The Dynamic Sphere: Thesis on the Third State of the Vitruvian Man

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Abstract The subject of this paper is the basic principles of a martial art that has been perfected over millennia of social strata, skirmishes, and settlements, and is the amalgamation of different cultures and traditions which flourished during the Renaissance. We can learn this art today thanks to the texts written and printed during that period. In his most famous drawing, Leonardo da Vinci (1452–1519) shows a man drawn inside two geometrical shapes: the square with the center at his groin and the circle with the center at his navel. But there is another possible representation that provides an anthropometric revelation with his center at the solar plexus. That is the man I define as dynamic. Many traces of him may be found in the Masters' texts and we have magnificent examples of him in daily life: the man who, through performing perfect combat moves, is able to move and "become" a sphere, the "*Palla*," or ball, as Camillo Agrippa calls it, with changing circumference and surface. He can move his center within his own body and outside of it, to the palm of his hand, to the blade of his sword, and even to inside his enemy. The dynamic man represents the development upon both the natural man, depicted in a square with his groin at the center and the speculative man, depicted in a circle with his navel at the center. This man creates a sphere around himself, with the solar plexus at its center. He has the ability to move that center to any part of his body, even to his blade and as far as the blade's end, thus modifying the circumference of his sphere as he pleases. The findings presented here are the fruit of over twenty years of research and practice, reflecting my own progression in the theoretical and practical understanding of Italian martial arts.

Keywords Martial arts · Dynamic sphere · Vitruvian man · Human body · Solar plexus · Renaissance · Italian martial arts · Hermetic · Treatises · Master-of-arms · Combat arts · *Assalti* · Martial traditions · Biomechanics · Movement

> God is an infinite sphere, the center of which is everywhere and the circumference nowhere.
>
> — Alano di Lilla.

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1 In Search of the Dynamic Sphere: The Third State of the Vitruvian Man

In the late nineteenth and early twentieth century, steps were made toward understanding the third Vitruvian man, which Frenchman Auguste Choisy (1841–1909) depicts well (Choisy, 1909), as does Le Corbusier (1887–1965) in *Le modulor d'or* (*Corbusier*, 1942; 1955). Yet none of them moves the center to the plexus nor shifts the shoulders entirely, as the masters of martial arts intend. That is because their research has a static goal, intended for painting, architecture, and construction, rather than to understand movement in a dynamic manner. Le Corbusier identifies the plexus and makes it a subdivision point for the human body, in accordance with the Fibonacci sequence. That is perfect and will lead to some incredible architectural solutions—including the Fuksas bubbles and clouds. But when Le Corbusier lifts the arms of a man of 183 cm, he lifts them to a maximum of 226 cm rather than the 238–243 cm he can actually reach, as we will see at the end of this chapter. What he calls the plexus is in reality the navel, found at 110–112 cm from the ground. Isadora Duncan (1877–1927) does achieve the center in the plexus but is too focused on flying on the stage to transform that understanding into an explicit representation as we do. Her photographs and the sculptures that she inspired are among the most beautiful depictions of movements I know.

The *Huygens codex*, which contains a series of figurative studies of human movement by Carlo Urbino (1525–1585),[1] seems to be an early study of the dynamic man (Panofsky, 1940). However, on closer inspection, it focuses on movement as a "natural study" of the body's positions, with the aim of understanding how to draw it better, while none of the drawings actually considers the dynamic man we seek. What it *does* depict is moving bodies that are only *apparently* moving, akin to wooden figurines with moving limbs, which are ultimately restricted by their nature as anatomical studies. Further, throughout the codex, the arms are never raised, not even in the "fifth figure and principle of movement." As with Leonardo da Vinci's Vitruvian Man (Cecconello, 2019; Lester, 2011; Perissa-Torrini, 2009; 2018), this study is limited to an artistic scope and to the study of movement *for art*. On the other hand, the concept of the dynamic sphere—a sphere that does not rest on its poles and can change its diameter—comes from those who received and passed on the teachings of a perfect martial art in the fifteenth to sixteenth centuries. In my view, that art is the fruit of developments in the perception and performance of the human body, specifically in relation to the art of combat, that date back many centuries. Urbino and Da Vinci received teachings and inherited the search for the Vitruvian man from a wider circle of humanists that include the mathematician Luca Pacioli (1445–1517), the architect and military engineer Francesco di Giorgio Martini (1439–1502), and the master-of-arms Pietro Monte (1457–1509). The scientific and artistic studies by Da Vinci started a revolution by separating the center at the lower point in the groin from the center at the navel. However, this discovery was only partial.

[1] Carlo Urbino is the illustrator of Master Camillo Agrippa's treatise.

Well before Da Vinci, during his own era and after him, the idea of representing man in relation to geometrical shapes in order to compare him to the natural world was widespread. The desire was to show how the human microcosm mirrors the macrocosm of the universe, where it can at once be influenced by, and in turn, influence the macrocosm. The center of that man is almost always identified as the navel, rarely the groin, or with two separated centers. To my knowledge, the center of the referential geometrical shape and that of man has never in western culture been identified (explicitly) as the plexus. To give a list of examples, we can take into consideration the following: the tenth-century fresco in the Church of Sant Quirze de Pedret kept in the Diocesan Museum of Solsona, in which a man is depicted with his arms extended within a circle, while a bird lifts them both into the air (See Fig. 4.1). We may also consider the man in *Liber divinorum operum* by Hildegard of Bingen (1098–1179) in the Lucca State Library, in which man's microcosm is depicted at the center of celestial spheres; Fra Giovanni Giocondo in the printed edition of Vitruvius (1511); Cesare Cesariano (1475–1543) in the printed edition of *De architectura* (1521); the Vitruvian man depicted in a circle and a square with legs together in

Fig. 4.1 *Orante*, wall decoration from the Church of Saint Quirze de Pedret, Lerida, end of the tenth–beginning of the eleventh century (Collection of Museu Diocesà i Comarcal de Solsona, Solsona)

Giacomo Andrea da Ferrara's manuscript, dated between 1490 and 1518 and kept in the Ferrara Ariostea Library; and Francesco di Giorgio Martini's *Homo ad circulum* in the treatise on civil and military architecture in the Ashburnham manuscript (See Figs. 4.3, 4.4, 4.5, 4.6, 4.7 and 4.8). It is a long list, but the following also deserve a mention: Cornelio Agrippa di Netteshelm (1486–1535) in his *De occulta philosophia* (1533) and the planetary man depicted in a pentagram in a circle, and Enea Salmeggia (1556–1626) in his proportional study of the figure in movement, an ink manuscript from around 1607, kept in Bergamo at the Carrara Academy. Salmeggia's study presents a beautiful synthesis of circles around rotation points, but the center of the circle remains at the navel. The left arm is lifted a great deal further than by Leonardo, but still is not pushed upward (See Fig. 4.2 and 4.11).

Not a representation of Vitruvian proportions but still strongly relevant to this study is a relevant page in Giovanni Sacrobosco's (1195–1256) *Tractatus de Sphaera* (circa 1470) devoted to the sun (See Fig. 4.2). Here, the sun has its center at the groin. Drawn within a sphere, it overlooks a scene of martial art training. The plexus is the place of fire, from which movement springs—movement being the foundation of the martial arts.

Although Girard Thibault d'Anverse (1574–1627) handles the subject in a measured and explicit manner in his 1628 encyclopedic publication *Academie de l'Espée*, I see Federico Ghisliero, in 1585, as the first master-of-arms to use the drawing of the Vitruvian man in a treatise on fencing and to reference the teachings of the ancients on proportions (See Fig. 4.12). In his book, there are numerous unspoken references to the teachings of Pietro Monte, who was acquainted with Leonardo (Brioist, 2013). Ghisliero's teachings are very close to those of Camillo Agrippa (1520–1595), who studied the celestial spheres and planets and was linked to Carlo Urbino (See Fig. 4.10). Ghisliero's text possesses at once a classical and modern flavor. He was a nobleman and a soldier and even hosted Galileo Galilei (1564–1642) in his home. The Renaissance was indeed an enlightened time, rather than simply a time when some geniuses happened to live.Fig. 4.11Enea SalmeggiaEnea Salmeggia. Proportional study of figure in motion, circa 1607, inv. STP00788 (Collection of Accademia Carrara, BergamoBergamo)

2 Gathering Evidence

This paper stems from a realization that accepts its own state of doubt and believes it can become an answer. It stems from a sensation long felt in the body. When putting my thoughts down in writing, I rely upon and find comfort in the words of the masters, discovering their doubts and brilliant realizations.

There are differences among the treatises of armed combat that we have inherited. Some are richer in content, others less so; some offer detailed descriptions of the techniques, others are more taciturn with information but still interesting for many reasons. All too often they are analyzed individually, which is a serious flaw

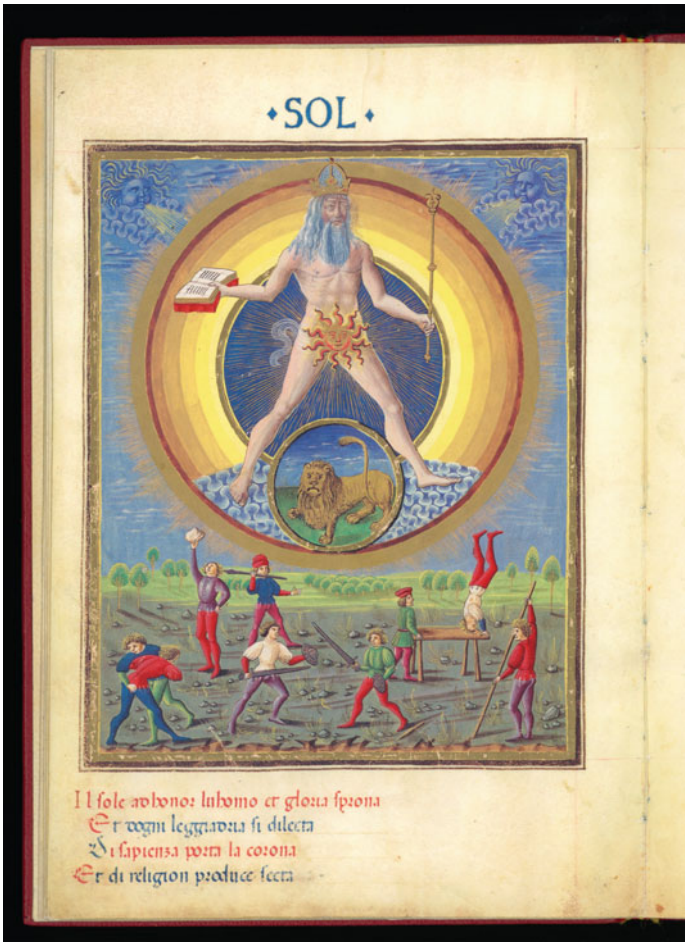


Fig. 4.2 Sol (Sun). *De Sphaera* (Alfa. X. 2. 14 = Lat. 209). Giovanni Sacrobosco, original work from circa 1230, image from a copy of the fifteenth century (Collection of Gallerie Estensi, Biblioteca Estense Universitaria)

when studying an art form that, by its very nature, draws its strength from the diversity of confrontational situations, leading to the settlement and layering of different experiences.

This research sought the common element in the teachings of those masters or martial artists who left behind written records. This is found in the insistence upon improving dynamic movement, uniting all the limbs behind a blow or a parry. Renaissance scholars who were also masters-of-arms strove to put down in writing (insofar as they knew or were able) the knowledge passed on to them from the past. That knowledge was deeply rooted in history, perhaps as far back as pre-history.

Fig. 4.3 Hildegard von Bingen. *Liber divinorum operum*, thirteenth century, MS 1942, f. 9r (Collection of Biblioteca Statale, Lucca)

Through action and operation, man becomes sublimated, transcending the bounds of intellectual study and science, bringing him closer to the essence of God.

A vital heuristic key, which has not received sufficient research attention, is what Nicola Bizzi begins to investigate in his *Camillo Agrippa la quintessenza del Rinascimento* (*Camillo Agrippa: the Quintessence of the Renaissance*) (2020). Martial art masters of the Renaissance period were bound to the quest for ancient knowledge and wisdom. They wanted them, sought them, and often successfully gained possession of them—in other words, they used them as a tool for understanding their art.

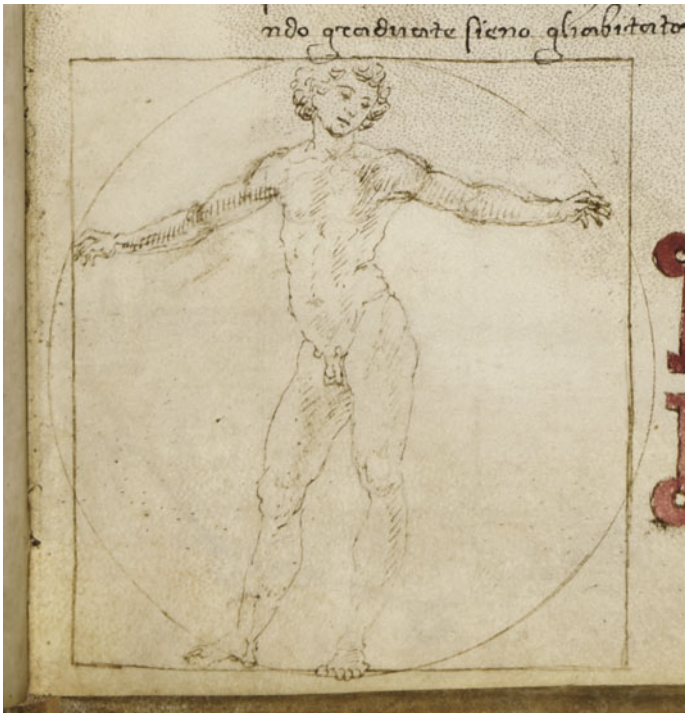


Fig. 4.4 Francesco di Giorgio Martini. *l'Homo ad circolum*, MS Ashburnham 361, f. 5r (Collection of Biblioteca Medicea Laurenziana, Firenze)

Taking Agrippa as an example (it was he who clearly inscribes the dynamic man in a sphere), Bizzi expressly labels him an esotericist. He highlights the involvement of Cosimo I de Medici (1519–1574) (to whom the fencing treatise is dedicated) in a consolidated Eleusinian tradition associated with the Orphic rites. He reminds us how the *Dialogo sopra la generatione dei venti, baleni, tuoni, fulgori, fiumi, laghi, valli et montagne* (*Discourse on the origins of wind, lightning, thunder, thunderbolt, rivers, lakes, valleys, and mountains*, printed in 1584) is dedicated to Cardinal Aloisio d'Este (1568–1624) who, as a cardinal, spent his entire life investigating the Orphic-Eleusinian rites. Annibal Caro (1507–1566), a friend of Camillo Agrippa, with whom he engages in a discourse toward the end of his treatise on fencing, is someone Bizzi calls a "learned Eleusinian initiate," who was "the point at which the learned circles of the Farnese, Gambara and Orsini families met." Nonetheless, I would like to underline that these studies may be traced back to a concept much closer to humanist-scientific studies than to some obscure magical context. They should be placed in studies where geometry, classical texts, mathematics, astronomy, and philosophy meet with the study of weapons and with Hebrew texts, as described by Angelo Viggiani dal Montone (?–1552), and as illustrated in the studies represented in the engravings of Agrippa's treatise (Scarpi, 2009; Souzenelle, 1999; Victor, 1980).

