Piotr Kulesza

Plants in 15th-Century Netherlandish Painting

A botanical analysis of selected paintings

PLANTS

IN 15TH-CENTURY NETHERLANDISH PAINTING

The John Paul II Catholic University of Lublin
Faculty of Mathematics, IT and Landscape Architecture

Department of Natural Environment
and Landscacpe Preservation

WYDAWNICTWO
KUL

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Introduction

There is a strong relation between nature and art. It can be observed in all manifestations of man's artistic enterprise. Man, being a part of nature, strives to depict its elements in his own creations. In it he tries to find inspiration. It is visible especially in painting, where nature constituted an inseparable element of composition by complementing the conveyed message with the language of symbolism and metaphor. What is more, it created an illusion of earthly reality in which religious, historic, and genre scenes took place. It was also an element of artistic space that played a religious, cultural, functional, or purely aesthetic role. Thus, depicting nature in works of art was possible due to pictorial space created by painters, in which they could place scenes, characters, and elements of nature. First complex research in this field was conducted by Erwin Panofsky, who described pictorial space in symbolic categories[1]. These categories were then further developed by M. Bunim, who based his research on detailed analyses of medieval painting[2]. The issue was also analysed by Max Jammer, who stated that space resembles a "container" in which material objects, including elements of nature, are situated[3]. The current state of research regarding the issue of space and time in plastic arts is presented by Urszula Mazurczak[4]. A crucial and helpful element allowing our understanding of structure of pictorial space, especially its illusion, is the research of perspective conducted by scientists centred around the person of Decio Gioseffi[5]. The above considerations, although focused on pictorial space, were based on the analysis of landscapes incorporated into that space. That is why scientists utilised landscape concepts, in consequence

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1 E. Panofsky, *Die Perspektive als „symbolische Form",* in: Vorträge der Bibliothek Warburg 1927, reprint in: *Aufsätze zu Grundfragen der Kunstwissenschaft*, eds. H. Oberer, E. Verheyen, Berlin 1964.

2 M. Bunim, *Space in Medieval Painting and the Forerunners of Perspective*, New York 1940.

3 M. Jammer, *Storia del concetto di spazio*, Milano 1966, pp. 10-18 nn.

4 U. Mazurczak, *Problem czasu w najnowszych badaniach sztuk plastycznych. Stan i perspektywy badawcze [The problem of time in recent studies of fine arts. Status and prospects of research]*, „Zeszyty Naukowe KUL" 39(1996) no. 3-4, pp. 136-161.

5 D. Gioseffi, *Perspectiva artificialis. Per la storia della perspettiva*, Firenze 1978 and subsequent editions in 1989, 2006; M. Lorber, *Decio Gioseffi (1919-2007). Idee e perspettive a confronto*, „Arte in Friuli Art a Trieste" 26(2007), p. 9.

giving birth to the history of landscape research in European painting. Hans Hess, on the other hand, in his treatise undertook the phenomenon of landscape painting in the category of nature understood and imagined in accordance with classical and medieval classifications of this term. In consequence, he determined yet another term important for natural analysis of paintings, that is, the concept of nature and the way it is understood in art[6]. It is treated as a kind of "arche" of reality which includes nature as its constituent. Such a principle can be observed in the works of R. Delort[7], J. E. Raby[8], and the invaluable research by A. J. Close[9]. Among Polish researchers the concept of nature in art – especially in painting and literature – is addressed by E. Śnieżyńska-Stolot[10] and J. Strzelczyk[11]. An invaluable source on this matter can also be found in the works of Italian scientists, whose deliberations on landscape in paintings are combined with a universal introduction of identification of nature in medieval and modern paintings[12]. A brilliant art historian, Ernest Gombrich, based his research on such identification. He presented artistry in depicting human nature and nature itself on chosen examples of Netherlandish painting by comparing it to Italian works from the 14th and 15th centuries[13]. A philosophical and literary explanation of the concept of nature is presented in the work by Wolf-

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6 H. Hess, *Die Naturanschauung der Renaissance in Italien*, Marburg 1924.

7 R. Delort, *Percevoir la nature au Moyen Âge: quelques réflexions*, in: (ed.) Elisabeth Mornet, *Compagnes médiévales: l'homme et son espace. Études offertes à Robert Fossier*, Paris 1995, pp. 31-43.

8 F. J. E. Raby, *Nuda Natura and Twelfth-Century Cosmology*, „Speculum. A Journal of Medieval Studies" XLIII (1968) no 1, pp. 72-77.

9 A. J. Close, *Commonplace theories of Art and Nature in classical Antiquity and in the Renaissance*, „Journal of the History of Ideas" XXX (1969) no 4, pp. 467-486; idem, *Philosophical Theories of Art and Nature in classical Antiquity*, „Journal of the History of Ideas" XXXII (1971) no 2, pp. 163-184.

10 E. Śnieżyńska-Stolot, *Pani Natura [Lady Nature]*, in: *Człowiek i przyroda w średniowieczu i we wczesnym okresie nowożytnym [Man and Nature in the Middle Ages and the early modern times]*, Warszawa 2000.

11 J. Strzelczyk, *Gerwazy z Tilbury. Studium z dziejów uczoności geograficznej w średniowieczu [Gervase of Tilbury. The study of the history of geographical learning in the Middle Ages]*, Wrocław 1970; idem, *Makrobiusz w średniowieczu [Macrobius in the Middle Ages]*, A selection of more recent works in: *Studia Źródłoznawcze* 17 (1972) pp. 147-157.

12 For instance: E. Samek Lodovici, *Filosofia della natura e caso. Attualità* di una polemica plotiniana „Rivista di Filosofia Neoscholastica" LXXIV (1982), pp. 27-46.

13 E. H. Gombrich, *Die Entdeckung des Sichtbaren. Die Kunst der Renaissance III,* Berlin 1987, pp. 33-54.

gang Kemp. In it the author follows diverse varieties of allegorical presentations of nature from medieval times to the 19th century. His treatise is dominated by deliberations on nature as an idea. There is, however, no direct correlation between them and identified objects and plants[14].

Yet another aspect crucial for understanding nature depicted in painting is the problem of realness of the portrayed landscapes. There are visional landscapes, based on literary works, which do not exclude plant realities. They often present fragments of fantasy, but have their origin in reality. Such analysis of visional landscapes was presented by Paul Piehler. He based his research on the works of Boethius, Alain de Lille, Guillaume de Lorris, and Dante, presenting the way they created visional landscapes from real matter experienced in a real way[15]. Analogical in its overall principle, different, however, in artistic arrangement, is the treatise by Richard Turner, in which the author presents the minute boundary of what is real in the landscapes depicted by Renaissance painters[16].

On the other hand, research conducted by art historians is focused on landscapes as illusions of real portions of earthly reality. Particular natural elements such as plants, animals, rocks, and whole topographical arrangements begin to dominate the artistic space of the paintings. Due to this fact arises a need to identify them, as well as to conduct interdisciplinary research in the fields of liberal arts and natural science. It is true that in the field of art history there exist numerous works addressing these issues. Researchers, however, do not answer the question regarding the connection between topographical arrangements as the fabric of the spatial composition, and particular types of depicted plant life. They make observations on the stylistically-comparative level, that is, an artistic level, as well as specify authentic nature in connection to human or divine characters[17]. A deeper study into the history of landscape development in painting, as well as their various real and imagined forms, was con-

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14 W. Kemp, *Natura. Ikonographische Studien zur Geschichte und Verbreitung einer Allegorie*, Frankfurt am Main 1973.

15 P. Piehler, *The visionary landscape*: *A Study in Medieval Allegory*, London 1971.

16 R. Turner, *The vision of landscape in Renaissance Italy*, Princeton, New Jersey 1966.

17 K. Clark, *Landscape into Art*, London 1961.; G. Pochat, *Figur und Landschaft: eine historische Interpretation der Landschaftsmalerei von Antike bis zur Renaissance,* Berlin–New York 1973.

ducted by Mattias Eberle[18]. This author did not undertake the analysis of particular plants but states the necessity of their identification. Concrete botanical and topographical identifications are addressed in a voluminous book by Uta Feldges. The focus of her analyses is on the Sienese School of painting, to which many analogies are made, e. g. that of Netherlandish painting[19].

A naturalist is interested in details also in the case of the relation between plants present next to each other in a painting, while such situation is not possible in the nature. He is interested in species and types of plants, colour, shape of flowers, stems, leaves, as well as the ground on which they grow. All of the above constitutes an integral structure of a landscape. This structure is analysed by art historians in order to identify its origin, as well as stylistic and artistic connections. Without the cooperation with a naturalist it is impossible to describe in detail the particular types of grass, herbs, shrubs, and trees that, while often having an unconditional relation to the characters, determine the content of the whole composition. That is why many art historians started to cooperate with naturalists in order to recognise real plants present in medieval painting. Initially they were conditioned by the way their religious and heraldic symbolism was interpreted[20]. With time their botanical identification became more detailed and rich. Unique achievements in this field were made by Denise Jalabert[21], Lottisa Behling[22], and Guido Moggi[23]. The ways in which the terrain and plant life was shaped in miniature and panel painting of the mas-

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18 M. Eberle, *Indyviduum und Landschaft. Zur Entstehung und Entwicklung der Landschaftsmalerei,* Giessen 1979. The analogy for an earlier treatise of G. Pochat, *Figur und Landschaft.*

19 U. Feldges, *Landschaft als topographisches Porträt. Der Wiederbeginn der europäischen Landschaftsmalerei in Siena*, Bern 1980.

20 R. A. Koch, *The Origin of the Fleur-de-Lis and the Lilium candidum in Art. Approaches to Nature in the Middle Ages*. Papers of the Tenth Annual Conference of the Center for Medieval & Early Renaissance Studies, ed. L. D. Roberts, Binghamton, New York 1982, pp. 109-130.

21 D. Jalabert, *La flore romane Bourguignonne*. „Gazette des beaux-ârts" 55 (1960), pp. 193-208.

22 L. Behling, *Die Pflanzenwelt der mittelalterlichen Kathedralen*, Köln 1964 with a vast bibliography of earlier works.; idem, *Das italienische Pflanzenbild um 1400- zum Wesen des pflanzlichen Dekors auf dem Epiphaniasbild des Gentile da Fabriano in den Uffizien*, „Pantheon" 24 (1966) no. 6, pp. 347-359; idem, *Die Pflanze in der mittelalterlichen Tafelmalerei*, Weimar 1957.

23 G. Moggi, *Le piante nella pittura italiana dei secoli XV e XVI: problemi e metodi di identificazione botanica,* in: *Die Kunst und das Studium der Na-*

ters of Netherlandish painting have been scrutinised by G. Künstler[24], M. Meiss[25], G. Panhans[26], P. Hills[27] i U. Mazurczak[28]. The issue of nature as a criterion used in order to compare Netherlandish and Italian painting has been undertaken by Paula Nuttall[29]. Noteworthy are also the monumental works that are the result of interdisciplinary research in the Max Planck Institute. They encompassed calendars[30], separate paintings[31], as well as whole series of Italian painting of the 15th century[32]. A work that is undoubtedly very important for botanical identification in Netherlandish painting is the multi-volume corpus of Netherlandish painting, created by museums which store the said type of paintings. It includes plant identifications made after a botanical consultation. They do not, however, contain vast natural analyses of the identified species[33]. The interest in nature depicted in

tur vom 14. zum 16. Jahrhundert, eds. W. Prinz, A. Beyer, Weinheim: Acta humaniora, 1987, pp. 61-73.

24 G. Künstler, *Landschaftsdarstellung und religiöses Weltbild in der Tafelmalerei der Übergangsepoche um 1500.,* „Jahrbuch der Kunsthistorischen Sammlungen in Wien“ 62 (1966), pp. 103-156.

25 M. Meiss, *Jan van Eyck and the italian Renaissance*, in: *Venezia e l'Europa Atti del XVIII Congresso Internazionale di Storia del'Arte Venezia 12-18 sett. 1955*, Venezia 1956, pp. 58-69.

26 G. Panhans, *Florentiner Maler verarbeiten ein eyckisches Bild*, „Wiener Jahrbuch für Kunstgeschichte“, 27 (1974), pp. 188-198.

