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## SOME NOTES OF ANTHROPOMORPHISM IN ARCHITECTURE AND ARTS: FROM VITRUVIUS TO NEUFERT. MANIPULATIONS OF THE III REICH

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### Abstract

This paper discusses the role of the human body image in the architecture and art of Western civilization, reflections on its historical status and the evolution of cognitive functions. The influence of the body and its implications on theories of architecture throughout history are considered, with particular emphasis on the period from Vitruvius to Neufert. By tracing the evolution of the interpretation of the body (from the tangible to the phenomenological sphere), changes in the cognitive dimensions of the human body and their manipulation for the needs of the ideology of the III Reich are presented. Architects, despite these transformations, still maintain an anthropocentric point of view, emphasizing geometric and metric aspects in architectural design. However, in the last few decades, with the development of interactive and responsive environments, a new interest has been taken in the role of the human body in the creation and perception of works of art and architecture. By engaging in interaction with elements of these environments, a person activates computer-controlled electronic systems that respond to the dynamics of their body. Human body anthropometric data and their personalization are used today to navigate in visual space defined by the computer. The creative potential of new media coupled with information technology opens up a new field of research on the role of humans in the design and perception of the built environment.

Keywords: theory; anthropomorphism; human body; measure and proportion; architecture

### INTRODUCTION

The human body as a system of measures and proportions appears, with varying intensity, throughout the history of Western civilisation [J. Robb, O.J.T. Harris 2013]. However, since the time of Descartes (1596–1650), the development of the mind has been given priority, and the role of the body has remained secondary. The neglect of the role of the body in shaping the form of buildings and the excessive focus on strengthening the intellect have spread to the practice and use of architecture [S. Zareian, K. Azizzadeh 2024]. Research and discourse focusing on intellectual pursuits often overlooked its functional and physical aspect [Z. Hosseini, S. Mehrjardy, H. Nadimi, H. Mirjani 2023]. There were also periods when images or representations of the human body allowed, through metric manipulation,

the establishment of beauty standards or models of the 'ideal' human body in accordance with the prevailing political ideology, especially in totalitarian systems. Nevertheless, anthropometric studies of the body provided the basis for the emergence of a new science in the 20th century called ergonomics. The contemporary cognitive approach, drawing on the philosophy of Maurice Merleau-Ponty (1908–1961), presents the human body as an active perceiving entity that interacts with the world and with the perceiving subject or recognising reader, which is the mind or sensor in works of art that respond to human presence [J. Hale 2016].

In the 21st century, there is a renewed interest in the role of the human body in the creation and perception of works of art and architecture. The creative

potential of the so-called new media, combined with electronics and information technology, has opened up a new dimension in the design of interactive and responsive environments, both in galleries and urban public spaces. In these environments, people are no longer passive recipients of works of art or mere providers of measurements and proportions, but active participants and creators. By engaging in interaction with elements of these environments, people activate computer-controlled electronic systems that respond to the dynamics of their bodies. Anthropometric data of the human body and human perceptual abilities must now be personalised and taken into account in design, as must a person's weight and physical movement, as these are used to navigate the visual space defined by the computer [B. Farahi, N. Leach 2023].

The aim of this article is to present, from a historical perspective, the role of the body in the interpretation of architectural works and its influence on their creation. It also examines how anthropometric data of the body supported political and social ideologies through architectural designs. The role of anthropometry in architectural thinking in totalitarian systems is analysed with renewed attention, particularly in the Third Reich, where data manipulation was used to create anthropometric models of the perfect human body (*ubermensch*), which were then used to determine race and design architectural objects.

The methodological approach adopted here combines descriptive and analytical techniques with logical reasoning in order to determine, through comparative analysis, changes in approach and the effects of these changes on the treatment of the human body in the design of works of art and architectural objects.

## 1. THE HUMAN BODY AS A REFLECTION OF THE BODY OF GOD

Since ancient times, people have been asking about their origins and searching for the truth. When it was accepted that humans came from a creator – an almighty god who rules the universe – it followed that they must have been created in his image. Some believe that the human body is a reflection of God's body, that Nature is divine and perfect, and that Heaven or Paradise is the realm inhabited by God himself. The Bible and the Koran mention heaven, a paradise of eternal beauty and perfection beyond all human achievement. Everything there is well ordered and bound by God's laws. Perhaps this is why people have since tried to recreate such a world on earth, copying the heavenly kingdom that exists in their culture or religion. This led to the copying of human body proportions in

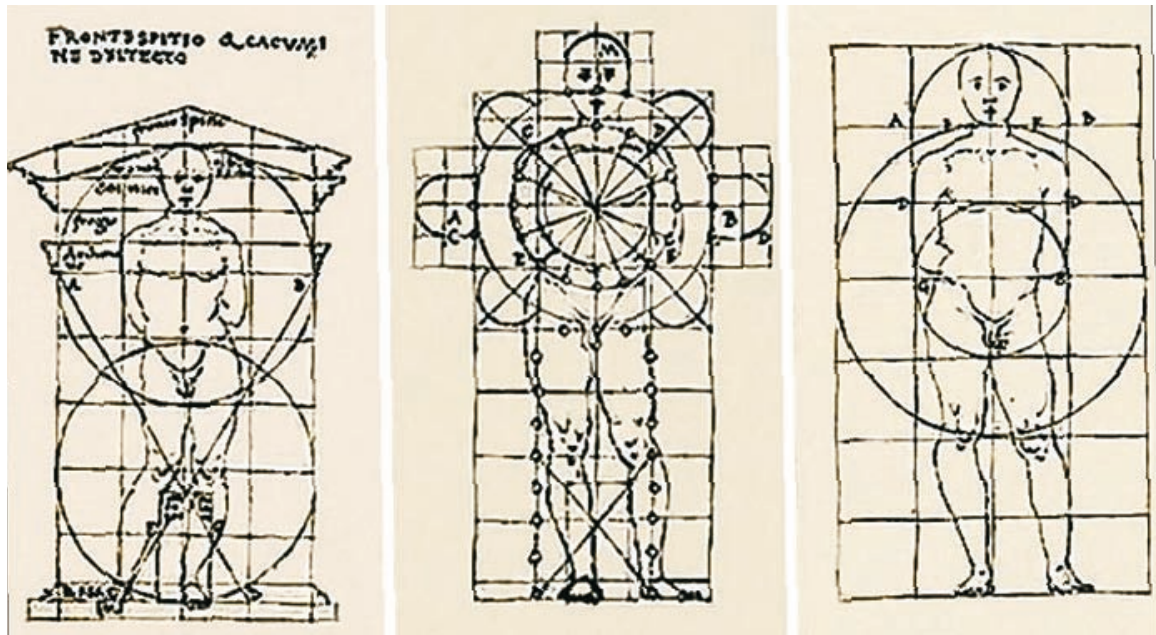
the built environment. The definition of both the human body and buildings was often metaphorically transcribed using dimensions, numbers, proportions and geometric figures.

From an anthropological point of view, the human body could serve as a unified measure that allowed the environment to be shaped in accordance with the laws of nature, of which man was a part. By drawing parallels between the body and building artefacts, people attempted to establish a cosmic order on earth. Vitruvius suggested that architectural dimensions based on the system of body elements do not have absolute proportionality. He viewed the assessment of architectural quality as relational, encompassing the relationships between the whole body and its parts [H.W. Kruft 1994]. Although Vitruvius' ideas did not have a profound influence on Roman imperial architecture, they did influence the Carolingian era until the Renaissance. This anthropomorphic approach was particularly evident in the design and construction of Gothic churches, especially in France during the Middle Ages (Fig. 1) [W. Braunfels, O. von Simson 1957]. It should be added that during this period (of cultural domination by the Church), the spiritual dimension of humanity, i.e. the spiritual body, became more important than representations of the physical body, which was often associated with sin. St. Augustine said: *'I love only beauty, in beauty only forms, in forms only their proportions, in proportions only numbers.'* [St. Augustine 2002, p. 16].

In the Middle Ages, independently of Vitruvius' system, another system of metaphorical measurement was formulated, based on a comparison between the human body and architecture. This comparison was not used to formulate building plans, but only provided a basis for the later interpretation of architectural objects, which also found its place in the anthropomorphic projection of art and architectural theory of the Quattrocento era [H.W. Kruft 1994]. One example is the Sienese architect, engineer and painter Francesco di Giorgio Martini (1439–1501). Anthropomorphic comparisons between buildings and the human body can be seen in various versions of his writings on architectural theory. In one of his treatises on architecture, written around 1480, he made a direct comparison between the plan and elevation of a building and the human figure, simply combining the medieval view of anthropomorphism with Vitruvius' proportional figure [F. Zöllner 2014].

Although anthropomorphism has been and continues to be an idea fraught with all kinds of contradictions and controversies, it has repeatedly played a role in relation to architecture – both as a form of thought

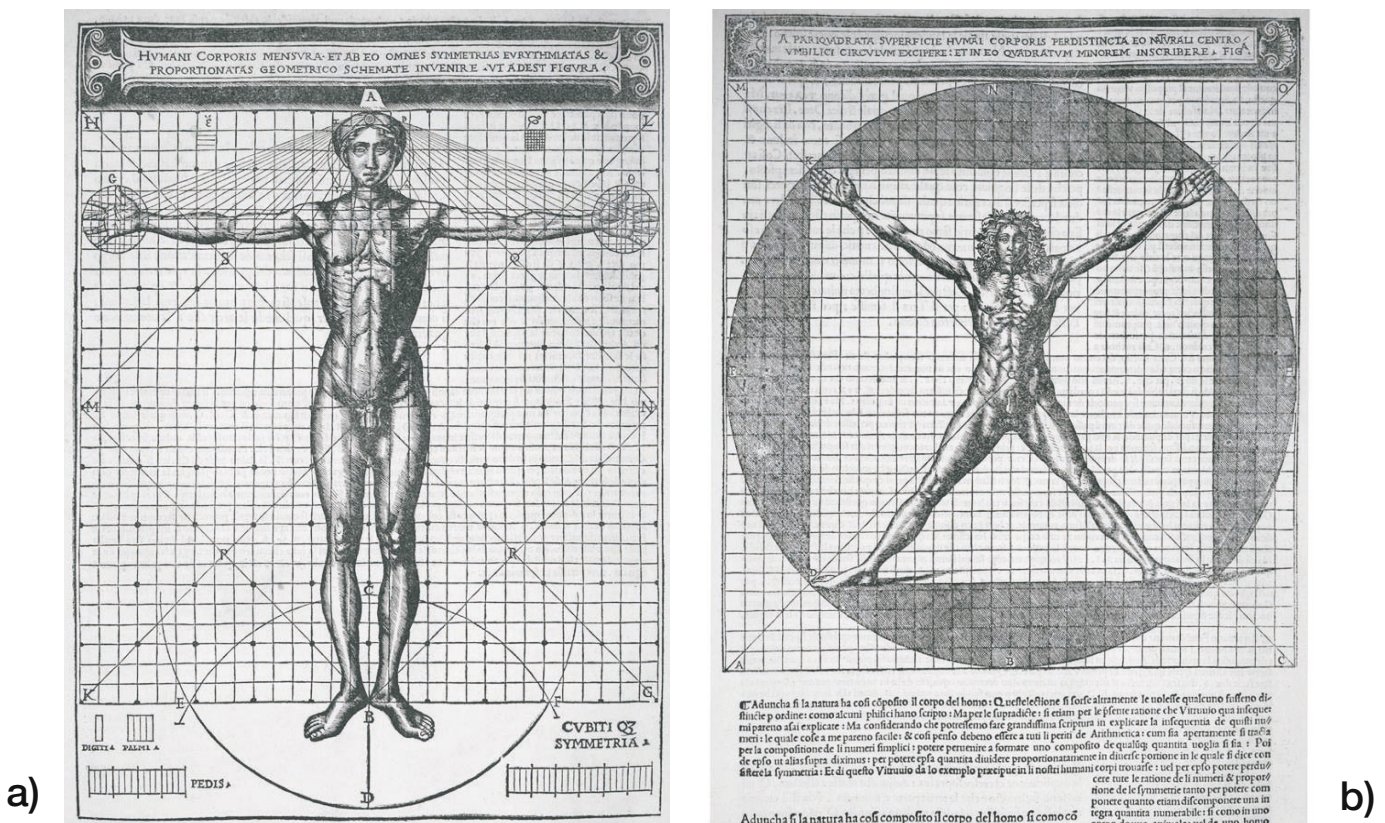




**Fig. 1.** The human figure serves as a metaphor for designing the plan of the church in De Georgio's work  
Source: M.L. Palumbo, *New wombs: electronic bodies and architectural disorders*, Springer Science & Business Media; [36].

and as a supporting argument [R. Imrie 2003]. The metaphor of the human body, especially in theoretical considerations of buildings in terms of their parts, was considered a direct, symbolic model and copy of architecture. This way of thinking supported the continuation of the anthropomorphic view of the relationship between

the body and architecture for centuries, but with a different approach. For most architects, this approach was no longer based on classical concepts of the perfect body, but on the image of a human being 'embodying the harmonious order of a divinely inspired grid of Euclidean squares.' (Fig. 2) [R. McAnulty 1992, p. 182].