Fig. 4.5 Giacomo Andrea da Ferrara. Human body proportions inscribed in a square, in Pellegrino Prisciani, *Vitruvius M. Pollio*, *Architectura*, MS cart., 1490–1518, classe II 176, f. 78v (Collection of Biblioteca Comunale Ariostea, Ferrara)

I do not remember when the title page of Master Achille Marozzo's (1484–1553) treatise ceased to be for me a simple title page with a delightful architectural structure on it and became a cultural manifesto of the martial arts. To my mind, this is a possible reading: the master kneels inside an altar of everyday life, rectangular in shape, to recall the first earthly state. Before that altar, he performs his daily work in the city through which the river Reno flows, perhaps near his textile workshop. He bears the arms of his trade (Master General of Arms) while carrying out kabbalistic-alchemical

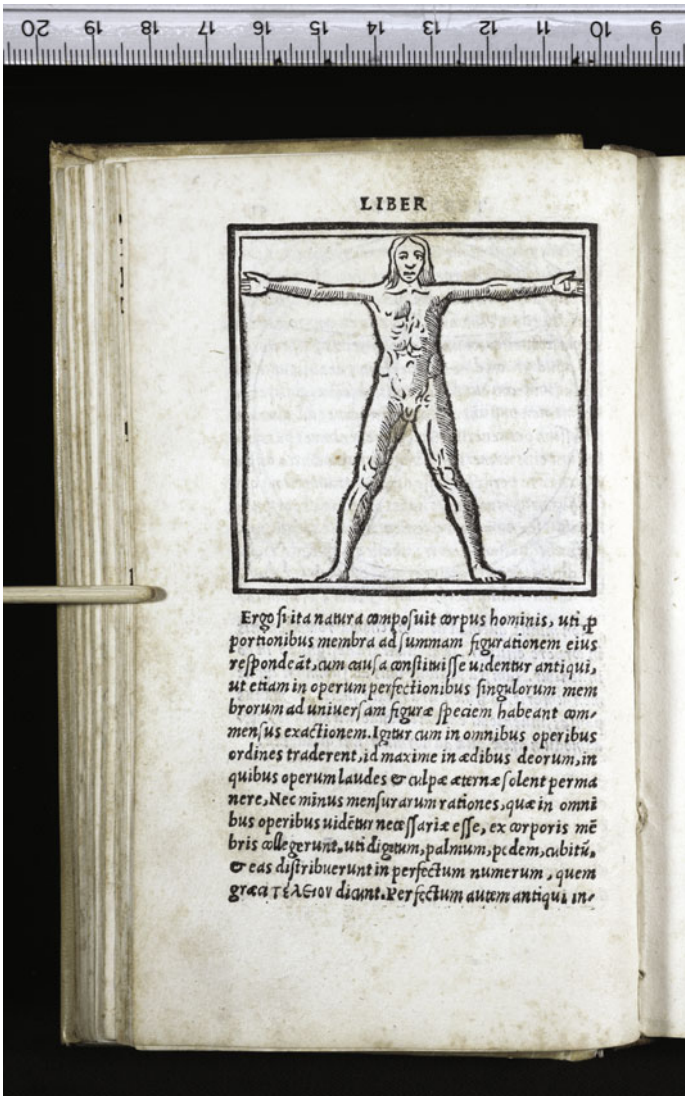
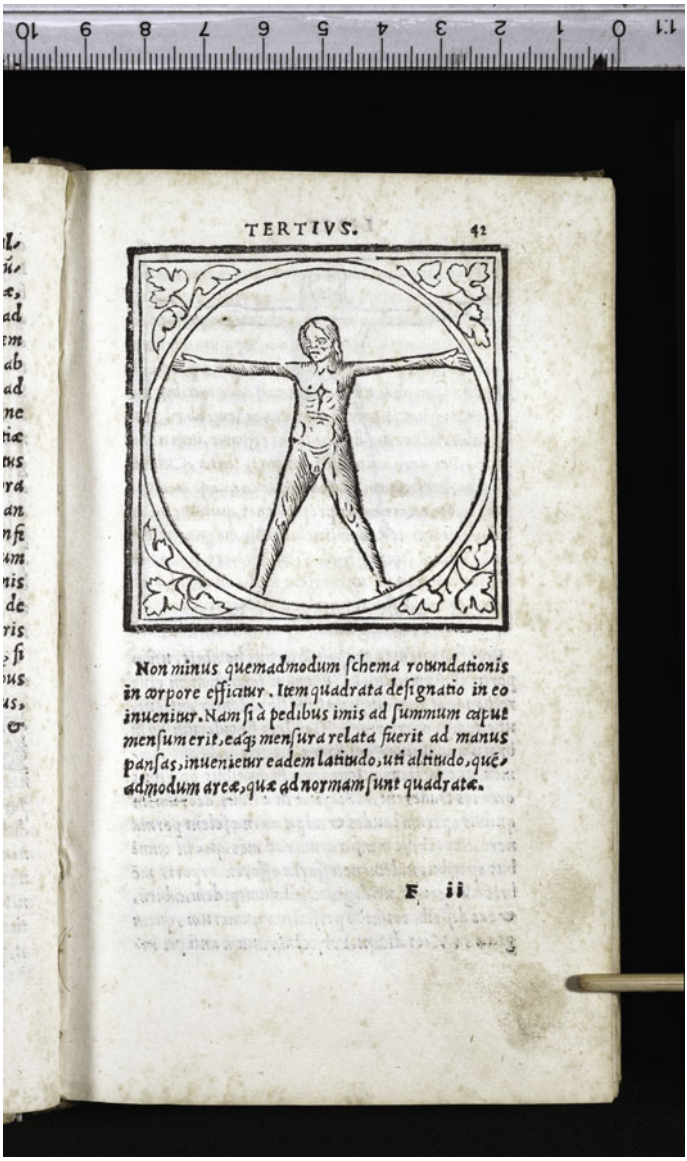


Fig. 4.6 Fra Giovanni Giocondo. Man in the square, *M. Vitruuius iterum et Frontinus a Iocundo reuisi repurgatique quantum ex collatione liquit*, Firenze 1513, RARI, 0724–0725 (Collection of Biblioteca Nazionale Marciana, Venezia)

activities—a hermetic study that permeates the structure of teachings on the *assalti* that he expounds in his text. Inside a protective circle, he sketches symbols that remain to be deciphered today, copying them from a book. From this altar rise two Caryatid figures. They represent the master himself and support a new, higher level, upon which the master sits on his throne, with a sword and a sphere (the "*Palla*" or



TERTIVS. 42

Non minus quemadmodum ſchema rotundationis in corpore efficitur. Item quadrata deſignatio in eo inuenitur. Nam ſi à pedibus imis ad ſummum caput menſum erit, eaq; menſura relata fuerit ad manus panſas, inuenietur eadem latitudo, uti altitudo, quē admodum areæ, quæ ad normam ſunt quadratæ.

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Fig. 4.7 Fra Giovanni Giocondo. Man in the circle, *M. Vitruuius iterum et Frontinus a Iocundo reuisi repurgatique quantum ex collatione liquit*, Firenze 1513, RARI, 0724–0725 (Collection of Biblioteca Nazionale Marciana, Venezia)

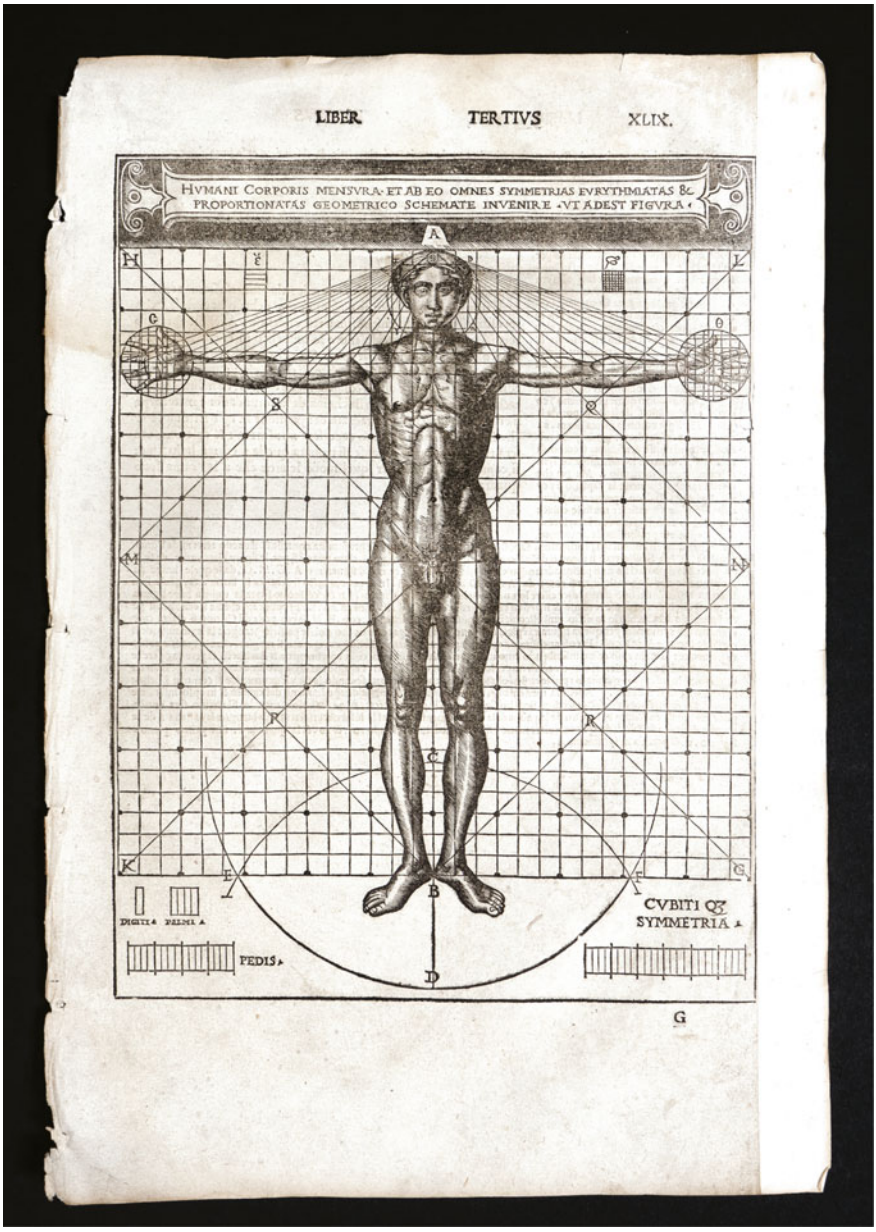
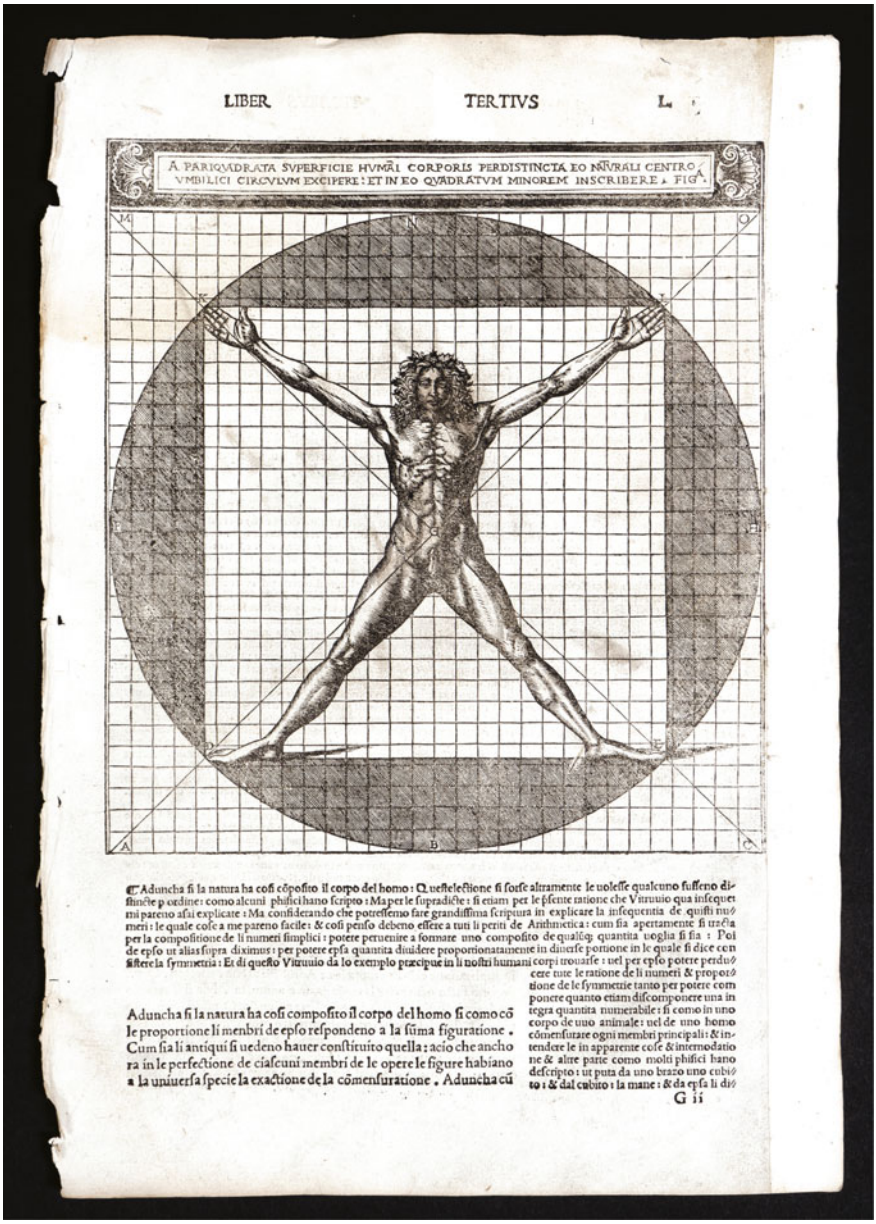


Fig. 4.8 Cesare Cesariano. Man in the square, *Di Lucio Vitruuio Pollione De Architectura libri dece*, Como, 1521, p. L



LIBER TERTIVS L.

