.

Drill Commands: CZ Hradec 3

Česky	English
Chraňte pána.	Protect senior.
Zelená. (zranění, zajistěte oblast, medika)	Green. (real injury, protect perimeter, call medic)
Ke korouhvi.	To standard.

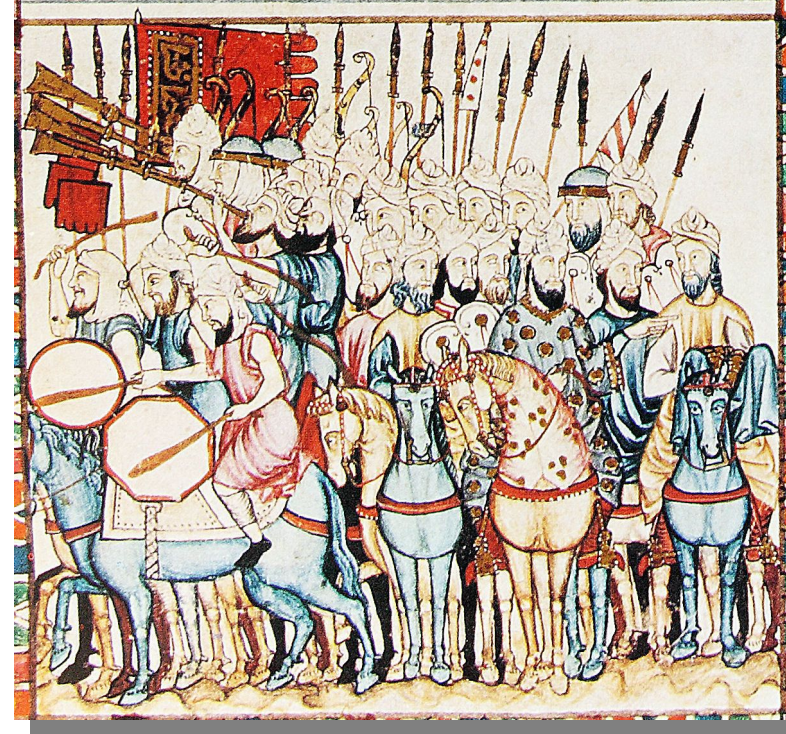
- Orders to date: 19.12.2022
- Link: [Hradecké povely](#)

Drill Commands: Execution

- 1-2 seconds reaction time.
- Execution timed at ORDER.
- Orders executed during movement. **No stopping.**
- Building **Rank**: With my shield from left I cover partners' shield on my right.
- Rank → Line:
Left flank extends to left, right flank to right. I extend my right hand to partner.
- March backwards:
 - Rear line are eyes, they lead front line, who is fighting during retreat.
- About face:
 - Shield bearers: Left leg back, turning around shield.
 - Polearms, marksmen: Weapon vertical, turn both feet tips on place.
- Dissolving Roof: 2 shield rows over each other.
 - Roof 2 steps back first, dissolve, then front Wall dissolves.

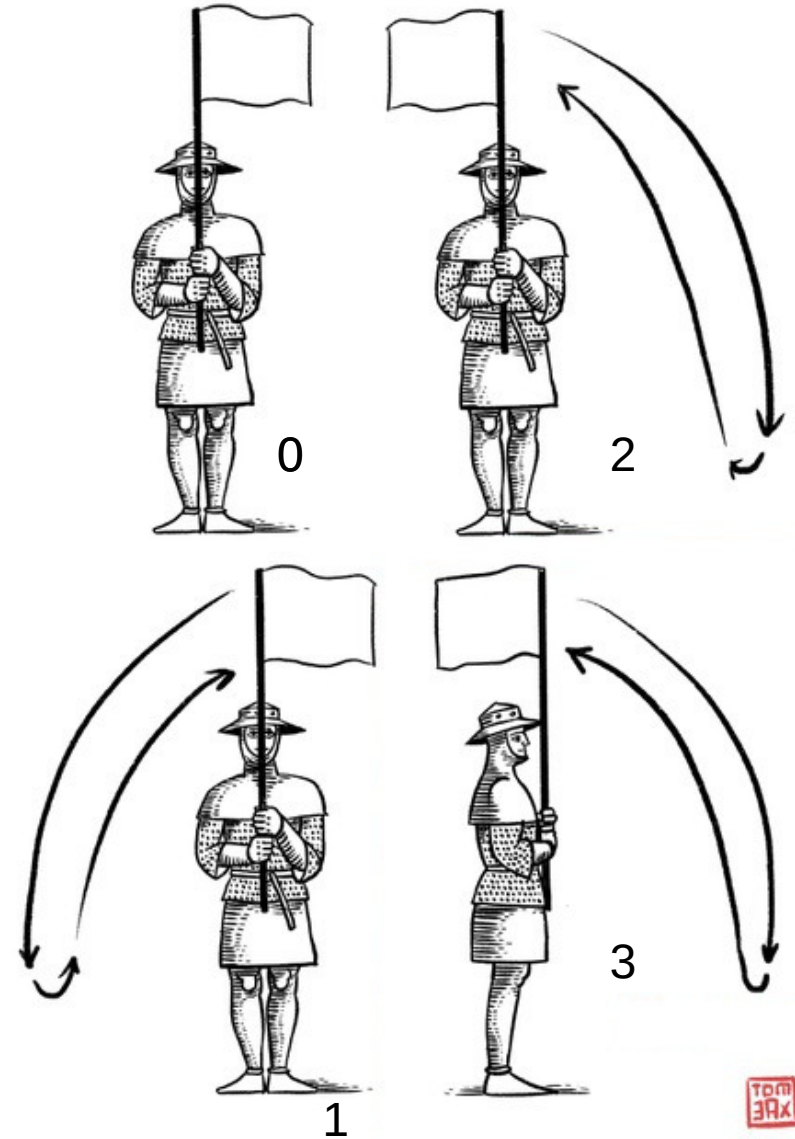
Signals

- Distance
 - Light houses, carrier pigeons, horse mail.
- Visual
 - Fire, smoke: Reconnaissance, army.
 - Banners: Units, army.
 - Signs: Silent hand signals.
- Acoustic
 - Trumpets and horns: Formations, units. Whole army.
 - Drums: Step, run, direction, motivation. Whole unit.
 - Whistle, voice: Officers, around 10 people diameter.
 - Runners: Every officer has runner stationed by top commander.