**Fig. 2.** The image of man embodies the harmonious order of the square grid of Euclidean geometry, a) Cesare Gesariano, *Homo ad Quadratum*, b) Cesare Gesariano, *Homo ad Circulum*, 1521; source: [37].



Such concepts of understanding the body have their roots in the post-Galilean view, which understands the physical body as a machine and a subject subject to the laws of mechanics. In this view, the body is nothing more than an object with fixed, measurable parts; it is neutral, without cultural gender, race or physical differences. It is subordinate to the mind or to that sphere of existence which was characterised by what the body is not, namely the self, thought and reason [R. Imrie 2003].

## 2. ANTHROPOMORPHIC METAPHOR OF ANCIENT TIMES

The classical era saw the emergence of important interpretations of the body and its patterns, offering a wide spectrum of meanings defining physical reality. In his work 'Timaeus,' Plato separated the soul from the body, assigning the body the role of caring for and nourishing the soul. He assumed that the body was created only after the soul came into being. Aristotle, on the other hand, saw the body as a vessel, a kind of form for the soul, thanks to which there is an essential internal connection between the body and the soul, and he suggested unity, cooperation and love between the soul and the body [V. Buchli 2020].

He believed that humans represent the concept of unity found in nature. He therefore adopted the principle that the body is a unique collection of parts, where no part can be added or removed without damaging the whole. To understand the soul, Aristotle dissected the bodies of humans and animals to discover the purpose of each part [H.W. Kruft 1994].

An anthropomorphic metaphor consists of two different forms of expression: firstly, the form or image of the body itself; and secondly, its numerical or abstract translation into numbers and geometric figures. (Fig. 3). Proportions were understood as a set of quantifiable relationships between the parts and the whole of a work of art. The metaphor of man was treated mainly as a direct symbolic model and copy of architecture or its components.

The Greeks understood the concept of beauty broadly, defining it as everything that is valuable, pleasing, worthy of recognition and choice. Kalos – beautiful meant more or less the same thing to them as kagatos – good meant not only sensual things, but also intellectual things, not only beautiful bodies or vases, but also beautiful characters and beautiful laws. The Greeks placed beauty alongside truth and goodness, giving rise to the triad: 'truth – goodness – beauty'. Socrates claimed that beauty is the only thing that is divine and visible at the same time. Polykleitos wrote: *'Beauty lies not in the proportions of the elements, but in the proportions of the parts of the body, that is, in the proportion of the finger to the finger, the finger to the wrist, the hand to the hand, the hand to the elbow, the elbow to the arm, and all these parts to each other.'* [H.W. Kruft 1994, p. 22].

In order to establish the canon of the ideal image of a figure, the ancient Greeks observed the proportions of a correctly built human being, which was, as Panofsky calls it, the 'anthropometric canon' [E. Panofsky 1971]. The starting point was to define a unit of measurement. This module was the height of the head, and the proportions of the column or statue were determined by the ratio of the height of the head to the entire figure (Fig. 3) [J. Shute 1912].

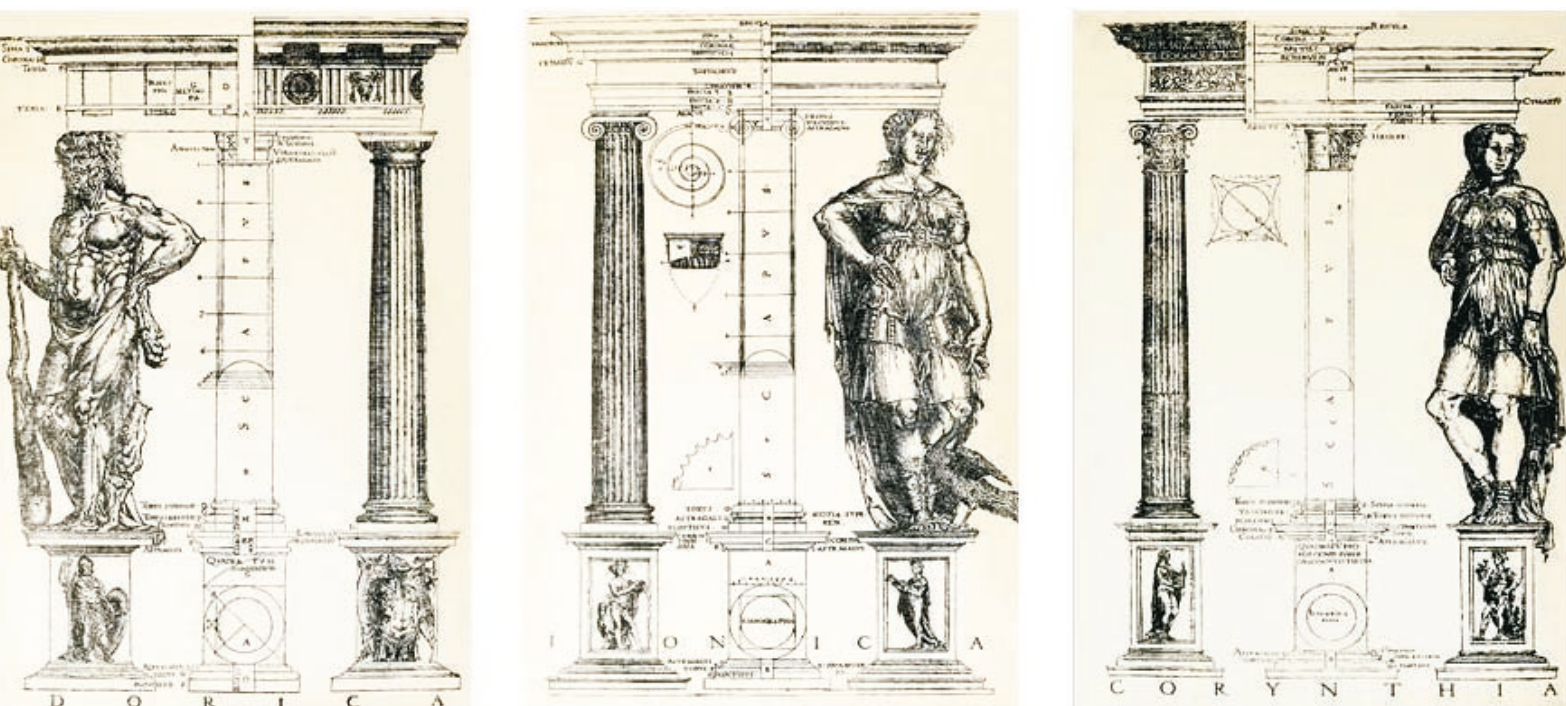


Fig. 3. Proportions of the column in ancient Greek orders in relation to the human body; source: [33].

In the 5th century BC, Polykleitos wrote a treatise entitled *Canon*, in which he stated the following rule: for the proportions of the body to be ideal, the height of the figure should be seven and a half times the height of the head. He applied this rule in his sculpture *Doryphoros*, and later perfected it in the statue *Diadumenos*. His contemporaries, Phidias and Myron, unanimously accepted his canon. Less than a century after Polykleitos, the sculptor Praxiteles formulated the 'eight heads' canon, Leochares the 'eight and a half heads' canon, and Lysippos increased the canon to 'nine heads' [E. Cressy 1842, p. 766]. The canon of sculptors covered not only the proportions of the entire human body, but also its parts, especially the proportions of the face.

The canon of proportions for classical Greek sculptures and buildings is attested by sources, as is the general rule that both statues and buildings were designed according to the same golden ratio [E. Cressy 1842]. It was based on the Pythagorean division of a segment so that the ratio of the smaller part to the larger part was equal to the ratio of the larger part to the whole. It can be described using a mathematical formula, which, when calculated, gives a quotient of 0.618:0.382. Expressing the golden ratio as a percentage, this ratio can be approximated as 62%: 38%.

The most magnificent temples (e.g. the Parthenon and statues such as the *Belvedere Apollo* and *Venus de Milo*) are built in every detail according to this principle. The golden ratio has been referred to many times in later times. Since ancient Greece, the human body has been considered a microcosm of universal harmony and the foundation of beauty. The metaphor of man was treated as a direct symbolic model and copy of architecture – it was supposed to be a guarantee of beauty. It was believed that beauty is an objective feature of things and consists in the harmony of parts, in the right proportions of these parts, and that the right proportion is mathematical, being the ratio of the simplest numbers. This idea of beauty, formulated by the Pythagoreans and adopted by Plato, prevailed until the end of antiquity [F. Zöllner 2014]. Vitruvius also did not forget about beauty when listing the characteristics that should be taken into account in construction, mentioning beauty alongside durability and purposefulness. He wrote that 'in a building, beauty is achieved through symmetry and the appropriate ratio of its elements, including height and width.' [Vitruvius 1956, p. 16].

## 2.1. Vitruvian standard of measurement and proportion

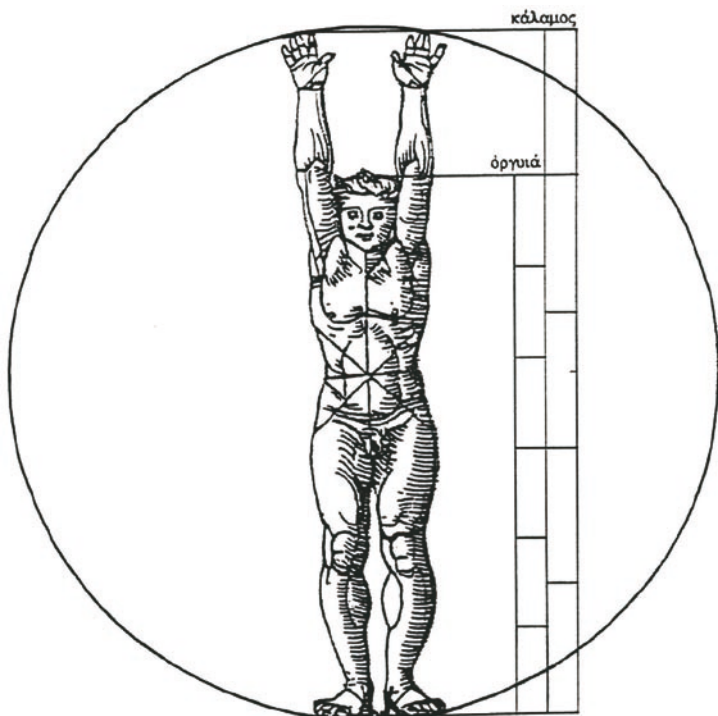
All elements of anthropomorphic metaphor can be found in Vitruvius' *De architectura libri decem* (Ten Books on Architecture), the only architectural treatise that introduces the ancient world to [Vitruvius 1956]. This treatise provided models for architectural theory from the 15th to the 18th century and was its point of reference.