A PARIQVADRATA SVPERFICIE HVMĀI CORPORIS PERDISTINCTA EO NĀVRALI CENTRO VMBILICI CIRCVLVM EXCIPERE: ET IN EO QVADRĀTVM MINOREM INSCRIBERE. FIG. A

Aduncha si la natura ha cosi cōposito il corpo del homo: Q uestelectione si forse altramente le uolesse qualcuno fusseno distinēte p ordine: como alcuni phisici hano scripto: Ma per le supradiche: si etiam per le sēente ratione che Vitruuio qua insequemi pareno assai explicate: Ma considerando che potrestesmo fare grandissima scriptura in explicare la insequentia de quisti numeri: le quale cose a me pareno facile: & cosi pensso debeno essere a tuti li periti de Arithmetica: cum sia apertamente si trōcta per la compositione de li numeri simplici: potere peruenire a formare uno composito de qualsēq; quantita uoglia si sia: Poi de epso ut alias supra diximus: per potere epsa quantita diuidere proportionatamente in diuerse portione in le quale si dice consistere la symmetria: Et di questo Vitruuio da lo exemplo præcipue in li nostri humani corpi trouasse: uel per epso potere perducere tute le ratione de li numeri & proportione de le symmetrie tanto per potere componere quanto etiam discomponere una integra quantita numerabile: si como in uno corpo de uno animale: uel de uno homo cōmensurare ogni membri principali: & intendere le in apparente cose & intermodatione & altre parte como molti phisici hano descripto: ut puta da uno brazo uno cubito: & dal cubito: la mane: & da epsa li dito:

Aduncha si la natura ha cosi composito il corpo del homo si como cō le proportione li menbri de epso respondeno a la sūma figuratione. Cum sia li antiqui si uedeno hauer constituito quella: acio che anchora in le perfectione de ciascuni membri de le opere le figure habiano a la uniuersa specie la exactione de la cōmensuratione. Aduncha cū

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Fig. 4.9 Cesare Cesariano. Man in the circle, *Di Lucio Vitruuio Pollione De Architectura libri dece*, Como, 1521, c. XLIX

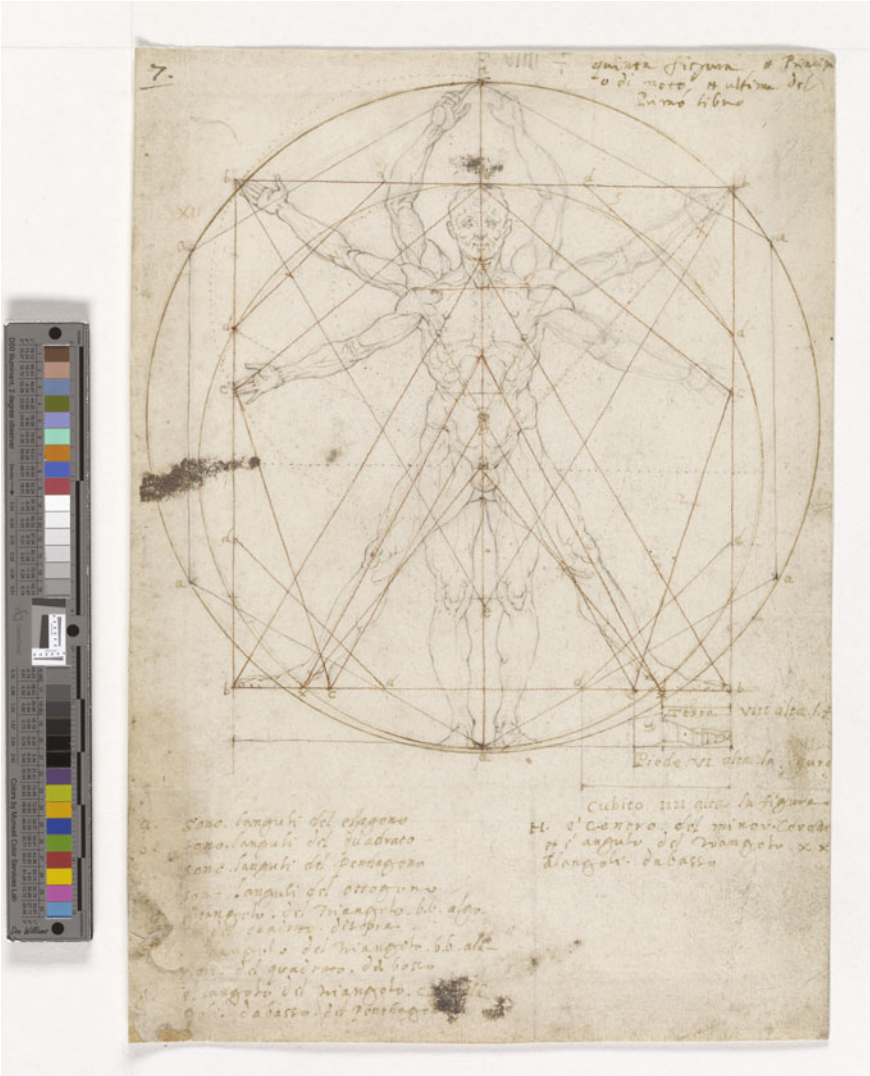


Fig. 4.10 Carlo Urbino. *Quinta figura et principio di moto et ultima del primo libro*, Codex Huygens, circa 1570, MA 1139, fol. 7 (Collection of the Morgan Library and Museum, New York)

ball) in each hand, and wearing a tiara (triregnum) on his head. Beside the throne, there are two sphinxes, the symbols of ancient knowledge. All of this is framed by an open curtain. At the center of this raised structure, a cartouche is rolled out, allowing us to see a new dimension, inside which the title of the book, *Opera Nova*, appears, alongside his name and his title, "Master." This is not the place for more than a mention: all the master's teachings are made up of cyclical references—three in threes, five in fives—and of actions that are "diluted and dried" (*diluito e asciugato*).

Fig. 4.11 Enea Salmeggia. Proportional study of figure in motion, circa 1607, inv. STP00788 (Collection of Accademia Carrara, Bergamo)

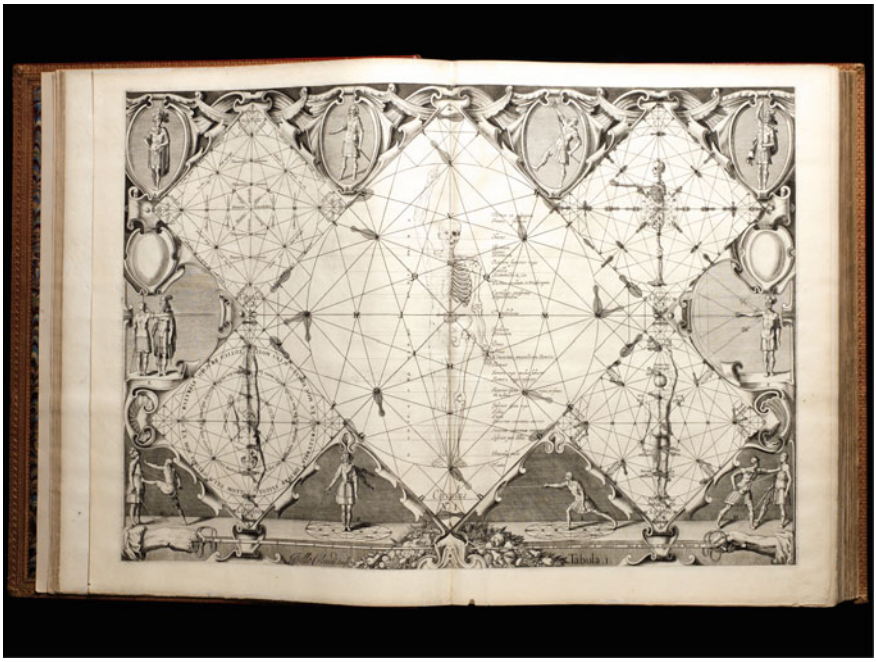


Fig. 4.12 Gérard Thibault d'Anvers. *Académie de l'espée*, 1628 (1630), Leiden, Bonaventura and Abraham Elzevier, tab. I (Collection of Martial Art Museum (BS), Botticino)

These components of knowledge are only linked together after an initial theoretical understanding becomes actualized through practice and experience. Only by playing the game of comprehension (theory first, then practice, and, finally, improvement by experience) can we then better understand the theory and return to a new practice, which brings greater experience.

One passage, more than others, tells of the old masters' attempt to reach out for the deeper truths. It was written by Marco Antonio Pagano in 1553:

> One can be neither the means nor the end, and in this action, one sees the proof of what I am saying, as since the beginning until our own time, the true and grounded principle has not been found. The true and grounded principle has not been found because those who get into it remain uncertain of it. Not differently from those who try to find the end in a very fine entangled thread, because that is also the way the orders of this game are, as it is not possible to find the end of this big skein, taking this instead of that and that instead of this, or regarding a thing as necessary whereas it is not and should be left behind, and left behind what is necessary (Pagano 1553).

The true and grounded principle should be sought in man's natural state, which can be perceived when the maximum possible proportions are reached. Such proportions may then be reduced in half-sword play, in narrow play, and with bare hands, but maximum proportions should first be sought. Marco Antonio Pagano said he did not know what they were, but placed them at the foundation of his work. On the other

hand, Marozzo drew the aforementioned title page, depicted himself on a throne with a sphere and a sword, and in a way structured his treatise according to the principle of the dynamic sphere, without hinting at further reflections that may be found in the other masters (See Fig. 4.13). The true and founding principle that troubled Pagano's thinking was the dynamic sphere laid down by Agrippa, of which the other masters let us glimpse into the fundamental principles: the ability to mobilize the limbs; the ability to move one's weight from the ground toward the first center—the solar plexus—and lay it down again elsewhere; the ability to move the center of the dynamic sphere around the inside of the body; the ability to expand and draw upon the energy of dynamic moves (whether they are cuts, parries, displacements); the ability to place the sphere temporarily on one possible pole out of an infinite series existing on its surface, to draw upon the support within the nucleus and to send it to the periphery of the sphere.

The treatises of the masters, perhaps even the schools—the systems—are all part of an enormous, single iceberg, of which only a small part is visible above the water. They are the martial arts of the masses, the "common folk" mentioned by Monte (in a sense that is anything but negative) that includes the masters, apprentices, pupils, assassins, and champions, from pre-history to the Renaissance, and are the custodians of ancient lessons that emerge from the treatises. Our thoughts go to Agrippa who, while declaring ignorance of the two-handed sword and fencing on horseback and, and mainly addressing the sidesword, still highlighted the most vital element of ancient martial arts that may be a possible bridge to cultures geographically distant from Italy: *the man in the dynamic sphere*. He does this by suggesting a few basic exercises but, more importantly, he acknowledges something more ancient and greater than himself, and states it in such a way as if to engrave it in stone:

> In our people, through their movements executed with dexterity and agility, it is possible to see the very same as in the *Palla* [...]. It represents us as the shape of our bodies, which are similar to a *Palla* not in terms of the true substance of matter, but in terms of movement (Agrippa 1553).

The concept of the dynamic sphere as applied to that third Vitruvian man—a warrior—was clearly present in the minds of the Renaissance masters. The "*Palla*" (always with a capital "P") is the perfect geometrical shape, used by Agrippa to explain a warrior's movements and dynamics. This becomes easier to understand when we take all the Italian Renaissance treatises into consideration. They are, of course, only a small part of the ancient wisdom but they are all that we can be certain of.

The most important passages identified in the texts of the old masters are presented below (not in chronological order), beginning with Camillo Agrippa's treatise.

Fig. 4.13 Achille Marozzo. Frontispiece, *Opera Nova*, D. Antonio Bergolae, Modena 1536 (Collection of Martial Art Museum (BS), Botticino)

3 The Twelve Masters

3.1 Agrippa, Camillo. 1553. Trattato di Scientia d'Arme, con un Dialogo di Filosofia *[*Treatise on the Science of Arms, with a Dialogue on Philosophy*]. Rome: Antonio Blado*

In this volume, the master introduces the image of a forked branch of wood, which he calls *forchina*, into the text and drawings. There are also many other geometrical drawings that originate from its use as a compass. He teaches the reader how to animate that rough inanimate object by applying force to the grip while resting lightly on the two legs of the compass. He underscores the resemblance of this *forchina* to man—or in any case, his legs and torso. From such operations with the wooden fork, it is possible to draw the *Palla*—the sphere—which the master identifies with the dynamic warrior. He further invites us to experiment with both the wood and the sphere, showing how this, by its very nature, avoids blows while not having to fight force with force; that is how he wants fencing to be, and this is how he conveys his teachings.

The *Palla* teaches us to triumph over larger forces with lesser ones, to give way when we are pulled, and to pull when we are pushed. The master discerns a similar relationship between the celestial spheres and earth, saying that the center of the sphere/warrior is the place from which the dynamic force is unleashed. However, the center is not static but moves in us, just as for him it moves on the earth during the change of seasons. To successfully lift one's weight and further achieve the ability to use it as an engine for the sphere, he suggests keeping the feet close together which allows for easy transfer of weight, thereby avoiding the idea of a static pole (by pole, he means the point on which the sphere can be anchored to build an armillary sphere mechanism).

There are two key depictions—two beautiful full-page images—where he leaves the way open to perceiving the depth of discourse that he was reluctant to reveal entirely. In the first image, he speaks with a group of friends around the table in his workshop. He uses a compass, showing his mechanism of celestial spheres, and he has one foot on the *Palla*. In the second, he depicts a dream he had the night before deciding to publish the treatise: here, the ancient philosophers and their modern disciples hold him back, while his friends and "patrons" push him to complete his work; in the background, there is an obelisk, laden with hieroglyphics and other ruins of the past, showing clearly that his theories are rooted in ancient wisdom. On the ground is the disputed secret: the *Palla* (See Figs. 4.14, 4.15, 4.16, 4.17 and 4.18).