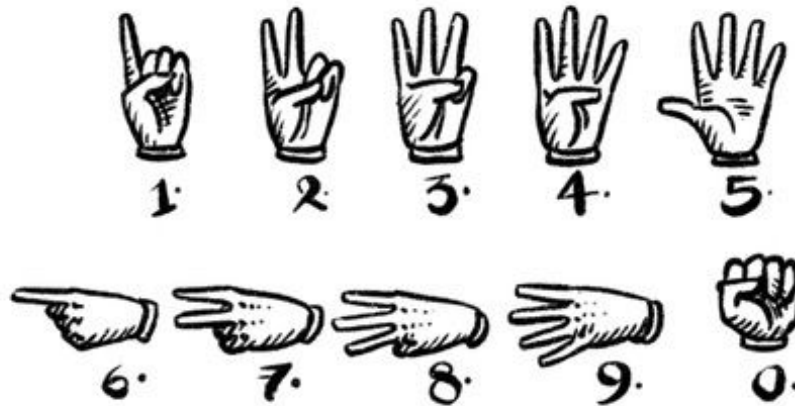
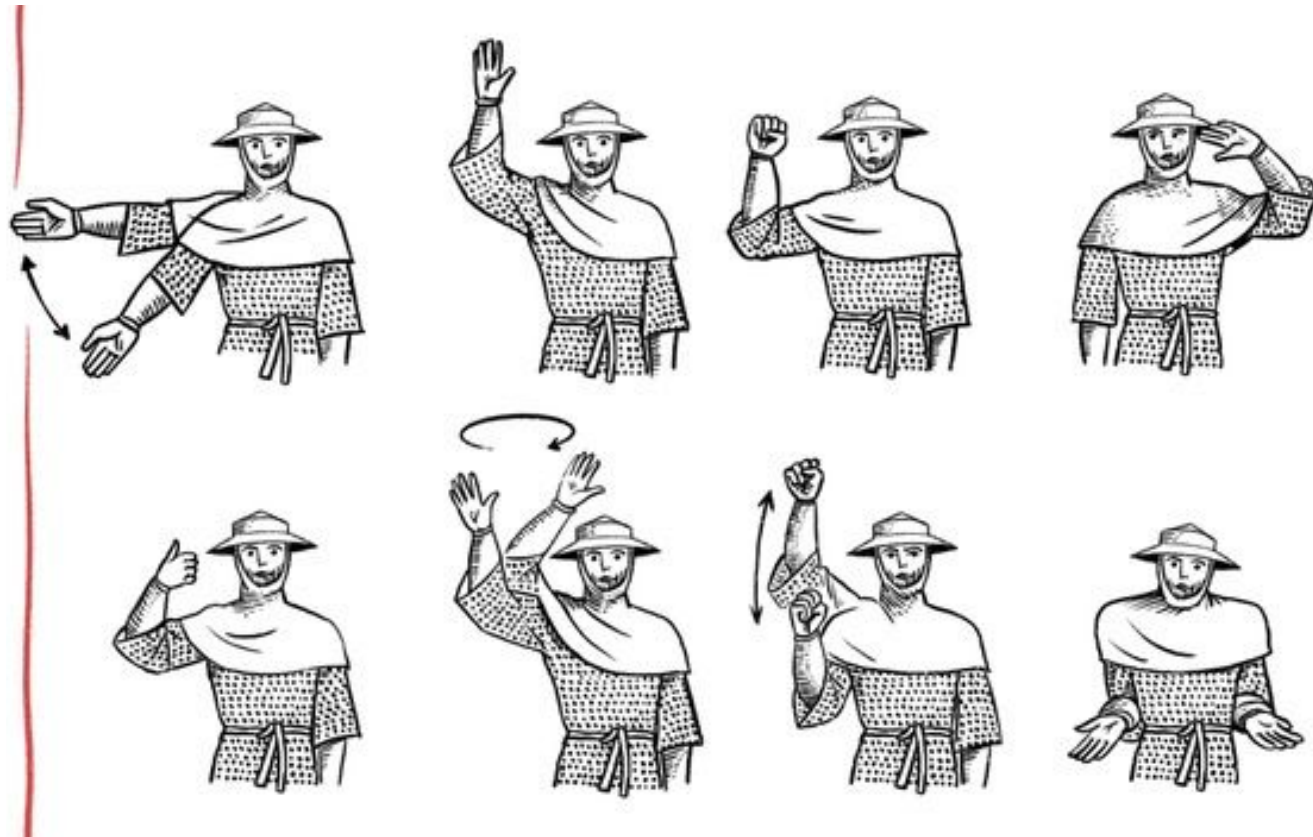
Signals: Banner

- Signal:
 - 0: Vertical
 - 1: Right, 0
 - 2: Left, 0
 - 3: Forward, 0
 - 4: Circle
- Code table - sample:
 - message end: 3
 - left flank: 22
 - right flank: 11
 - center: 12
 - LF forward: 221
 - LF back: 222
 - RF forward: 111
 - RF back: 112
 - center forward: 121
 - center back: 122
 - outflankers: 1
 - ambushers: 2
 - to standard: 4



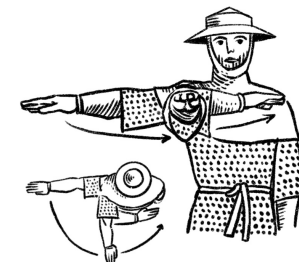
Signals: Hand

- Slow down
- Halt
- Freeze
- Stop, look, listen, smell
- I understand
- Assemble
- Faster
- I don't understand



Signals: Hand II

- Staggered Column formation
- Line formation
- Zither formation
- Outflank left
- Follow me
- Take cover
- Outflank right
- Wedge formation
- Wolf packs



Signals: Trumpet

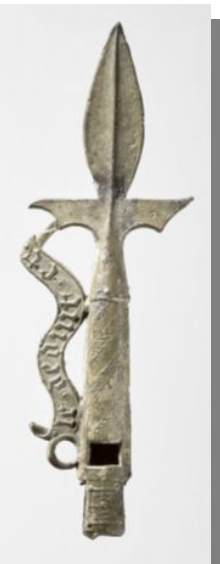
- One trumpet or horn signals whole army.
 - With some exercise everyone plays basic tone (G1), then one higher (C2) and one lower (C1). Professionals play 5 tones (E2, G2).
 - Three tones enough to make order-melodies or four-character codes similar to banners.
 - G1 (lower) short = 1
 - G1 (lower) long = 2
 - C2 (higher) short = 3
 - C2 (higher) long = 4
- Code table - sample:
 - message end: 3
 - left flank: 22
 - right flank: 11
 - center: 12
 - LF forward: 221
 - LF back: 222
 - RF forward: 111
 - RF back: 112
 - center forward: 121
 - center back: 122
 - outflankers: 1
 - ambushers: 2
 - to standard: 4



Signals: Whistle

- Whistle orders 1 squad.
 - Officer can spare his vocal cords.
 - In battle noise the whistle can be heard within cca 10 person radius, similar to voice.
- Long tone = 1
- Short tone = 2
- Delimiter = Pause

- Code table - sample:
 - march forward: 2121
 - faster: 1221
 - arms ready: 2111
 - ram up: 1111
 - slower: 2112
 - halt: 2211
 - backwards: 2122
 - right: 2212
 - left: 2222
 - about face: 2221
 - to standard: 1112
 - rank: 1121
 - line: 1212
 - line up: 1222
 - close up: 1122



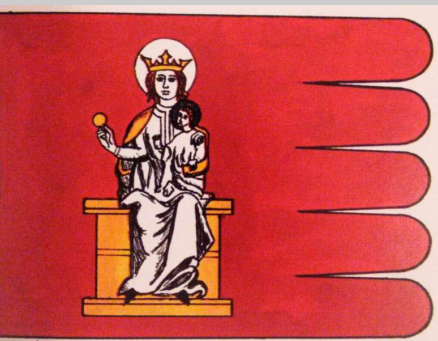
Command: Hierarchy

unit size name CZ name EN	hodnost česky rank EN	Czech	Latin	Greek	Castilian
6-20 družstvo squad	desátník seržant sergeant	seržant	decimus	dekarchos	almocaden al-muqaddam señor
75-200 rota company	setník kapitán captain	kapitán setník	centurio optio	hekatonarchos kentarchos	comendador
1000 pluk regiment	major plukovník colonel	major plukovník	tribunus	tribunus	adalid
n * 1000 brigáda brigade	generál general	generál	legatus	strategos	cabdillo alférez

Command: Banners

Standard

- Emperor.
- King.
- Fleet admiral.



Banner

- 100+ knights
- Town force officer
- Military order commander



Pennon (3angular)

- 50-100 knights
- Military order preceptor
- Ship captain



Pennon square

- 50-10 knights



Gonfalon

- 2-5 knights



Command: Extended study

- Rhetorics and medieval Law.
 - Motivation. Making sense.
 - Persuasion.
 - Authority.
- Singing.
 - Powerful voice for issuing commands.
 - Morale and fighting spirit.
 - Songs: Marching. Motivational before fight. Combat to improve initiative.
- Chess.
 - Pawn, Bishop: Kill diagonally into spaces between shields.
 - Knight: L - outflanking. Turn before shield wall, keep speed, ride along, attack.
 - Tower: On backs of combat elephants.
 - Alférez (Queen): Head commander of heavy cavalry.
 - King: Moves slowly enclosed in tight rectangular pikemen formation Court.

Base exercise

- **Run, jump, swim, throw, wrestle.**
 - Soccer. Dodgeball. Handball. Basketball. Ball games.
 - Parcour. Somersaults. Climbing. Wrestling.
 - Obstacle courses. Solo. With opponents.
 - Throwing: Ball, stone, javelin, sling, fustibal.
- **Optimum:**
 - ½h-1h running without armor, then light armoured.
 - 1h march in light or heavy armor.
 - No regular **running** in **heavy armor**.
 - Easy to damage ligaments, joints and backbone.
- Technical exercise with **weapons**.
 - Speed, reach, **cooperation**, activity.
 - Shield bearers: Different shield grips.
 - Straps: Guige + elbow, guige + fist → Shield + halberd or spear.
 - Outflanking manoeuvres and counters. Powerplay, anti-powerplay. Calthrops.
- Infantry command drills **in armour**.
- Preparation for **company drills** 1-2 times per year.