Marcus Vitruvius Pollio was a builder and designer of war machines during the reign of Julius Caesar and Octavian Augustus in the 1st century BC. In *De architectura libri decem*, he first describes anthropomorphism using the example of *Dinocrates* and a study of the Doric column. In the first and third books, he clearly lists anthropomorphic dimensions such as *digitus*, *palmus*, *pes* and *cubitus* (finger, palm, foot, elbow, step) as examples. He indirectly mentions that the distance between the fingertips of a man with well-proportioned arms corresponds to his height measured from the feet to the top of the head. However, the most comprehensive comments on human dimensions as architectural dimensions are found at the beginning of his third book. He writes that the design of sacred architecture is based on symmetry and proportions, and that such a design corresponds to the correct organisation represented by the human body. He derives the dimensions themselves, as well as geometric figures such as the circle and the square, from a well-formed male body with arms stretched upwards and legs folded, while the shape of the navel marked the centre point [Vitruvius 1956] (Fig. 4). In his description of *homo ad circulum*, Vitruvius had in mind only a man with his arms raised upwards (Fig. 5). However, since the Renaissance, *homo ad circulum* has been incorrectly interpreted as a figure standing with his legs apart and his arms outstretched [F. Zöllner 2014].

For Vitruvius, the human body was the main source of architectural composition, as it provided 'good proportion' between the whole and the parts and was a manifestation of cosmic or natural order [H.W. Kruft 1994]. Since Vitruvius' writings in the first century AD, the use of the human body as a metaphorical and symbolic reference has provided one of the most fertile tropes in architectural theory. Especially in their reflections and discussions on buildings, architectural practitioners and theorists often referred to the metaphor of the human body and treated it as a direct symbolic model and copy of a building or its parts. The shape of a building was described metaphorically by transcribing its dimensions, numbers, proportions and geometric figures.



**Fig. 4.** Giacomo Andrea da Ferrara, *The Vitruvian Man*, ca. 1490  
Source: [37].



**Fig. 5.** *The Vitruvian Man (homo ad circulum)*, reconstruction  
Source: Biblioteca Ariostea, Ferrara (Cart. Sec. XVI, Fol. Figurato  
by Frank Zöllner, 2014 Classe II, N. 176, Fol 78V)  
Source: [37].

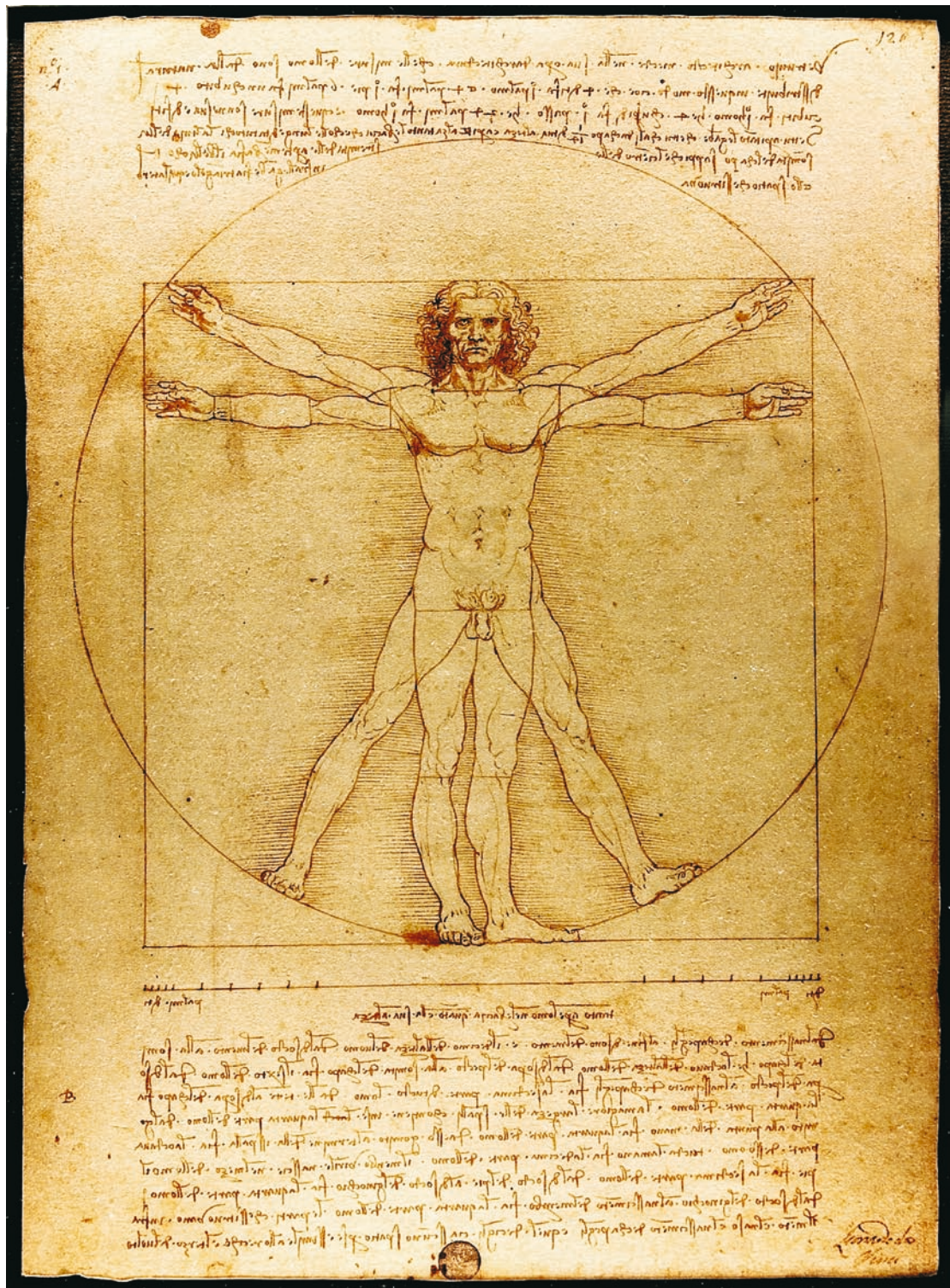
However, Vitruvius' idea of human body dimensions was largely based on ancient building practices and Greek metrology (the science of measurement). This was partly due to the fact that his treatise was rooted in engineering and construction practice, and partly due to the reception of ancient Greek sources of architectural theory, which did not survive into modern times. Therefore, Vitruvius gives dimensions that are close to the actual dimensions of individual body parts:

- a hand (palm) is equal to four fingers;
- the foot is equal to four hands;
- an elbow (cubit) is equal to six hands – four elbows make up the height of a man;
- a step is equal to four cubits;
- the height of a human being is equal to 24 hands.

However, according to Vitruvius, the height of a human being is 10 modules, and a module is the height of the head measured from the chin to the hairline. An open hand is also one module long. The human head is  $\frac{1}{8}$ – $\frac{1}{6}$  of the height from the chest to the top of the head, to the place where the hair begins. From the hair to the chin, it is divided into three parts: the forehead in the upper part, the nose in the middle, and the mouth with the chin in the lower part. The length measured from the wrist to the elbow is the length of a human foot. The foot is  $\frac{1}{7}$  of a human, the elbow is  $\frac{1}{4}$ , the chest is  $\frac{1}{4}$ , and the width of the arms when spread apart is equal to the height of a human. These dimensions can be found in the buildings designed by Vitruvius. However, during the Renaissance, the figure described by Vitruvius did not have a direct influence on the architecture of the 15th and 16th centuries. Nevertheless, the human body was one of the basic ideas of design, its theoretical foundation [H.W. Krufft 1994].

Leonardo da Vinci (1452–1519) even attempted to combine the two Vitruvian concepts to create a universal model of proportions for art. He depicts a naked male figure in two superimposed positions, inscribed in a circle and a square (Latin: *Homo ad circulum* and *Homo ad quadratum*) (Fig. 6). The system of proportions adopted here revolves around the canon defined in ancient Greece by Polykleitos. The drawing is accompanied by text written in mirror writing, often used by da Vinci. The theoretical basis of design was intended to indicate how to design in order to ensure that a building possessed what was understood as beauty. For example, Alberti believed that: 'beauty is the harmony of all parts of the body, thought out in such a way that nothing can be added, taken away or changed, because it would only make it worse' [Alberti 1960, p. 3]. In the Quattrocento era, the Greek concept of beau-





**Fig. 6.** Leonardo da Vinci, Proportions of the Human Body According to Vitruvius (It. le proporzioni del corpo umano secondo Vitruvio), drawing made in pencil and ink on paper and popularized around 1490; source: Wikipedia Commons.

ty, its theories and evaluation, and its former glory were respected. However, in the 18th century, other ideas began to dominate alongside beauty: ideas of grace, subtlety, sublimity and consistency with purpose, i.e. appropriateness.

It should be noted that the anthropomorphic idea of architecture, based on Vitruvius' system of proportions, offered nothing significantly new to engineers and architects apart from the possibility of conducting intellectual discourse on the origins of beauty in the de-

signed building. This is evident, among other things, in the theoretical writings on art by Lorenzo Ghiberti and Antonio Averlino, known as Filarete [H.W. Kruff 1994].

## 2.2. Anthropomorphism versus musical harmony and customs

While early Renaissance architectural theorists used Vitruvius' system of proportions to make programmatic references to ancient theory, subsequent generations of architects and theorists took a slightly more detached approach to anthropomorphism. For them, musical proportion was more important than directly deriving architecture from the dimensions of the human body. Hence, the leading architectural theorists of the Renaissance – Leon Battista Alberti in the 15th century and Andrea Palladio in the 16th century – based their ideas on musical harmony.

Instead of the intended metaphorical comparison with the human body's dimensions, attempts were increasingly made to derive entire buildings and parts of them from measurement indicators that corresponded exactly or were considered to correspond to musical intervals such as the fourth, fifth or octave. A well-known example is the church of San Francesco della Vigna in Venice, which Daniele Barbaro, a prominent and distinguished member of the Venetian patriciate, cites in his commentary on Vitruvius (1556) as an example of how far anthropomorphism had been left behind [D. Barbaro 1987].

In the second half of the 16th century, Vitruvius' anthropomorphic dimensions were completely replaced by a system of proportions based on musical harmonies, unrelated to ancient systems of measurement. It was believed that music theory could be translated into building practices and reliably refer to cosmic harmonies considered from a similar musical point of view [A. Foscari, M. Tafuri 1983]. In the 17th century, the anthropomorphic concept of architecture was challenged even more radically, especially in French architectural theory. This break was made by Claude Perrault's French translation of Vitruvius, first published in 1674 and republished in 1684. Perrault categorically rejected the concept of proportions to be applied in architecture as a law of nature. In his commentary on the origin of the Doric column, whose proportions Vitruvius derived from the length of the human foot, he even explicitly opposed the prevailing principle. As he writes, proportions in architecture have nothing natural about them; they do not follow any unquestionable rules, not even those derived from the dimensions of stars or parts of the human body. Rather, architects determine the proportions of a building based on an agreement ('consent') defined by tradition and custom [C. Perrault 1684; R. Bahnam 1979].

Thus, the view emerged that the foundation of beauty is not the measure of the human body, but the strength of human customs. Perrault's uncompromising rationality placed him in strong opposition to the absolutist academic doctrine of art of his time, but it did not yet have sufficient clout. Of course, Perrault's break with the anthropomorphic theory of proportion was not without controversy, and the influence of his views can be found in theoretical texts written from the 18th to the 20th century [F. Zöllner 2014]. For example, Bernardo Galliani, in his commentary on Vitruvius' treatise written in 1758, pays little attention to the proportions of the human body. He clearly opposes taking the concept of anthropomorphism too seriously, even criticising the cliché spread by Pietro Cataneo in 1567 that the proportional human figure is the basis of Christian church architecture [F. Zöllner 2014]. The rejection of man as the measure of all things was further reinforced by the introduction of anthropometric measuring devices in the 19th century [F. Zöllner 2014]. Although buildings continued to be compared to the human body and its parts, the significance of architectural anthropomorphism slowly faded, even as a non-binding metaphor. At the beginning of the 19th century, Jean-Nicolas-Louis Durand (1760–1834) questioned the relationship between the human body and architecture, rejecting, for example, the derivation of column proportions from human body dimensions. He suggested using completely arbitrary proportions [J.N.L. Durand 1802; R. Banham 1979]. Other theorists, such as Eugène Emmanuel Viollet-le-Duc (1814–1879) and Auguste Choisy (1841–1909), expressed similar views [R. Banham 1979]. They formulated a concept of proportion based on structural analysis and geometry. Although anthropomorphic dimensions and the duodecimal system remained important in Anglo-Saxon culture, in the 20th century, an empirical, rationally determined attitude led to the abandonment of anthropomorphism as a figure of thought.