Fig. 4.14 Camillo Agrippa. *Trattato di Scientia d'Arme, con un Dialogo di Filosofia I*, Antonio Blado, Roma 1553 (Collection of martial art museum (BS), Botticino)

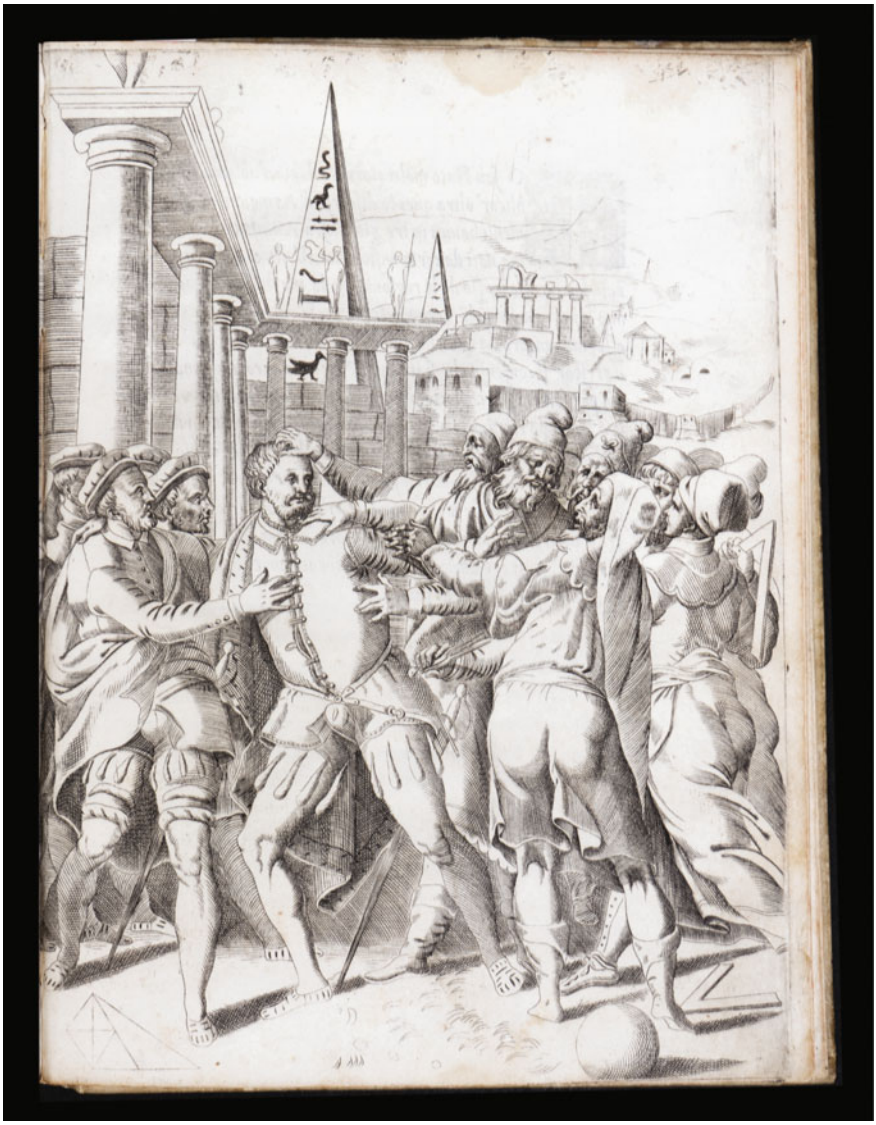


Fig. 4.15 Camillo Agrippa. *Trattato di Scientia d'Arme, con un Dialogo di Filosofia LXIII*, Antonio Blado, Roma 1553 (Collection of Martial Art Museum (BS), Botticino)

DIALOGO

A. molto mi piace, veramente questa è stata vna bella inuentione, ma ditemi, poi che siamo in ragionamento di Sfera, in ogni modo non hauete che far' hoggi, per qual causa hauete voi detto secondo l' opinion' commune: tenete voi forse altrimente: C. Io non so s' io tenghi altrimente, ma l' opinion mia è questa circa i Poli, cio' è, che non ui siano altrimente Poli che sostenghino questa machina, ma si bene, c' hauendo preso il suo moto subito

Fig. 4.16 Camillo Agrippa. *Trattato di Scientia d'Arme, con un Dialogo di Filosofia LXVII*, Antonio Blado, Roma 1553 (Collection of Martial Art Museum (BS), Botticino)


PRIMA

DE LA SECONDA GVARDIA
ſignata per B. Cap, V.

VISTO le proprietà, & qualità de la Prima Guardia ſtretta, in atto deffenſiuo, et offenſiuo anchora, al parer mio piu ſicura, & piu vtile de l'altre d'altra maniera, come ſi è moſtrato, ciò è di

Fig. 4.17 Camillo Agrippa. *Trattato di Scientia d'Arme, con un Dialogo di Filosofia X*, Antonio Blado, Roma 1553 (Collection of Martial Art Museum (BS), Botticino)

Fig. 4.18 Camillo Agrippa. *Trattato di Scientia d'Arme, con un Dialogo di Filosofia XXI*, Antonio Blado, Roma 1553 (Collection of Martial Art Museum (BS), Botticino)

3.2 dei Liberi, Fiore. Late Fourteenth–Early Fifteenth Century. Il Fior di Battaglia [The Flower of Battle], Ludwig XV 13 Codex. Los Angeles: J. Paul Getty Museum

In the famous drawing of the elephant carrying a tower by master Fiore (as important as it is overlooked in the modern reconstructions of his techniques), all the elements are there: the strength that lies in the tower, carried by a being with trainable intelligence—the elephant/legs—which is nothing if not the piece of wood which Agrippa animates and instructs with. The torso/tower/handle of the compass is the fortress from which defensive and attacking moves stem; the fast and powerful animal represents the legs. The choice of an elephant highlights the gifts of power and stability, but also the option to be fast. The master describes the art of combat as an occult subject and declares how he occultly teaches the essence of this art. The sentence that accompanies the image reads: "Fortitude. I am an elephant and I carry a castle upon me. I neither kneel nor lose my stride (See Fig. 4.19)."

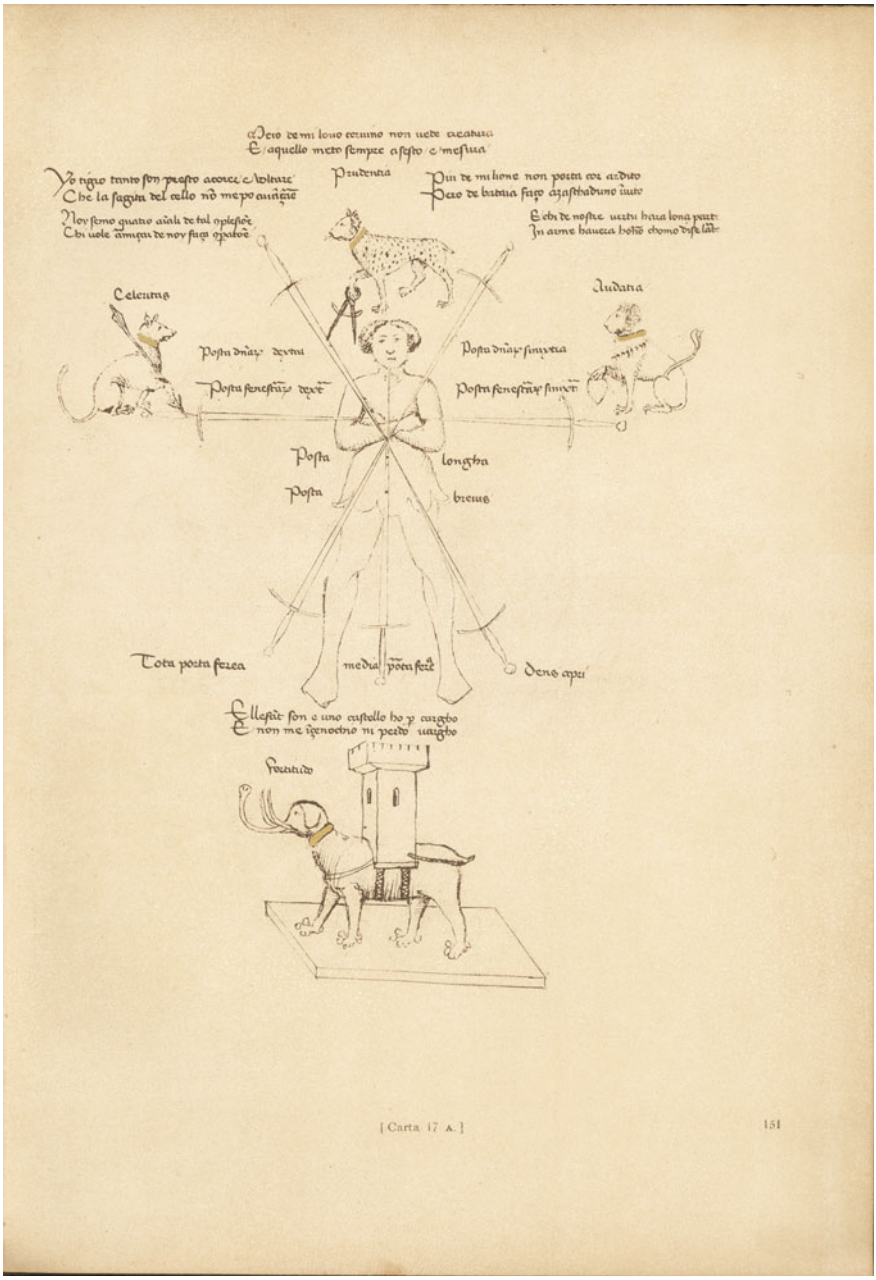


Fig. 4.19 Fiore dei Liberi. *Flos Duellatorum*, 1409–1410, reprinted by Francesco Novati, Bergamo 1902, page 151 (fol. 17a) (Collection of Martial Art Museum (BS), Botticino)

3.3 Vadi, Filippo. 1482–1487. De Arte Gladiatoria Dimicandi [On the Art of Swordsmanship], *MS. Rome: Rome National Library*

The drawing that the master from Pisa gives us in folio XV recto is invaluable despite being poorly studied (Vadi, 1482–1487). To understand such a vital lesson, contained within an apparently simple drawing, it is necessary to live entire lives devoted to the art, in order to arrive at an understanding that, starting from the written word, would become dynamic movements that could be replicated and perceived. In turn, this allows one to go back a thousand times to writing and drawing, and then finally discover its fundamental principles. Indeed, very interesting and oft-overlooked information manifests not just from the drawing, but also from the master's text: he describes a form of fencing with no geometric end but is performed with an infinite series of strokes and movements, which he explains in the language of mathematics and geometry. Music, with its pauses, rhythms, crescendos, and accents, is like fencing and as such is made of notes, pauses between notes, passages, and interpretations thereof.

All that we seek is already very much present in Vadi, including the dynamics and the spherical aspect of movement. Fencing has no end: it is a continuous and dynamic series of clashes, rests, dodges, and *ripostes*. He too demands—as does the Italian Renaissance school in general—that the measure (of the footwork) be reduced. In the explanation of the half-sword, we find the arms outstretched, a fundamental principle that is present in all the treatises as a *conditio sine qua non*. The movements, which may be wide or narrow (but in any case, full and not broken) are led by the hand which is "serene and slow" (*serena e tarda*) in its movements. The steps are not out of the norm. In another sentence, he talks about the search for what I like to call the "subterranean rivers" of the ancient martial arts: "to find the river and the river bed of art." This is part of the truth, which Vadi definitely knew was enclosed in the beautiful drawing.

Analyzing them for the matters that interest us, we see the legs/keys that "open and close the game" (*che aprono e chiudono il gioco*) and are at once joined together and separate like a compass; the rotation of the "bear shoulder" should be natural and able to move and direct energy in every direction; the sun, the tower and the mill wheel. Everything will be better explained by later masters perhaps, but the teaching is already there. The feet move (*fanno molesta*) one after the other. Therefore, it would be a serious error to just think in terms of the tower on the left foot and the sun on the right foot: that rigidity and body asymmetry is not found in any Renaissance master's work. The mill wheel represents the correct distance between the compass legs, as well as the need to move the feet together, in synchronization with one another, swapping lightness and strength. We know this thanks to the words in Vadi's text and the texts written by the other masters, but the meaning is already clear in Vadi's diagram. The sun, which is the moving leg, is free to come and go; the tower is the temporary pole upon which the sphere rests, which is ready to become the sun in an energy/weight swap, facilitated by the grip on the compass. With the half-sword the

master teaches that the strikes are performed without swapping feet (which is instead normal in the wide-measure footwork), turning the legs, and bending the leg on the side where you strike while extending the other. It is this weight shift that we find very well explained, for example, in Ghisliero or in Viggiani (See Fig. 4.20).

3.4 Monte, Pietro. 1509. Petri Montii Exercitiorum: Atque Artis Militaris Collectanea in Tris Libros Distincta *[*The Collection of Military Arts and Exercises in Three Books, by Pietro Monte*]. Milan: Giovanni Angelo Scinzenler*

Pietro Monte (1509) was the first Italian master to publish a printed book on fencing. It is rich in the diverse contents of the art of war. Though little studied the master is a cornerstone in western martial arts, and for myriad reasons may be considered the link between Italian fencing and the Spanish *destreza*. In general, his treatise had a great influence on sixteenth-century fencing, but for the purpose of our discussion here, it suffices to mention that many of the underlying principles of the dynamic sphere are already well present in Monte: relaxed and extended hands, light feet, and strength in the torso, withdrawing the body to distance it from the attacking enemy, and the need for continuous movement (See Fig. 4.21).

3.5 Unknown Author of the Classense Library. Early Sixteenth Century. Trattato Della Scherma *[*Treatise on Fencing*], MS 345–346. Ravenna: Classense Library Institution*

I believe that the unknown Classense (Anonimo Classense) author is so close to the teachings of Marozzo that we need not be concerned about whether he is his master or a training partner. He tells us that fencing is the dynamic union of intellect, intent, and the entire body. Without traveling "the path of experience," one cannot understand an art that relies on movement. Experience is the foundation of the true understanding that may ultimately reproduce the perfect symbiosis of all the elements that create the man in the dynamic sphere, bringing him to life: that is very well depicted in the text, from the union of intent and movement, both in a wide-measure tempo and in a half-measure tempo. In fact, it is this work that reveals the basic effects and principles: practicing, making mistakes, and repeating the masters' *assalti* again and again, in order to discover the correct method. The unknown author provides an important definition: the "limbering up" of a person, that is the absence of breaks or fragmentation of the movements, resulting in a smooth and truly "admirable" art.