Boucicaud, armored, 1380-1409

- Wall climb between two walls.
- Side horse vault.
- Grab the riders' sleeve and leap onto the horse in front of him.
- Perform ground somersaults one after another.
 - Take off your helmet first.
- Swing sledgehammer around you or split wood with axe.
- Throw large stone. Repeat.
- Punch ground, wall or other things to toughen hands.
- Climb up the bottom side of ladder leant against tree.
- Dance vigorously and often to your favourite melody.
- Enjoy a long run.
 - (Select soft surface like grass or moss. Run lightly, no stomping.)

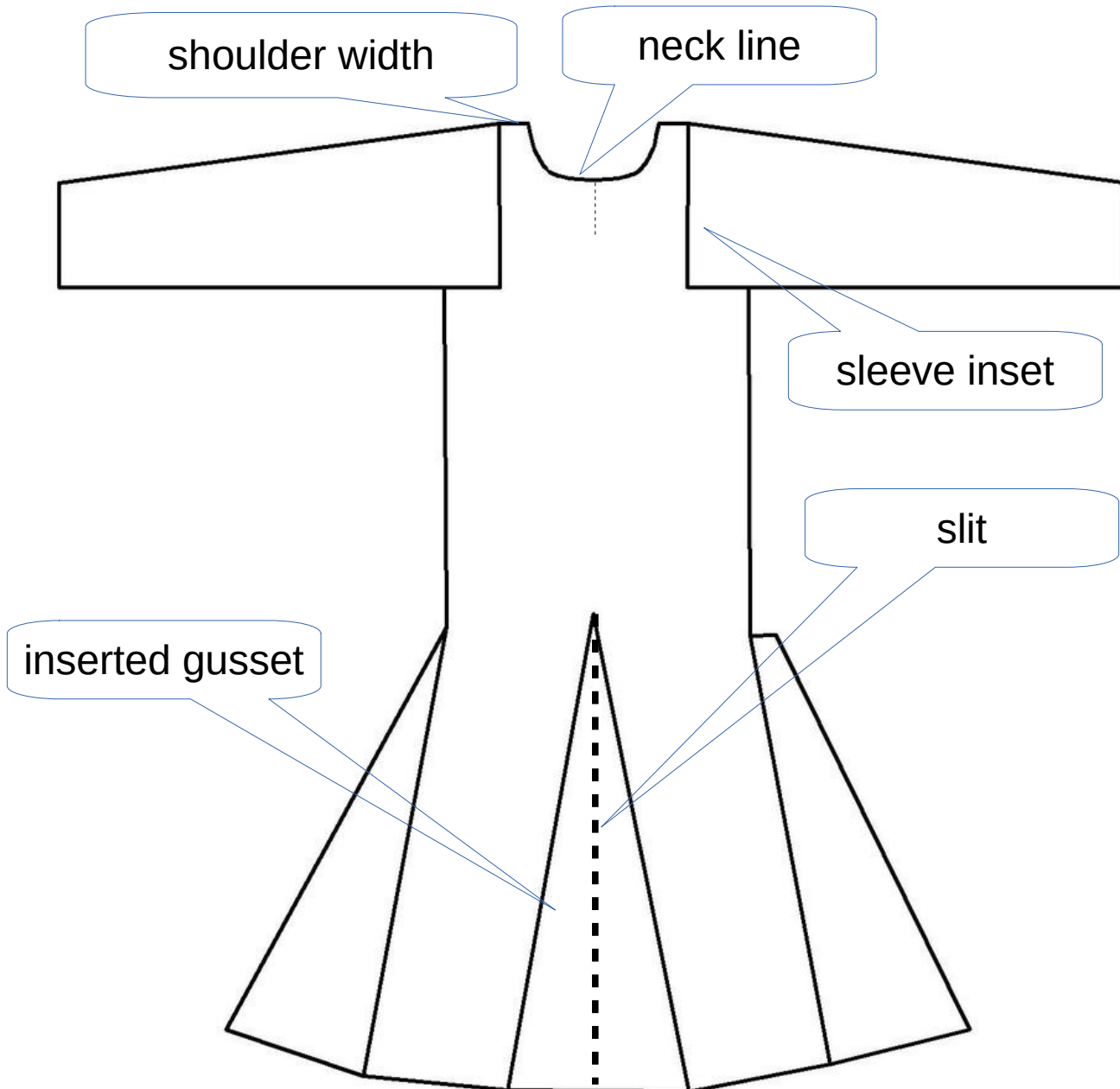
Armor Arms Knowledge Skill

- Arms and armour quality affects courage, endurance and army initiative.
- Alfonso X: Balancing requirements.
 - Mobility. Weight. Thermoregulation → Endurance.
 - Protection. Hardness. Quality → Courage.
- Use affects construction.
 - Hits from above are most frequent. Hand is raised. **Sleeve inset. Neck line.**
 - Arm is weight at the end of hand. Sleeve **forearm** is as tight as possible.
 - Infantryman needs to run. **Skirt gussets.**
 - Weight of iron armour is function of length and circumference.
Tightly fitting dress, with mobile joints.
- Improper dress construction **significantly** fatigues its owner.
Endurance reduced from hours to minutes.
- **Officer is responsible for quality of arms and armour of his people and squad being trained in armour.**

Protection

- Comfort and mobility in own armour.
- Primary defense targets: head, neck, torso, joints.
- Too thick armour restraints movement, fatigues, overheats its owner.
- **Layering.**
 - It's technically challenging to integrate gloves and collar into dress while retaining mobility and tight fit.
 - Quilt or just layer some woolen tunics? Quilting → tighter fit.
- **Functional and separated segments.**
 - Most layers are on shoulders from top, then on torso.
 - From hips down: Less layers. 1-2 layers enough for skirt.
 - After 1300AD: Mentions of separate torso, sleeves, skirt protection. LEGO.
- **Selective** strengthening protection of weak spots - joints, fingers.
 - Laced on, inserted into or sewn into pockets.
 - After 1215AD EN evidence for buying leather, linen for shoulder protection (espaulders). Segments: 3mm leather, cuir bouilli, whalebone. Steel after 2nd half of 13th.c.
 - Shins, knees, gauntlets, forearms, elbows, arms shoulders, neck.

Terms



Sleeve insets, neck line

- Sleeve inset edge begins near the neck behind shoulder joint of raised arm.
- Lower edge of sleeve inset aligns with nipple.
- Neck line is tight around neck, shoulder width, laying on deltoid muscle helps bearing the weight of dress and armor. Fastening at neck needed. Avoid choking.
- More construction details: See talk "Soft armour construction notes: Aketon, gambeson, perpunt. 1280-1350"