Another reason for the rejection of anthropomorphism in the 18th and 19th centuries can be found in industrialisation, which favoured an empirical and functional concept of architecture. Nevertheless, in the 20th century, the mass production of individual building units accompanying industrialisation seems to have simulated a renaissance of anthropomorphic theory of proportions.

## 3. ANTHROPOMORPHIC MANIPULATION OF THE THIRD REICH

Twentieth-century anthropomorphism is not merely an attempt to theoretically legitimise and poetically superimpose rationalism and functionalism on



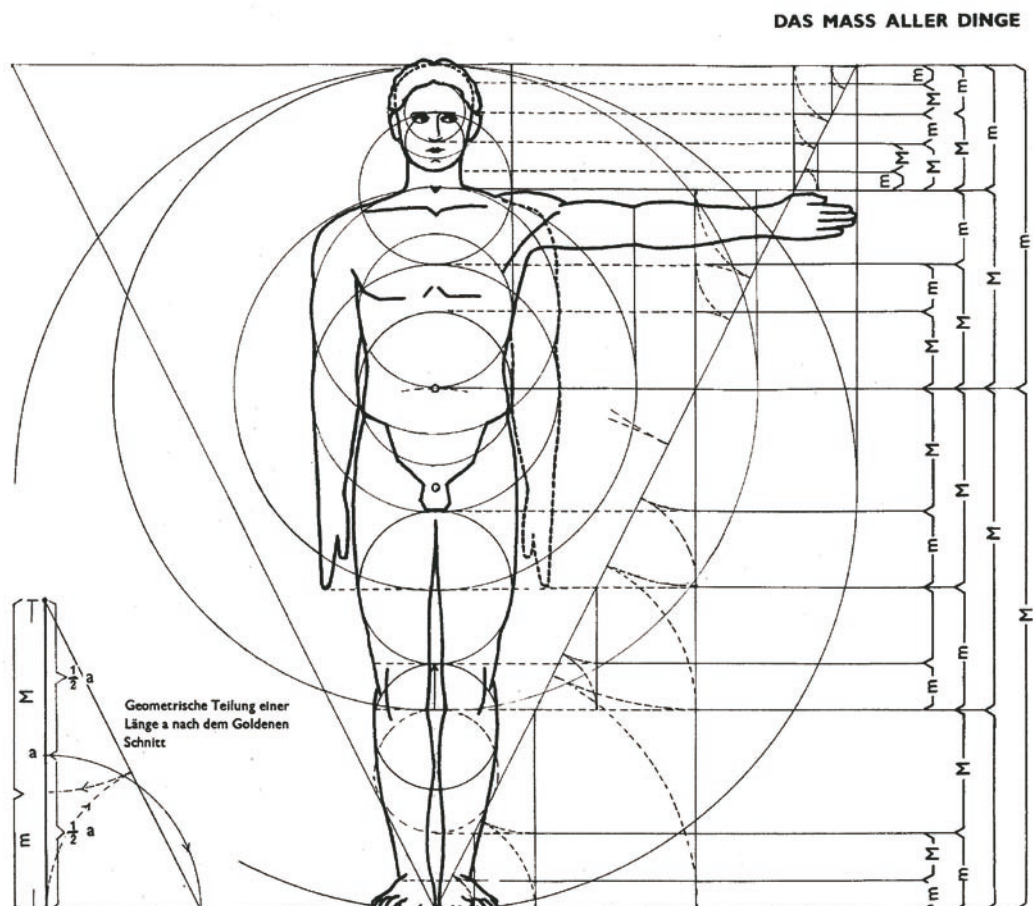
architecture. It also serves as a banner for certain ideas of social order that stem, in part, from the needs of the construction industry – standardisation and assembly of architectural elements – as well as from the political motives of the time.

The Third Reich regime needed an anthropomorphic model of a 'new man' who perfectly matched the Aryan racial ideal, which led to a departure from the ethical principles of civilised Europe in the first half of the 20th century. Already at the turn of the 18th and 19th centuries, changes took place in the perception of German national-philosophical anthropology. There was a separation of man from his biological nature, which was contrasted with the spiritual and intellectual development of the Enlightenment period [T. Butkiewicz 2020]. Such anthropological concepts proved to be consistent with the doctrine later favoured by the Third Reich authorities. The political structures emerging from the ruins of the Russian, Austro-Hungarian and German empires needed convincing instruments to assure their societies that the ideas they proclaimed were the only ones that would restore their countries to their former glory [M. Antoszczyszyn 2017]. A fundamental element of Nazi ideology, as outlined by Adolf Hitler in *Mein Kampf*, was the belief in the superiority of the Aryans, a fictional race of tall, slender, fair-haired people from northern Europe. It was believed that only Aryans possessed the spark of genius necessary to create civilisation, and the search for their traces was one of the priorities of the ideologues of the Third Re-

ich [T. Butkiewicz 2020]. However, no evidence of the existence of the Pragerman race has ever been found, even though Nazi Germany employed a whole host of scientists and pseudo-scholars. Nazi leaders wanted the world to admire and respect them, and eminent researchers were supposed to maintain the appearance of rationality and truthfulness of this ideology. These delusional and insane theories were to become the official truth of the state. Between 1933 and 1945, scientists in the service of the Third Reich prepared the ground and then participated in the implementation of a programme of extreme barbarism. Anthropometric measurements of a non-existent race began to determine the life or death of thousands of people.

This was also evident, albeit to a lesser extent, in the anthropomorphic ideas of Walter Gropius's student Ernst Neufert (1900–1986) and was a major component of his construction manuals: *Bauentwurfslehre* (first published in 1936) and *Bauordnungslehre* (first edition) 1943 [E. Neufert 1936; E. Neufert 1943; F. Zöllner 2014].

Neufert's views on proportions, formulated in 1936, remained unchanged in their basic form in all 39 editions of his textbooks published to date. They were only expanded and modified to suit the needs of the times. Initially, Neufert attached greater importance to the anthropomorphic foundations of architecture and the idea of standardisation than to political attitudes. Nevertheless, his model of proportions, the 'proportional man' (1936) (Fig. 7), was often perceived as a model



**Fig. 7.** Ernst Neufert, The Proportionate Man, *Bauentwurfslehre*, 1936; source: [37].

of the Aryan race, although Neufert never mentioned this anywhere [W. Prigge 1999]. In early editions, the section entitled *Der Mensch als Maß und Ziel* was a key part of the textbook, but in later editions this content was moved to the second chapter, thereby weakening its fundamental significance.

It should be noted that Neufert's 1936 proportion template (Fig. 7), which appears in all editions of *Bauentwurfslehre*, was largely based on related drawings by Albrecht Dürer and supplemented with the important element of the golden ratio. Neufert drew on Adolf Zeising's 1884 text *Der Goldene Schnitt* (The Golden Section), and in particular on Ernst Mössel's speculations on the laws of measurement that had previously governed architecture, which appeared in 1926 and 1931. In fact, Neufert wrote about Mössel's outdated theories [F. Zöllner 2014].

Precise (computational) studies have shown that the vast majority of classical buildings are based on the golden ratio. Mössel, however, argued that it should be a pentagon or pentagram, as it has a natural relationship with the golden ratio. However, advanced computational studies have not fully confirmed this thesis [E. Neufert 1936; F. Zöllner 2014]. Nevertheless, this concept supported the trend of Nazi mysticism and the Thule Society, whose political programme included Pan-Germanism, and alongside racist gnosism, it also featured a mixture of occultism and esotericism, theosophy, spiritualism and mysticism [P. Szuppe 2017].

In later editions of *Bauentwurfslehre*, these themes were omitted. The editors decided that Mössel's vague dimensions regarding human proportions could no longer serve as a theoretical basis for a serious architectural textbook. They were replaced by Le Corbusier's Modulor [E. Neufert 1943], although some diagrams containing the results of unclear measurement procedures based on the pentagram have been left in and are presented without additional explanations [T. Hilpert 1999].

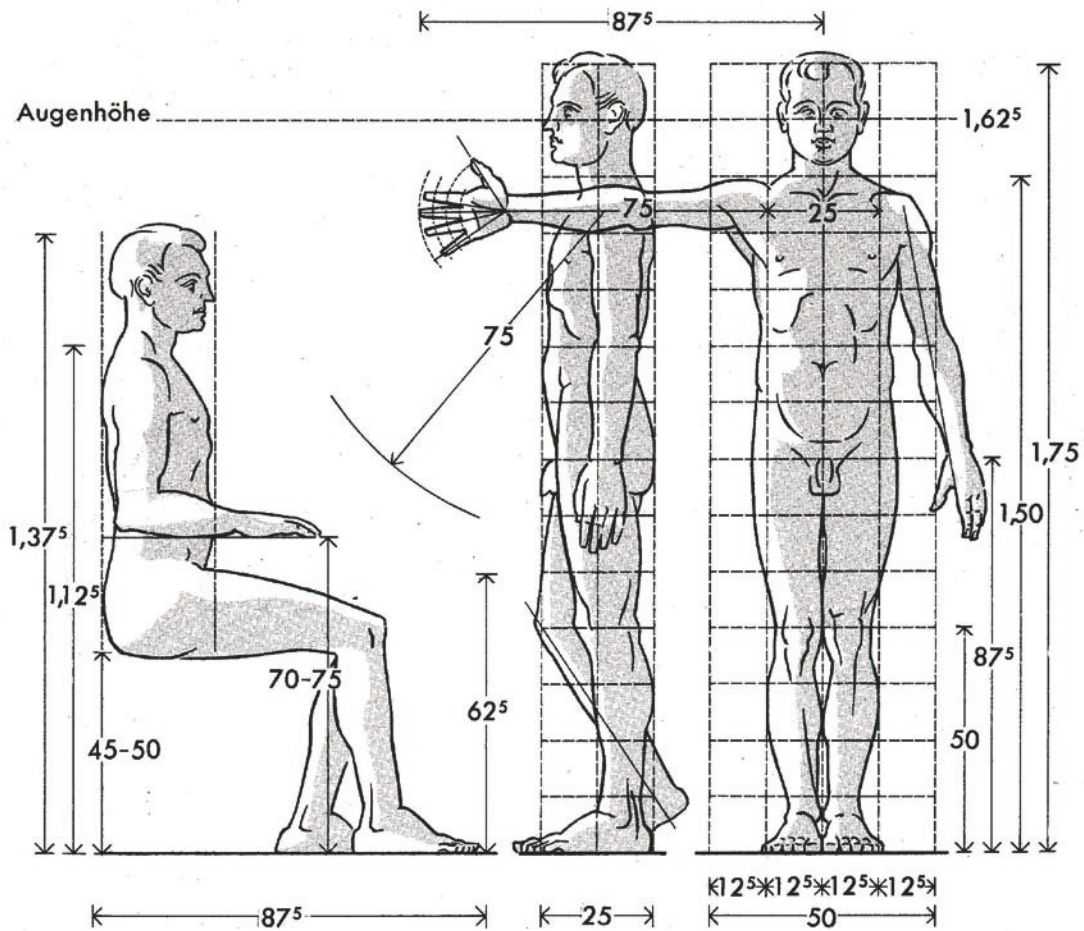
Descriptions of some of these procedures were presented by Neufert in his handbook *Bauordnungsslehre*. In addition, he takes Le Corbusier's humorous explanation of the origins of the Modulor seriously [E. Neufert 1965], he also reinterprets the golden ratio sequence, this time using racist neologisms such as the eternally valid law of measure and beauty. Neufert promotes the view that through natural selection, which has been ongoing for millions of years, humans form themselves from their own sense of beauty into the ideal of beauty that resides within them (...). Furthermore, he believes that this golden sequence of proportions seems, in the Greek sense, to represent the general law of germination in nature (allgemeine Sprossungs-

gesetz der Natur), independent of man and his feelings [E. Neufert 1943]. In this way, Ernst Neufert became part of the unique alignment of political and anthropological concepts achieved by Rudolf Virchow, who combined Darwin's concept with the social development of society (*Sozialdarwinismus*). These and other views contributed to the establishment of German anthropology, which shaped the new face of Germany after 1933. By identifying characteristics inherited through genetic code, a selection was made to quickly identify a fictional type, *Homo nordicus X dinaricus*, which was supposed to fit the ideological framework of the totalitarian system [B.R. Schultz 1933]. Attention was paid to the structure of the skull, the colour of the eyes and hair, and the posture of a given individual. The genetic value of the nation was divided as a product of human matter. An ideal of a 'new' and, from then on, also a 'political man who had to be bred' was created.