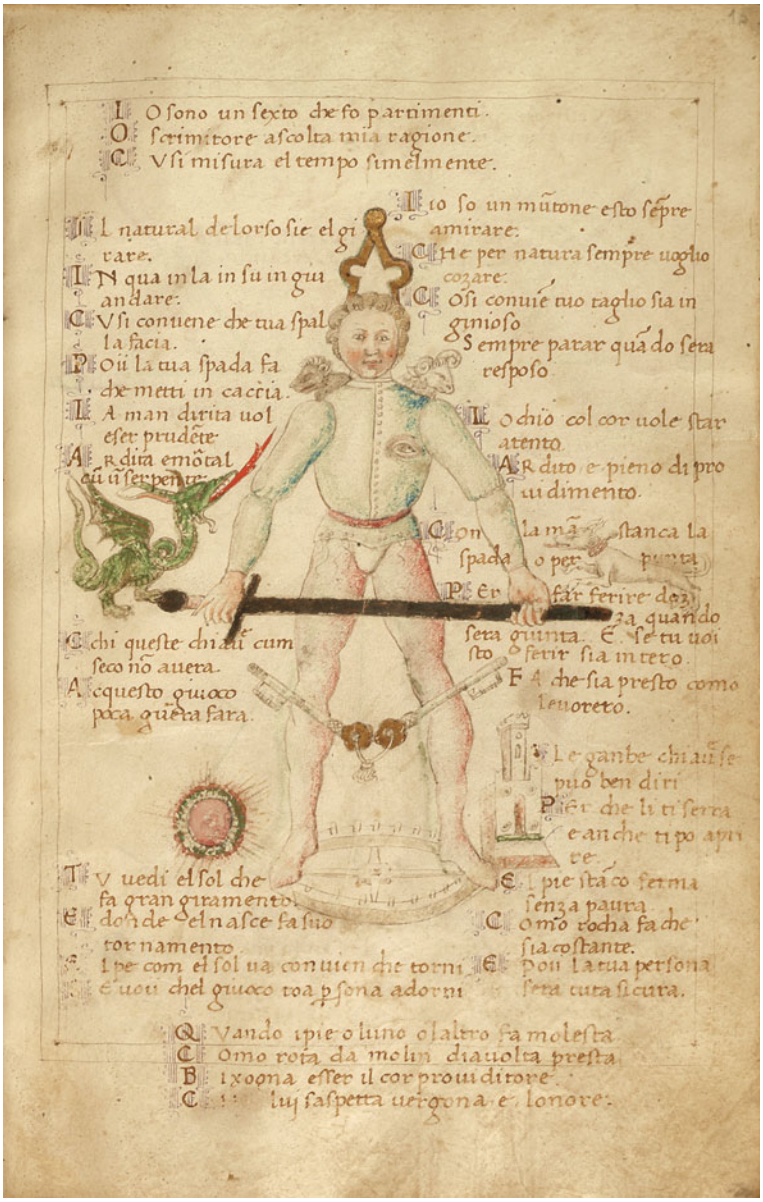


Fig. 4.20 Filippo Vadi. *De Arte Gladiatoria Dimicandi*, before 1487, MS Vitt. Em. 1324, Rome, Biblioteca Nazionale Centrale, Sez. Manoscritti e Rari, 15r (Collection of Biblioteca Nazionale Centrale, Rome)

Fig. 4.21 Bronze medal. Italy, circa 1490–1510, recto "PETRUS MONTIUS" verso: "VIS TEMPERATA FERT IN VITA DURABILEM" ("durabilem" is written on the open book) (Collection of Martial Art Museum (BS), Botticino)

The unknown author provides a beautiful definition of light footwork, drawing comparison with the movements of dance. After having provided a good depiction of a large circumference, the master describes a smaller one in which the sword, with the body composed well behind that narrower circumference, performs its fencing actions, while skillfully covering the entire person.

3.6 Manciolino, Antonio. 1531. Opera Nova *[*A New Work*]. Venezia: Zoppino*

Antonio Manciolino (1531) is very close to the school of Marozzo and the unknown Classense author. He confirms what the Italian Renaissance inherited a profound legacy from the preceding centuries and millennia: the need to extend the arms as far as possible. Following the Italian school's tradition, he demands unity in footwork and unity in that footwork with the upper body, from which comes lightness and strength. Although it is Marozzo who leaves us with the largest and most varied number of *assalti*, Manciolino gives a beautiful explanation of why these prolonged combinations of movement are useful. He is very clear on the matter, "The person, their legs and their hands will become swift and active." These elegant steps are as defining as stars are to the night. He not only insists that practice of the *assalti* is necessary for one to become a good fencer, but that the moving into play (*andare a gioco*) is also necessary (which is unrelated to striking and parrying well, and concentrates only on good body movements and moving weapons).

3.7 Di Sandro Altoni, Francesco. 1539–1569. Monomachia [Dueling]*, MS II.Iii.315–L.V. 23. Florence: Florence Central Library*

In describing the means to form guards, Altoni divides the human body into three parts—the upper, the middle, and the legs—and further identifies the plexus as one of the useful points to divide the body. The master seeks a balance between the forward hand that carries the weapon and the backfoot: it seems to be a form of fencing where the movement has already lost the dynamic force we find in earlier writings, in its statically supporting the weight of the arms and the gesture, but this division of the body into three parts and the use of two of the three to define posture and balance of the body/weapon is very interesting. It should be noted that two-thirds of a man of 183 cm in height is around 122 cm—that is, the height of the endpoint of the solar plexus, which begins just above the navel and ends under the diaphragm. The plexus is located at two-thirds of a man's height but in the center of the circumference, with the shoulders mobilized and the arms fully raised. The proportional step that this affords still aligns with the traditional one, but the posture he describes, with one foot "propped up," does not (di Sandro Altoni, 1539–1569).

3.8 Pagano, Marc' Antonio. 1553. Le Tre Giornate [The Three days]*. Napoli: Luigi Acilio Alife*

Like dall'Agocchie (1572), Pagano regards fencing as the foundation of all military disciplines. He adds that, if the execution of fencing movements is ephemeral in itself, fencing principles are eternal insofar as they pertain to the soul, bringing fencing closer to an Eastern mantra on a philosophical plane. He stresses that theory must be tested and verified through practice. Agility, beautiful and quick execution, nimbleness, and speed, are the correct way to put theory into practice, and it is only through practice that true fencing principles may be discovered. He further states that correct execution of the strokes—fluid but controlled, loose but not disorderly—must be accompanied by correct footwork and hand coordination. All in all, Pagano advocates the need to seek the truth, the true and grounded principle, which is the fulcrum of martial arts. However, whether by choice or by accident, he declines to explain this principle.

The true principle should be sought in a man reaching his maximum proportions in whatever situation he finds himself, whether constricted in half-sword, narrow play, or unarmed combat. Pagano understands the true principle but paradoxically states that he does not know it: whether he is missing a speculative passage or wishes to keep it a secret, we do not know. In his incredibly visionary text, he attacks those who lose themselves trying in vain to describe the gestures with measurements, only to lose the harmony and the fullness of the gestures in the process.

The dynamic sphere is the "true and grounded principle" he is searching for, where the body can expand to the point of extreme extension, or contract to the smallest nucleus as it leans on a temporary point of balance, while always keeping that concave surface—the shield—extended. Pagano's lesson is as strange as it is beautiful. In his exposition, he alternates between various banquets, shows, and lectures with real pearls of wisdom on fencing. We find two such passages which allow us to link the solar plexus with an important phrase from Pietro Monte. The following reflection, alongside Viggiani's on controlled anger, seems to allude to the fire inside the plexus, the center of the spherical man from where actions are generated: force. Monte, or someone on his behalf, has engraved on the back of his medal the phrase "*Vis temperata fert in vita durabilem*." Pagano says,

> On what to do, I repeat that it is necessary for the action to be measured and controlled [...]; however, a man who is perturbed with fiery emotions and is driven by an appetite for revenge, stirs in his entire body, we see how this directs the fist upward. It is therefore suitable for him to enter the first guard with which I want the man to stand straight with his fist raised in the air, with his arm extended, with the right foot forward, with the legs together and the knees straight (Pagano 1553).

An agitated man, provoked by controlled anger and driven upward, is upright with his limbs raised, legs together and knees straight... This is the third Vitruvian man, with his center in the solar plexus, suspended like the man depicted inside the San Quirce de Pedret circle. I believe that, at least with the experience of the body, Pagano had experimented with and taught the "true and grounded principle." He confirms the need for the body to move together as a single object, a single machine. In moving the hands and feet together and freely in a long-phrase (in all the movements necessary for approaching, entering into, conducting, and exiting play), we find the necessity, highlighted by all the masters, for movement dynamics, which is the essence of martial arts. Herein lies the richness of the *assalti* left by a master—Marozzo—because to perform them well (without killing, breaking down, and depriving the movements of life), it is necessary to seek this dynamic and prolonged union—"bit by bit," as Viggiani says. It is necessary to generate force and then keep it alive for all prolonged fencing actions.

3.9 Di Grassi, Giacomo. 1570. Ragione di Adoprar Sicuramente l'Arme [Discourse on Wielding Arms with Safety]. *Venice: Giordano Ziletti*

This master has given us an entire chapter on training the body, which teaches us how to use the arms properly and mobilize each section of the arm, including the shoulder. He further suggests that the practitioner should suspend himself from a rod or a pole to facilitate that process. This is a vital concept that allows us to see the shoulders not as static elements embedded in the torso, but as dynamic ones, which may move toward the opponent and his strokes—even when our own movement is

focused on making cuts with the wrist—or when performing a thrust rather than a cut. This research into the art's principles is beautiful, as it seeks to list out and describe them for the others' benefit.

One of the most essential lessons in the master's discourse concerns force: the (martial) art has a job to do, to injure while avoiding being injured, which depends on the use of force and *destreza*. The word *destreza*—dexterity or skill—is highlighted as a cornerstone of fencing in almost every treatise of the Italian Renaissance masters. The sixteenth- and seventeenth-century Spanish fencing—the true heir of the martial attitude that I propose in the present chapter—would take it as its name. *Destreza* is the ability to generate force, to oppose a stronger force with a lesser one, but one that knows how to handle both. The basic principle is the subject of the ancient masters' research, but it is also a precious secret, a hidden one for Fiore, hinted at in Pagano, and only superficially touched upon—by his own admission—by Agrippa.

The words Di Grassi uses to describe his quest across Italy in search of the necessary "*parte di giuditio*" provide a window through which we may glimpse into the ancient schools: he speaks of Italy and Italian fencing, of notable schools, secret schools, good strokes—some beautiful others erratic—and of his itinerant research. Di Grassi describes and emphasizes the straight line and the thrust, but also the force of cuts given on the circumference; he provides good analysis of the point at which the sword injures best, with four fingers under the thrust. He depicts the arm as having three main nodes: the wrist, elbow, and shoulder. He suggests not turning the shoulder to strike, because it takes too long and leaves you exposed. Even the use of the elbow and wrist requires the full mobility of the displaced shoulder. Likewise, the thrust is made up of rings of nodes on the arm. Therefore, a shoulder that has been shifted and is moving is the basis for the fastest wrist strikes and thrusts.

The master depicts himself in a straight half step, with the feet *in passo mediocre*, as he says, in line with the old Italian school. The waist is still (like Fiore's tower) and it is precisely in this still waist and working arms that the fundamental need for those mobile shoulders lies. The master tells us that one foot should always be still and stable as in Vadi's tower (not completely still and static in absolute terms, but rather a temporary resting point, the temporary pole). The other must be free—a part of the sphere and potentially a new pole. He explains better than others the triangle that becomes a sphere and sphere that becomes a triangle (the symbol of the school I founded), as well as the management of the necessary fury/impetus for a proper cut. By practicing alone in order to gain strength, he makes a statement on the need to train the whole body to move in harmony, and then counsels the practitioner not to train the arm with a heavy sword, as it is not a matter of establishing who can lift the heaviest. Instead, we must mobilize all the nodes of the arm as once mobilized, one may execute the blow even with just the node of the hand (but the other two nodes should remain mobile and active). This is very much in line with the suggestions of earlier masters such as Monte and the unknown Classense author, who want the shoulders to shift toward the opponent and the strokes to be as extended as possible. To mobilize the three nodes and extend the arm as high as possible (*guardia alta* or high guard), the master instructs that one should hang by the hand from a rod planted in a wall. That is the position in which we can draw the third Vitruvian man, the

one depicted inside the dynamic sphere. Legs and arms move together, joined at the torso, which remains a tower, to connect the elephant to other animals: the bear and snake as well as the ram with the greyhound are united. Arms and legs: or rather, the four main pillars of movement (See Figs. 4.22, 4.23 and 4.24).

CHE OGNI COLPO DI PVNTA FERISCA circularmente & come ferendo di punta si ferisca rettamente.

HAVENDO detto di sopra & posto per un de principij di questa arte Che la linea retta e la piu breue di tutte l'altre il che e uerissimo, ne ha punto bisogno di dimostratione & che poi hauendo come per uero suggetto che il ferir di punta sia ferir rettamente non essendo cio semplicemente vero parmi raggioneuole prima che si uada piu inanti dimostrare come i colpi di punta feriscano circularmente & come rettamente il, che mi sforzero di fare

Fig. 4.22 Giacomo di Grassi. *Ragione di Adoprar Sicuramente l'Arme*, Giordano Ziletti, Venezia 1570 (Collection of martial art museum (BS), Botticino) (di Grassi 1570, 8)

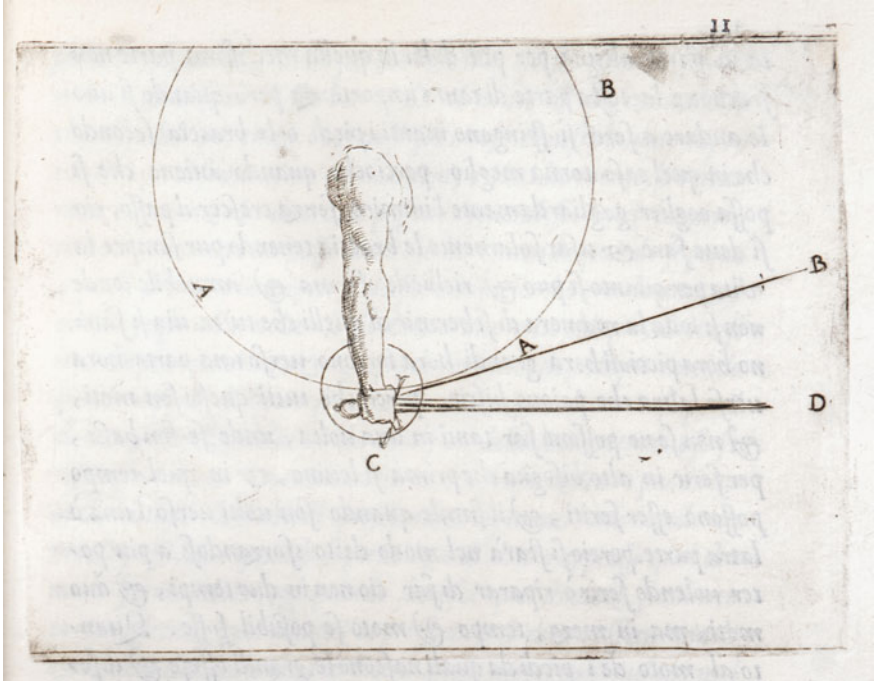


Fig. 4.23 Giacomo di Grassi. *Ragione di Adoprar Sicuramente l'Arme*, Giordano Ziletti, Venezia 1570 (Collection of martial art museum (BS), Botticino) (di Grassi 1570, 11)

3.10 Dall'Agocchie, Giovanni. 1572. Dell'Arte Di Scrima Libri Tre [Three Books on the Art of Defense]. *Venice: Tamborino*

The importance of this treatise, written as a dialogue between the master and Lepido Ranieri in the palace of Girolamo Martinengo (1504–1569) in Brescia, lies in its clear explanation of how "modern" fencing was moving away from "traditional" fencing, which was founded on the requirements of war (thus losing its very nature), as well as how the martial arts themselves were moving away from fencing as their basic element, having been replaced by firearms and armies less and less trained in close combat. Even before he begins to teach Lepido his fencing, the master clearly presents his vision of fencing, summarizing wide play with loose arms and waist, and explaining how this type of play is essential in making the art complete (dall'Agocchie, 1572).