Sources

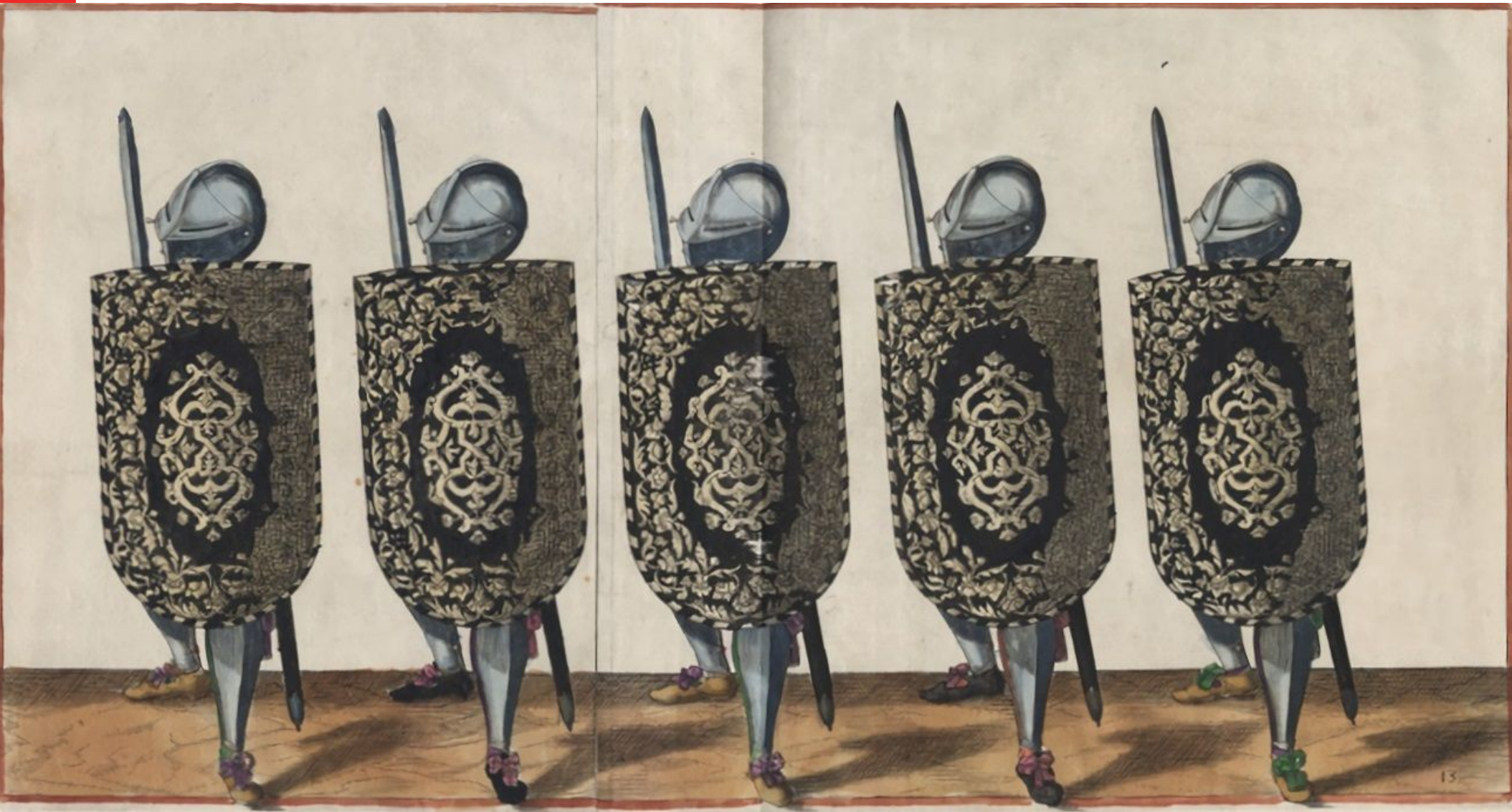
- 136 Lucius Flavius Arrianus: „Techné taktiké“.
- 450 Flavius Vegetius Renatus: „De re militari“.
- 550 Maurikios: „Strategikon“.
- 820 Hrabanus Maurus: Comments on Vegetius, Frank army exercise descriptions.
- 900 Leo VI.: „Taktika“.
- 1119-1307 „Templar rule“ (Latin rule).
- 1265 Alfonso X: „Siete partidas“.
- 1618 Adam van Breen: „De Nassavsche Wapen-Handelinge“.
- 1850 US Army WigWag signals.
- 1936 „Rukověť pro aspiranty a důstojníky v záloze“. Vědecký ústav vojenský. Praha.
- 1939 Reibert: „Die Schützenkompanie“.
- 1983 Vševojsková operační a taktická terminologie:
 - 1. díl - Vojenská věda, operační umění a všeobecná taktika. Praha.
- 2017 U.S. Infantry Training Circular 3-21.60 (FM 21-60).

Credits

- Alfonso X. Unambiguous declaration of armor requirements, battle formations, hundreds of detailed illuminations. Partidas.
- Arrianus, Vegetius, Mauricius, Hrabanus Maurus, Leo VI, Maurice de Nassau: Great sources.
- Gentlemen from Bílá, Blatná, Dobřenice, Javornice, Hrádek, Kravaře, Libiř, Lomnice, Loupežník, Němčice, Nové Hradky, Rabštejn, Sonnberg, Strakonice, Štěkeň, Štítná, Vrcov, Wrauu, and others from project of Queen Elizabeth Richenza court.
- Dagfari, Dwarf, Vojtěch Půlpán, Rogan and other Czech reenactment military commanders.
- Eva and Honza Hans Hoffmann for support, experience, manufacture, long company.
- Pero Cornel for Spanish commands and long fruitful cooperation.
- Tomáš Zach for illustrations.
- Argo San Gwaat illustrations.
- Martina Hřibová - illustration and attempt at reconstruction of saya encordada pattern.
- x-legio.com - Roman drill orders.

- +Many others willing to share experience.

Questions, discussion





Officer academy 2: Command, drill, armor

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Ilustrace: Tomáš Zach

1284 SP Cantigas de Santa Maria Florence 408-1-2.

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- Battle formations theory.
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1284 SP Lapidario 228-4

Second entry of officers' academy focuses on:

- reasons for creating officer ranks,
 - commanders' authority, care, psychology
 - recommendations for work with squads,
 - drill commands,
 - visual and sonic signals,
 - army and banner hierarchy,
 - base exercise for squad teams,
- and notes on armour optimisation.



Formations theory

- Goal:
Maximize enemy losses.
Minimize own losses.
- Without people to lead, officer is just a man.
- Battle formation: **Tool** to get advantage.
 - Allows defeating numerically stronger enemy.
 - Adapts to terrain, numbers and weapons of both sides.
 - Plain open space leads often to victory of numerically stronger side.
 - Battle field with obstacles can prevent the advantage of numerically stronger side.
- Main target:
 - **Gain reach (or firing range) for own troops.**
 - **Reduce reach for enemy troops.**
- **Reach, initiative, speed and cooperation** are key factors.

3

One has to learn to handle the tool first, then the tool becomes useful.

Swordplay duel is about speed, reach and biomechanics (tempo, measure, biomechanics).

Group fighting use the same, but on group level. Teamwork, cooperation, work with reach on basis of teams, squads, whole tactical units.

Sergeant-officer takes care of his people.

His task is their survival.

Officers' work is similar to top level sport coach. Care for soldiers, selecting optimal tools and equipment, teaching and expanding key skills for fight and survival, preparing the path, so they are ready to make the best performance.



Command: Authority, Care

- **Commander:**

- Biggest, strongest, active, can see opportunities and utilise them.
- Last to go sleep, takes care about needs and survival of his people.
- Thinks about safety of his people, sleep, rest, meal, drink. Even before battle and between fights.
 - Example: Put down helmets, relax, drink, 10 minutes pause. 5 minutes to pause end, get prepared.
- Able to provide first aid to his people.
- Leads his people, sets an example for them, motivates them.
- Should know strong and weak sides of his people, their current psychical and physical state.
- Don't push people into stuff you want. Listen what they want.
- Build your troop/weapons accordingly.
- Has deputy.

Alfonso X, Siete partidas



Command: Psychology

- **Stimulation.**
 - Plenty of new stimuli.
 - It's interesting. It's not boring.
- **Meaning in things and relationships.**
 - What I do makes sense.
 - I'm improving. We win.
- **Life security.**
 - I have my people, I belong somewhere.
 - Someone cares about me.
- **Positive identity.**
 - Praise publicly, rebuke privately.
 - Affects: Self-confidence. Determination.
- **Open future.**
 - I have something to look forward to.

MUDr. Zdeněk Matějček, study of psychological deprivation



Command: Situational awareness

- During combat keeps tracks of:
 - Enemy.
 - Own troops.
 - Seeks opportunities.
 - Upper command chain signals.
- **Makes decisions** advance, retreat, hold position per situation and agreed plan.
- **Constantly supports**, encourages people with voice, guidance, advice.
 - People without guidance falter and lose initiative.
- **Delegates** these responsibilities to the representative before he sets out to engage personally in combat.
 - Combat focus leads to loss of situational awareness.
 - Tunnel vision is a real thing.

Drill commands

- During exercise: Face squad.
- During combat: Right flank.
- (Address), Preparatory command, Command of Execution.
Sample: **(Squad, House or unit name), About, FACE.**
- Preparatory command should be unique, prepares squad for execution.
- 1 commander per whole unit: Everybody REPEATS the commands.
- 1 officer per 10 soldiers: Officers command, soldiers are silent.
- Trumpet, horn signals: Issued only by whole army commander.
- Banner signals: Issued by tactical unit officer (30+).
- Wounded/"dying" officer calls out his deputy.
 - No deputy: Somebody from unit takes over command, operates independently, attempts joining his force with other officer.
 - I command: Follow the standard! Follow the senior of (House name)...

7

Right side: Officer is visible and can be heard through the weapon gap.