In the 1940s, Neufert transformed his proportional figure into a special modular system, the so-called Octameter, changing several important dimensions of this figure. He did not want contemporary architects, using standardised numbers, to remain in the great tradition of the ancients, as he expressed in 1942 in the magazine 'Der deutsche Baumeister', which was a magazine of the National Socialists [E. Neufert 1942]. With regard to specific numbers used for standardisation purposes, Neufert also used anti-Semitic undertones, discouraging the use of the number seven because it is used in 'many ritual activities, especially by Jews around the world' [E. Neufert 1942, p. 12]. Therefore, in Neufert's Octameter, it is the human being or his measurements and modules that have been adapted to the desired standards, and not the other way around. The height of the male body remained the same as the proportional figure from 1936 at 175 cm; however, the height of the shoulders increased from 143 to 150 cm. In this way, man as the 'measure of all things' becomes consistent with the module of 12.5 or 125 cm adopted for the Octameter.

This module can be found in individual parts of the body and its positions (Fig. 8). It did not correspond to the 'natural' law of proportion, but to a 'system of measurement' (*Systemmaß*) bricks, which was developed as an industry standard [E. Neufert 1941b]. In addition, the Oktameter module was also compatible with a unit spacing of 250 cm (*Achismaß/Tafelmaß*), which was originally developed by the Luftwaffe for the construction of aircraft hangars, as well as for the construction of housing for workers building motorways and for timber construction. Eventually, the octameter became a common building standard [E. Neufert 1941a]. In this way, Neufert offered a manual for economical and ra-





① Maßproportionen des menschlichen Körpers in Baumaßen

Fig. 8. Ernst Neufert, Octameter – The Proportionate Man, *Bauordnungslehre*, 1943; source: [37].

pid construction during global war, particularly useful in settling the 'Lebensraum' conquered by the Third Reich in Eastern Europe.

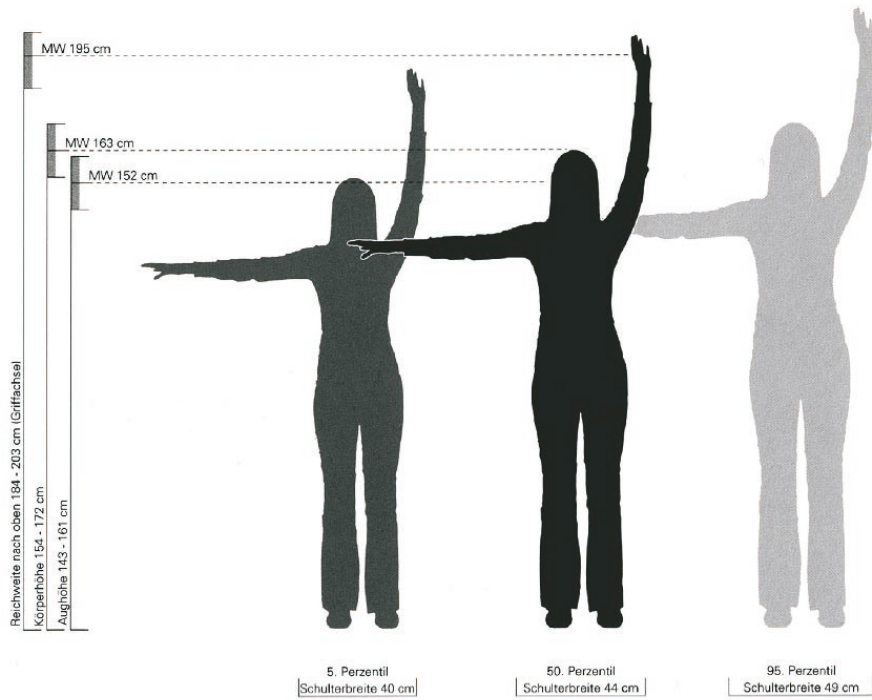
In Neufert's Octameter, it is man, i.e. his measurements and proportions, that have been adapted to the desired standards, and not the other way around. Of course, this does not discredit the idea of anthropomorphism itself, but it does raise a suspicion that prompts the question: did human dimensions determine architectural design, or did design needs, real or perceived, determine the idea of human dimensions? Was it not man who was the measure of all things, or was it rather political circumstances that dictated the idea of human dimensions?

Neufert's approach, his ideas on dimensioning presented in the 1930s and 1940s, demonstrate how flexibly anthropomorphism and the supposedly 'natural' laws of proportion can be interpreted. While in 1936 the manual was still technical in nature, in 1943 it was

enriched with ideological essays. As Walter Prigge noted, Neufert introduced political elements in many passages of *Bauordnungslehre* and changed the articulation of the body to achieve a symbolic connection with the fascist ideology of National Socialism in Germany between 1936 and 1945 [W. Prigge 1999].

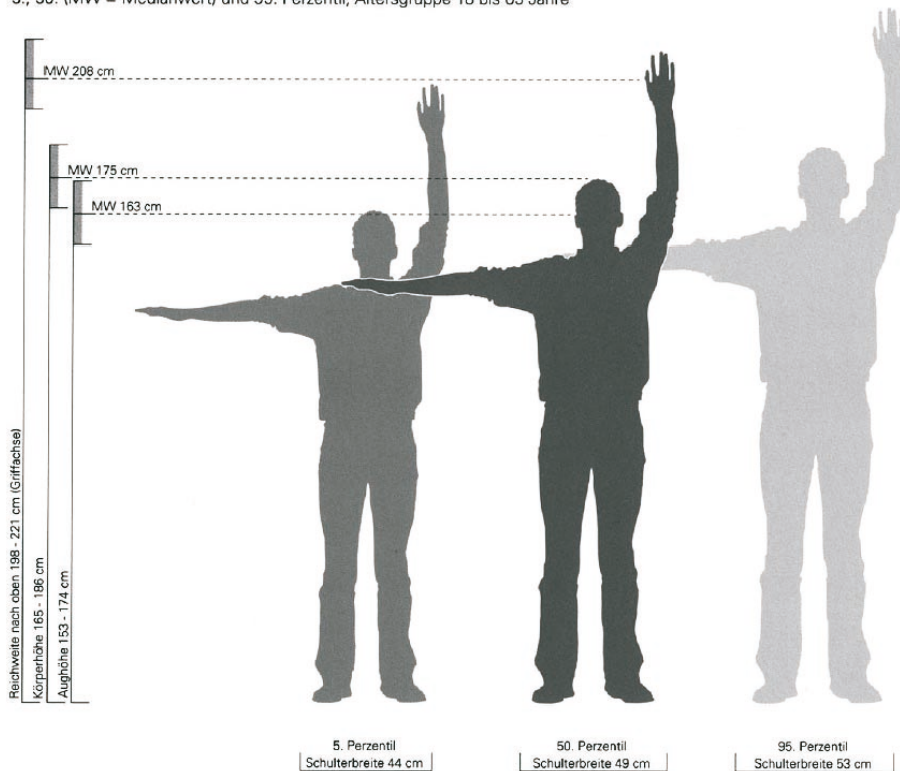
In 2010, an architectural textbook entitled *Raumpilot* was published, which may replace Neufert's *Bauentwurfslehre*. Here, too, under the heading 'Anthropometry', human dimensions form an important basis for further considerations on architectural planning and construction. This handbook has been freed from ideological baggage, and human dimensions are no longer illustrated by naked male bodies, idealised and standardised, but by clothed figures of both sexes (Fig. 9). The selected dimensions, without succumbing to an ideological system, take into account both men and women, and therefore not only the perfect man in his actual activities [T. Jocher, S. Loch 2010].

Körpermaße der Frau entsprechend DIN 33402-2, M 1:20  
5., 50. (MW = Medianwert) und 95. Perzentil, Altersgruppe 18 bis 65 Jahre



a)

Körpermaße des Mannes entsprechend DIN 33402-2, M 1:20  
5., 50. (MW = Medianwert) und 95. Perzentil, Altersgruppe 18 bis 65 Jahre



b)

**Fig. 9.** Human proportions, Raumpilot, 2010, a) model dimensions of a woman, b) model dimensions of a man  
Source: [37].



## CONCLUSIONS

In ancient times, the human body was perceived as an ideal archetype, a standard of measurement that drew attention to geometry and theoretical considerations about the role of proportions in architectural composition. It was believed that beauty lay in the proportions of body parts, and therefore certain manipulations of their dimensions were made, establishing aesthetic canons for sculpture and architecture.

It was only during the Third Reich that this ancient archetype of measure and proportion was used for political purposes, to support national-philosophical anthropology. After 1933, Nazi anthropologists presented the 'new man'. His unique visual aesthetics, fortitude and boundless devotion to a single leader were based on an ideological foundation and a false anthropology. Characteristic types of people were created, but assigned only to the Aryan race. In this way, a new German identity was created based on the homogeneity of the National Socialist population in order to justify that Germans as a nation of 'superhumans' (*Übermenschen*) with the hominid of the 'new man' were predisposed to dominate Europe and the world. Ernst Neufert's 1936 model of the 'proportional man' fully met the expectations of the ideologues of the Third Reich. The system of proportions based on this model was evident in designs and some completed buildings intended to emphasise the prestige of the Nazi 'supermen'.

It should be noted that the system of measurement and proportion based on the human body model, written down by Vitruvius between 20 BC and 10 BC, although it had been used for a long time in the Roman Empire, did not play as significant a role in shaping the architecture of power as the new national-philosophical anthropology in Germany. In the Middle Ages, this system was almost eliminated and considered heretical, like the entire heritage of ancient Greek and Roman culture. Due to the growing influence of the Church, the presence of the human body in architecture receded into the background, transforming from a physical entity into a metaphysical, spiritual body. This approach was particularly evident in the construction of numerous churches and cathedrals, which emphasised the prestige of ecclesiastical power.

The Renaissance saw a revival of humanism and ideal models of the human body, while the discovery of linear perspective encouraged artists to capture the world using geometric lines, just as humans see it. In 1415, the Florentine humanist Poggia discovered Vitruvius' treatise, which had been hidden centuries earlier in the library of the monastery of St. Gallen in Switzerland. Since then, architecture has consistently leaned towards rational approaches and abstract

thinking, drawing inspiration from *De architectura libri decem*. Leo Battista Alberti based his treatise *De re aedificatoria libri decem* (Ten Books on Architecture) on Vitruvius' treatise, thus updating its content. To this day, Vitruvius' triad of *firmitas, utilitas, venustas* – durability, utility and beauty – has not lost its significance. These are considered timeless values in the design and construction of architectural structures, although they were questioned in the 18th century. Industrialisation shifted the focus, imposing functional aspects on the body.

In the modern era, the human body was perceived mechanically through ergonomics and models such as Neufert's Octameter and later Le Corbusier's Modulor, establishing standards regardless of individual differences. Postmodern theories, on the other hand, moved away from the concept of the body, either differentiating it, presenting it fragmentarily or treating it as completely absent.

The history of architecture shows a tendency to perceive human bodies as static – from Vitruvian figures to modular and ergonomic ones. The dynamics of the human body are treated as frozen movement imitated by spatial structures, as in the constructions of Santiago Calatrava [M. Gościński, K. Januszkiewicz 2019].

Today, we need a new understanding of the dynamics of the human body and its relationship with space, as well as the relationship between the body and technology. Architecture often overlooks the flexibility of the body, considering only its rigid image, which ignores the body's ability to act and perceive. The treatment of the body as an object, standing in contrast to the flow and continuity of life, is coming to an end. Therefore, in many definitions of space, the presence of humans has been limited to the physical human body, devoid of life in terms of the existential role of humans as creators of space and their ability to give space real meaning.