27 P. Hills, *Leonardo and Flemish Painting,* „The Burlington magazine“ 123 (1980), pp. 609-615.

28 U. Mazurczak, *Przyroda w dekoracjach freskowych pałacu papieskiego w Avignonie z połowy XIV wieku: na tle nowego stosunku do przyrody w społeczeństwie Italii XIII-XIV wieku [Nature in the fresco decorations of the Papal Palace in Avignon from the mid-14th century: against the background of a new attitude to nature in Italian society in 13th and 14th centuries],* „Roczniki Humanistyczne” XLV (1997), pp. 63-85.

29 P. Nuttall, *From Flanders to Florence. The Impact of Netherlandish Painting 1400-1500*, New Haven 2006.

30 O. Pächt, *Early Italian Nature Studies and the Early Calendar Landscape*, „Journal of the Warburg and Courtauld Institutes” 13 (1950), no. 1/2 pp. 13-47.

31 M. Levi d'Ancona, *Botticelli's Primavera: a botanical interpretation including astrology, alchemy, and medici*, Firenze 1983.

32 *La Cultura del paesaggio in Europa tra storia, arte e natura. Manuale di teoria e pratica*, eds. P. Donadieu, R. Milani, Firenze 2008.

33 A series of books of the corpus is known under the common title: *Corpus de la peinture des anciens Pays-Bas méridionaux au quinziéme siècle. Les Primitifs Flamands*. Published in Brussels in 1960-1970. The Polish collection regarding Netherlandish painting was assembled by Jan Białostocki, *Les Musées de Pologne: Gdańsk, Kraków, Warszawa. Les Primitifs Flamands I, Corpus* T. IX, Bruxelles 1966, pp. 133.

art has resulted in numerous conferences, the most fruitful of which was the gathering in Cologne in 1986. The outcome of that meeting was a collection of interdisciplinary treatises[34], as well as a thorough study[35]. In Polish scientific circles many conferences regarding nature depicted in art have also taken place[36]. In this field a unique role is played by two research centres: in Lublin, centred around the person of Prof. U. M. Mazurczak (The John Paul II Catholic University of Lublin), and in Cracow, where research is conducted by professors Alicja and Bogdan Zemanek[37] (Jagiellonian University).

While following the history of painting, one can observe that the development of landscape arrangements is primarily related to plant life.[38] Initially, a few depicted plants stood for the whole of nature and symbolised the surrounding earthly space. With time, landscape elements developed and became more elaborate. In scenic compositions of classical painting nature portrayed in such way was a means to narrate the mythological content. Personages were set into said nature which actively influenced the events depicted in the scenes, and created emotional tension of these characters[39].

At this point arises a question regarding the approach of artists of those times towards perceived reality. To what extent, in their creative processes, did they utilise the techniques of imitation (mimesis), and

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34 *Die Kunst und das Studium der Natur vom 14. zum 16. Jahrhundert*, eds. W. Prinz, A. Beyer, Weinheim 1987.

35 *Mensch und Natur im Mittelalter*, eds. A. Zimmermann, A. Speer. *Miscellanea Mediaevalia,* 21 (1992).

36 *Człowiek i przyroda w średniowieczu i we wczesnym okresie nowożytnym [Man and nature in the Middle Ages and in the early modern times]* eds. W. Iwańczyk, K. Brach, Warszawa 2000; *Obraz i przyroda [Image and Nature]*, eds. U. M. Mazurczak, J. Patyra, M. Żak, Lublin 2005; *Obraz i żywioły [Image and the Elements]*, eds. U. M. Mazurczak, M. Żak, Lublin 2007.

37 *Studies in Renaissance Botany* (eds.) Z. Mirek, A. Zemanek, Polish Botanical Studies, Guidebook Series, 20 (1998); A. Zemanek, B. Zemanek (eds.) *Przyroda - Nauka - Kultura II. W poszukiwaniu jedności nauki i sztuki [Nature – Science – Culture II. In search of unity of science and art]*, Kraków 2008; A. Zemanek, B. Zemanek. *Art serving botany. Libri picturati A.18-30: a 16th century collection of plant illustrations*, in: *Obraz i przyroda [Image and Nature]*, eds. M.U. Mazurczak, J. Patyra, M. Żak, Lublin 2006, pp. 91-108.

38 Art historians organised the works in a certain chronological order and determined what they believed to be a landscape in art. See: J. Białostocki, *Narodziny krajobrazu nowożytnego [Birth of the modern landscape]*, Warszawa 1972.

39 E. W. Leach, *The Rhetoric of Space. Literary and Artistic Representations of Landscape in Republican and Augustan Rome*, Princeton 1988.

to what extent did they realise their own vision of creating the represented world? Due to the fact that this issue cannot be omitted by a naturalist undertaking the task of plant identification in painting, the present author encourages interested parties to refer to the abundant literature on this subject[40].

In deliberations regarding landscape in painting, the starting point is usually ancient Roman landscape painting which became a model example for the fine arts only in the 16th century. Sparse acts of inspiration coming from preserved pages or scrolls of painting of miniatures, less often relief, became a transmission between antiquity and modern times[41]. Landscapes depicted in antiquity were an integral part of a whole, alongside the events and divine or human characters[42]. What is more, in Roman painting there was a trend that involved moving the surrounding landscapes onto the walls of villas and palaces. Such illusions of real space were created by landscapists then called topiariuses[43]. Apart from natural landscapes they created paintings of gardens, as exemplified by the preserved frescoes in „the house of Livia". Analysis of these frescoes allowed for a reconstruction of the real imperial garden, as well as the style of the painting with the garden, which inspired other representations in the future[44]. Greek tradition of painting landscapes with plants, later adopted by Roman, medieval, and modern painting, is thoroughly analysed by G. Pochat[45].

The transition of these antique painting patterns, so remote in terms of geography, nonetheless close culturally, into the art circles of Northern Europe was enabled by early Christian mosaics full of plants. Despite the fact that overall composition models were kept, plant life depicted in them was modified[46].

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40 A. Melberg, *Teorie mimesis: repetycja [Mimesis – a repetition],* Kraków 2002, as well as *Ut pictura poesis,* eds. M. Skwara, S. Wysłouch, Gdańsk 2006.

41 M. Bunim, *Space in Medieval Painting and the Forerunners of Perspective*, passim.

42 M. Nowicka, *Z dziejów malarstwa greckiego i rzymskiego [The History of Greek and Roman painting],* Warszawa 1988.

43 M. Charageat, *Sztuka ogrodów [Garden art]*, Warszawa 1978, pp. 30-32.

44 S. Settis, *Le pareti ingannevoli*, *La villa di Livia e la pittura di giardino*, Milano 2002.

45 G. Pochat, *Figur und Landschaft*.

46 G. Rizza, *Mosaico pavimentale di una basilica cemeteriale paleocristiana di Catania*, Bollettino d'Arte I (1955), as well as the latest series of studies: *La pittura medievale a Roma 312-1431, Corpus e Atlante,* eds. M. Andalaro, t. 1-3, Milano 2006.

Such phenomenon can also be observed in early medieval painting of miniatures, created in Carolingian scriptoria, such as Reims or Aachen, which, without doubt, utilised Roman illuminations as their model. It has not been determined which native plants were painted by monks who had their own monastic pharmacological gardens at their disposal[47]. However, the problem of medicinal plants, a separate scientific issue, is discussed by other scholars, especially by the historians of Arabian medicine[48].

The character of landscapes as a religious illusion in paintings is often conditioned by the works of ancient writers, who recommended particular compositional system, as was done by, for example, Vitruvius [49], Philostratus [50], Theophrastus [51] and Pliny the Elder[52]. These texts, which had a cardinal role in the history of European landscape painting, are of great interest to a naturalist. Written from a literary point of view, they introduce an illusion of a real, antique world which could later be repeated or modified in medieval and modern works. Nature subjected to rhetorical imagination of a painting is inclined either towards realism, or towards fantasy[53]. Antique texts were addressed by early medieval and medieval writers in their works. A long list of such texts can be reduced to such authorities as Isidore of Seville[54] and Walafrid Strabo[55].

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47 J. Porcher, W. F. Volbach, *L' empire carolingien*, Paris 1968.

48 P. M. Jones, *Heilkunst des Mittelalters in illustrierten Handschriften*, Stuttgart 1999, pp. 13-21; 58-75; *Historia nauki arabskiej. Technika, alchemia, nauki przyrodnicze i medycyna [The history of Arabic science. Engineering, Alchemy, life sciences and medicine],* eds. R. Rashed, R. Morelon, t. 3 Warszawa 2005, pp. 222-239.

49 Witruwiusz, *O architekturze ksiąg dziesięć [The Ten Books on Architecture]*, translation by K. Kumaniecki, introduction by A. Sadurska, Warszawa 1999.

50 Filostrat Starszy, *Obrazy [Images],* translation and introduction by R. Popowski, Warszawa 2004.

51 Teofrast, *Przyczyny powstawania i rozwoju roślin. Fizjologia roślin [On the Causes of Plants],* translation by H. Wójtowicz, Lublin 2002.

52 Pliniusz, *Historia naturalna [Natural History]*, selection and translation by I. i T. Zawadzki, Wrocław–Kraków 1961, pp. 374-439.

53 J. Baltrušaitis, *Le Moyen Âge fantastique: Antiquités et Exotismus dans l'art gotique*, Paris 1955; G. Pochat, *Der Exotismus während des Mittelalters und der Renaissance. Voraussetzungen, Entwicklung und Wendel eines bildnerischen Vokabulars*, Stockholm 1970.

54 T. Krynicka, *Świat roślin w XVII księdze Etymologii Izydora z Sewilii [The world of plants in the seventeenth book of Etymologies of Isidore of Seville],* Lublin 2007.

55 G. Barabino, *Le fonti classiche dell'Hortulus di Valafrido Strabone*, in: *I Classici nel Medioevo e nell Rinascimento*, Genova 1975, pp. 175-260.

Landscape panoramas in medieval European painting emerged gradually. They appeared initially in miniature painting, later in fresco painting, and finally in panel painting, where they achieved full development and replaced a golden or plain background[56]. Various types of plant life, from both northern and southern climatic zones, are introduced by artists into their works. What remains a problem both for art historians, as well as for naturalists, is the question of the source of floral inspirations. Apart from the aforementioned classical painting, floral motifs are most likely derived from the Bible. It has not, however, been proven to what extent and when the painters depicted species from the New and Old Testament in their paintings[57]. Yet another source were "bestiaries", i.e. botanical, medical or pharmacological books, which were composed throughout the Middle Ages[58]. There is, however, no evidence as to what extent ready, real models of the appearance of given plants from the pages of said books were transferred onto scenic visions declared in art as "real"[59].

A separate, and crucial from the point of view of the plants depicted in medieval painting, is the problem of gardens, especially those presented in the works of art[60]. From a purely artistic point of view they can be divided into ideal and real gardens. Such division was made by Dieter Hennebo who, on the basis of literary texts, determined the boundary between an ideal garden, and a garden portrayed in painting to resemble real gardens existing next to monasteries and

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56 E. Panofsky, *Early Netherlandish Painting*, Cambridge Mass. 1967; Ch. Streling, *La peinture médiévale a Paris. 1300-1500,* t. 1, Paris 1989, as well as aforementioned works regarding space and nature.

57 *Erbario biblico di Paolo Cultrera*, ed. C. Valenziano, Cittá del Vaticano 2000.

58 S. Kobielus, *Florarium christianum. Symbolika roślin – chrześcijańska starożytność i średniowiecze [Florarium christianum. The symbolism of plants – Christian antiquity and the Middle Ages],* Kraków 2006; idem, *Fizjologi i Aviarium: średniowieczne traktaty o symbolice zwierząt [Physiology and Aviarium: medieval treatises about the symbolism of animals],* Kraków 2005; idem, *Lapidarium Christianum. Symbolika drogich kamieni. Wczesne chrześcijaństwo i średniowiecze [Lapidarium Christianum. The symbolism of precious stones. Early Christian and Medieval],* Tyniec 2012.

59 U. Mazurczak, *Pomiędzy wzorcem a szkicem. Refleksje o sposobach nauki malarstwa w średniowieczu [Between the pattern and the sketch. Realation on the manners of teaching painting in the Middle Ages],* „Roczniki Humanistyczne" XLVII (1999) no. 4, pp. 23-46.