Left side: Vision and hearing is blocked by shield.

https://en.wikipedia.org/wiki/Drill_commands

<https://swfpsa.org/wp-content/uploads/2016/08/Drill-and-Ceremonies-Handbook.pdf>

Drill Commands: Rome I

Latin	English	česky
Dirige frontem.	Line up.	Vyrovnat.
Venite.	Form up.	Seřadit.
Signum demittite.	Dismiss.	Rozchod.
Silencium.	Silence.	Ticho.
Reverte.	Cancel command.	Zruřit.
Ad gladius (conto), cline.	Right turn.	Vpravo vbok.
Ad scuta, cline.	Left turn.	Vlevo vbok.
Ad gladius (conto), move.	Right step.	Doprava krok.
Ad scutum, move.	Left step.	Doleva krok.
Procedite/Movete.	Forward march.	Krokem vpřed.
Celerate.	Faster.	Zrychlit.
Tardate.	Slower.	Zpomalit.
Unum. Duo. Tres. State.	One. Two. Three. Halt.	1,2,3. Zastavit, stát.
Cede.	Move back.	Krokem zpět.
Gradum servate.	Keep pace.	Držte krok.

<https://x-legio.com/en/wiki/roman-combat-teams>
Polybius. The Histories. English translation by W. R. Paton. Loeb Classical Library text from LacusCurtius

Gaius Iulius Caesar. Bello Gallico. English translation by W. A. McDevitte and W. S. Bohn.

Bello Africo. English translation by W. A. McDevitte and W. S. Bohn.

Bello Hispaniensi. English translation by W. A. McDevitte and W. S. Bohn.

Onasander. The General. English translation by Illinois Greek Club, Aeneas Tacticus, Asclepiodotus, Onasander. Loeb Classical Library, Harvard University Press, Cambridge, 1986.

Flavius Iosephus. Bellum Judaicum. Excerpts in

Drill Commands: Rome II

Latin	English	česky
Transformatate.	About face.	Čelem vzad.
Arma portate	Take up arms.	Zvedněte zbraně.
Arma demittite	Lower arms.	Odložte zbraně.
Ad arma	To arms.	Do zbraně.
Gladius stringite.	Draw swords.	Tasit meč.
Gladius recondite.	Sheathe swords.	Schovat meč.
Scuta portate/demittite.	Pick up shield.	Štít uchopit.
Scuta demittite.	Put down shield.	Štít odložit.
Percute.	Advance, close to enemy, beat.	Do nárazu.
Pila portate/demittite.	Pickup pilum	Zvednout oštěp.
Pila demittite.	Put down pilum.	Odložit oštěp.
Pila tollite.	Prepare pilum for throw.	Oštěp připravit.
Pila jactate.	Throw pilum.	Vrhnout oštěp.

<https://x-legio.com/en/wiki/roman-combat-teams>

Drill Commands: Rome III

Latin	English	česky
Ad unum.	One rank.	Jednořad.
Ad duo.	Two ranks.	Dvouřad.
Ad quattuor.	Four ranks.	Čtyřřad.
Junge.	Close up.	Srazit řadu.
Large.	Open up.	Roztáhnout linii.
Mutare.	Replace 1st rank.	Rotace řad.
Murus.	Shield wall, 2nd at 45 deg.	Zed'
Tela.	Roof. Shield wall with roof.	Střecha.
Ad cuneum.	Wedge.	Klín.
Ad testudinem.	Tortoise.	Želva.
Undique servate. (Orbis.)	Circular defense.	Mlýnské kolo.

<https://x-legio.com/en/wiki/roman-combat-teams>

Drill Commands: Strategikon

Silentium. Nandata captate. Non vos turbatis. Ordinem servate. Bando sequute. Nemo demittat bandum et inimicos seque.	Silence. Do not worry. Keep your position. Observe orders. Follow the standard. Do not leave the standard and pursue the enemy.	Ticho. Ničeho se nebojte. Každý na svém místě. Poslouchat rozkazy. Za praporem. Držte se praporu, nepronásledujte nepřítel.
Ad octo. Exi.	Divide by 8, March.	Rozpůlit, po osmi.
Exi.	Halve/by 4.	Rozpůlit. (po 4, po dvou..)
Dirige frontem.	Straighten front.	Vyrovnat.
Junge.	Close ranks.	Srazit řadu.
Ad fulcon.	Form foulkon.	Hradba.
Parati.	Ready.	Připravit.
Adiuta . . . Deus.	Help Us. O God.	S Boží pomocí.. Do toho!
Medii partitis ad difallangiam.	Divide in the middle. Form double phalanx.	Rozpůlit. Dvojitá falanga.
Primi state, secundi ad difallangiam exite.	Primi halt, secundi march out. Form double phalanx.	První stát. Druzí pochodem zpět. Dvojitá falanga.

11

Strategikon pg 145-149

Drill Commands: Strategikon

Reverte.	Return to prev formation.	Návrat do původní formace.
Ad conto clina.	To the lance, face.	Za zbraní, v bok.
Move.	March.	Vpřed.
Ad scuto clina, move.	To the shield, face. March.	Za štítem, v bok. Vpřed.
Undique servate.	Face in all directions.	Formace Mlýnský kámen.
Depone au dextra/ au senestra.	Change to the right/left.	Formace Vpravo/Vlevo.
Largia ad ambas partes.	Move out to both sides.	Rozvinout obě křídla.
Intra.	Enter.	Zdvojit (hloubku formace).
Acia in acia.	File in file.	Formace ve formaci. Hloubka 32, ztráta šířky.
Muta locum.	Change place.	Přední vojáci dozadu.
Transforma.	About face.	Formace - čelem vzad.

12

Strategikon pg 145-149

Drill Commands: SP, EN, CZ

Aragonese/Catalan	Castilian	English	Czech
De advocación		Addressing:	Oslovení:
almogavers, milites, homs, homens, servents, gents, gents d'armes	almogávares, soldados, hombres, sirvientes, hombres de armas	almogavars, soldiers, men, servants, gentlemen, men at arms	almogavaři, vojáci, muži, služebnictvo, pánové, zbrojnoši
De posición		Position:	Pozice:
davantera	delantera, avanguardia	vanguard	předvoj
mitjania	medianera	centre	střed
reraguarda, reassaga	retaguardia, zaga	rearguard	zadní voj
De armas y de su uso			Zbraně, použití
llança	lanza	lance	kopí
apuyada, apuyat	apoyada, apoyad	support	podpora
dards, escona, esconeta	dardo, azcona	darts	šipky, oštěpy
coutell, cortell	cuchillo	knives	nůž, tesák
colp	golpe	beat	bijte
a armes	a las armas	at arms	do zbraně
escuts	escudos	shields	štítý

TODO: Add second half of commands.

Bibliografía:

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-Canellas, Vidal de; Vidal Mayor. Versión romanceada en aragonés del código "In Excelsis Dei Thesauris" . Siglo XIII. Edición facsímil... (1989)

Fdo: Héctor Polite García
Licenciado en Historia
Año 2014

Investigate another sources - Leo VI., etc.

Drill Commands: CZ Hradec 1

Česky	English
Formace	Formations
Řada. Dvojřad. Trojřad.	Rank up. Two ranks. Three ranks.
Linie. Dvě linie. Tři linie.	Line up. Two lines. Three lines.
Formace klín, Kruhová obrana, Byzanc.	Wedge, Wheel, Byzantine Formation.
Zed'. Šípy.	Wall formation. Roof formation.
Vyrovnat.	Line up.
Srazit řadu.	Close up.
Zdvojit řadu / linii.	Double rank / line.
Šikmá pravá / levá.	Right / left flank oblique forward.
Rotace.	Replace first rank / line.
Zástup. Dvojstup, trojstup...	Column. File by two, three.
Za korouhví, za pánem z ...	Follow the standard. Follow senior of ...
Po družinách.	Split companies.
Po skupinkách.	Wolf packs.

Drill Commands: CZ Hradec 2

Česky	English
Přesuny	Movements
Otočit vpravo, vlevo, vzad.	Right turn, left turn, about face.
Směry: Vpřed, vzad, vpravo, vlevo.	Directions: Forward, backward, right, left.
Krokem - směr.	(direction) March.
Klusem - směr.	(direction) Double March.
Volným krokem - směr.	(direction) Easy March.
Zastavit - stát.	Halt.
Hop.	Step.
Kosmo pravá / levá.	Right/left Wheel March.
Překážka.	Obstacle.
K boji.	Arms ready.
Do nárazu.	Ram up.
Šturmem.	Pursue, fast.
Zapřít - tlačit.	Support front - push forwards.
Volno, sednout, přilby dolů, napít se.	Rest, sit down, helmets down, drink.
Na pochod / do boje připravit	Get ready for march / fight.