Thanks to the development of interactive and responsive environments, it is now possible to design spaces that are visually appealing and tailored to a variety of sensory experiences that shape our interactions with the built environment, by understanding the multisensory nature of perception and incorporating this knowledge into architectural practice.

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## THE BARN COMPLEX IN MSTÓW: CULTURAL VALUE, REVITALIZATION, AND CHALLENGES IN PRESERVING REGIONAL ARCHITECTURE

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### Abstract

The barn complex in Mstów, situated in the northern Kraków-Częstochowa Upland, represents a unique element of regional cultural heritage. Built at the turn of the 19th and 20th centuries using local materials such as limestone and wood, the barns reflect the traditional lifestyle of the local community and their adaptation to the natural and socio-economic conditions of the region. Despite their historical and architectural significance, the barns are in a state of advanced degradation due to neglected conservation efforts and the lack of a comprehensive revitalization plan. This article analyzes the cultural, historical, and architectural value of the Mstów barn complex, emphasizing its potential for preservation and sustainable development. By comparing the site with the successfully revitalized barn complex in Żarki, it highlights strategies for adapting traditional architecture to contemporary needs while respecting its cultural and landscape context. Recommendations include preserving the cultural landscape, maintaining traditional aesthetics, and developing new functions that integrate the barns into modern economic and social frameworks. The findings underline the importance of revitalizing the Mstów barn complex as a model for blending heritage conservation with contemporary needs, enriching both the local community and visitors while safeguarding this unique cultural asset for future generations.

Keywords: sustainable development; cultural heritage; traditional building techniques; regional architecture; architectural revitalisation

### INTRODUCTION

The complex of barns in Mstów, situated picturesquely on the northern slope of Mount Ściegna in the Kraków-Częstochowa Upland, is not only a relic of the past but also a fascinating example of the interaction between architecture and the natural environment. Built in the early 20th century, these structures showcase traditional construction methods that seamlessly blend with the surrounding terrain. While their original purpose was purely agricultural, they are now gaining recognition as cultural heritage landmarks and as potential reference points for contemporary studies on regional architecture. Unfortunately, their deteriorating condition highlights the urgent need for preservation efforts.

This article aims to explore the architectural and landscape significance of the Mstów barns and

their role in shaping the identity of the place. Through a detailed analysis of their architectural features, their relationship with the natural surroundings, and their importance to the local community, the authors seek to demonstrate how such structures can be viewed as an integral part of the region's cultural heritage.

From a historical and cultural perspective, these barns reflect the agricultural traditions and construction techniques characteristic of rural areas in the early 20th century. Their location on hillside slopes, supported by stone foundations, exemplifies how architecture adapted to the specific natural conditions of the Kraków-Częstochowa Upland. The use of locally sourced materials, such as limestone and wood, influenced not only the overall shapes of the buildings but also the

detailing of walls, gables, and roofs. Research on agricultural complexes in Poland, including barns, remains limited. Most studies focus on wooden sacral or residential architecture, while agricultural buildings rarely receive in-depth attention. This article highlights the significance of such structures within small-town architecture. Restoring the appreciation for traditional forms of agricultural buildings could contribute to revitalizing high-quality architecture in small towns. Promoting distinctive yet regionally inspired architectural forms in contemporary design is rare, especially in residential construction, where such examples are scarce. However, these characteristics are more frequently found in agricultural architecture.

The article provides a simplified architectural and urban analysis of a complex that serves as a representative example of regional building characteristics in this area.

The research methods include historical analysis, photographic documentation, and on-site field studies. This approach not only sheds light on the architectural and landscape value of the complex but also places it within a broader cultural and social context.

## 1. THE CHARACTER OF THE BUILT ENVIRONMENT IN THE NORTHERN PART OF THE KRAKÓW-CZĘSTOCHOWA UPLAND

The Kraków-Częstochowa Upland is a unique geographical region where the natural landscape meets centuries-old settlement traditions. The northern part of the Upland, encompassing areas near Częstochowa, stands out with its distinct spatial character shaped by both natural and cultural influences. Here, among limestone rock formations, open meadows, and small forests, villages and settlements emerged, with buildings harmoniously blending into the surrounding landscape [A. Kos 2019, p.125].

The history of construction in the northern part of the Upland dates back to the Middle Ages, when the first watchtowers and defensive castles were built using local limestone. Over time, this material became one of the most important building resources, used not only in monumental structures but also in simple residential and farm buildings. The characteristic combination of limestone, wood, and later, brick, became a hallmark of local architecture, reflecting both the availability of materials and the climatic and economic conditions of the region [Z. Myczkowski 1977, p. 84].

The traditional settlement patterns of the northern Upland reflect pragmatism and thoughtful spatial organization. Rural farmsteads, often located along main roads, featured elongated plots where residential

and farm buildings were arranged functionally, taking into account daily needs and fire safety. The architecture of these villages, though modest in form, was cohesive and well-integrated with the landscape.

However, contemporary urbanization processes have significantly altered the character of the region. New developments, often carried out without regard for local traditions, introduce spatial chaos and weaken the cultural identity of the villages. Many traditional buildings have been replaced by structures with a universal, anonymous character, leading to the erosion of the unique landscape of the northern Kraków-Częstochowa Upland [A. Kos 2017, p. 68].

### 1.1. Analysis of 19th-Century Buildings in the Mstów Municipality

The village of Mstów, situated on the Warta River, is the administrative center of the northernmost municipality of the Kraków-Częstochowa Upland (Jura Krakowsko-Częstochowska). This area lies at the crossroads of several historical regions: Lesser Poland (Małopolska), Silesia (Śląsk), and Greater Poland (Wielkopolska). Its location significantly influenced the shaping of local culture and art. In the Middle Ages, an important trade route from Silesia to Greater Poland passed through this region, fostering the development of craftsmanship and commerce.

The earliest mention of Mstów dates back to 1193. The document refers to the property of the Canons Regular of St. Augustine from the Piasek Monastery in Wrocław, which included a newly established branch in Mstów. The monks, who are believed to have arrived here in the 12th century, built a church and a monastery [H. Hohensee-Ciszewska 1965, p. 161]. The monastic complex also served as a fortified structure. The defensive nature of this site is evidenced by the partially reconstructed ring of walls with cylindrical towers surrounding the church and monastery.

The urban layout of Mstów (which received town privileges in 1279) is clearly legible, featuring a square-shaped market square with streets radiating from its corners. The oldest forms of urban and rural secular buildings date back to the second half of the 19th century. These structures were primarily built from wood, which was widely used at the time. Wood was often combined with limestone, which was abundantly available in the region. This construction method is one of the distinctive features of vernacular architecture in this area. A notable example of such development is the preserved complex of barns in Mstów, located south of the village.

Rural residential architecture is represented by both broad-front and narrow-front cottages. These ho-



uses feature log construction walls and either gable or hipped roofs. They are oriented either parallel or perpendicular to the road, with the primary (longer) façade ideally facing south or east. In terms of interior layout, several types of cottages can be distinguished. There are simple two-room and three-room arrangements, as well as more complex multi-room layouts with one or two rows of rooms. Some examples feature a three-room residential section (hallway, main room, storage chamber) integrated under a common roof with a small barn and cowshed, positioned on the opposite side of the hallway.

## 2. HISTORY AND FUNCTION OF THE BARN COMPLEX

At the turn of the 19th and 20th centuries, Mstów was a small settlement where life centered on agriculture and small-scale crafts. Although Mstów held town rights until the 19th century, it lost this status in 1870 due to administrative reforms in the Russian Partition. This shift gave the village a more rural character, although some urban traditions remained.

### 2.1. Origins of the Barn Complex

The barn complex in Mstów was created to meet the agricultural needs of the local community. Due to the small size of farms, building barns away from residential areas became a necessity. The barns began

to appear at the foot of Mount Ściegna (on its northern slope) at the turn of the 19th and 20th centuries, about 400 meters from the town square. This location was ideal due to its proximity to farmland and suitable terrain [H. Adamczewska-Wejhert, K. Wejhert 1986, p. 33].

The first barns were built using traditional timber log construction methods typical of the region; Fig.1. Over time, construction techniques evolved: timber-frame structures were introduced, followed by more durable barns made of limestone from nearby quarries. This progression resulted in three types of barns: timber barns with stone foundations, mixed stone-and-timber barns (with stone gable walls), and fully stone-built barns. These changes reflected the need for greater durability and the availability of materials [M. Trawińska 1966, p. 99].

### 2.2. Original Features

Initially, the complex consisted of over 60 barns (according to the National Heritage Institute), arranged in several parallel rows. Positioned in tight formations, the barns created compact building lines along a path resembling a street, which facilitated spatial organization. Rectangular in shape, the barns were built on stone foundations and had gable roofs covered with thatch, roofing felt, or asbestos-cement sheets. This layout provided easy access to each barn and maximized space usage. Today, only about six barns remain, some in poor condition with missing roofs or sec-



**Fig. 1.** Archival photograph of the barn complex, dating to the 1960s. The barns are built using log construction and are supported by limestone foundations; source: Archives of the Mstów Commune Office.



**Fig. 2.** Archival photograph of the barn complex, dating to the 1960s. The closely spaced buildings formed continuous frontages along a road resembling a street. In the background, Szwajcer Hill with the monastic complex of the Canons Regular; source: Archives of the Mstów Commune Office.

tions of walls. Despite their historical importance, these barns are deteriorating, even though they were listed in the Municipal Register of Monuments in 2012.

### 2.3. Socio-Economic Role

Although socio-economic changes in the second half of the 20th century led to the neglect and decline of this area (due to a lack of protection programs for cultural heritage not classified as monuments at the time), the barns played a vital role in Mstów's economy. Their layout and location supported agricultural activities such as grain threshing and the storage of supplies, tools, and animal feed. The history and function of these barns demonstrate the local community's ability to adapt to challenging natural (topographical) and economic conditions.

### 2.4. Construction

The barn complex in Mstów is notable for its use of local building materials, reflecting the region's architectural traditions. Limestone, sourced from nearby quarries, was primarily used for foundations and load-bearing walls, while timber, which was easily accessi-

ble and inexpensive, was used for log or timber-frame walls and roof structures. Initially, roofs were thatched, but later replaced with ceramic tiles for greater durability and weather resistance [Gminny Program Opieki nad Zabytkami Gminy (Municipal Program for the Protection of Municipal Monuments) Mstów 2013, p. 41].

The architectural details of the barns are modest, reflecting their functional, agricultural purpose. Key features include massive stone foundations, simple wooden door frames, and the absence of decorative elements. The barns were designed as storage spaces for crops, tools, and animal feed. In fully stone-built barns, durability and resistance to weathering were prioritized. Vertical slits in the side walls served as ventilation systems, preventing dampness in stored crops. Fig. 3, Fig. 4 [H. Wiącek-Marzec 2015, p. 2].

Barn No. 1 was laid out on a rectangular plan and set on a stone foundation. The gable walls were constructed using the "wild" stone masonry technique with field limestone, while the longitudinal walls were built in a timber frame structure, externally clad with boards. A stone barn, designated as No. 2, was later added on the northern side. Based on its functional

layout, the building represents the type of drive-through barn, featuring a concrete threshing floor forming the central passage and a separate partitioned space (the so-called *sąsiek*) used for storing hay, grain, or straw. The barn was covered with a gable roof with rafter-collar beam construction, finished with asbestos-cement sheets. Currently, the structure is in a state of ruin.