Fig. 4.24 Giacomo di Grassi. Ragione di Adoprar Sicuramente l'Arme, Giordano Ziletti, Venezia 1570 (Collection of martial art museum (BS), Botticino) (di Grassi 1570, 14)

3.11 Dal Montone, Angelo Viggiani. 1575. Lo Schermo [on Fencing], *Written Before 1550. Venice: Giorgio Angelieri*

Like the real dialogue between Agrippa and Annibal Caro, or the one between dall'Agocchie and Lepido Ranieri, Viggiani gives an imaginary dialogue between Luigi Gonzaga, also known as Rodomonte, and the philosopher Lodovico Boccadiferro (1482–1545), which is drawn on the title page of his manuscript. He brings a lively intimacy to the description of the two interlocutors' rooms, which could be those of any of the masters, men-of-arms, or philosophers. From the books in Latin, Greek, and Hebrew, on arms and armor, and trophies and spoils, a "common" sphere emerges, amidst the geographical and celestial spheres. The printed edition of Viggiani's book has a little gem on the title page. A reference to alchemy lies in the image, showing the water of temperance and the sun of bravery working together to nurture the art "bit by bit," as it applies to the organic growth of any living creature.

In a long dialogue, Viggiani-Rodomonte maintains that a dynamic, functional art is superior (in this world) to a purely speculative one. Research into the origins of motion in man, the dialogue between offense/violent action and defense/active resistance shows that the master's interest lies in the interplay between opposing forces. According to Indian wisdom, the fire of movement lies in the third chakra, which itself is in the solar plexus, the driver and soul of movement. Like Pagano, Viggiani speaks of a controlled fire. That is what Fiore called *audatia* mixed with *prudentia* or, for Vadi, the eye of the heart. It is also the *Vis Temperata* on Monte's medal. Viggiani writes, "But if it is such a tempered rage that obscures all reason; I will tell you that it will be of great benefit: for rage is a fire of blood about the heart. Being tempered, it sets the heart on fire in a tempered manner and, consequently, the ignited spirits rise, providing better agility and strength to the moving soul and making actions quicker in every sense."

In the entertaining dialogue in which he shows and teaches his interlocutors how to strike and move, the master greatly condenses his knowledge, to speak truth with simplicity, as seen for example in the following exchange:

> ROD. That's what I like to do.
>
> CON. Oh great: how do you hold that sword in your hand after so many envelopments?
>
> ROD. I cannot describe it, my dear Conte, but open your eyes and take diligent care of the nodes in the hand and the dexterity of holding it as before. See how I do it? Similar actions are shown and learned with greater efficacy through practice and perception, rather than with words... but just watch again, please, this *rovescio*, which by contrast increases as it goes: don't you see how far the arm is now extended, and how the shoulder rises and continuously increases the injury? (dal Montone 1575)

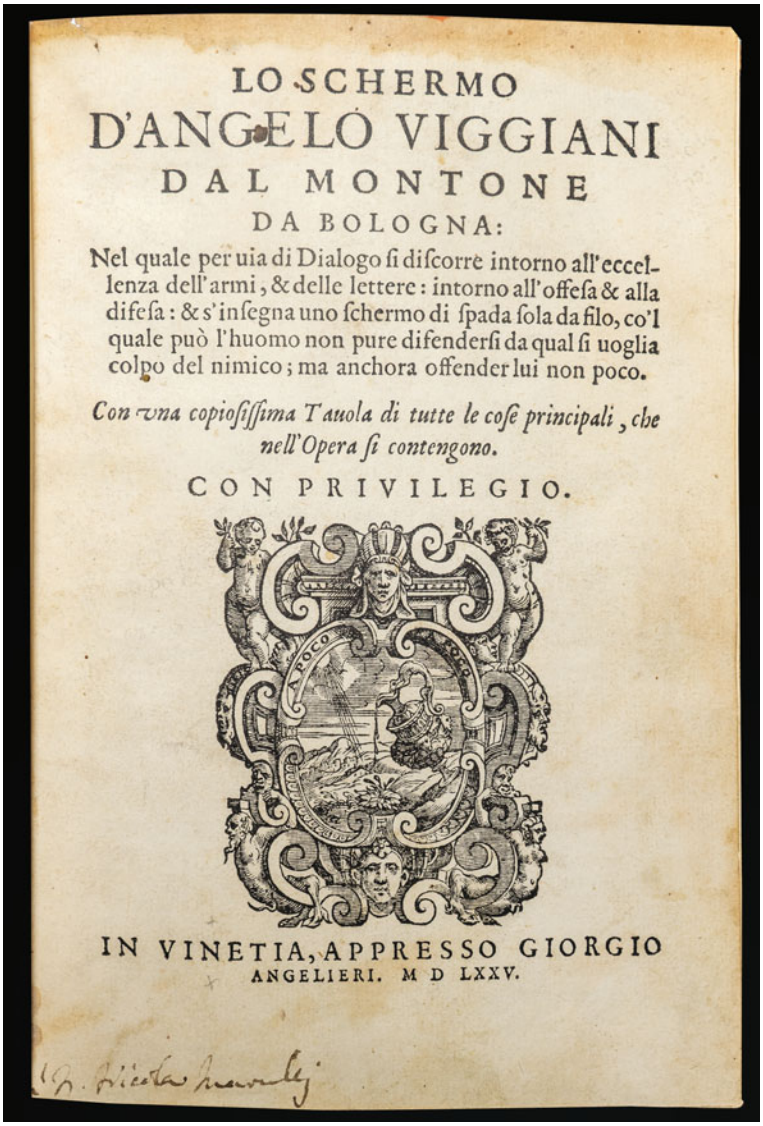
Viggiani emphasizes how few techniques there are in his treatise. Equally, we find very little of the complex and rich art in the treatises of the second half of the sixteenth century (compared to the masterpieces of the unknown Classense author and Marozzo). In the works of two Bolognese authors, the vast numbers of techniques

show the art's complexity to the greatest possible extent. In these others, we find traces of the fundamentals of the art (perhaps overlooked in those). Equally, in the two older masterpieces from Vadi and Fiore—on account of the era and also of the tools (illuminated manuscript)—there are fewer techniques and the sequences are shorter, but those documents have other selling points, such as the drawings of man in relation to objects and animals. The text of the indisputable master Monte is more skeletal still than all the others, and would have been incomprehensible were it not for the techniques laid down by the two Bolognese masters and the treatises that followed. On the subject, Viggiani says, "But I, who am not the master of a school, to you who are not my disciple, do not today intend to teach our full exercise by play. I will instead choose only one." Viggiani confirms the teachings of the school, according to which having the feet close together increases the ability to generate force in less time.

Time is the measure of movement and of stillness. The description that Rodomonte-Viggiani gives of striking tells us of the chain of muscles and the entire body that must move together behind the blow. He gives a splendid lesson on how to free oneself from being static to becoming stable in movement and describes the need to carry the weight in the body's core to free up the feet. Movement comes from combining the body's power into a single unit: the upper and lower parts move together and extend as far as they can. He often repeats the sentence, "And here, combining all the forces of the body together, you perform that *rovescio tondo* with the same hand and footwork about which I have told you." In the last pages, he clearly maintains that he teaches "only one fencing [technique]," because that is enough to give the lesson, but states that there are many more blows and moves. He further defines what he calls "the great blow," as in the most powerful stroke—"The *magno colpo* is so-called because one must act with all the forces of the body, intelligence, emotions and art in synchronization and union (See Figs. 4.25, 4.26, 4.27 and 4.28)."

3.12 Ghisliero, Federico. 1585. Regole [Rules (of Many Knightly Exercises)]. *Parma, Together with Ms. Kept at the M.A.M. In Botticino (BS), Italy, Pre-1585. Botticino: Martial Art Museum*

If Agrippa was the master who revealed to us the man/sphere correlation, Ghisliero was the one who expressed the need to channel those ideas generated by the men-of-arms into the larger thread that unites so many scholars and which has its roots in Vitruvius, and in others before him. Ghisliero was the master who sought to explain our microcosm's resemblance to the macrocosm around us. Before Thibault, it was Ghisliero who sought to show through mathematics and geometry the perfection of man, who must be placed at the center of creation. The master accepts the teachings that place the center of the circle at the groin or navel, and the center of the square at the groin (in his drawings of a man in a circle, the center is once at the groin



LO SCHERMO
D'ANGELO VIGGIANI
DAL MONTONE
DA BOLOGNA:

Nel quale per uia di Dialogo ſi diſcorre intorno all'eccellenza dell'armi, & delle lettere: intorno all'offeſa & alla difeſa: & s'inſegna uno ſchermo di ſpada ſola da filo, co'l quale può l'huomo non pure difenderſi da qual ſi uoglia colpo del nimico; ma anchora offender lui non poco.

Con una copioſiſſima Tauola di tutte le coſe principali, che nell'Opera ſi contengono.

CON PRIVILEGIO.

IN VINETIA, APPRESSO GIORGIO ANGELIERI. M D LXXV.

Fig. 4.25 Angelo Viggiani dal Montone. *Lo Schermo*, Giorgio Angelieri, Venezia 1575 (written before 1550), Frontispiece (Collection of martial art museum (BS), Botticino)

and once at the navel), but he contributes a magnificent addendum to enrich that teaching: he believes that in man there are many rotation points. He is perhaps driven to this conclusion by the genius of necessity—knowledge that comes from observing movement—which led him (together with the best martial art masters) to an elevated

Fig. 4.26 Angelo Viggiani dal Montone. *Trattato d'uno schermo*, MS Codex 10,723, Österreichische Nationalbibliothek, Vienna, Austria. 1551, completed in 1567 by Battista Viggiani, Frontespiece

level of understanding of human movement above even the most celebrated architects and painters.

On the surface, one might think that in the treatises of Agrippa, Ghisliero, and others from the second half of the sixteenth century, just like in Thibault's in the seventeenth century, new truths, and new anthropometric discoveries were made. That is not the case. What emerges in the stunning phrases and concepts in some parts of those treatises is found in the older works, such as those of Marozzo, the unknown Classense author, Vadi, and Fiore. Just think back, for example, to Marozzo's instructions to disarm someone equipped a dagger, which is in fact very close to Vadi's methods. The principles of movement described above are clearly present in those techniques. In fact, I believe that our search could go as far back in time as the rock engravings of Val Camonica, to the beginning of what I call the "sedimentation of martial culture" and the creation of combat art. Long ago, such physical truths were already revealed to the martial art masters. These laws were not suddenly "discovered" during the Renaissance; rather they were subjected to the study and expressed in a new language of geometry and mathematics. Weapons evolved over time, beginning with the femur, jaw, rod, and stone, but the human body remains the same. In my view, such knowledge as written down by the cultured Ghisliero and the hermetic Marozzo goes back through a long line of oral transmission to unknown men—generations of masters—who discovered, then gradually refined and codified their knowledge into principles, the traces of which remain in the treatises.

The idea that Ghisliero puts forward, of having the arms, hands, and feet extended, is excellent; but in the images, he shows outstretched but not raised arms. In the three

Fig. 4.27 Angelo Viggiani dal Montone. *Lo Schermo*, Giorgio Angelieri, Venezia 1575 (written before 1550), 69v (Collection of martial art museum (BS), Botticino)

drawings that portray a man in a frontal, 3/4, and side view, he suggests the other great opportunity that the sphere presents—withdrawal of the side target, so well explained by Agrippa and Ghisliero by identifying the two possible points in our body: one on the right and the other on the left of the central axis. These points are to be hidden as they are the enemy's target, one or the other. Ghisliero speaks of chains and keys: Vadi's keys at the knees, Di Grassi's mobility. He gives a good explanation of how to mobilize not just the arms but all the limbs and provides a full analysis of

Fig. 4.28 Angelo Viggiani dal Montone. *Lo Schermo*, Giorgio Angelieri, Venezia 1575 (written before 1550), 74v (Collection of martial art museum (BS), Botticino)

the two compass columns or legs and their function as a temporary but indispensable support of the compass, which would otherwise fall.

His study of the fulcrum and opposing weights is very important. It can be taken to extreme and infinite conclusions, as far as inside the opponent's body and anywhere within our own. In Ghisliero's in-depth geometrical descriptions concerning the steps and the arrangement of weight on them, and his description of the archipendulum, which is the plumbline that comes out between the legs of the ancient A-frame level, are important. All of his teachings match up with the drawings made by Agrippa's *forchina*, but also with the wheel under the feet in Vadi's work. In all these movements, the limbs are connected by a chain of muscles that allow them to extend and retract together while keeping the perpendicular axis at the center of their movements. It is this axis that Agrippa identifies to start from the pole, which supports and defines the center of the dynamic sphere. The possible positions of the legs and the weight on all of them create circles beneath the human figure, the smallest of which is as large as the feet, the largest as tall as the man from head to toe.

The master further identifies three types of *moti* (generic movement): two simple ones and a complex movement that combines these two. The two simple movements are classified, respectively as natural and violent. Natural movement is made up of heavy bodies which tend to fall downward under the effect of gravity; violent movement is the opposing tendency, upward and against gravity. Natural movements

begin weakly and increase in strength as they go; violent ones, on the other hand, tend to lose strength. In addition, there are four types of movement in spatial terms: push, pull, carry, turn (or rotate). Analyzing the fourth gives rise to what I consider the most beautiful definition of a cut I have ever found in the old texts:

> ...we may classify the fourth turn or rotation as the movement of any object in a circle and then toward us, drawing and pushing it away simultaneously, we turn so that such a movement is almost a withdrawal and a push combined, as can be seen with circular injuries.