Drill Commands: CZ Hradec 3

Česky	English
Chraňte pána.	Protect senior.
Zelená. (zranění, zajistěte oblast, medika)	Green. (real injury, protect perimeter, call medic)
Ke korouhvi.	To standard.

- Orders to date: 19.12.2022
- Link: [Hradecké povely](#)

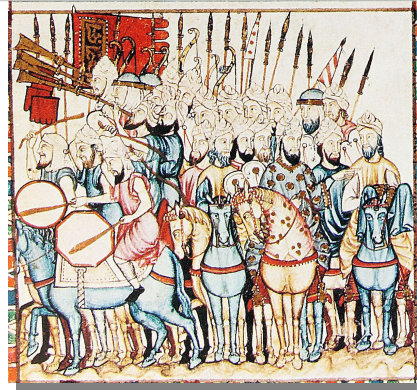


Drill Commands: Execution

- 1-2 seconds reaction time.
- Execution timed at ORDER.
- Orders executed during movement. **No stopping.**
- Building **Rank**: With my shield from left I cover partners' shield on my right.
- Rank → Line:
Left flank extends to left, right flank to right. I extend my right hand to partner.
- March backwards:
 - Rear line are eyes, they lead front line, who is fighting during retreat.
- About face:
 - Shield bearers: Left leg back, turning around shield.
 - Polearms, marksmen: Weapon vertical, turn both feet tips on place.
- Dissolving Roof: 2 shield rows over each other.
 - Roof 2 steps back first, dissolve, then front Wall dissolves.

Signals

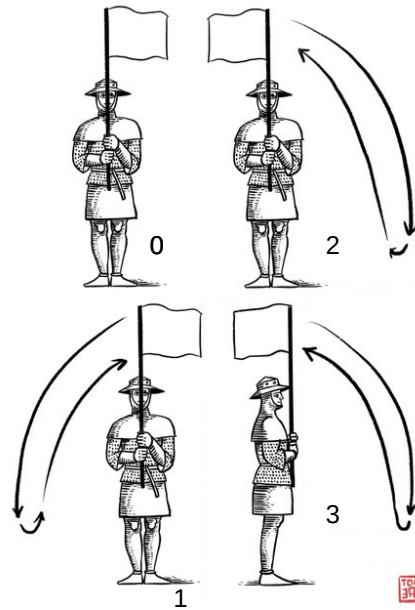
- Distance
 - Light houses, carrier pigeons, horse mail.
- Visual
 - Fire, smoke: Reconnaissance, army.
 - Banners: Units, army.
 - Signs: Silent hand signals.
- Acoustic
 - Trumpets and horns: Formations, units. Whole army.
 - Drums: Step, run, direction, motivation. Whole unit.
 - Whistle, voice: Officers, around 10 people diameter.
 - Runners: Every officer has runner stationed by top commander.



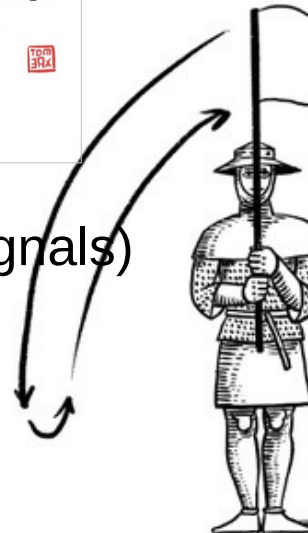
1284 SP Cantigas de Santa Maria 165 b5

Signals: Banner

- Signal:
 - 0: Vertical
 - 1: Right, 0
 - 2: Left, 0
 - 3: Forward, 0
 - 4: Circle
- Code table - sample:
 - message end: 3
 - left flank: 22
 - right flank: 11
 - center: 12
 - LF forward: 221
 - LF back: 222
 - RF forward: 111
 - RF back: 112
 - center forward: 121
 - center back: 122
 - outflankers: 1
 - ambushers: 2
 - to standard: 4

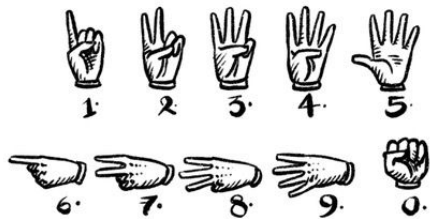
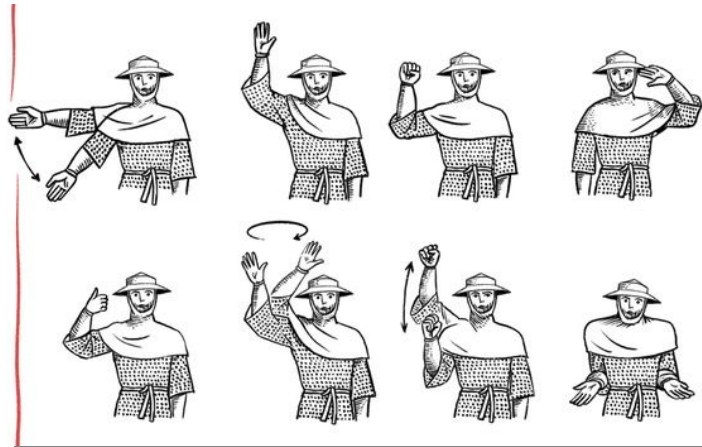


[https://en.wikipedia.org/wiki/Wigwag_\(flag_signals\)](https://en.wikipedia.org/wiki/Wigwag_(flag_signals))



Signals: Hand

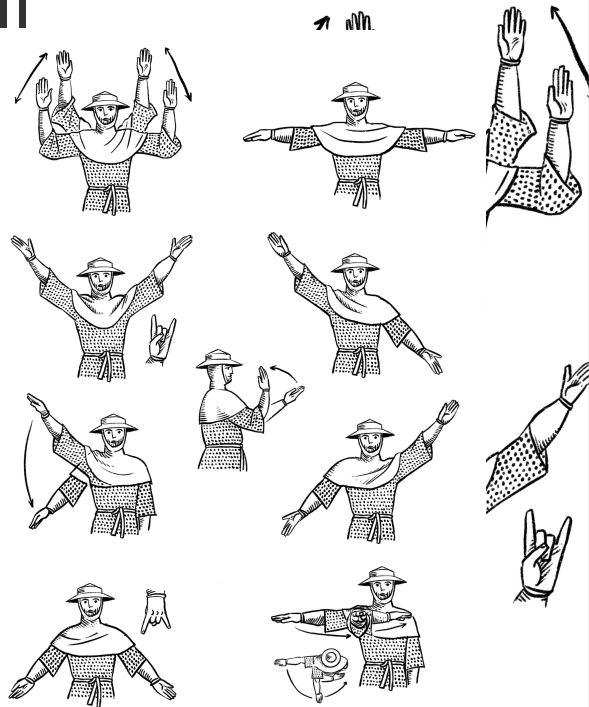
- Slow down
- Halt
- Freeze
- Stop, look, listen, smell
- I understand
- Assemble
- Faster
- I don't understand



<https://irp.fas.org/doddir/army/tc3-21-60.pdf>

Signals: Hand II

- Staggered Column formation
- Line formation
- Zither formation
- Outflank left
- Follow me
- Take cover
- Outflank right
- Wedge formation
- Wolf packs



<https://irp.fas.org/doddir/army/tc3-21-60.pdf>

Signals: Trumpet

- One trumpet or horn signals whole army.
 - With some exercise everyone plays basic tone (G1), then one higher (C2) and one lower (C1). Professionals play 5 tones (E2, G2).
 - Three tones enough to make order-melodies or four-character codes similar to banners.
 - G1 (lower) short = 1
 - G1 (lower) long = 2
 - C2 (higher) short = 3
 - C2 (higher) long = 4
- Code table - sample:
 - message end: 3
 - left flank: 22
 - right flank: 11
 - center: 12
 - LF forward: 221
 - LF back: 222
 - RF forward: 111
 - RF back: 112
 - center forward: 121
 - center back: 122
 - outflankers: 1
 - ambushers: 2
 - to standard: 4