60 Terminology concerning the gardens of antiquity, see: *Paulys Real Encyclopädie der Classischen Altertumswissenschaft*, eds. A. Pauly, G. Wissowa, t. 24, Stuttgart 1924, pp. 78-90. and *The Dictionary of Art*, ed. J. Turner, vol. 7 and vol. 24, London 1996.

castles[61]. Ideal gardens, described by K. Gerstenberg in his treatise[62] have distinct divine connotations: mystical and paradisal[63]. A good example is *hortus conclusus,* that is, an enclosed garden shaped by biblical texts, prayers, and mystical visions. Such a garden is a place appropriate for Mary with Child and saints[64]. Nonetheless, plants portrayed in accordance with botanical facts can be observed in this garden. What is ideal and what is real in this garden? Being ideal is determined by: the composition of the garden as a whole, its geometrisation, and finally the characters and scenes depicted in it[65]. The real character, on the other hand, can be observed due to the presence of identifiable plant species, despite the fact that they are subject to a hidden language of symbolism[66]. This can be explained by the fact that the role of flora in paradisal gardens in medieval painting

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61 D. Hennebo, *Geschichte der deutschen Gartenkunst. Garten des Mittelalters*, vol. 1, Hamburg 1962.

62 K. Gerstenberg, *Die Ideale Landschaftsmalerei. Ihre Begründung und Vollendung in Rom*, Halle 1923.

63 J. Delumeau, *Historia raju: Ogród rozkoszy [History of paradise: the Garden of Eden in myth and tradition],* Warszawa 1996.

64 E. M. Vetter, *Das Frankfurter Paradiesgärtlein*, „Heidelberger Jahrbücher" 9 (1965), pp. 102-146; G. Hartlaub, *Das Paradiegärtlein von einem Oberreinischen Meister um 1410*, Berlin 1977; G. Münzel, *Das frankfurter Paradiesgärtlein. „Das Münster"*. „Der Kunstbrief" 18 (1977), pp. 3-21, 9 (1956), pp. 14-22.

65 U. Mazurczak, *Rozumienie przyrody w malarstwie okresu przełomu średniowiecza i renesansu na wybranych przykładach północnego i południowego kręgu sztuki [The understanding of nature in the painting of the turn of the Middle Ages and the Renaissance on selected examples of the northern and southern circle of art]*, in: *Sztuka około roku 1400 [Art around 1400 A.D.],* ed. T. Hrankowska, Warszawa 1996, pp. 319-346.

66 H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes. Das erste Jahrhundert der niederländischen Malerei,* München 1994; U. Mazurczak, *Zagadnienie czasu przedstawionego w obrazie na przykładzie niderlandzkiego malarstwa tablicowego XV wieku [The issue of represented time in a painting on the example of the fifteenth century Netherlandish panel painting],* Lublin 1984; idem, *Rozumienie miejsca w malarstwie Joachima Patinira [Understanding of place in paintings by Joachim Patinira],* in: *Studia nad kategorią miejsca w przestrzeni kultury [Studies on the category of place in the space of culture],* ed. E. Wolicka, Lublin 1998, pp. 79-102; idem. *Miasto w pejzażu malarskim XV wieku. Niderlandy [The city in Landscape Painting of 15th century. Netherlands]*, Lublin 2004; E. Panofsky, *Rzeczywistosć i symbol w malarstwie niderlandzkim XV wieku [Reality and symbol in the 15th century Netherlandish Painting]*, in: *Studia z historii sztuki [Studies on history of the arts]*, selection and compilation by J. Białostocki, Warszawa 1971, pp. 122-151. The present author lists the works known to him, which contain a vast bibliography regarding the subject.

is clearly secondary. In the art from that period, a paradisal garden played the role of a tale about the creation of the world and salvation of man [67]. However, blending of reality and idea within the space of the same garden is not impossible. It was confirmed by John Harvey, who stated that in the Middle Ages the boundary between an ideal garden and a real one was not unambiguous. Such a phenomenon can be observed in monastic viridaries, also called *paradisus* due to the fact that their space depicted a paradisal garden[68]. It is also supported by fountains, grottoes, and other spatial elements present in ideal gardens, which were also universally present in real gardens, providing a particular character for them[69].

Eva Börsch–Supan undertakes yet another interesting issue, that is, the mutual permeation of the motif of paradise, and *locus amoenus,* a painting topos created in fine arts[70]. It originated from belles-lettres, mainly by Virgil and earlier Greek mythology[71]. During the Middle Ages it constituted a prototype for painters, who equated *locus amoenus* with paradise, despite the fact that they are two different notions.

Deliberations over the real and ideal character of gardens presented in art become even more difficult at the turn of the Middle Ages and the early modern period, when real gardens were created basing on literature, myths, and even painting depictions[72].

The present author is fully aware of great simplifications in such portrayal of landscape history and various scientific aspects pertain-

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67 S. Kobielus, *Człowiek i ogród rajski w kulturze religijnej średniowiecza [Man and the paradisal garden in the religious culture of the Middle Ages]*, Warszawa 1997.

68 J. Harvey, *Mediaeval Gardens*, London 1982.

69 T. Velmans, *Quelques versions rares du theme de la fontaine de vie dans l'art paleochretien. „Cahiers Archeologiques"* XIX (1969) pp. 29-43; for the structure of grotoes see:. L. Chatelet-Lahge, *The Grotto of the unicorn and the garden of villa di Castello*, „The Art Bulletin" 50 (1968), pp. 51-59; W. Janssen, *Mittelalterliche Gartenkultur. Nahrung und Rekreation*, in: *Mensch und Umwelt im Mittelalter*, ed. B. Herrmann, Suttgart 1986, pp. 224-256.

70 E. Börsch-Supan, *Garten – Landschafts – und Paradiesmotive im Inneraum*: *eine ikonographische Untersuchung*, Berlin 1967.

71 K. Garber, *Der locus amoenus und locus terribilis. Bild und Funktion der Natur in der deutschen Schäfer – und Landlebendichtung*, Köln des 17. Jahrhunderts 1974, p. 52-77; also E. R. Curtius. *Literatura europejska i łacińskie średniowiecze [European Literature and the Latin Middle Ages]*, Kraków 1997, pp. 191-207.

72 T. Comito, *Renaissace gardens and the discovery of paradise,* „Journal of the History of Ideas" 32 (1971), pp. 487-488.

ing to it. Nonetheless, they allow us to overcome doubts regarding the legitimacy of the undertaken subject, as well as to strengthen the need of one's own methodical identifications that are in accordance with naturalists' education, in order to be able to join the discussion regarding plant identification in art. Research conducted by a naturalist can confirm already existing historical findings, or offer potential modifications. Art historians, on the other hand, can point out numerous ambiguous places in the realm of the history of botany[73] and related disciplines.

The present author has undertaken the subject of plant identification in Netherlandish painting from the viewpoint of a naturalist, adopting a method adequate for botanical research. Simultaneously, methods utilised by liberal arts have also been used.

The aim of this book is to present the immense variety of plant life in Netherlandish painting of the 15th century. Yet another goal is to present the specificity of plant life portrayed in the works of the greatest Netherlandish masters, who, as has been scientifically proven, lived and created in that particular period. Thus, the selection of subject material, that is, of particular paintings, was based predominantly on natural criteria. Therefore, the most important were the works that convey the character and richness of plant life depicted by individual painters as best as possible, as well as enable a complete botanical analysis. Therefore, ten paintings of the aforementioned school of painting were chosen, in which flora is immensely diverse, thus presenting the botanical variety of the chosen artistic circle. It should be stressed that the works by Gerard David were intentionally excluded from the analysis. It is due to the fact that his artistic activity goes beyond the time frame of this publication. Also intentionally omitted were the works by Petrus Christus which, in naturalist terms, do not contribute to the existing state of research. His works, outstanding and abundant as they are, are characterised by sparse vegetation, reduced to a few already discussed species. What is more, scenes depicted in his works are set in a natural landscape that is subject to artistic generalisation. Grass, for instance, is reduced to a homogenous green surface.

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[73] A. Zemanek, *Historia botaniki [History of botany]*, in: *Dzieje nauki: nauki ścisłe i przyrodnicze [History of science: natural sciences],* R. W. Gryglewski et al. eds., Warszawa Bielsko-Biała 2011, pp. 391-455.

Botanical identification of plants in chosen examples of Netherlandish painting of the 15th century was extremely difficult due to the fact that the author of this book described not live specimens, but their artistic representations. In such situations one of the possible research methods is visual comparison of the most important morphological features of the painted plants with colour illustrations of a given species in numerous atlases and identification keys, as well as confronting them with specimens observed in nature. The present author is aware of the fact that the aforementioned method is not sufficiently precise due to a quite large diversification among genera, and even within a given species. Plants presented in various studies are only examples of particular specimens and their function regarding the entire taxon is merely representative. Therefore, the identification process has been supported and supplemented with a detailed analysis of descriptions of features characteristic to individual species. Such vital diagnostic information consists of the growth forms of shoots, shapes and degree of incision of the leaf blades, their distribution on the stalks, as well as the structure and colour of flowers and fruits. What was also taken into consideration were the habitat conditions, geographical distribution, blooming periods, as well as classification within particular phytocenoses. The analyses often demanded direct observation in order to confirm or exclude certain data.

The goal of identifying the plants depicted in paintings with maximal precision, as well as the complexity of the presented flora led to utilising numerous publications concerning the subject of flora for the purpose of this book. These include basic studies aimed at a broader audience, as well as more specialist ones, addressed to professionals. The following publications were used in order to identify the plants depicted in paintings (in alphabetical order): D. Aichele, M. Golte-Bechtle, *Jaki to kwiat? [What flower is it?],* Warszawa 1984; A. Bärtels, *Farbatlas Mediterrane Pflanzen*, Stuttgart 1997; P. Czikow, J. Łaptiew, *Rośliny lecznicze i bogate w witaminy [Medicinal and vitamin-rich plants]*, Warszawa 1988; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248; *Flora Europaea*, ed. G. T. Tutin, t. 1-5, Cambridge 1964-1989; B. Gibbons, P. Brough, *Atlas roślin Europy Północnej i Środkowej [The Hamlyn Photographic Giude to the Wild Flowers of Britain and Northern Europe]*, Warszawa 1995; J. D. Godet, *Drzewa i krzewy, rozpoznawanie gatunków [Trees and shrubs, species identification]*, Warszawa 1997; J. D. Godet, *Rośliny zielne Europy, roz-*

poznawanie gatunków [Herbaceous plants of Europe, species identification], Warszawa 1999; G. Hegi, *Illustrierte Flora von Mitteleuropa,* Bd. I-VII, München 1936-1969; B. Kuźnicka, M. Dziak, *Zioła i ich stosowanie. Historia i współczesność [Herbs and their use. History and the present day]*, Warszawa 1984; W. Lippert, *Rośliny śródziemnomorskie. Rozpoznawanie i oznaczanie roślin zielnych i krzewów [Mediterranean plants. Identification and determination of herbaceous plants and shrubs],* Warszawa 1995; J. Macku, J. Krejca, *Atlas roślin leczniczych [Atlas of medicinal plants]*, Wrocław 1989; W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities]*, Warszawa 2007; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; R. Phillips, *Wild Flowers of Britain*, London 1977; O. Polunin, *Flowers of Europe. A field guide*, London 1969; R. Popek, *Dziko rosnące róże Europy [Wild roses in Europe]*, Kraków 2007; R. Popek., *Róże dziko rosnące Polski [Wild roses in Poland]* Kraków 2002; H. Romagnesi, J. Weill, *Fleurs sauvages de France et des regions limitrophes*. vol. 1-2, Paris 1977; B. Rutkowska, *Atlas roślin łąkowych i pastwiskowych [Atlas of meadow and pasture plants]*, Warszawa 1984; L. Rutkowski, *Klucz do oznaczania roślin naczyniowych Polski niżowej [The key to determining the Polish lowland vascular plants]*, Warszawa 2007; W. Seneta, J. Dolatowski, *Dendrologia [Dendrology]*, Warszawa 2000; M. G. Simpson, *Plant Systematics*, Amsterdam; Boston 2006; *Słownik botaniczny [Botanical Dictionary]*, ed. A. i J. Szweykowscy, Warszawa 1993; C. A. Stace, *New flora of the British Isles*, New York 1997; W. T. Stearn, *Botanical Latin*, Portland 2004; D. Streeter, *Collins Flower Guide, The Most Complete Guide to the Flowers of Britain and Europe*, Londyn 2010; F. Starý, V. Jirásek, *Rośliny lecznicze [Medicinal Plants]*, Warszawa 1976; W. Szafer, S. Kulczyński, B. Pawłowski, *Rośliny polskie [Polish plants],* Warszawa 1988; *Uprawa roślin ozdobnych [Cultivation of ornamental plants],* ed. H. Chmiel, Warszawa 2000; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology]*, Warszawa 2002; *Zander Handwörterbuch der Pflanzennamen*, ed. W. Erhardt, Stuttgart 2002.