Perhaps Agrippa's oval—the ellipse of the blow of a sword he describes so well—lies in this push and pull.

More than anyone before him, the master explains five of the possible circumferences of a dynamic sphere. That is the symbiosis created between a moving man and the sword he carries, which becomes almost a part of his body. The centers of the five circumferences are in the left foot, the waist, the shoulder, the elbow, and the wrist. In the third rotation, the shoulder's action is ideally carried out without the movement of the feet, which could be in any of the five possible positions of the open compass that represents the legs. In the fourth, it is the decision to turn the elbow to strike after the enemy's parry. It is interesting to note that the master here identifies the act of disengaging. In reality, these and other unidentified centers are useful for everything, not just to injure or disengage, but also to parry, withdraw, push or bind, with or without weapons. Finally, on this matter, he gives a clear vision on the different values each of the five circumferences holds: energy decreases as circumference decreases, while the speed of execution increases. Starting with an analysis of the terrain on which combat most commonly takes place, he emphasizes what most of the masters requested: that the feet must be close together. The master sets the objective of injuring the center of the enemy's body, evoking Agrippa's teaching, in which the center of the sphere draws everything closer to it. He hints at the need to move the weight within the body and between the limbs in a controlled manner and as required. He distributes and frees up the weight on Agrippa's *forchina*, which we may identify with the lightness of the legs of the unknown Classense author and of Monte. The master often speaks of "moving power," which is the force a man develops and that passes from the shoulder through the arm to the sword, but remains active thanks to the transfer of weight from the legs to the torso, a weight that can also rest on the blade, on the hand, or on the shield, etcetera. The method of parrying that Ghisliero teaches is similar to that of Agrippa and amounts to withdrawing the target, which is made possible by the sphere's agility and mobility as well as the ability to move the vertical diameter, the axis—around which the sphere may rotate—inside the body. The free handling of force is a concept well present in Ghisliero's teachings and clearly set forth here. Indeed, this principle is found throughout the teachings of the old masters: "...When the sword feels impeded, one must give in to that force and injure using the movement that the same force allows, and this means of operating with arms is perfect." Finally, he returns to the extension of the arms and limbs that the masters require and also to the use of the steps as an action to support the weight (See Figs. 4.29, 4.30, 4.31, 4.32 and 4.33).

Fig. 4.29 Federico Ghisliero. *Regole*, MS. before 1585 (Collection of martial art museum (BS), Botticino) (Ghisliero 1585a, b, 33)

4 Summary

Fencing is motion, execution. Motion is generated internally as controlled fury, like a fire igniting the limbs and raising the body. The movement thus generated is instilled with what Agrippa calls Infinite Power (*Potenza Infinita*). The locus of power is the point at which the four columns—the arms and legs, which form the dynamic sphere's

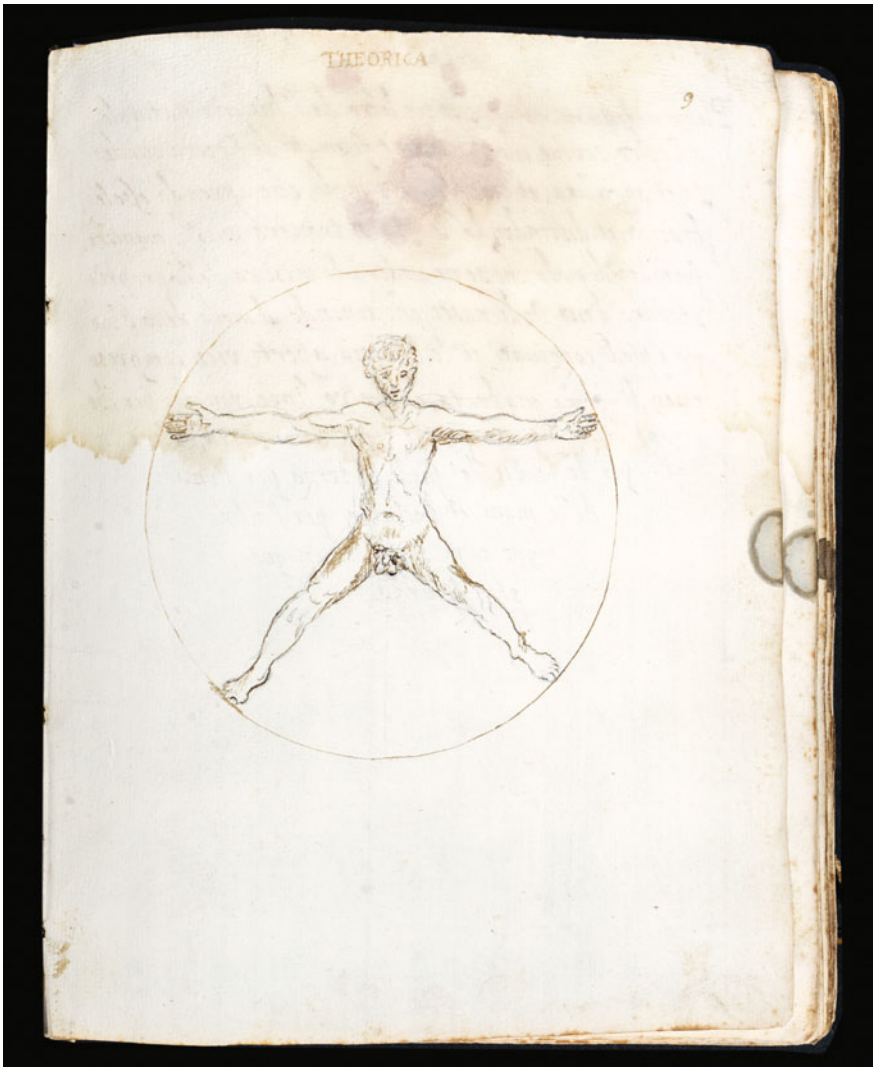


Fig. 4.30 Federico Ghisliero. *Regole*, MS. before 1585 (Collection of martial art museum (BS), Botticino) (Ghisliero 1585a, b, 9)

axes of movement—meet. It is the point between the navel and the diaphragm, commonly referred to as the solar plexus, which refers to a triangular area framed by the nipples and navel. No temporary resting pole holds the sphere still. Instead, force—which enters every column and returns to the solar plexus to pass to another column—keeps the sphere continuously dynamic. The sphere's center of rotation may move to any part of the body or weapon(s) held by the martial artist, in so far as they are considered an extension of the body. It is in or through these weapons

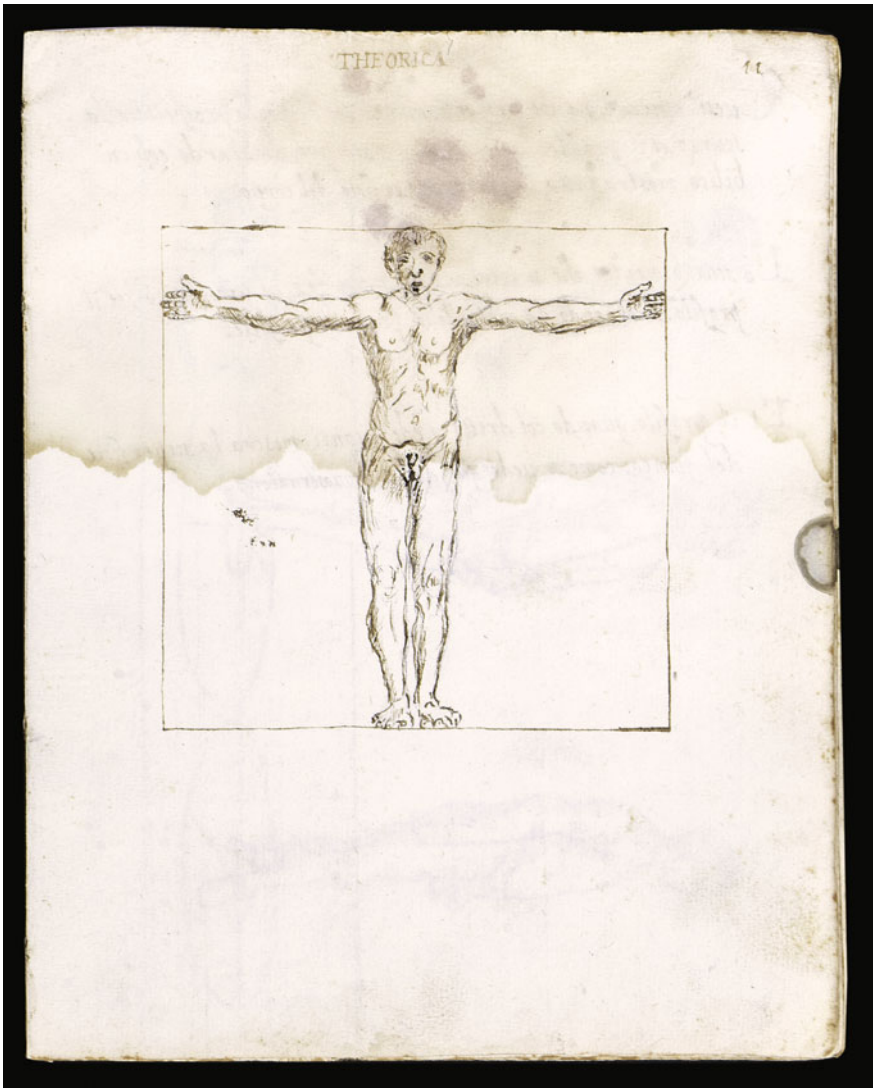


Fig. 4.31 Federico Ghisliero. *Regole*, MS. before 1585 (Collection of martial art museum (BS), Botticino) (Ghisliero 1585a, b, 11)

that Ghisliero and other masters ask us to *feel* the opposing force and transform the weapons into a sentient part of our body. The circumference of the sphere of dynamic energy that we create around ourselves, through blows, parries, resting or withdrawing, may be pushed to the maximum extension of the man/weapon collective, mobilizing and even displacing joints in our body to temporarily become the surface of the body or the point at which the weapons cross.

Fig. 4.32 Federico Ghisliero. *Regole*, MS. before 1585 (Collection of martial art museum (BS), Botticino) (Ghisliero 1585a, b, 13)

In martial art movements, whether executed with a long sword or knife or unarmed, it is as if the dynamic man were painting a glass sphere from the inside. That sphere does not fall inward or collapse, but is able to constrict and expand, as is well described in the dialogue between Agrippa and Annibal Caro. The square is the symbol of the first state of the Vitruvian Man. The circle is the second—temporary, fleeting, extending toward the sky; it is also the octagon. The sphere is the third, perfect, generative condition. From an alchemical perspective, it is symbiotic with the spirit of the cosmos, the planets, and God. One can only achieve that state through training and conditioning one's body. The second state is achieved with reasoning, awareness, and study; but there is a higher mystery and that must be experienced with the body. Playing with the compass that creates drawings, we are both the rough and inanimate branch as well as the light hand that moves it: at once the moving force and the moved object. We are the sword that has become part of the body, as well as the infinite supreme power that makes the sword-body alive and sensible. We are not just the goal—the body to be saved with action—neither are we only the means—the body, the intelligence, or its mode of action—but we are at once the true and grounded principle, the origin of movement, and the movement itself. When Pagano decides

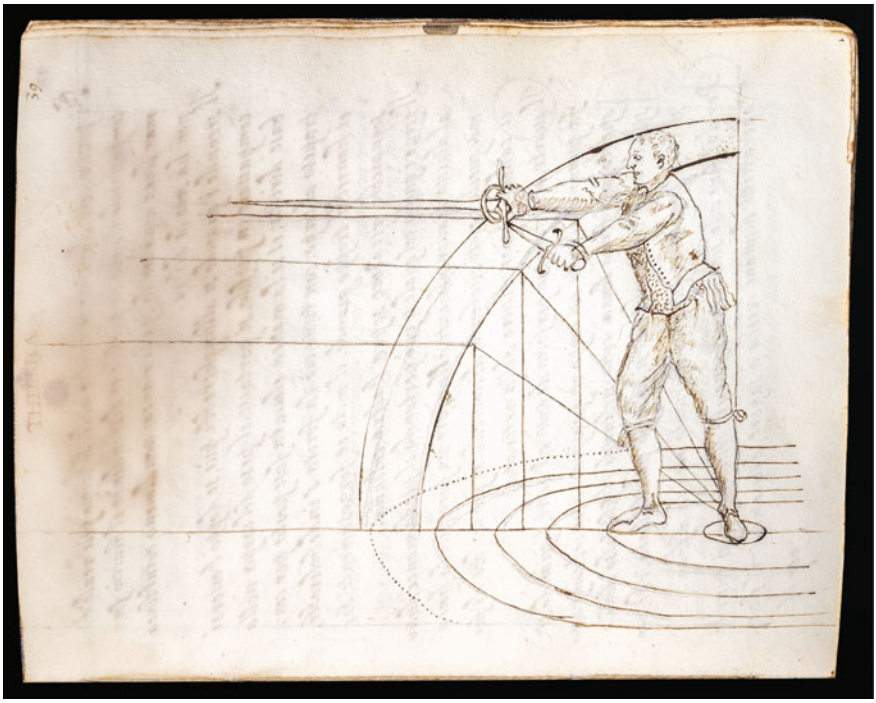


Fig. 4.33 Federico Ghisliero. *Regole*, MS. before 1585 (Collection of martial art museum (BS), Botticino) (Ghisliero 1585a, b, 39)

not to measure the body's proportions, he does so in the knowledge that everything comes before them.

Returning to the *forchina*—the tool used to build the sphere—the vertical part is the shaft to be gripped and represents the torso, the part of the body stretching from the collar to the base of the groin. Just as the vertical part of the *forchina* is the center of movement so in a human body, the center of movement is found in the middle of the torso. If we want to locate that center, we will find it much higher than the navel, a result also achieved by geometrical/mathematical observations. Fiore's tower is the shaft of the *forchina*. The elephant is the living system of the two columns/compass legs. To complete the system, the other two columns, in addition to the legs, linked to the torso should also be considered: the arms.

The man of the dynamic sphere reaches his essence, transcending his elemental nature, only in movement, alternately exploding toward the last circumference of the sphere and contracting toward any one of the possible nuclei. He cannot remain static in any place; rather, he must call upon and release that life energy, either toward the nucleus or any point along the circumference toward the extremity of his reach. If the dynamic man were to remain with the soles of his feet on the earth and his shoulders recessed in the resting shoulder position, then he would not be dynamic. The dynamic man is the ultimate evolution of the one linked to the square. He will return to it, but

only when the dynamic state returns to stillness. There is, of course, movement in both the square and the circle, but it is quite different from that of the sphere. This is precisely because of the position of the various centers of these three elements and of this third condition (in relation to the first and second conditions). Basketball, *ginga*, the football played by the Brazilian Pelé, artistic gymnastics, tennis, contemporary dance, and many other refined performance arts tell similar stories: humans, at their best dynamic condition, are not bound or constrained and may pass freely from their maximum to their minimum proportions.