22

old_guard-coach-horn-what-to-blow-how-to-blow-it-1885.pdf

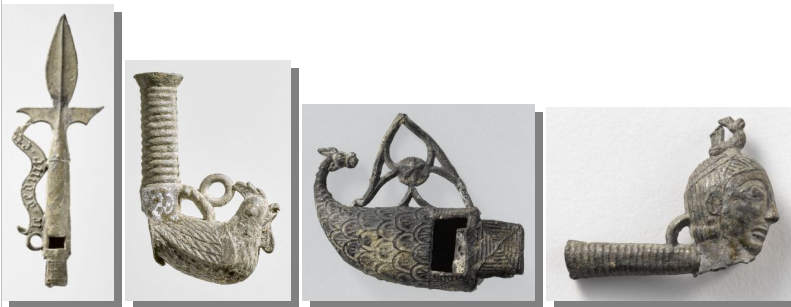
1300 EN Billingsgate trumpet

12-13.c. SP Valencia, ceramic horn

Signals: Whistle

- Whistle orders 1 squad.
 - Officer can spare his vocal cords.
 - In battle noise the whistle can be heard within cca 10 person radius, similar to voice.
- Long tone = 1
- Short tone = 2
- Delimiter = Pause

- Code table - sample:
 - march forward: 2121
 - faster: 1221
 - arms ready: 2111
 - ram up: 1111
 - slower: 2112
 - halt: 2211
 - backwards: 2122
 - right: 2212
 - left: 2222
 - about face: 2221
 - to standard: 1112
 - rank: 1121
 - line: 1212
 - line up: 1222
 - close up: 1122



23

14-15.c. FR Cluny: tin whistles

Command: Hierarchy

unit size name CZ name EN	hodnost česky rank EN	Czech	Latin	Greek	Castilian
6-20 družstvo squad	desátník seržant sergeant	seržant	decimus	dekarchos	almocaden al-muqaddam señor
75-200 rota company	setník kapitán captain	kapitán setník	centurio optio	hekatonarchos kentarchos	comendador
1000 pluk regiment	major plukovník colonel	major plukovník	tribunus	tribunus	adalid
n * 1000 brigáda brigade	generál general	generál	legatus	strategos	cabdillo alférez

24

Modern infantry:
squad (6-20)
echeleon (20-80)
company (75-200)
battalion (300-1,5k)
regiment (900-3k)
brigade (1-8k)
division (20k)

Byzantium
tetra/penta/dekarchy
-
hekatonarchy
bandon, arithmos, tagma
chiliarchy (1k), moira
meros
division??

https://en.wikipedia.org/wiki/Military_organization

Strategikon

Command: Banners

Standard - Emperor. - King. - Fleet admiral.	Banner - 100+ knights - Town force officer - Military order commander	Pennon (3angular) - 50-100 knights - Military order preceptor - Ship captain	Pennon square - 50-10 knights	Gonfanon - 2-5 knights
				

<https://web.archive.org/web/20051231202834/>

<https://www.kwantlen.bc.ca/~donna/sca/flags/>

- Standard (aka Auncient) - standard
- Banner - rectangular without cuts at side
- Ensign - Flag
- Gonfalon - horizontal mount
- Gonfanon - vertical, 2-3 side tips
- Guidon - simple triangle
- Pennon - rectangle or triangle, 80x25cm, long side to staff
- Penoncel - little triangle behind lance tip
- Streamer - long triangle ribbon

<https://cs.wikipedia.org/wiki/Vlajka>

<https://cs.wikipedia.org/wiki/Korouhev>

https://en.wikipedia.org/wiki/History_of_flags

<https://en.wikipedia.org/wiki/Pennon>

<https://www.bogi.cz/prapory--vlajky-a-zastavy/c111.htm>

Command: Extended study

- Rhetorics and medieval Law.
 - Motivation. Making sense.
 - Persuasion.
 - Authority.
- Singing.
 - Powerful voice for issuing commands.
 - Morale and fighting spirit.
 - Songs: Marching. Motivational before fight. Combat to improve initiative.
- Chess.
 - Pawn, Bishop: Kill diagonally into spaces between shields.
 - Knight: L - outflanking. Turn before shield wall, keep speed, ride along, attack.
 - Tower: On backs of combat elephants.
 - Alférez (Queen): Head commander of heavy cavalry.
 - King: Moves slowly enclosed in tight rectangular pikemen formation Court.

26

**TODO: Investigate Libro de los juegos.
Map chess problems into tactical units in field.
What about Christian and Moorish soldiers in tent together?**

Base exercise

- **Run, jump, swim, throw, wrestle.**
 - Soccer. Dodgeball. Handball. Basketball. Ball games.
 - Parcour. Somersaults. Climbing. Wrestling.
 - Obstacle courses. Solo. With opponents.
 - Throwing: Ball, stone, javelin, sling, fustibal.
- **Optimum:**
 - ½h-1h running without armor, then light armoured.
 - 1h march in light or heavy armor.
 - No regular **running** in **heavy armor**.
 - Easy to damage ligaments, joints and backbone.
- Technical exercise with **weapons**.
 - Speed, reach, **cooperation**, activity.
 - Shield bearers: Different shield grips.
 - Straps: Guige + elbow, guige + fist → Shield + halberd or spear.
 - Outflanking manoeuvres and counters. Powerplay, anti-powerplay. Calthrops.
- Infantry command drills **in armour**.
- Preparation for **company drills** 1-2 times per year.

27

Ball games of mostly Greek origin were disseminated over Europe by ancient Roman armies.

Knights trained constantly with sword, lance, axe, mace, both mounted and unmounted.

William Marshal was noted to be particularly rigorous in 'tuning up' the Young Henry's tournament team via training, and mounted training was essential to keep the relationship between horse and rider intact, aswell. Even as a squire, they were required to master the 'seven points of agilities' - riding, swimming and diving, shooting different types of weapons, climbing, participation in tournaments, wrestling, fencing, long jumping, and dancing, often while armoured.



Boucicaut, armored, 1380-1409

- Wall climb between two walls.
- Side horse vault.
- Grab the riders' sleeve and leap onto the horse in front of him.
- Perform ground somersaults one after another.
 - Take off your helmet first.
- Swing sledgehammer around you or split wood with axe.
- Throw large stone. Repeat.
- Punch ground, wall or other things to toughen hands.
- Climb up the bottom side of ladder leant against tree.
- Dance vigorously and often to your favourite melody.
- Enjoy a long run.
 - (Select soft surface like grass or moss. Run lightly, no stomping.)