BOTANICAL ANALYSIS OF SELLECTED PAINTINGS

Robert Campin
(1375/1379-1444)*

* Dating, as well as the most recent historic findings regarding research concerning this painter is adopted from the most recent monograph available to the present author: F. Thürlemann, *Robert Campin. A monographic study with critical catalogue*, New York, 2002.

Annunciation Triptych
(Mérode Altarpiece)
(New York, Metropolitan Museum of Art,
Cloisters Collection),
1425-1430 after 1450.
Left panel: The donors [Fig. **1.**]

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A	–	red clover (*Trifolium pratense*)
B	–	field mouse-ear (*Cerastium arvense*)
C	–	silverweed (*Potentilla anserina*)
D	–	greater plantain (*Plantago major*)
E	–	daisy (*Bellis perennis*)
F	–	sweet violet (*Viola odorata*)
G	–	rose (*Rosa* sp.)
H	–	heath speedwell (*Veronica officinalis*)
I	–	woolly-leaved crowfoot (*Ranunculus lanuginosus*)
J	–	common couch (*Elymus repens*)

Fig. 1. Robert Campin. *Annunciation Triptych (Mérode Altarpiece)*, 1425-1430 after 1450, New York, The Metropolitan Museum of Art, Left wing: *Donator panel*, Details A-J

The left panel of this triptych consists of a portrait of the donors, Peter Engelbreht and Gretin Schrinmechers who, kneeling on a small courtyard surrounded by a tall wall, looking through an open door, witness a holy event – the Annunciation[1]. At their feet one can see a fragment of a natural sward.

On the left side of the painting, right under Engelbreht's foot is a red clover (*Trifolium pratense*) **[A]**. The plant was depicted accurately, which enables its identification. The painter presented the whole general habit of the plant. There are characteristic petiolate, trifoliate leaves, as well as spherical inflorescences with the colour of the flowers chosen correctly – pink. The leaf blades, even though in nature they are entire and rounded at the tips, here they lack the typical pattern of a single arrow. It is due to the scale of the painting, as well as the size of the plant itself. This species is portrayed in natural size, and all of its components mutually maintain their proportions. There is only one specimen of this species depicted in the panel.

Another fully identified species is field mouse-ear (*Cerastium arvense*) **[B]**. Presented with all its components, it occupies the central space on the sward, as if displayed on purpose. It was depicted very realistically, with all of its morphological features enabling identification. Among these features are raised stems with opposite, lanceolate leaves and white flowers with visibly incised petals of the corolla. The plant is shown in the state of blooming, and not fully developed flowers add more realism. The proportions of the plant are not maintained. Despite the fact that in the natural environment field mouse-ear reaches up to 30 cm in height, it seems to be visibly magnified in the painting. This disproportion is increased by the flowers, the diameter of which can reach 2 cm[2], which in the panel are portrayed as much bigger

1 U. M. Mazurczak, *Miasto w pejzażu malarskim XV wieku [The city in Landscape Painting of 15th century. Netherlands],* p. 86.

2 B. Gibbons, P. Brough, *Atlas roślin Europy Północnej i Środkowej [The Hamlyn Photographic Giude to the Wild Flowers of Britain and Northern Europe],* Warszawa 1995, p. 38.

and visually dominate the sward. As in the case of the red clover, this species is represented by a single specimen.

Visible in the immediate vicinity of the field mouse-ear is a silverweed (*Potentilla anserina*) **[C]**. The whole general habit of the plant was not shown, and only the characteristic basal leaves and yellow flowers can be observed. The plant was not depicted with a high level of precision, thus its identification is more difficult. An element vital to the identification of this plant is a leaf consisting of imparipinate leaflets on very short petioles and visible, small stipulae. The plant is shown in the state of blooming. The flowers are presented in accordance with reality; however, the flower stalk on which they should be growing, are not visible. The author depicted the flowers as if suspended in the air against the background of leaves. It should be noted that while observed in nature, and from a distance, the species may seem not to have flower pedicels, and its flowers may appear to lie directly on leaves. The size and the proportions between the leaves and flowers are maintained. In the wild the flowers of silverweed reach from 2 to 3 cm in diameter and such dimension can be observed in the painting. Unfortunately, taking this criterion as a point of reference, the flowers of the field mouse-ear appear to be considerably magnified and do not correspond to botanic reality. Silverweed is represented by two specimens in the foreground, as well as, possibly, one more in the background of the composition, behind the donor. It is indicated by a leaf fragment similar in appearance to the one in the foreground.

At the edge of sward, next to the first step is a greater plantain (*Plantago major*) **[D]**. The artist presented the plant accurately, portraying its whole general habit. Great detail and realism can be observed in its rosette of basal, broadly ovate leaves, as well as in the characteristic cylindrical inflorescences growing on leafless peduncles. The precision of this depiction is highlighted by a distinct, parallel venation of leaf blades, and the prolonged shape of inflorescences. The plant is shown in its natural size, maintaining the proportions regarding the leaves and inflorescence. The artist captured this plant in the state of blooming. Single flowers of this species are inconspicuous, Robert Campin, however, tried to depict their character and yellow-white colour. There is only one specimen of this species in the painting.

Among the species that have been fully identified is also the daisy (*Bellis perennis*) **[E]**. In the painting it can be observed at the

base of the stone stairs. It is painted with great realism. Identification is possible due to characteristic inflorescences, with their structure painstakingly depicted. White, lateral, ray flowers, as well as middle, yellow, disc flowers can be observed. The precision of this portrayal is additionally highlighted by faint pink colouring of the ligulate flowers. The leaves, on the other hand, were depicted in a superficial manner, and limited to a dark stain that merely suggests their existence. The daisy in the painting meets the size criteria for this species observed in nature. The artist captured this plant in the state of blooming. One anthodium is fully developed, and shows two types of flowers. The remaining four are closed to different degrees. There is only one cluster of daisies present in the painting.

On the left side of the field mouse-ear is, most probably, a sweet violet (*Viola odorata*) **[F]**. This common plant was captured whole, and with great detail. Identification of the genus is, without doubt, correct; however, determining the precise species is far more difficult. The presented plant may represent another species, equally common in European flora, i.e. the early dog-violet (*Viola reichenbachiana*). In favour of the first species are the flowers, especially their colour. In nature the petals of the corolla of sweet violets are dark purple, as is the case in the painting, where the colour is very dark blue, nearly black. The flowers of the early dog-violet on the other hand, are of light purple-blue colour. What is more, the flowers of the sweet violet grow on long flower stalks stemming from the centre of a rosette of leaves, and in the same way they are presented in the painting. In the case of early dog-violets, flowers grow in the axils of the cauline leaves. Another difficulty in unequivocal identification of this plant arises from the fact that in nature both species can cross-breed freely. The remaining parts of the plant are presented with less detail. A rosette of basal leaves can be observed, however it lacks visible leaf blades. The venation and the crenated margin of the leaves are almost invisible. Such portrayal of the plant in the foreground causes a discord, especially in comparison to other plants in its vicinity depicted with more detail. The size of the plant is also debatable. In nature this species can be from 3 to 12-15 cm high, whereas in the painting it seems to be bigger. This impression is enhanced by the flowers, which in nature may reach 1.5 cm in length, and seem to be much bigger in the painting. Assuming that the presented flowers reach the right size, it can be deduced that their proportions in relation to the diameter of

the leaves and to the length of the flower stalk is correct. The Master of Flémalle painted only one specimen of this species in the panel.

Deeper into the courtyard Robert Campin set a rose (*Rosa* sp.) **[G]**. Despite the fact that the habit of the plant, the flowers and the leaves enable conclusive genus identification, they are not enough to conclusively identify the species[3]. The presented plant has the form of a shrub growing near the wall. The painter depicted its whole general habit, presenting in detail its big, full flowers and compound leaves. As was the case earlier, realism of this particular depiction is highlighted by varied levels of blooming. There are open, fully developed flowers, as well as those yet in buds. All of the leaves belonging to this rose are imparipinate and consist of five small, elliptic leaflets. Unfortunately, the scale of magnification makes the margins of leaf blades and the venation very hard to see. The shoots are glabrous and do not have any visible prickles. The size of the plant can be estimated to fall between 2 and 2.5 m. The figure of a middle-aged man standing near the gate serves as a point of reference. Proportions were not maintained, especially in the case of the size of flowers and leaves. The painter magnified them excessively in comparison to the whole plant. Thus, they do not include the distance created by perspective. A good example is a flower at the top of the shrub, which is almost the same size as the face of the man at the gate. The artist captured the plant in the state of blooming. There is only one specimen of this plant in the entire painting.

Another plant that is not fully identifiable is a specimen set in the foreground, right at the lowest step. It is, most probably, heath speedwell (*Veronica officinalis*) **[H]**. Identification of the species, and even of the genus, is not possible due to the lack of characteristic morphological features. In favour of the proposed species are the general picture of the plant, as well as the leaves. The tips of the shoots are raised, and the sessile leaves are opposite. The margins of leaf blades are distinctly crenated. Elliptic leaves become smaller, the closer they

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[3] The rose genus (*Rosa* L.) is one of the most complicated plant groups in terms of systematics. It is characterised by high variability within species, thus it is difficult to identify roses, not only in paintings, but also in the nature. In the past, this great diversity caused the appearance of numerous systems of botanical classification of these plants. According to the most recent research, it is estimated that within the natural range of the rose genus (*Rosa* L.), there are from 120 to 140, or even 400 species. (see: R. Popek, *Róże dziko rosnące Polski [Wild roses in Poland],* Kraków 2002, pp. 6-8).

are to the top of the stem. The plant is shown in a sterile state, which makes its identification even more difficult. The flowers, or even a separate inflorescence, are not visible. The painter merely indicates the existence of a terminal spike or a raceme. Without open flowers it is difficult to confirm the accuracy of this identification. The size of the plant, as well as its proportions in relation to the leaves and the shoot are in accordance with reality. Its proportions are maintained also in relation to the adjacent plants. There is only one specimen of a plant depicted in such manner.

On the sward, in front of the donors, Robert Campin placed, most probably, a buttercup (*Ranunculus* sp.) [**I**], however, despite the realistic portrayal, identifying a particular species is very difficult. It is due to the fact that this genus is represented by numerous species of a similar general habit and flowers. The elements of morphological structure that distinguish individual buttercups and enable a more precise identification are, among others, the leaves. The shapes of leaf blades of the presented plant could indicate that it is a woolly-leaved crowfoot (*Ranunculus lanuginosus*). This idea is supported especially by the sessile cauline leaves, which are almost trifid. The shapes of the leaf blades of the presented plant are not distinct, thus making unambiguous identification of the species much harder to achieve. The painter captured the whole plant, including a raised stem, long-petioled basal leaves and sessile cauline leaves. Its size falls within the norms observed in the natural environment. The presented specimen maintains its proportions regarding the size of flowers and leaves, as well as the overall height in comparison with other plants. The precision of depiction is highlighted by the distinct, single, yellow flowers with five petals of the corolla. There is only one specimen of the buttercup (*Ranunculus*) genus presented in the painting.

The sward consists also of plants that are impossible to identify or assign to a given genus. Among those are predominantly grasses distributed in clusters, which constitute a background for the displayed, identifiable species. They were treated quite schematically, with a high dose of stylisation. They create an illusion of a natural and spacious character of the whole phytocenosis. It can only be assumed that among these plants there is a very common species of grass, namely the common couch (*Elymus repens* = *Agropyron repens*) [**J**]. This is indicated by the general habit of the plant. It should, however, be stressed that it is almost impossible to identify grass only on the

basis of its external appearance. There is a group of features essential for identification of a particular species, such as: root system, precise height and detailed features of the leaves[4].

At the left edge of the painting, next to the violet, is a plant quite difficult to identify, despite the fact that the painter depicted it in great detail. A raised shoot with elliptical opposite leaves can be observed. What is more, the plant is shown in the state of blooming. The flowers are separate, and the corolla consists of five blue and dark blue petals. Despite such a realistic depiction, it is difficult to assign the plant to a particular genus or species. The colour of the flowers might indicate that the plant is a forget-me-not (*Myosotis* sp.), however, the opposite distribution of leaves disproves this hypothesis. A similar issue concerns the plant located at the right side of the painting, next to a cluster of daisies, presented with all its elements. Oblong, arrow-shaped leaves with sinuate margins and a terminal inflorescence in the form of a spike or a raceme can be observed on raised stems. In the foreground, deeper into sward, three spherical red spots can be seen. It can be assumed that they are the fruits of a wild strawberry (*Fragaria vesca*). Unfortunately, the lack of distinct vegative elements of the plant makes a positive identification very difficult. There is no evidence of any flower stalks, on which the wild strawberries could grow. The only indication is the colour of the alleged fruits.