5 Anatomical Proportions, Measurements, the Third Center of the Vitruvian Man

When I considered that the *Palla* Agrippa speaks of, Ueshiba Morihei's dynamic sphere and Duncan's fluid dancer (Duncan 1927) are one and the same thing—that is, the dynamic man of the ancient masters in Italy, the man similar to the Hermetic God—I began to ask myself whether this man, stretched upward with his arms fully extended, driven by the fire of controlled fury, could be drawn or had already been drawn in accordance with Vitruvius' proportions. The answer I gave myself is that the man of the dynamic sphere is the third state of the Vitruvian man; just as, in reality, he is the evolution of the natural man into speculative man, and the speculative man into a man who is one with his spirit, the Hermetic God. This is the New Man who achieves this state thanks to doing, to operating, and to achieving the perfect unison between action and active contemplation. He is drawn here in such an ideal state (See Figs. 4.34 and 4.35).

These anthropometric analyses show us that the center of that man—the third state of the Vitruvian man—is located above the navel and below the diaphragm: in the celiac or solar plexus. I took my own height of 183 cm as an example. The center of the square is correct, the base of the groin is 91.5 cm from the ground. The navel is the center of a hypothetical circumference with a 220 cm diameter. If I hold my arms as in Da Vinci's drawing the navel lies at 110 cm. But in reality, if I lift my arms, stretching them, without rising onto my toes, I extend my total height to 238 cm. Halfway then becomes 119 cm, 9 cm higher than the navel: the solar or celiac plexus, from which a ganglion of nerves radiates like rays of sunshine. It is there that the dancer Isadora Duncan, who is considered the founder of fluid contemporary dance, identifies as the home of emotions and the source of movement that explodes from inside and is projected outward (Duncan 1927). With his feet on the ground, the dynamic man's center is 9 cm above the navel. That point is also the intersection between the lines that connect the arms and legs where they join the trunk, that is the Fiore's tower, the vertical shaft of the compass and of the wooden *forchina*. If I then rise on my toes, as if to shift the body, everything increases by 5 cm. That puts the navel at 115 cm, so creating a hypothetical diameter of 230 cm puts the groin at 96.5 cm. Therefore, the height of the square should be, improbably, 193 cm. My

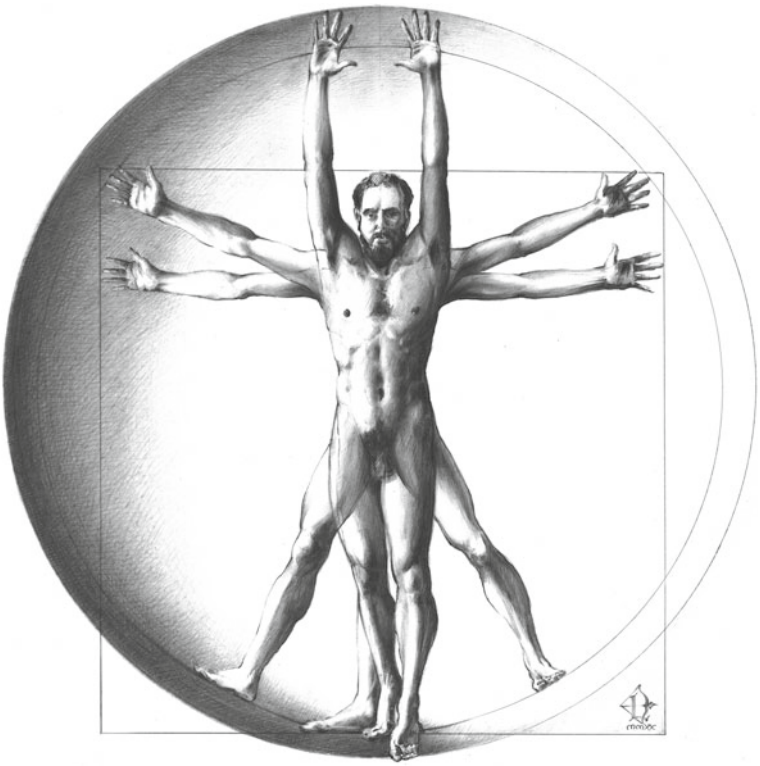


Fig. 4.34 Luciano Bertolotti. *The Three States of the Vitruvian Man*, pencil on paper, 2020

arms would never reach that height even if pushed as far out as possible along the horizontal line. The plexus would be at 124 cm and so the diameter of the sphere would have to be 248 cm, while the true measurement of the sphere would not exceed 243 cm. The center of this would be at 121.5 cm, 6.5 cm above the navel measured with pointed feet. Therefore, the center of the dynamic man can be identified, in this example, as being between 6.5 cm above the navel with pointed feet and 9 cm above the navel with feet on the ground. And this is perfect since the plexus is commonly identified as being between a little above the navel and beneath the diaphragm. The natural man and the speculative man depicted, respectively in a square and in a circle, lose their symmetry the moment he rises on his toes, but that is right: they are not dynamic, they are connected to the ground, chained to it, and it is in that position that they are and should be measured. They are non-active and, because of the conceptual constraint under which they were created, we could even go further and say they are *anti*-action.

For the drawing we, therefore, choose the square, the circle, and the sphere, keeping the man's head at the same point so as to keep the groin and the navel in the same place. The result is that the sphere drops to 5 cm below the plane supporting the

Fig. 4.35 Gesture of elevation performed by Isadora Duncan, graphic elaboration by Linda Balboni Gotti

square and circle and it may rise and widen so far as the shoulders shifting upward allow.

There is a final note that arises from observing some of the most beautiful photographs of Isadora Duncan, but also movements in basketball or tennis, as well as bringing to life the words with which Pagano describes the energetic explosion that leads us to the first guard: if, rather than lifting both the arms upward we should raise only one arm, the center of the sphere we are going to create would be further still from the navel, generating even more of a dynamic strike full of power, thus accounting even for being *en pointe* and not just raising the feet by 5cm on tiptoes.

6 The Hidden Teachings in Marozzo's *Assalti*

What is not explicitly written in the masters' texts, however, is necessary for practicing the art. Such hidden teachings lie on the basis of the techniques they wisely instruct. In order to clarify this, I would like to recall certain sequences of Marozzo's, taken from various disciplines, and to show how, in order to perform them, it is necessary to observe the principles described above. In my personal experience, seeking a faithful way to perform techniques composed of prolonged movement sequences

give rise to a mindset that is free to grasp what the words do not always teach didactically. A few selected examples are shown in the video which the reader may access using the QR code included below (See Fig. 4.36).

In addition, I encourage the interested reader to look at the two dynamic postures or guards from the anonymous combat manuscript kept in the Martial Art Museum (M.A.M.), which dates back to the early seventeenth century. These help us understand how the dynamic sphere and its laws govern the very core of martial arts, which is unarmed fight. Where is the boundary between dance and the third postura (See Figs. 4.37 and 4.38)?

Fig. 4.36 QR code for the video *La Sfera Dinamica* (*The dynamic sphere*)

Fig. 4.37 Anonymous manuscript on wrestling with illustration. Postura, end of the sixteenth–beginning of the seventeenth century, Italy, MS, fourth postura (Collection of martial art museum (BS), Botticino)

Fig. 4.38 Anonymous manuscript on wrestling with illustration. Postura, end of the sixteenth–beginning of the seventeenth century, Italy, MS, third postura (Collection of martial art museum (BS), Botticino)

7 Conclusion

This paper was inspired by a desire to illustrate the following theory: that applying geometry to anatomical measurements allows us to identify a third center of proportions as we seek symmetry in the human body. That center is the solar plexus, to add to the groin (the center of a square whose height is the same as that of the man) and the navel (the center of a circle that can be drawn which Da Vinci—and others—drew around a man with arms raised to head height). This new center is achieved by pushing the arms as far upward as possible, while the feet may either remain on the ground or be on the tiptoes, for a 5 cm lift, when dynamic. Being able to extend the arms as far as possible is an essential state for a man of arms—the perfect representation of the dynamic man. The third center—the center of the third state of the Vitruvian man—also coincides with the man of the dynamic sphere as described by Master Agrippa and suggested in the basic elements of other old texts. The sphere is the element drawn around that third man because that is the state sought by the masters: the absence of fixed anchor points, the freedom to temporarily rest the man/action on any part of the circumference, which can expand and retract with the force originating in the plexus (the third chakra in Oriental cultures). It is a nucleus that moves around inside the body. A man of arms knows how to oppose a larger

force with a smaller one by moving that sphere, as the dynamic warrior strives to embody the sphere in his movement. The natural and simple square is replaced by the circle: a speculative tendency toward perfection, which is found in the infinite sphere, whose center is everywhere and whose circumference is nowhere.

Appendix

(Note: This appendix intends to provide additional information for the video *La Sfera Dinamica* (*The Dynamic Sphere*) which can be accessed by scanning the QR code included above).

In the fifth book of *Opera Nova* (Marozzo 1536), which discusses catches against a dagger, we study the ninth *presa* (catch): the right-hand traces the first visible surface of the sphere in *roversa,* or rather, with the little finger facing the attacking direction. In this way, it carries out the catch by following the rotational movement of the wrist, which happens as the hand moves in *roversa.* Then, the left hand is immediately applied, acting upon the opponent's elbow. Together, the two hands control the enemy's forearm, which acts upon the shoulder and therefore on the body, while simultaneously restricting his joints. The hands act in sync and in opposing directions, which means that while the right drops to our left, the left moves outward toward our right. But our action would hardly be effective if we did not focus on the *coupé* just received, releasing the movement and strength to advance with the left leg and knock the opponent off balance. The hands force the opponent's tower to lean, and the leg action displaces the enemy's elephant, taking their balancing space from under them.

With a two-handed sword, see the fifth part of the first *assalto*: the *tramazzone* followed by a thrust draws a high parry from the opponent so that the sword may pass beneath, entering with a clockwise rotation from below as indicated by the rising *ridoppio roverso*. The action requires two steps with the same foot (the left foot) in succession, one on the side and another in the direction of the enemy. This is possible only if after the first step with the left foot, the same foot is freed up by transferring the weight to the plexus (the center) and the right foot. The left hand that seeks the catch initiates an anti-clockwise motion in order to move the sphere's pole to the left hand, which seeks contact. This returns to widen in the *mandritto* and the *tramazzone*, then returns to perform a large clockwise rotation with an upward *filo falso*, which continues in the *roverso* from high left to lower back right. This begins an incredibly nimble action known as *fugi et crove*. The sphere first rotates in a continuously shifted *montante di filo falso*, upward, and then a downward *fendente*, followed by four blows connected in a sort of infinity sign: the *roverso sgualembro*, *roverso ridoppio*, *mandritto sgualembro* and *mandritto ridoppio*. This long chain of free long strikes, delivered by weapon or by hand, as is the holding attempt, requires exceptional freedom in how the legs are managed, as it is a sort of dance. Meanwhile, the sword and the hand trace the inside of a sphere with various circumferences.

From the first part of the second two-handed sword *assalto*: Firstly, the two descending *falsi* on the right and left must be borne by the right and left feet, respectively, as Vadi and the masters of the two columns and compass legs instruct. The weight is swapped between the two extremities while being in a stationary position, drawing the first surface of the sphere to the right and then to the left of the adversary, exploiting from standing those two points to withdraw as Ghisliero tells us. The third blow works in the same way, with a weight swap that creates a new sphere to the right of the enemy's weapon. That sphere constricts under the parry and passes beneath the enemy's sword. This is shown better than any other by Joachim Meyer (1537–1571) in one of his precious prints. The movement continues with a feinted *roverso* and returns with a change of direction in the *ridoppio*, on a sudden but full weight swap in the legs. It widens again while pausing at half-sword, with the right foot withdrawing as the *roverso* descends to ascend again in the *mandritto tondo* which proceeds in wide play.

In the third narrow play *assalto* with two-handed sword, the master dictates a poem: it is a dance passage that stresses the importance of lightness. This passage is a musical composition that is difficult to perform without character and personality. While the thrust shoots toward the enemy, the body begins to rotate—a prolonged move of retracting and then widening on dancing feet. The shoulders first become the pole of rotation, which rests on the enemy's body as it leaves the running of the blade on blade of the *punta incrociata* created by the *filo falso a filo falso*. With a pommel strike on the head, the head becomes a temporary pole. The new point of contact is the sword hilt on the enemy's neck, a lever created by bringing the hand to half-sword, which now interferes, controlling and breaking it down, using the enemy's own machine/sphere against him then, inflating one's sphere, retreats from the opponent and stands in a long guard called *guardia di coda lunga e alta.* Having a different weapon does not change the system. That applies to the dagger as well, like in the first part: here as elsewhere, with a short weapon rather than a long one, the body replaces the weapon when it can, by poking it into the enemy's sphere. The key moment is parrying the enemy's blow with the armed arm in the *guardia di intrare*, under which our own sphere passes, then, leaning forward—the sphere momentarily becoming smaller on the point of contact between our left hand and the enemy's arm—until a strike is delivered, as the sphere grows once again as one retreat in the exit steps.

The two swords further enhance the system. From the first and second parts: the master considers the martial arts involving two swords to be the *art par excellence*, where they behave as if they were two separate dominant hands while connected by the movement of the dynamic sphere. The first parry on the *filo falso* on the left becomes the rotation point that launches the thrust to the side. While the right leg recovers the weight which has first been shifted to the left, the two swords rise together to parry, blades crossed. Still, in the *roverso* parry, the left arm extends toward the right with the sword blocking, point down, while the right shoulder is displaced to form the *roverso*, drawn by the left shoulder's action. Meanwhile, the rotation is accentuated by the right foot which turns behind the left.

In the cloak-and-dagger *assalto*, we find a simple and interesting movement in the first part: the cloak is lifted to form the surface of the high sphere. That frees up a clockwise rotation beneath it, composed of two steps that almost turn the back. The blow also involves a *ponta roversa*, to accentuate the rotation and withdraw both the body from the enemy's aggression and the blow from the possibility of being parried by the enemy. In the second part: the cloak forms the surface of the sphere, whose resting pole is on the enemy's dagger. The entire sphere turns clockwise, aiming at keeping the surface broad. The left step moves out as far as required, the thrust—or rather, the *roverso*—enters clockwise to continue outlining the surface that is created by resting the cloak on the enemy's hand/dagger. In order to make the dynamic moves airy, slick, beautiful, and effective, the movement is naturally spherical in the gesture of throwing one's hand/cloak from high left to low right over the enemy's weapon.

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