Armor Arms Knowledge Skill

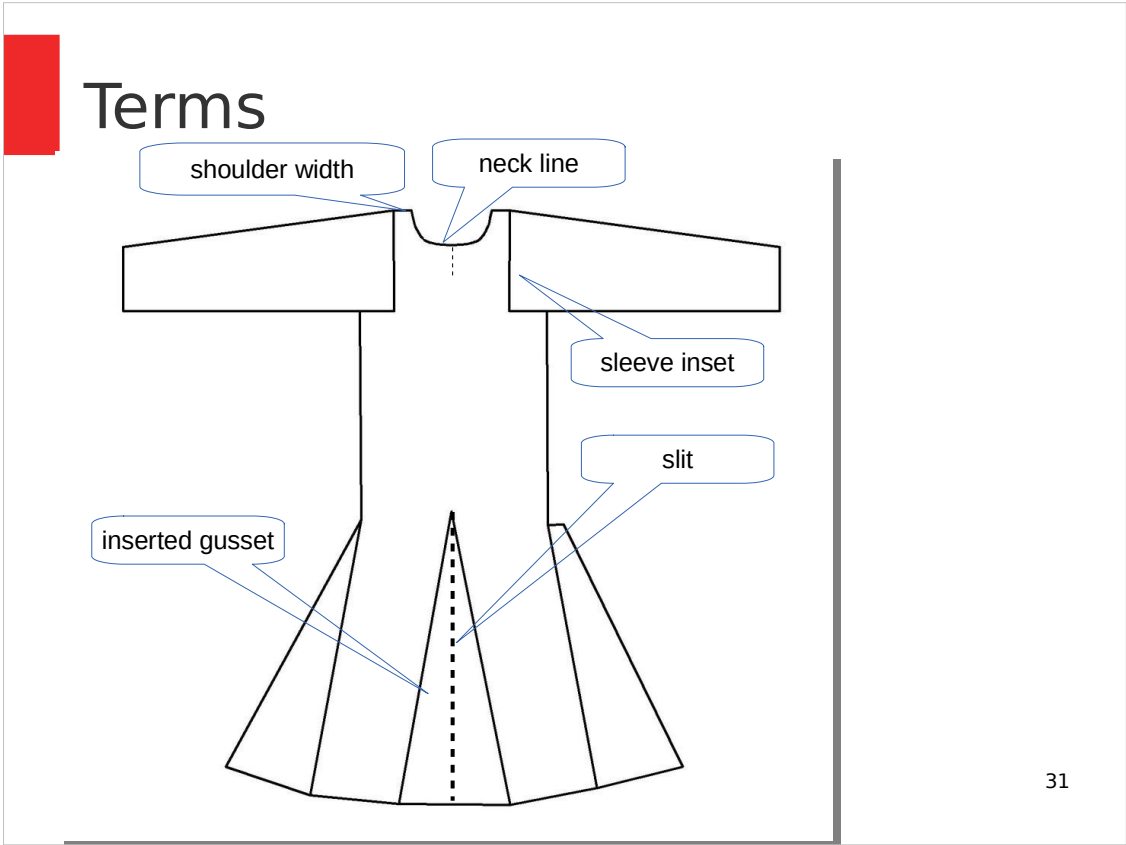
- Arms and armour quality affects courage, endurance and army initiative.
- Alfonso X: Balancing requirements.
 - Mobility. Weight. Thermoregulation → Endurance.
 - Protection. Hardness. Quality → Courage.
- Use affects construction.
 - Hits from above are most frequent. Hand is raised. **Sleeve inset. Neck line.**
 - Arm is weight at the end of hand. Sleeve **forearm** is as tight as possible.
 - Infantryman needs to run. **Skirt gussets.**
 - Weight of iron armour is function of length and circumference.
Tightly fitting dress, with mobile joints.
- Improper dress construction **significantly** fatigues its owner.
Endurance reduced from hours to minutes.
- **Officer is responsible for quality of arms and armour of his people and squad being trained in armour.**

Protection

- Comfort and mobility in own armour.
- Primary defense targets: head, neck, torso, joints.
- Too thick armour restraints movement, fatigues, overheats its owner.
- **Layering.**
 - It's technically challenging to integrate gloves and collar into dress while retaining mobility and tight fit.
 - Quilt or just layer some woolen tunics? Quilting → tighter fit.
- **Functional and separated segments.**
 - Most layers are on shoulders from top, then on torso.
 - From hips down: Less layers. 1-2 layers enough for skirt.
 - After 1300AD: Mentions of separate torso, sleeves, skirt protection. LEGO.
- **Selective** strengthening protection of weak spots - joints, fingers.
 - Laced on, inserted into or sewn into pockets.
 - After 1215AD EN evidence for buying leather, linen for shoulder protection (espaulders). Segments: 3mm leather, cuir bouilli, whalebone. Steel after 2nd half of 13th.c.
 - Shins, knees, gauntlets, forearms, elbows, arms shoulders, neck.

30

- Inventory of the English knight Sir John Fitz Marma-duke in 1311 „one reddish aketon with sleeves of baleen”.
- Aketons were worn to stop chafing and to improve the fit of the armour, not to reduce damage to the wearer.
- Segmentaton after r.1300 EN, FR, IT: Ralph Moffat, Medieval Arms and Armour, a Sourcebook. Volume I: The Fourteenth Century (Boydell & Brewer: Woodbridge, 2022).
- Aragon kingdom: Documented use of whalebone segments for shin, forearms, knees, elbow protection and for making gauntlets. Source: don Martí de Riquer: „L'arnès del Cavaller“.



Source: doc. Ing. Martina Hřibová, Ph.D.
Attempt at recreation of saya encordada con mangos cosedizas construction.

Saya of don Fernando de la Cerda, published in „Vestiduras Ricas“.

Sleeve insets, neck line

- Sleeve inset edge begins near the neck behind shoulder joint of raised arm.
- Lower edge of sleeve inset aligns with nipple.
- Neck line is tight around neck, shoulder width, laying on deltoid muscle helps bearing the weight of dress and armor. Fastening at neck needed. Avoid choking.
- More construction details: See talk "Soft armour construction notes: Aketon, gambeson, perpunt. 1280-1350"



picture: Argo San Gwaat



Sources

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- 1936 „Rukověť pro aspiranty a důstojníky v záloze“. Vědecký ústav vojenský. Praha.
- 1939 Reibert: „Die Schützenkompanie“.
- 1983 Vševojsková operační a taktická terminologie:
1. díl - Vojenská věda, operační umění a všeobecná taktika. Praha.
- 2017 U.S. Infantry Training Circular 3-21.60 (FM 21-60).

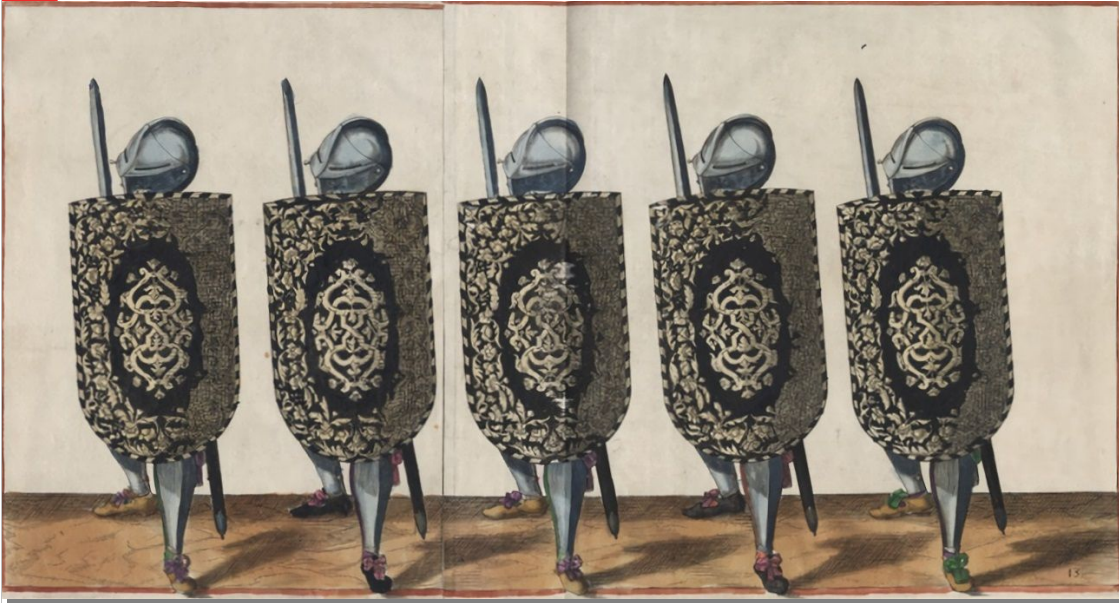


Credits

- [Alfonso X](#). Unambiguous declaration of armor requirements, battle formations, hundreds of detailed illuminations. Partidas.
- [Arrianus](#), [Vegetius](#), [Mauricius](#), [Hrabanus Maurus](#), [Leo VI](#), [Maurice de Nassau](#): Great sources.
- Gentlemen from [Bílá](#), [Blatná](#), [Dobřenice](#), [Javornice](#), [Hrádek](#), [Kravaře](#), [Libiš](#), [Lomnice](#), [Loupežník](#), [Němčice](#), [Nové Hrady](#), [Rabštejn](#), [Sonnberg](#), [Strakonice](#), [Štěkeň](#), [Štítná](#), [Vrcov](#), [Wrauu](#), and others from project of Queen Elizabeth Richenza court.
- [Dagfari](#), [Dwarf](#), [Vojtěch Půlpán](#), [Rogan](#) and other Czech reenactment military commanders.
- [Eva and Honza Hans Hoffmann](#) for support, experience, manufacture, long company.
- [Pero Cornel](#) for Spanish commands and long fruitful cooperation.
- [Tomáš Zach](#) for illustrations.
- [Argo San Gwaat](#) illustrations.
- [Martina Hřibová](#) - illustration and attempt at reconstruction of saya encordada pattern.
- [x-legio.com](#) - Roman drill orders.

- +Many others willing to share experience.

Questions, discussion



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1618 Adam van Breen: „De Nassavsche Wapen-Handeling“.