All of the species portrayed by Robert Campin on the left wing of the *Mérode Altarpiece* are herbaceous plants. They are predominantly perennial plants. The only exception is the rose, which is a shrub.

The plants depicted in the painting constitute a phytocenosis similar to meadows and pastures. From the phytosociological point of view, however, they do not form a particular syntaxon, but are species characteristic of different phytocenoses. Among all fully identified plants only the red clover, greater plantain, daisy and silverweed appear in meadow and pasture communities. Nonetheless, these plants do not belong to species characteristic to one syntaxon but exist in different orders, associations and alliances. However, it should be stressed that the identified plants show high ecological tolerance and can grow in a wide range of habitats. What is more, they appear especially in

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4 B. Rutkowska, *Atlas roślin łąkowych i pastwiskowych [Atlas of meadow and pasture plants],* Warszawa 1984, p. 9.

synthropic phytocenoses[5]. Due to this reason plants depicted by Robert Campin may exist in that particular set and form such a phytocenosis.

Depiction of vegetation indicates that the painter was an excellent observer of nature. It is proved by the fact that the greater plantain is situated at the edge of the path, that is, in a place of excessive trampling. It should be stressed that in nature this species grows in short, carpet phytocenoses resistant to mechanical damage[6]. An additional habitat analysis of the remaining plants demonstrates that in nature most of them grow at roadsides, in scrub, or even in ruderal locations, that is such as the one presented in the painting.

All of the identified plants on this painting are common to almost all of Europe. The only exception is the silverweed which is not present only in the north-eastern and southern parts of the continent. The discussed species are common both in lowlands, as well as in different mountain locations.

The analysis of blooming of the plants presented in the painting indicates that they include both spring and summer species. Most of them have their generative organs fully developed in May and June. Only the presence of the violet and the heath speedwell is debatable, since the first species blooms from March to May, whereas the latter one does not bloom until June. Therefore, it is difficult to determine the month of blooming shared by all of the presented plants.

Species composition, as well as the composition of the entire vegetation in the painting indicates that this fragment of the garden was not organised purposefully. The sward does not resemble a flower-bed, and there are no cultivated plants present on it. Only the rose shrub suggests that this space may have the form of a decorative courtyard.

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5 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E.Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

6 W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* pp. 258-259.

Mary with Child (Frankfurt, Städelsches Kunstinstitut) 1430. [Fig. 2][7]

[7] The painting comes from the Flémalle abbey near Liége (flem. Luik) the region rich quite in terms of flora and diversified landscape. P. Eich, *Zusammenfassung der frühesten Nachrichten im 19. Jahrhundert über die Bilder des Meisters von Flémalle im Städelschen Kunstinstitut in Frankfurt am Main*, in: (eds.) D. Hollanders-Favart, R. Van Schoute, *Le dessin sons – jacent dans la peinture.* Colloque 3, 1979: Le probléme Maître de Flémalle-Vander Weyden. Louvain-la- Neuve 1981 pp. 101-104.

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A	–	pot marigold (*Calendula officinalis*)
B	–	purple-loosestrife (*Lythrum salicaria*)
C	–	marsh-marigold (*Caltha palustris*)
D	–	red clover (*Trifolium pratense*)
E	–	monk's-hood (*Aconitum napellus*)
F	–	sweet violet (*Viola odorata*)
G	–	agrimony (*Agrimonia eupatoria*)
H	–	southernwood (*Artemisia abrotanum*)
I	–	corn marigold (*Chrysanthemum segetum*)
J	–	crane's-bill (*Geranium* sp.)
K	–	daisy (*Bellis perennis*)

Fig. 2. Robert Campin. *Mary with Child (Maria lactans)* 1430, Frankfurt am Main, Städel Museum, Details A-K

The painting presents Mary, with baby Jesus, standing on a flowered sward, against the background of an ornate screen. The painting belongs to the *Maria lactans* type, that is, the renowned painting motif of nursing Mary[8].

An important element of the painting is the sward composed of many identifiable plant species. One of these is the pot marigold (*Calendula officinalis*) **[A]**. This plant is set in the foreground, just below Holy Mary. The artist depicted the whole plant. He portrayed the raised stems, alternate leaves, as well as orange-yellow inflorescences. He intentionally highlighted two types of leaves. The lower, broadly spatulate, are barely visible, while the upper, cauline ones are displayed. They are sessile, with oblong entire leaf blades, with a distinct primary vein. In reality the pot marigold reaches the maximum of 50-70 cm in height, whereas in the painting it is smaller. The proportions of leaves and inflorescences, compared to the size of the painting, are, nonetheless, maintained. The discussed species was captured in the state of blooming. Three inflorescences in the form of single anthodia are open, and the two remaining ones are closed to a various extent. Campin intended to accurately depict the compound inflorescence, composed of lateral, ray flowers, and the less visible, central tubular ones. In the painting there is only one specimen of this species.

On the right side of the marigold is, most probably, a purple-loosestrife (*Lythrum salicaria*) **[B]**. The general habit of the plant, distribution and shape of the leaves, as well as the inflorescence allow the assumption that it is the discussed species. The artist depicted a straight shoot with opposite, lanceolate leaves. The decussate distribution of the upper leaves adds certainty to this identification. The leaf blades are sessile, entire, rounded at the base, and sharpened at the top. Only the size of the leaves, especially their width, raises some doubt. It should be from 5 to 15 cm long and much more slender.

8 H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes,* p. 171.

The height of the purple-loosestrife, in comparison to other plants, is too small. In the nature this species reaches from 50 to 100-150 cm, whilst in the painting it is smaller than the marigold. Botanical identification is easier due to the spikelike inflorescence with pink-purple flowers set in verticillasters. The perianth consists of six distinct oblong petals of the corolla. There is only one specimen of this species in the painting.

Yet another fully identified plant set in the foreground is a marsh-marigold (*Caltha palustris*) **[C]**. This species was captured with great detail and visually dominates among the remaining plants. The artist showed the whole plant, including the raised stem, big, rounded leaves, and yellow flowers. The depicted plant has, in accordance with reality, two types of leaves. The lower ones are long-petioled, with a cordate base, while the upper ones are sessile. The leaf blades are dark green; however in the nature they are lightly crenated, especially in the tip parts of the leaves, and dentate at the petioles. However, the overall shapes of the leaves, as well as their alternate distribution on the stem indicate that it is the discussed species. The height of the plant seems to be probable as well. The diameter of the leaf blades may reach 15 cm, and such value is visible in the painting and proportional relative to the whole plant. The plant is presented in the state of blooming. Distinctly big, yellow flowers dominate against the background of dark vegetation. Some of them are fully open, others yet in the form of buds. The amount of the petals of the corolla and the size of the whole flower are debatable. According to botanical descriptions, the corolla should, in most cases, consist of five broadly oval petals, and the diameter of the whole flower should not exceed 4 cm[9]. In the painting, however, the perianth undoubtedly has six prolonged petals of the corolla, and all flowers seem greatly magnified. Realism is highlighted by the centre of the flower, which indicates the existence of numerous stamena. It should also be noted that the marsh-marigold depicted in the painting has a straight and quite slender stem, while in the natural world a thicker, creeping or arching shoot is observed more often. There is only one specimen of this species in the whole painting.

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9 D. Aichele, M. Golte-Bechtle, *Jaki to kwiat [What flower is it?],* Warszawa 1984.

Among the conclusively identified species is also a red clover (*Trifolium pratense*) **[D]**, located in the left section of the painting, next to Mary's draped robes. The plant was depicted in a manner enabling its full botanical identification. Typical inflorescences at the tops of raised stems, as well as characteristic leaves, unfortunately devoid of a visible arrow-like pale spot on their upper surface, can be observed. The dimensions of the discussed red clover and its proportions relative to inflorescences and leaves are maintained. There are four inflorescences visible in the painting. Unfortunately, none of these shows the presence of small, papilionaceous flowers. What adds realism is the presence of leaves which support the inflorescences at the base. There is only one red clover in the painting, however, in the mass of plants some trifoliate leaves can be observed, the shape of which resembles the leaf blades of the clover. Nonetheless, it is difficult to determine whether they belong to a red clover, or to an entirely different species of the clover genus (*Trifolium*).

To the left of the clover Robert Campin set another species – monk's-hood (*Aconitum napellus*) **[E]**. The whole general habit of the plant is not visible, only a straight shoot with indistinctly sketched leaves can be seen. Identification is possible largely due to characteristic zygomorphic flowers that constitute a terminal inflorescence in the form of a raceme. Leaves are extremely bent, making it hard to determine their shape. It is only clear that they have deeply incised leaf blades. The size and proportions of this monk's-hood in relation to other plants are maintained. It is the highest species among the plants depicted in the painting, however, in relation to the whole painting, especially to the figure of Mary, it is definitely too short. Flowers portrayed by the painter are in accordance with reality. They have the characteristic form of the perianth with a distinctly visible fifth leaf, so-called hood, as well as quite long flower stalks. Their colouring is not distinct and does not correspond to the specimens observed in nature. This species appears only once in the whole painting.

The presented sward consists also of plants that cannot be definitely assigned to a given species. One of such plants is a violet (*Viola* sp.) **[F]**. The artist set it in the foreground, to the left of the clover. The general picture of the plant, its leaves, and, especially flowers, allow genus identification. They are, however, insufficient in the case of species identification. The shapes of the leaves, as well as their bases are not visible enough. The painter marked only the crenated margins. Thus, the

existence of leaf blades is only indicated, and does not aid the identification of a given species. The height of the violet in regard to the figure of Mary is maintained, however in regard to the remaining plants – it is slightly magnified. The proportions between the flowers and the leaves are probable. Important diagnostic elements are the leaves, the dark purple colouring and a lighter centre of which may suggest that it is a sweet violet (*Viola odorata*). In order to highlight realism, the artist deliberately set the flowers on long flower stalks with visible bracteoles. Unfortunately, he did not mark the spot from which they grow, which makes species identification even more difficult. The discussed plant possesses only one flower depicted in detail. The remaining two are hardly visible. There is only one plant in the painting shown in such manner.

It can be assumed that just in front of the violet is an agrimony (*Agrimonia eupatoria*) **[G]**. It can be deduced from visible imparipinate leaves which consist of ovate leaflets with a dentate leaf blade. The lack of characteristic stipulae, the complete general habit of the plant, or any inflorescence prevents precise species identification. Similar leaves can be observed in the painting next to the purple-loosestrife, and their shape suggests that they also belong to an agrimony.

Another problematic plant is placed in front of the pot marigold. The shape of the visible shoots and leaf blades indicates that it may be a southernwood (*Artemisia abrotanum*) **[H]**. Its leaves are small and bipinnate, with narrow segments, as they are in nature. However, without more detailed morphological features identification of the plant remains only a speculation. In reality this species is often a suffrutex reaching a height of up to 1.5 m. Only small fragments of shoots are shown, which makes it difficult to estimate the height of the entire plant. There are four shoots depicted in such manner. Two are set in the central section of the turf, the third one is hidden behind the marsh-marigold at the right side of the painting, whereas the fourth one is hardly visible and set behind the monk's-hood. The lack of distinct flowers makes precise identification of this plant even more problematic.

In the foreground, just at the lower edge of the painting is another plant difficult to identify, however – unlike the former ones – it was painted in great detail. Robert Campin presented its basal leaves and inflorescences in the form of single anthodia growing on long pedicels. The outline of leaf blades is narrowly ovate or lanceolate with lobate or deeply dentate margins. This plant was captured in the state of blooming. Two closed flowers, consisting of yellow, lateral ligulate

flowers and central tubular flowers are clearly visible. The leaves and, especially the flowers, allow the assumption that the plant may in fact be a corn marigold (*Chrysanthemum segetum*) or a species of ragwort (*Senecio* sp.) [**I**].

The plant set in the central section of the sward, near the white robes of the Holy Mother is, most probably, a crane's-bill (*Geranium* sp.) [**J**]. Genus identification is possible due to a palmately parted leaf and a pink, actinomorphic flower. They are insufficient for species identification. There is only one plant in the painting portrayed in such manner.