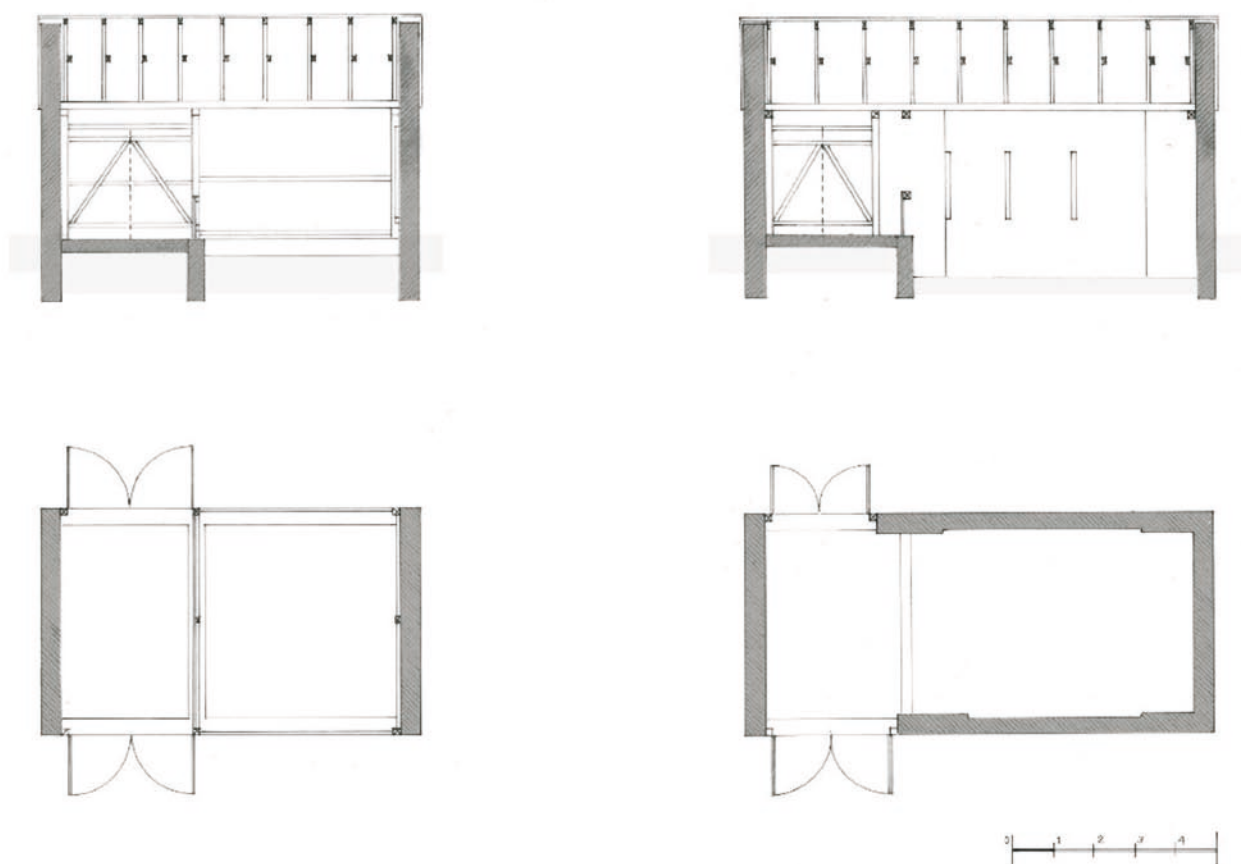
Barn No. 2 was laid out on an elongated rectangular plan and entirely built of field limestone. Like the first structure, it represents the drive-through barn type, with a concrete threshing floor and a separate *sąsiek* for storing hay or agricultural produce. The barn was covered with a gable roof of rafter-collar beam construction, finished with asbestos-cement sheets. At present, it is, like Barn No. 1, in a state of ruin [H. Wiącek-Marzec 2015, pp. 7–21].

Barn No. 3 (Fig. 4, on the right) was laid out on a rectangular plan, set on a stone foundation made of limestone. The structure was built in a timber post-and-beam construction (posts, beams, and braces) and externally clad with boards. The functional layout is non-drive-through – the central part features a threshing floor in the form of a wooden plank floor, with

three rooms, also with wooden floors, located on either side. The barn was covered with a symmetrical gable roof of rafter-purlin construction, finished with roofing felt. Currently, the building, like the two previous structures, is in a state of ruin.

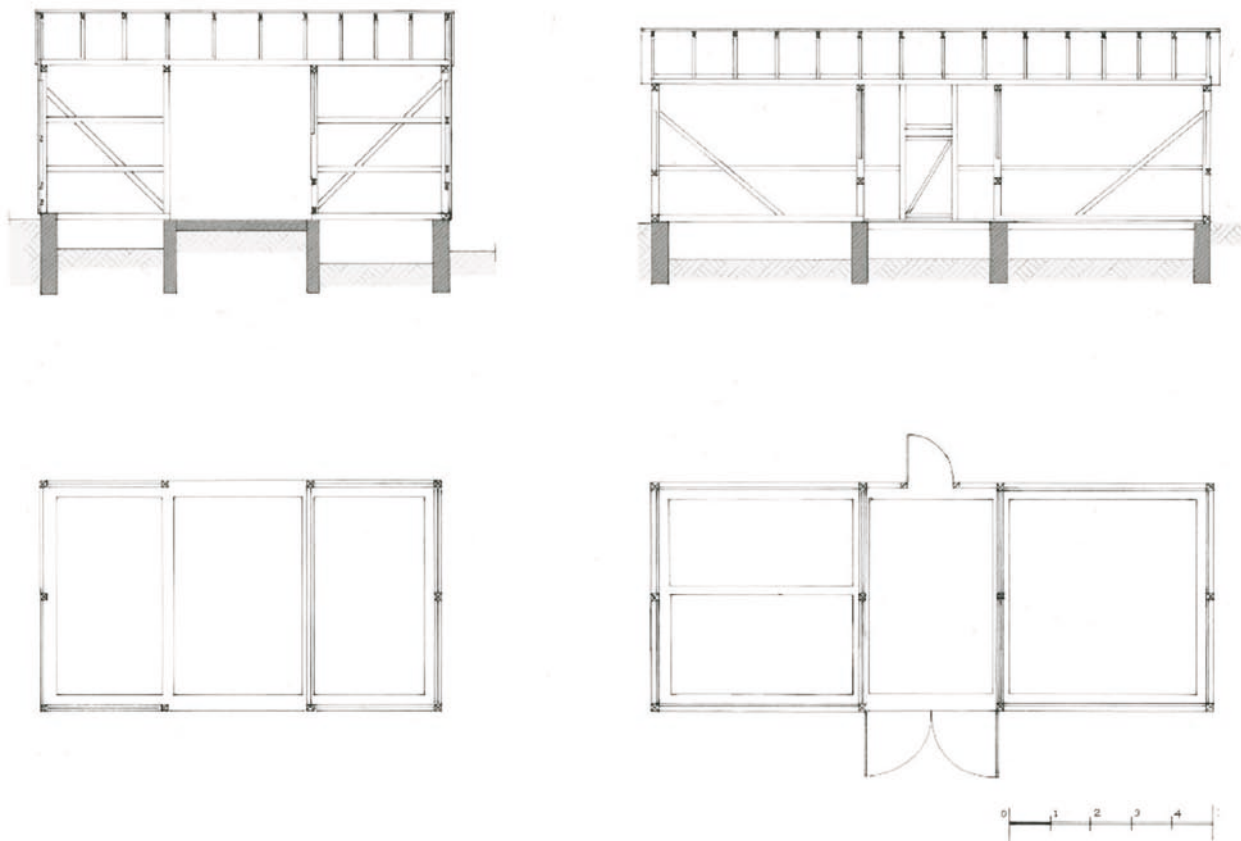
Barn No. 4 (Fig. 4, on the left) was laid out on a rectangular plan, set on a stone foundation of field limestone. The building was constructed using a timber post-and-beam technique (posts, beams, and braces) and externally clad with boards. The functional layout was drive-through – with a central threshing floor and two rooms for storing crops on either side. The barn was covered with a symmetrical gable roof of rafter-purlin construction, finished with roofing felt. At present, the building is in a state of ruin; only the stone foundations have survived [H. Wiącek-Marzec 2015, pp. 7–21].

The remaining structures – Barns No. 5 and 6 – which until ten years ago were significant elements of the hill's landscape, have been destroyed. Their remnants are now overgrown with vegetation, rendering them indistinct in the terrain.



**Fig. 3.** Cross-section and floor plan of two barns with masonry gable walls and wooden structure for the remaining elements. The drawings are based on documentation from the white card of the heritage objects; source: illustration by Andrzej Kos, based on original drawings by Hanna Wiącek-Marzec.





**Fig. 4.** Cross-section and floor plan of two barns with wooden construction placed on stone foundations. The drawings were created based on documentation included in the white card of the heritage objects; source: illustration by Andrzej Kos, based on original drawings by Hanna Wiącek-Marzec.

### 2.5. Spatial Layout

The layout of the Mstów barn complex resembles an agricultural street, typical of rural farm complexes in Poland. This simple spatial organization aligned barns in a single row along a road, ensuring easy access to each structure. The arrangement facilitated efficient transportation and work organization during harvests. The proximity of the barns to farmland and their location on a slight elevation also made use of natural terrain features, such as protection against flooding. This spatial layout encouraged social integration, as shared work became a daily part of life for the local community, Fig. 5 [W. Rączka 1985, p. 22].

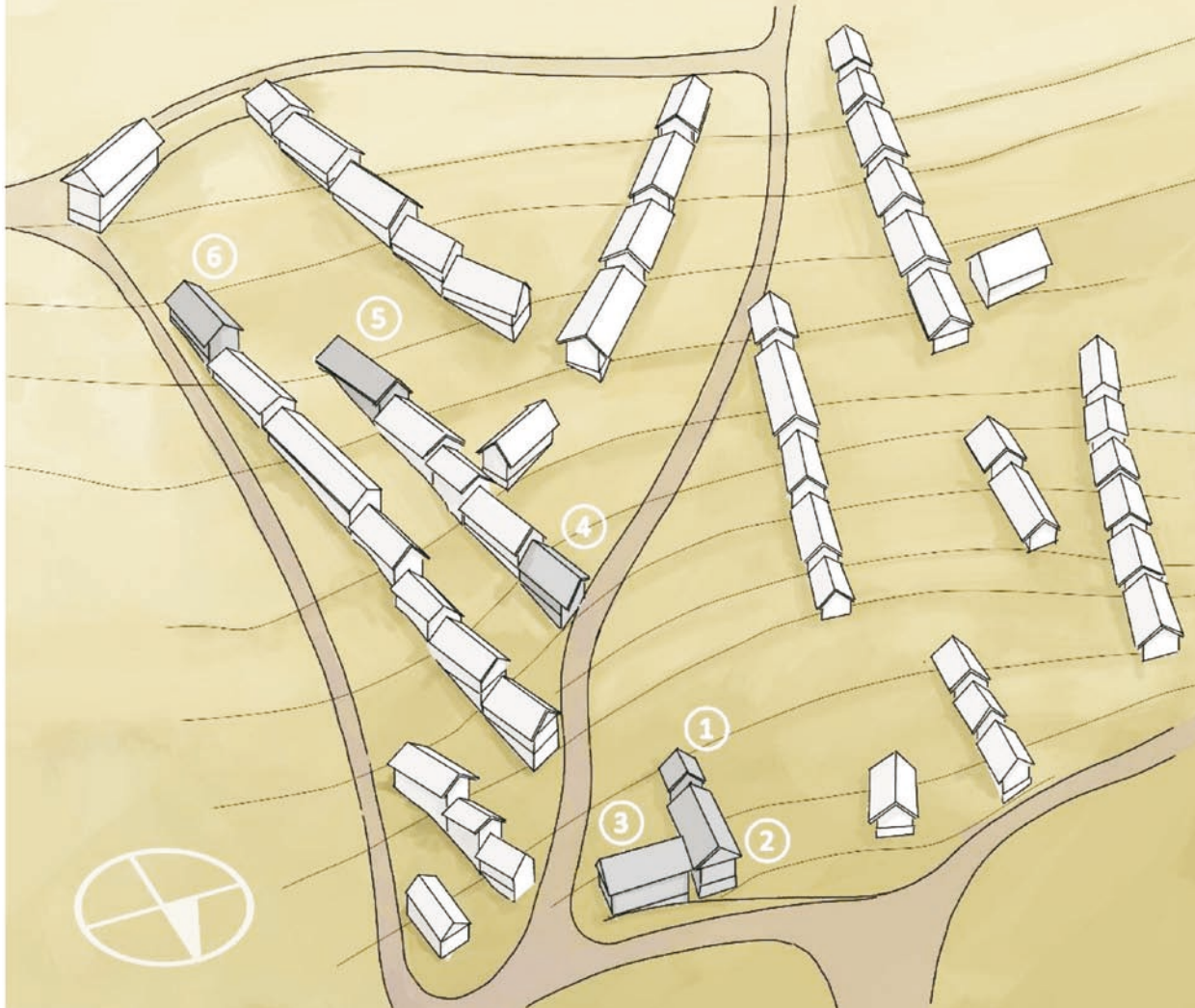
### 3. THE CURRENT STATE OF THE BARN COMPLEX