The groundcover of the discussed painting is enriched by small flowers resembling a daisy (*Bellis perennis*) [**K**]. The artist did not present whole plants, but only the inflorescences. On the basis of these inflorescences and the characteristic colouring of the closed flowers, it can be assumed that it is the discussed species. The realism of depiction is enhanced by the different degree to which various anthodia are open, as well as the pink colouring of ligulate flowers in some specimens. Some of the apparent daisies have visible leafless stems, however, none of them has a distinct rosette of basal leaves. There are between ten and twenty specimens representing the daisy in this painting. All of them are unevenly distributed and, as it happens in the natural environment, they visually enrich the whole sward.

In addition, vegetation is enriched by a variety of numerous leaves and shoots of plants virtually impossible to identify. Among those a meaningful role is played by individual clusters of grass. Also noteworthy are lanceolate leaves with parallel venation that are difficult to assign to any particular species.

Another unidentified plant is located to the left of the marsh-marigold. However, it was painted in greater detail than the previous plants. The artist painted a stem and leaves, as well as two pale yellowy flowers. The leaf blades are ovate and entire. The leaves are opposite and the grow on a shoot on visible petioles. The flowers, on the other hand, are portrayed in a more schematic fashion. It is difficult to find characteristic features in their structure. Despite so many significant diagnostic features, determining a single species, or even genus, is impossible.

Almost all of the identified species in this painting are perennial herbaceous plants. The exceptions are pot marigold and southernwood. The former species is a therophyte, and the latter a suffrutex.

In phytosociological classification the identified plants are not species characteristic of only one syntaxon. It should, however, be stressed that red clover, daisy, marsh-marigold, and purple-loosestrife are meadow plants and appear in different orders, as well as in associations of one class. However, the last two species can be found in communities of wet meadows. In addition, the purple-loosestrife is a species distinctive of natural ecotone communities adjacent to bodies of water. Agrimony occurs in forest edge plant communities, where meadow species play a major role. The sweet violet is a species characteristic to nitrophyte communities of perennial plants at the edges of forests[10]. The identified species belong to different biotopes. It is difficult to state without doubt that they could comprise such phytocenosis, especially because the plants of wet and dry meadows exist next to each other and in the vicinity of forest and forest-edge species. This dissonance is enhanced by the presence of monk's-hood, that is a species typical to mountainous terrains, as well as two cultivated, not wild-growing plants of Western Europe.

Vegetation of the discussed painting consists largely of common species of the flora of Eastern and Western Europe. The exceptions are the pot marigold and southernwood, which are wild-growing plants only in the southern part of the continent. It should not be forgotten that they were grown in gardens as medicinal plants. Most of the identified plants in the painting, in nature develop on lowlands, as well as mountains, and monk's-hood is a typical high-mountain species. The presence of this plant on lowland is the effect of its centuries-long cultivation and popularity in gardens since the Middle Ages.

The vast majority of the plants presented in the painting entitled *Mary with Child* is depicted in the state of blooming. The artist utilised mainly the plants that bloom in the spring and summer. A thorough analysis of the blooming period of individual plants led to the conclusion that a single month common to all of the described species does not exist. Nonetheless, in the case of majority of these plants such months are June, July, and August. The greatest discrepancies pertain predominantly the sweet

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10 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

violet in relation to purple-loosestrife, monk's-hood, pot marigold, and corn marigold.

The presented vegetation is characterised by distinctive spaciousness. Among the identified species the painter set a number of unidentified shoots and leaves, thus creating the depth of this mass of plants. The compositional arrangement indicates a reconstructed fragment of a natural sward. However, the presence of cultivated species, and not only those wild-growing, hinders the confirmation of this hypothesis. Monk's-hood, pot marigold, and even southernwood are garden species popular in the Middle Ages[11], utilised not only for the aesthetic, but also for the symbolic and therapeutic value. Therefore, it is difficult to determine if it is a fragment of a natural meadow, or of space created by man. In addition, the lack of an open landscape behind Mary further hinders a complete identification of this space.

[11] L. Majdecki, *Ochrona i konserwacja zabytkowych założeń ogrodowych [Protection and preservation of historic garden ensamble]*, Warszawa 1993, p. 300.

St. Veronica (Frankfurt, Städelsches Kunstinstitut), 1430 [Fig. 3]

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A	–	common dandelion (*Taraxacum officinale*)
B	–	lungwort (*Pulmonaria officinalis*)
C	–	agrimony (*Agrimonia eupatoria*)
D	–	borage (*Borago officinalis*)
E	–	lily-of-the-valley (*Convallaria majalis*)
F	–	greater plantain (*Plantago major*)
G	–	white dead-nettle (*Lamium album*)
H	–	buttercup (*Ranunculus* sp.)
I	–	clove pink (*Dianthus caryophyllus*)

Fig. 3. Robert Campin. *St. Veronica* 1430, Frankfurt am Main, Städel Museum, Details A-I

This painting[12] presents St. Veronica in a manner similar to that in the panel entitled *Mary with Child*. The saint is presented standing in the centre of the composition with a veil with the Image of Jesus Christ in her hands. As in the case of *Mary with Child*, St. Veronica is situated against the background of ornate fabric, with a flowery sward at her feet[13].

Located directly in front of St. Veronica is, most probably, a common dandelion (*Taraxacum officinale*) **[A]**. It is difficult to determine the species without any doubt. It is due to the fact that there are numerous dandelion species in nature, the identification of which is undertaken by a narrow group of specialists. Therefore, they have been assembled into larger sections, and are presented as coenospecies. The artist portrayed the whole plant, including a rosette of typical, basal leaves. The leaf blades, in accordance with the natural environment, are deeply pinnated, and a single vein runs through the middle of every leaf. The lobes of the leaf blades are triangular and, as in reality, slightly inclined towards the bases of the leaves. The size and shape of the plant are maintained. The dandelion is shown in the state of blooming and fruiting. At the top of the light-green, leafless peduncles is an inflorescence with yellow ligulate flowers. Also visible are the typical external leaflets of the involucre of the inflorescence, which are visibly protruding and recurved during the blooming period. An important diagnostic feature is the spherical frutification. The artist depicted its shape, fluffiness, and transparency with great detail. There is only one specimen representing this species in the painting.

To the right of the dandelion is a lungwort (*Pulmonaria officinalis*) **[B]**. The plant was painted in a manner enabling accurate botanical identification. To begin with, the painter presented its characteristic leaves and pink-purple flowers gathered in a terminal inflorescence.

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12 This painting is a part of the altar of The Holy Trinity (see: J. Sander, *Niederländische Gemälde im Städel. 1400-1500*, Mainz 1993, p. 45).

13 H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes,* p. 171.

In accordance with reality, he highlighted the obcordate, basal leaves, as well as the ovate-lanceolate, cauline ones. All of the leaf blades are entire and have visible silvery-white spots. It is this particular morphological feature that allowed for species identification. The size of the lungwort, in relation to the height of the remaining plants and the figure of the saint, appear to be correct. The proportions in relation to the leaves and flowers are maintained. Species identification is also easier due to the flowers gathered in cymes. The realism of depiction is intensified by the accurately depicted structure of flower. There is only one cluster of this plant in the picture.

Yet another identified species is the agrimony (*Agrimonia eupatoria*) **[C]**. The artist did not present the whole general habit of the plant. He limited it to a straight shoot ended with a terminal inflorescence. Two visible leaves confirm the identification. The number of pairs of leaflets in the compound leaf is also in accord with botanical descriptions. There are, however, no stipulae. This individual of agrimony, in relation to the adjacent plants, is too short, especially since in the nature this species reaches the height between 30 and 100 cm. Identification is easier due to gold-yellow flowers gathered into long and loose raceme. The corolla consists of five distinct, ovate petals. There is only one such plant in the painting.

In the lower right corner of the painting there is a borage (*Borago officinalis*) **[D]**. The whole general habit of the plant is visible. At the top of the straight, branched stems are flowers gathered into hanging cymes. The lower leaves are big and oval in shape. The upper ones, on the other hand, are smaller and more oblong. The artist did not highlight winged petioles and finely dentate margins of the leaf blades. Despite that fact, the overall external appearance of the plant supports this identification. In nature the height of the borage reaches from 15-20 to 60-70 cm. The presented specimen is within this norm. It should, however, be stressed that it is closer to the lower limit of that range. As in the case of the previous species, the main elements enabling a botanical identification are flowers. They have a characteristic perianth consisting of five spread sepals of the calyx and the same number of blue petals of the corolla. Individual petals are fused at the base, and sharpened at the top. A corolla spread in such manner gives the whole flower a spherical outline. The accuracy of portrayal is highlighted by white throat scales visible in the centres of the flowers, marked by the painter as bright spots. The colouring of the remaining

components of the perianth is very unclear and hardly visible. There is only one group of such plants in the painting. What is more, it is difficult to determine whether it is a single, branched specimen, or three separate plants growing in close proximity to each other.

In the foreground, on the left side of the painting Robert Campin painted a lily-of-the-valley (*Convallaria majalis*) **[E]**. He presented the whole plant in great detail. Its identification is possible due to very thin, characteristic, leafless flowering stems ended with an inflorescence in the form of a single raceme. It is also made easier by big, broadly elliptical leaves with entire, sharply ended leaf blades. The size and proportions of the plant appear correct and in accordance with the specimens observed in nature. The Master of Flémalle captured the lily-of-the-valley in the state of blooming. He accentuated visible campanulate white flowers which hang on short pedicels. Realism is additionally highlighted by the dents of the perianth, characteristically bent outward. In the painting this species is represented by three specimens set next to each other.

Above the lilies-of-the-valley, deeper into the sward is a greater plantain (*Plantago major*) **[F]**. It can be deduced from the external appearance of the plant, especially from the realistically depicted leaves and long peduncles ended with inflorescences. The size and proportions of the plant are in accordance with nature. This species was captured in the state of blooming, which presents its character even better. The flowers of the greater plantain are not directly visible, but grouped in distinct spikes. There is only one specimen of this plant in the painting.

Located under the right shoe of St. Veronica is the first plant of this painting that can not be identified without doubt. It is, most probably, a white dead-nettle (*Lamium album*) **[G]**. This can be deduced from the ovate leaves with serrate margins, as well as the hardly visible white flowers growing from the axils of the upper, cauline leaves. The lack of the whole image of the general habit of the plant makes it difficult to estimate its size. It can be assumed, however, that its size is correct, and the proportions in regard to the diameter of leaf blades and flowers – maintained. The flowers are quite notewothy. They enable the botanical identification of this species. The artist showed their characteristic, bilabiate structure in a schematic manner. As in nature, the flowers of the white dead-nettle are zygomorphic with a corolla consisting of two lips: the upper, longer one, fused from two petals, and the lower,

shorter, tri-lobed one. In the painting there is only one plant portrayed in such manner.

To the left of the white dead-nettle is, most probably, a buttercup (*Ranunculus* sp.) **[H]**. The lack of a complete general picture of the plant and crucial morphological features significantly lowers the accuracy of species, or even genus, identification. The only evidence in favour of this hypothesis is the yellow, actinomorphic flowers with five oval petals of the corolla, as well as the hardly visible leaves. After a thorough observation it can be noted that one of the leaf blades is palmately parted, with segments divided into narrow lobes. Unfortunately, this data is not sufficient enough to indicate a particular species.

Located between the lilies-of-the-valley and the dandelion is yet another plant difficult to identify. Unlike the buttercup or the white dead-nettle, it was painted whole. It consists of visible straight stems, elliptical and oblong leaves, and red flowers. The leaf blades are entire, sessile, with a single, distinct primary vein. The shoots, as well as the leaf blades, are livid green. The flowers grow at the top of the stems and have a characteristic structure of the perianth, with a long, synsepalous calyx. The shape of their crown is spherical, without distinct petals. All of the above features allow the assumption that the plant belongs to the pink family (*Caryophyllaceae*), especially – in the older systematics – to the *Silenoideae* subfamily, that is, members of the carnation family with fused sepals of the calyx. The overall general habit of the plant, its livid green colouring, as well as the structure of the flowers allow the assumption that might be a clove pink (*Dianthus caryophyllus*) **[I]**. The painter's vision, however, shows certain discrepancies, especially regarding the shape and size of the leaves. Therefore, it is difficult to conclusively assign this plant to the indicated species. This particular set of features is represented by only one specimen in the painting.

The remaining plants that constitute the sward are greatly stylised and depicted in a highly schematic manner. Therefore, it is difficult to determine particular species, genus, or even family. They create the background for the identified species, as well as the illusion of naturalness. Many of such elements are various leaves and small flowers. Worth special attention is the unknown plant painted directly above the greater plantain. It has small, white flowers gathered in a type of terminal inflorescence, as well as the lanceolate, sessile leaves. Despite such detailed depiction, the scale of the plant makes its identification impossible. Another unidentified plant is located on the right side of

the painting. It has straight shoots with opposite leaves. The lower leaf blades are broadly oval, and the upper ones are increasingly smaller and more elliptical. The presence of flowers is only indicated by a dark spot. Unlike the previous paintings, there are no grasses distributed in clusters in this painting. The only evidence of their existence is in the form of a few single, linear leaves located near the white dead-nettle.

Among all of the identified plants only the borage and the alleged clove pink are therophytes. In addition, clove pink can also be a biennial plant. The remaining species are perennial plants.

From the phytosociological point of view, the identified plants are not species characteristic of one, common phytocenosis. The common dandelion and greater plantain appear in meadow and pasture communities. The first species is associated with anthropogenic grasslands on fresh soils, while the latter one with excessively trampled locations. Agrimony may also grow on meadows, but it is characteristic of termophilous forest edge plant communities, which present connections with meadow communities. White dead-nettle also exists on forest edges; it is, however, associated with nitrophyte ruderal phytocenoses. Lily-of-the-valley and lungwort belong to forest herb layer[14]. Regarding the occupied habitats such a set of species does not exist in nature, although, common dandelion, greater plantain and white dead-nettle often grow in proximity to one another in ruderal and synanthropic locations. The presence of forest species and solely cultivated species makes the existence of such a sward in the natural environment of Western and Middle Europe virtually impossible. However, it should be noted that the artist might have drawn inspiration not only from a primal landscape, but also from the gardens contemporary to him.

As in the case of the previous paintings, the groundcover consists mostly of plant species common to Western and Middle Europe. Only the borage and clove pink appear in the nature solely in the countries of the basin of the Mediterranean Sea, where they come from. In the

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14 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

remaining parts of the continent they are cultivated in gardens. The borage may sometimes grow wild and become a weed of ruderal locations.

The blooming periods of the majority of the plants put together in the discussed painting coincide with each other and are in June. The only exception is the presence of the apparent clove pink, the flowers of which open in July and August. The discrepancy in the blooming period of lungwort flowering in early spring, as well as lily-of-the-valley in relation to the clove pink makes it impossible to conclusively determine one, common season.

The spatial and compositional arrangement of vegetation depicted in the *St. Veronica* painting is incredibly similar to *Mary with Child*. Among the identified species, one may observe a whole array of single leaves, shoots and flowers. As in the case of the previous painting, they create the illusion of depth and apparent naturalness. In both paintings the painter put together wild-growing and cultivated species; thus, it is difficult to conclusively determine the character of the presented space. Is it a fragment of a natural landscape, or a garden created by man? The answer to this question is even more complicated due to the background covered by the ornate screen, which makes it impossible to determine the setting. The height of the plants on both truf is also similar. All of the above features allow for a speculation that these separate sward may, in fact, be one spatial whole. A noteworthy difference is the different composition of species. Robert Campin did not paint the same species on both paintings. The only exception can be the agrimony, given that the imparipinate leaves from the *Mary with Child* painting actually belong to this species.

Jan van Eyck
(1395-1441)*

* The most recent research concerning this painter was comprised in the historic study by H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes*. The context of cultural history and artistic patronage was comprised in the treatise by S. Cassagnes, H. Martin, *D'Art et D'Argent: Les artistes et leurs clients dans l'Europe du Nord, XIVe–XVe siecles*, Rennes 2001. The exhibition in the National Museum of London surely became the reason for the latest research regarding this artist, although the exhibition concerns only portraits. Renaissance Faces: Van Eyck to Titian National Gallery, London 15.10.2008 to 18.01.2009. (earlier in Museo del Prado-Madryt-03.06.-07.09.2008) A complete monograph E. Dhanens, *Hubert en Jan van Eyck*, Antwerpen 1980. The history of the family of van Eyck brothers, Hubert and Jan, the historical background of the Netherlands in times contemporary to the brothers, as well as the cultural background were discussed in great and thorough detail by E. Dhanens. Inscriptions of the paintings were read – also regarding the ones selected in this publication. Also discussed were the historical characters portrayed by Jan van Eyck – the author does not discuss nature, nor does she present particular species.

The Ghent Altarpiece [Fig. 7]
(Ghent, Saint Bavo Cathedral), 1432
Central panel:
The Adoration of the Mystic Lamb [Fig. 4]

A – sweet violets (*Viola odorata*)
B – lily-of-the-valley (*Convallaria majalis*)
C – common dandelion (*Taraxacum officinale*)
D – lesser celandine (*Ranunculus ficaria)*
E – daisy (*Bellis perennis*)
F – wild strawberry (*Fragaria vesca*)
G – tansy (*Tanacetum vulgare)*
I – Madonna lily (*Lilium candidum)*
J – woodruff (*Galium odoratum)*
K – bearded iris (*Iris germanica*)
L – columbine (*Aquilegia vulgaris*)
M – garden peony (*Paeonia officinalis*)
N – red currant (*Ribes rubrum)*
O – bitter orange (*Citrus aurantium*)
P – greater celandine (*Chelidonium majus*)
Q – Solomon's-seal (*Polygonatum multiflorum*)
R – greater plantain (*Plantago major*)
S – rose campion (*Lychnis coronaria*)
T – evening-scented stock (*Matthiola longipetala*)
U – grape-vine (*Vitis vinifera*)
V – pomegranate (*Punica granatum*)
W – rose (*Rosa* sp.)
X – fig (*Ficus carica*)
Y – date palm (*Phoenix dactylifera*)
Z – guelder-rose (*Viburnum opulus*)
AA – funeral cypress (*Cupressus sempervirens*)
BB – wild cherry (*Prunus avium* = *Cerasus avium*)

Fig. 4. Hubert i Jan van Eyck. *The Ghent Altarpiece*,1432, Ghent, Saint Bavo Cathedral, Central panel: *The Adoration of the Mystic Lamb*, Details A-G; I-Z; AA, BB

This work possesses a highly elaborate compositional and content structure. The main, ceremonial element of the altar is the *Adoration of the Mystic Lamb* with The Righteous Judges and The Knights of Christ on the left side, and St. Christopher in the company of hermits and pilgrims on the right. Located in the central upper part of the composition is the figure of Jesus Christ with Holy Mary and St. John the Baptist at his sides. The remaining panels depict angels signing and playing musical instruments, as well as the figures of Adam and Eve. On the back walls of the wings Jan van Eyck painted the Annunciation, the figures of the donors, as well as St. John the Baptist and St. John the Evangelist. The composition is adorned by busts of two prophets and two Sybils. It is worth noting that the space of such a complex work is filled not only with sacral scenes, but also with a detailed depiction of the natural environment that constitutes an integral part of the whole composition[1]. In this polyptych one can observe numerous species of real plants, which was determined by Belgian botanists[2].

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1 The history of the painting: H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes*. The great yourney of the painter to Portugal among the the highest ranking dignitaries of Prince Philip the Good. S. Cassagnes, *D'Art et D'Argent*, p. 173. For the function of tomb chapels – the destination of the *Ghenat Altarpiece* – see: *ibidem*, pp. 104-112.

2 The initiated research regarding plant life of the Ghent Altarpiece confirms the realism of some of the plants, as well as their symbolic context. L. Hauman, *Etude de la végétation*, in: *L'Agneau Mystique au laboratoire* (*Les Primitifs Flamands,* t. 3, *Contribution à l'étude des Primitifs flamands,* ed. P. Coremans, t. 2, Anvers 1953, pp. 123-125; K. van Assche*, Planten bij Van Eyck*, „Monumenten en Landschappen", 15 (1996), pp. 8-25. The authors of that edition, focused on plant life in the paintings by Jan van Eyck, stress the observation of real plants by the master, as well as his thoroughness of their depiction. However, as of now, nobody has undertaken the task of comprising a natural typology including all paintings by this painter – which would undoubtedly allow the creation of botanical synthesis. The sketchbook of the painter, unfortunately not preserved, would considerably aid the degree in which real, sketched plants were transferred in to the composition of the

In terms of floral content, the scene of the Adoration of the Lamb is the most elaborate panel of this triptych. In its centre, in the foreground, right in front of the altar on which the Lamb is situated, the painter depicted a sward in bloom. Among the identifiable plants the most visible are numerous specimens of sweet violets (*Viola odorata*) [**A**]. In the majority of cases the painter presented their whole general habit, including the rosette of basal leaves and dark blue flowers on long pedicels. The leaf blades are visibly rounded or broadly ovate with rounded tips. They, however, do not possess visibly marked bases or crenated margins. The height and proportions of the violets appear to be correct, especially in regard to the size of the remaining plants and numerous figures in the painting. Genus and species identification is possible predominantly due to the flowers. Some specimens are presented with great detail both in the foreground and the background. One can observe the dorsiventral flower structure and the corolla consisting of five petals with a lighter throat. In the remaining cases the perianth was reduced to a blue-purple spot, merely indicating its existence. This species is represented by sixteen distinctly visible specimens, as well as by three highly probable ones. They are distributed in two sections of the panel – some in the foreground, just behind the groups of saints on the right and left side of the work, whilst the remaining ones can be found in the centre of the composition, between the altar and the fountain[3].

Perfectly visible against the background of the sward are also lilies-of-the-valley (*Convallaria majalis*) [**B**]. They were shown whole as well. The presented specimens have both big, ovate-elliptic leaves, as well as white flowers gathered into a dorsiventral raceme. The artist depicted the leaf blades in accordance with reality, including the minutest features of the morphological structure. Among these features he presented the sharp tips, as well as the parallel venation. The plants situated in the background were treated with less precision due to their localisation and the distance created by perspective. The size of

panels ordered by high society: royal and clerical, interested in the presentation of visible, real world. This did not exclude the interpretation of the presented reality as a vehicle of symbolic sense, so deeply incorporated into the paintings by Jan van Eyck – especially plants. R. Falkenburg, *The Fruit of Devotion: mysticism and the imagery of love in Flemish paintings of the Virgin and Child 1450-1550*, Amsterdam 1994.

3 For the incredibly complex character structure of the central section, as well as historical findings, see: E. Dhanens, *Hubert en Jan van Eyck*.

this species in relation to the adjacent plants is correct and within the norms observed in the nature. As in the case of violets, identification of this plant is possible due to the flowers. They grow on a leafless peduncle which is shorter than the leaves. The artist captured their campanulate shape with the dents of the corolla characteristically bent outward. In the discussed panel one can find seven blooming lilies-of-the-valley. Two specimens of this plant are located on the left side of the sward, in the foreground, and one in the central part of the panel. Two other specimens can be observed right behind the central fountain. The fifth one is located on the right side, next to the group of holy women, while the last one – in the background, above the heads of the heathen and Jews.

A well known and popular plant that can be seen on the sward is the common dandelion (*Taraxacum officinale*) **[C]**. As in the case of the paintings by Robert Campin, conclusive identification of this species is quite problematic. Due to this fact the plant has been identified only as a coenospecies. Jan van Eyck presented the whole plant. He included the rosette of basal leaves with accurately depicted morphological features, as well as the inflorescences in the form of separate anthodia. The specimens presented in the painting maintain their proportions in regard to the remaining plants and their sizes are in accordance with the natural environment. All of the dandelions were captured in the state of blooming. In addition, there are frutification spherical in shape and tufted form on two of them. It should be noted that the artist depicted their translucence with great care. This plant is present in the form of six specimens distributed throughout different sections of the sward. Two of them are located in the foreground, and the remaining four are in the background – one near the altar with the Lamb, and the last three on the left and right sides of the panel.

Another identified plant located in the centre of the panel is a lesser celandine (*Ranunculus ficaria* = *Ficaria verna*) **[D]**. The lesser celandine depicted in the painting is presented in a fashion enabling successful identification. The painter marked its raised shoots, as well as two types of rounded, heart-shaped leaves. The lower ones are basal, while the upper, cauline leaves are alternate, on long petioles. The leaf blades of all the leaves are shallowly crenate or entire. In the nature this plant reaches the maximal height of 25 cm, thus, the size of the visible specimen is probable. The most visible elements of this plant are three yellow flowers captured in different stages of development.