The barn complex in Mstów is in a state of significant disrepair, with only six of the original 60 buildings remaining. Many of the remaining structures lack roofs, and some have lost large sections of walls, severely diminishing their functional and aesthetic value. The

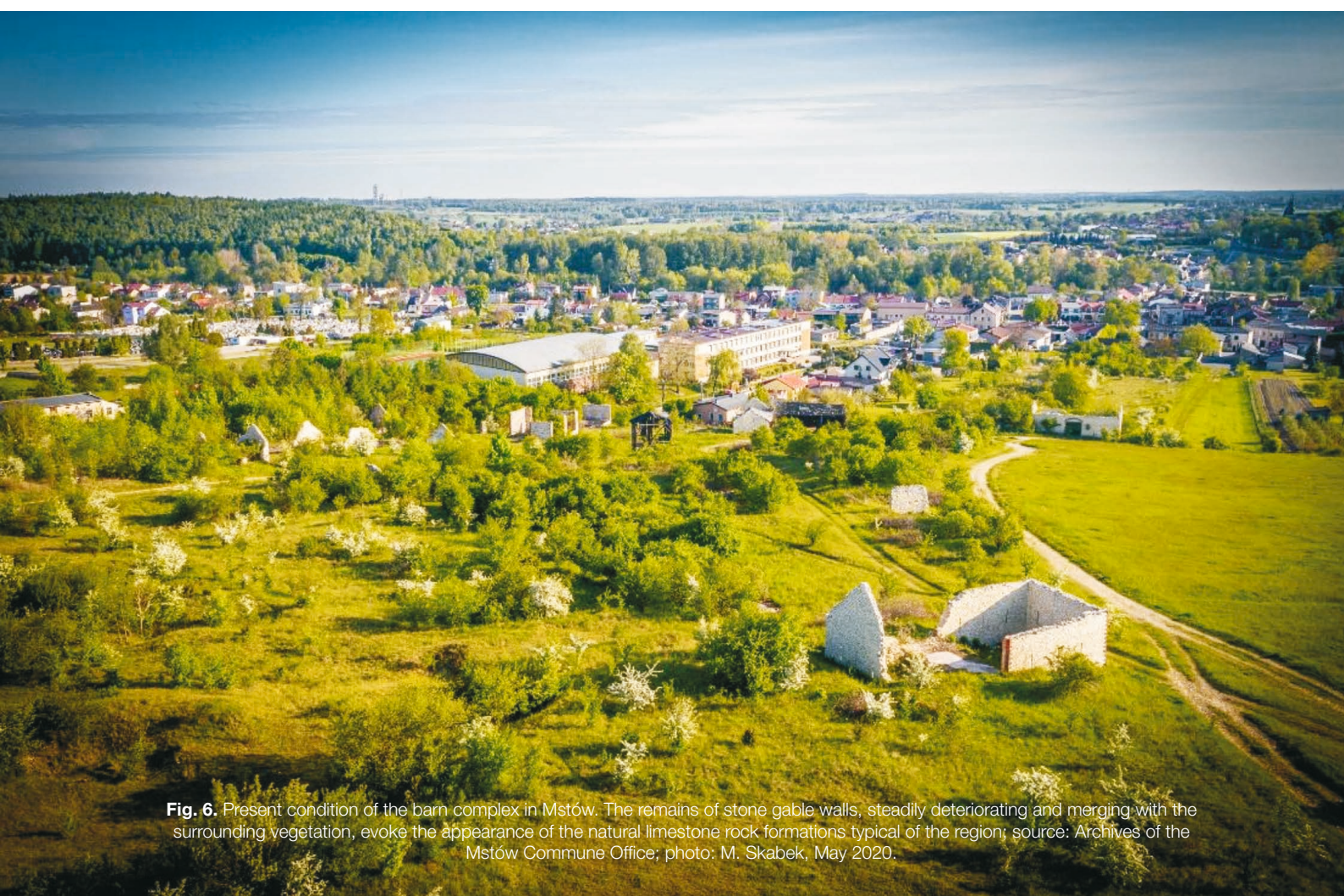
buildings that remain are in poor condition, with some at risk of collapse; Fig. 6.

The inclusion of the complex in the Municipal Register of Historic Monuments in 2012 aimed to place it under conservation protection; however, the lack of further actions and regular maintenance work has contributed to the acceleration of degradation processes. The greatest threats to the structural stability of the buildings are the damage to (or absence of) roofs and the deterioration of foundations, which, under the influence of weather conditions such as precipitation, frost, and temperature fluctuations, have been steadily worsening. The erosion of limestone and the degradation of timber elements, exacerbated by the lack of protection against external factors, have led to irreversible losses in the historic fabric. Conservation challenges also stem from limited financial resources and insufficient engagement from local authorities and the community. The lack of awareness of the historical value of the complex further complicates the possibility of undertaking effective preservation efforts; Fig. 7, Fig. 8, Fig. 9, Fig. 10.





**Fig. 5.** Reconstruction of the original urban layout of the northern slope of Góra Ściegna showing the full layout of barns. The illustration captures the original character of the building complex. Barns No. 1, 2, 3, 4, 5, and 6 until recently formed a well-preserved cultural element of the hill's landscape; source: illustration by Andrzej Kos.



**Fig. 6.** Present condition of the barn complex in Mstów. The remains of stone gable walls, steadily deteriorating and merging with the surrounding vegetation, evoke the appearance of the natural limestone rock formations typical of the region; source: Archives of the Mstów Commune Office; photo: M. Skabek, May 2020.





**Fig. 7.** Current condition of the barn complex in Mstów. The photograph shows the stone gable walls of Barn No. 1 and Barn No. 2 (with a shared central wall). On the right side, Barn No. 3 with its timber structure visible. The buildings are in a state of ruin; source: photo: Andrzej Kos, February 2025.



**Fig. 8.** Barn No. 3. A timber-constructed building currently in a state of ruin; source: photo by Andrzej Kos, February 2025.





**Fig. 9.** Barn No. 4. The timber-constructed building has been completely destroyed. Remnants of the structure 2 a fragment of the stone foundation made of field limestone – have survived; source: photo by Andrzej Kos, February 2025.



**Fig. 10.** Barn No. 5 in Mstów. The building is in a state of ruin. A portion of the perimeter walls has been preserved; source: photo by Andrzej Kos, February 2025.



#### 4. COMPARISON OF THE BARN COMPLEXES IN ŻARKI AND MŚTÓW

Examples of successful revitalizations, such as the adaptation of the barn complex in Żarki, demonstrate the potential of similar initiatives. However, achieving comparable results in Mstów would require the development of a comprehensive action program based on collaboration between specialists, local government, and the community, as well as conscious management of cultural heritage.

Both Żarki and Mstów barn complexes represent regional agricultural architecture of the northern Kraków-Częstochowa Upland, built at the turn of the 19th and 20th centuries. However, their preservation and contemporary use differ significantly.

The Żarki barns, located conveniently near the town, were rebuilt after a fire in 1938 using local limestone and brick, with ceramic tile roofs ensuring durability. Successful revitalization efforts by the municipality adapted the barns for modern uses, such as regional trade, cultural events, and tourism. This initiative has enhanced their value to both the local community and visitors, serving as a model for adapting heritage sites to modern needs; Fig. 11.

In contrast, the barns in Mstów, situated on a scenic hillside, remain largely untouched, retaining their original materials and structure. Built with stone foundations and wooden elements, they reflect traditional regional techniques but are more susceptible to decay. The lack of conservation and community engagement has led to significant deterioration, with only a few barns still standing, many in a state of near-collapse. While their unique landscape setting adds value, their current condition prevents any functional use without extensive reconstruction.

Żarki showcases how regional architecture can be successfully adapted to contemporary needs through careful revitalization. Meanwhile, Mstów's barns, though more authentic and set in a striking landscape, urgently require preservation to realize their cultural and economic potential. Both complexes are valuable examples of regional heritage, but their future depends on effective conservation and revitalization efforts.

#### 5. THE BARN COMPLEX AS AN ELEMENT OF CULTURAL HERITAGE

##### 5.1. Cultural and Historical Value

The barn complex in Mstów is a unique relic of the Kraków-Częstochowa Upland's agricultural traditions, reflecting the lifestyle of the local community in the late 19th and early 20th centuries. Built with local

materials such as limestone and wood, the barns showcase a sustainable use of natural resources and adaptation to the terrain. The white limestone walls echo the region's rock formations, while the red ceramic tiles mirror the hues of autumnal beech forests.

Although this architecture partly arose from the region's economic hardships, its simplicity and harmony with the natural landscape constitute a value worth preserving. The inclusion of the barns in the Municipal Register of Monuments highlights their importance as cultural heritage, offering inspiration for modern architects on how traditional techniques can be adapted to contemporary needs. These structures also document the region's history, illustrating the connection between culture, economy, and landscape [J. Królikowski 1991, p. 31].

##### 5.2. Tourism Potential

The barns' picturesque setting at the foot of Mount Ściegna and their historical character give them significant tourism potential. With proper revitalization, they could serve as educational spaces, such as an agricultural museum, craft workshops, or exhibition halls for traditional architecture.

Organizing cultural events, such as local festivals, markets, or art sessions, could revive the site and create a dynamic space for the community and visitors. The barn complex could also act as a starting point for exploring the Kraków-Częstochowa Upland, enriching the region's tourism offerings [B. Czarnecki 2015, p. 217].

##### 5.3. Local and Global Significance

On a local scale, the barns constitute an important element of Mstów's identity, reminding residents of their heritage and traditions. These agricultural buildings showcase pragmatic architecture, characterized by the coherence of function, construction, and form. The barn complex in Mstów is a consistent realization of this principle. The spatial arrangement of the buildings naturally and harmoniously integrates with the slope of Ściegna Hill, emphasizing the context of the site and the strong relationship between architecture and its surroundings.

On a global scale, the barn complex, both through its size and its integration into the landscape, represents the European history of agriculture and architecture. This site serves as a model for the preservation and adaptation of traditional buildings to contemporary needs while respecting their historical character.



**Fig. 11.** An example of a revitalized barn complex in Żarki. The restored structures have gained new functional purposes, highlighting the contrast between the preserved complex in Żarki and the neglected condition of the barns in Mśtów;  
source: photo by Nina Solkiewicz-Kos.

## CONCLUSIONS AND RECOMMENDATION

The barn complex in Mśtów is a valuable element of the cultural heritage of the northern part of the Kraków-Częstochowa Upland. Its significance arises from the use of local materials – limestone and wood – as well as its harmonious integration into the natural and cultural landscape. The barns reflect the traditional lifestyle of the local community at the turn of the 19th and 20th centuries, illustrating their adaptation to the region's socio-economic and natural conditions.

The analyzed barn complex, situated on the slope of Ściegna Hill, occupies a key position along the city's compositional axis – directly opposite the Schweizer Hill with the monastery complex of the Canons Regular, whose history dates back to the 12th century. These two elevations, together with their cultural structures, frame Mśtów's historic town center and constitute fundamental compositional elements of the city, crucial for its identification and identity.

Particular attention should be given to the neglected area of the barn complex. Its historical, cultural, and social value necessitates the development of appropriate solutions through the organization of architectural and urban-architectural competitions. Only through such initiatives is it possible to rediscover unique sites and creatively highlight their civilizational and cultural significance.

In relation to the inventory of the buildings conducted a decade ago, it must be noted that the then-conservation recommendations are no longer applicable. At that time, the condition of the structures was assessed as relatively good, with only minor damage to the stone foundations, wall cladding, and roof coverings reported. The current situation requires a different conservation approach, focused on the reconstruction of the structures based on preserved archival documentation. Nevertheless, it must be emphasized that both the reconstruction of the buildings or their elements and the development of their surroundings will always require updating and adaptation to the conceptual and functional needs of contemporary users.

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