Next to a fully developed flower the artist set one closed and one only opening from its bud. In accordance with nature the flowers have an actinomorphic corolla consisting of narrowly ovate and obtuse petals. In reality there are from 8 to 12 of them, and on the presented specimen there are 9, which is within the said limit. There is only one specimen of this plant in the painting.

Located in the foreground, on the left side of the painting is daisy (*Bellis perennis*) **[E]**. It can be deduced from the overall external appearance of the plant, the characteristic leaves that create a basal rosette, as well as white flowers in anthodia growing at the tops of leafless stems. The structure of the depicted vegative organs does not differ from its natural prototypes. The height of the plant is consistent with specimens observed in nature, and the proportions of the leaves and flowers are maintained. Despite the fact that this plant is located in the foreground, the flowers were depicted with insufficient accuracy. There is not enough visible detail regarding the lateral, ray flowers or central, disc ones. In the whole panel one can find only one daisy depicted in such fashion. Nonetheless, it appears that numerous white spots scattered throughout the whole sward are also daisies, only treated in a highly schematic fashion.

Vegetation of the *Adoration of the Lamb* panel also consists of numerous specimens of wild strawberry (*Fragaria vesca*) **[F]**. Botanical identification of this species is possible predominantly due to the basal, trifoliate leaves. Single leaflets are oval and deeply dentate. The height of the plant, as well as the size of its leaves is in accordance with reality. The presented specimens do not have visible shoots, flowers, or fruits. Jan van Eyck painted six identifiable specimens of this species. Two wild strawberries are located in the foreground, one on the left side of the painting, the other on the right. Three remaining specimens are in the background: two on the right side, above the figures of bishops and popes, and one in the dense vegetation on the left. One cluster is also located to the left of the Madonna lily. In addition, in the vicinity of Solomon's-seal, as well as in front of the central fountain, the painter set single trifoliate leaflets, which suggest the presence of this species.

Among the plants decorating the central sward is a tansy (*Tanacetum vulgare* = *Chrysanthemum vulgare*) **[G]**. All presented specimens of this plant are in the form of spread clusters. Identification is possible due to the presence of characteristic leaves. The leaf blades are

depicted with detail and precision, contrary to the stems and flowers. Most of the leaves grow on long petioles and their shape is pinnate or double-pinnatisect, with segments incised or pinnately serrated. Additionally, the dents of the segments are directed upwards. Insufficiently marked shoots do not allow a precise estimate of the height of the whole plant. The size of the leaves is probable, due to the fact that in nature they may reach even up to 40 cm in length. The painter captured the outlines of yellow flowers gathered into terminal flat-top inflorescences only in one painting. There are four clusters of tansy visible in the painting: two in the vicinity of the kneeling angels, around the altar with the Lamb, the third one at the lower edge of the painting, and the fourth one on the left side of the panel, among other plants. The last of the above specimens was captured in the state of blooming.

Visible against the background of the green turf are characteristic trifoliate leaves. Presumably, they belong to a common species, i.e. white clover (*Trifolium repens*) [**H**]. The only visible parts of this plant are numerous clusters of small leaves. It is in accordance with reality, due to the fact that, in nature this species forms dense patches consisting mainly of leaves. The stems and flowering stems are relatively less visible, thus less noticeable in the painting. The leaflets, as in reality, are broadly obovate, with a rounded tip. However, the painter did not include two significant features of the leaves, i.e. they should grow on long petioles, and have a light spot on the exterior side of the leaf blades. It may be so due to the scale of the painting, and the size of the presented plants as white clover is a relatively low species, and as such it was presented in the painting. The proportions of the single leaflets and whole leaves are maintained. None of the presented specimens of this plant possesses capitular inflorescences with white flowers. An accurate estimate of the number of specimens is difficult, especially that single trifoliate leaves, or clusters of such, are scattered across the entire sward.

Located on the right side of the painting is a Madonna lily (*Lilium candidum*) [**I**]. The painter shown whole plant. The artist included all vital morphological features that enable botanical identification. He presented a thick, non-branched stem, at the top of which he painted, with high precision, flowers gathered in a raceme. Lanceolate leaves are concentrated both in the basal section of the stem, as well as in its higher sections. Most of them are alternate or in distinct whorls. The height of the entire plant, as well as the proportions in regard to

flowers and leaves are maintained. The painter presented four fully developed flowers, as well as three only beginning to develop from buds. The corolla of the flowers is white and funnel-shaped. In the painting this species is represented by two specimens located next to each other. However, it should be noted that one of them has flowers only in the form of buds.

Located on the right side of the Madonna liliy is woodruff (*Galium odoratum* = *Asperula odorata*) [**J**]. This can be deduced from the leaves gathered into characteristic whorls. The leaf blades are sessile, and lanceolate in shape. There should be from 6 to 8 of them in a single whorl, and as such they were painted in the panel. The presented specimen has also raised, brittle shoots, at the top of which one can find inflorescences in the form of loose corymbs. The height of the plant is proportional in regard to the adjacent species and corresponds to the specimens observed in nature. The flowers, on the other hand, were treated in a highly schematic fashion. White spots merely indicate their presence. Neither the structure of the perianth, nor the small four-petalled corollas are visible. There are four specimens of sweet woodruff in the painting: two of them in the central section of the composition, and the remaining two on the right side of the painting.

Yet another identifiable plant is the bearded iris (*Iris germanica*) [**K**]. The whole plant is presented. One can see leafless stems, at the top of which are magnificent flowers. There are also basal, broadly sword-shaped leaves with realistically depicted morphological features. The size of the iris appears to be in accordance with reality, and the sizes of its flowers and leaves are proportional. The plant was captured in the state of blooming. The painter depicted both open flowers, and those yet to develop from buds. He depicted their colouring and complex structure with great detail. The flowers consist of fused leaflets of the perianth, three of which are raised, and the remaining three are recurved. The first ones are light blue-purple, and the latter are dark blue with a lighter base. There is only one group of irises in the discussed panel.

To the right of the iris is columbine (*Aquilegia vulgaris*) [**L**]. The artist presented the whole general habit of the plant with great detail. He included the characteristic, sparsely leaved, raised stems, as well as two types of leaves – lower, long-petioled, trifoliate and upper, cauline, sessile. In the natural environment this species may reach

up to 80 cm in height, thus the size of the specimen captured by Jan van Eyck is probable. However, it should be noted that the plant presented in the panel does not reach the maximal height, especially that this species is not much higher than woodruff which reaches the maximal height of 30 cm. Assuming this value as a basic size, it is possible to estimate the height of the columbine to fall between 30 and 40 cm. The diameters of the leaves and flowers, as well as their mutual proportions, are maintained. The most recognisable elements of this plant are the dark blue flowers. Located at the top of branched stems they hang in a characteristic fashion. Also visible is the specific structure of the corolla, especially the hooked spurs. Apart from the flowers the artist painted more than ten yellow-green spots indicating the presence of buds or fruits. There are two specimens of this plant in the painting. The second specimen is situated in the left section of the panel, just behind the lily.

Located next to the columbine is, most probably, a peony (*Paeonia* sp.) [**M**]. Unfortunately the high number of species and varieties within this genus makes it difficult to conclusively identify the plant painted by Jan van Eyck. Diagnostic features in the form of the general habit of the plant, the shape of the leaves, and the appearance of the flowers can only suggest that the specimen is in fact a garden peony (*Paeonia officinalis*). Set at the tops of raised shoots covered with a mass of tripinnate leaves are red flowers. The leaf blades are of a rounded outline, divided into narrowly ovate or lanceolate and sharpened segments with entire margins. The size of the garden peony in relation to the height of the remaining plants can be estimated to fall between 50 and 60 cm. Therefore, the size of this specimen is real. It does not, however, reach its maximal height. The size of the flowers and the diameter of the leaves are proportionate and in accordance with reality. The identification of the species and, especially, the genus is possible predominantly due to the single big flowers. They grow at the tops of stems and the structure of their perianth is quite visible. The artist marked the broadly ovate green or red sepals of the calyx, as well as the longer oval petals of the corolla. There is only one specimen of peony present in the painting.

Serving as a background for the plants located on the right side of the painting is a large shrub. Most probably it is a red currant (*Ri-*

bes rubrum = *Ribes vulgare*)[4] **[N]**. Of all crucial diagnostic features the painter portrayed its characteristic, palmately-lobed leaves. The leaf blade, however, are not very detailed. Most importantly, the leaf segments do not have dentate-serrate margins or clearly marked tops which should be acuminate. The shoots were also painted in a highly schematic fashion. In nature they are straight and slender, while in the painting they are only marked as dark streaks. The identification of its species is difficult also due to the lack of visible flowers and fruits. The size of the presented currant is in accordance with reality. Its height can be estimated to fall between 1.5 and 2 metres, which corresponds to the dimensions of the specimens observed in reality. The point of reference is the size of the adjacent plants, and the height of the holy women. There is only one shrub of this plant in the painting.

Above the currant is an impressive plant with yellow-orange, spherical fruits. Most probably it is a bitter orange (*Citrus aurantium*) **[O]**. Identification of the species is possible due to the presence of characteristic fruits. Also visible are the dark green leaves with an ovate-oblong shape and entire margins. The external appearance of the plant is in accordance with reality, since in nature bitter orange is a high shrub or a low tree with a spherical crown. The height of this plant can be estimated to fall between 2.5 and 3.5 m, therefore its height is maintained, and the diameters of the fruits, as well as the length of the leaves are proportionate. The presented specimen does not present big, white flowers which should grow individually or in umbels in leaf axils. There is only one bitter orange in this panel.

A species that, in a peculiar fashion, brings together the plant life from both sides of the panel is the greater celandine (*Chelidonium majus*) **[P]**. Two perfectly depicted specimens of this plant are set in the opposite sections of the panel. The artist presented the entire general habit of both plants. He included their branched stems, pinnatisect leaves, as well as yellow flowers. Most visible are the terminal leaflets divided into three leaf segments with crenated margins. The remaining ones, ovate or oval, are marked with less significance. The height of the greater celandine is probable, and the proportions of its leaves and flowers are maintained. The appearance of the flow-

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4 According to the latest findings, red currant *Ribes rubrum* L. was divided into two species, i.e. *R. spicatum* E.Robson and *R. rubrum* L. (see: W. Seneta, J. Dolatowski, *Dendrologia [Dendrology],* p. 219).

ers resembles that of the specimens observed in nature. They have a gold-yellow corolla with four obovate petals. Apart from the already described specimens, one can see a plant with similar leaves in the central part of the painting, to the left of the Madonna lily. Due to the lack of more accurate morphological features these specimens remain in the sphere of speculation.

On the left side of the painting, just above the greater celandine is an impressive Solomon's-seal (*Polygonatum multiflorum*) [**Q**]. It is one of the best depictions in the described painting. The painter showed its typical, bending down, arched stems. Alternate leaves, bilaterally distributed on shoots, do not have petioles. The leaf blades, as in nature, are elliptical, entire, with clearly visible parallel venation. The closer to the tops of the stems they are, the smaller they should be, which unfortunately is not visible enough. The height of this plant is within the norms observed in the natural environment. The diameter of the leaves and the size of the flowers in regard to the whole plant are proportionate. A very important distinctive feature of the Solomon's-seal lies in its numerous campanulate flowers. The existence of a campanulate-tubular perianth is only indicated, and the white colouring of the corolla with green tint, is captured with more precision. The flowers grow on short pedicels in the axils of the leaves and hang typically for this species. In the painting this plant is represented by a single specimen.

In the dense vegetation the painter set what is, most probably, a greater plantain (*Plantago major*) [**R**]. The uncertainty accompanying the identification of such a common species is due to the fact, that the presented plant does not have the typical, broadly ovate leaves with parallel venation. Despite the fact that the leaf blades are, as in nature, gathered into a basal rosette, their shape differs from the most common from. Their outline is prolonged and linear, devoid of clearly visible venation. In favour of this species is the single thicker line running from the centre of the rosette of basal leaves. It may be a leafless peduncle, characteristic to the greater plantain that was painted in a schematic manner. However, there is no cylindrical inflorescence at its top. The height of this plant appears to be correct and in accordance with reality. The painter depicted only two identifiable specimens of this species; however, in the central section of the sward one can see a few plants that have leaves and genaral habit similar to greater plantain.

Painted on the left side of the panel is a rose campion (*Lychnis coronaria*) [**S**]. It occupies a significant fragment of the panel and forms a field impressive in size. The artist painted the entire plant. He marked its raised shoots, ovate or ovate-lanceolate leaves, as well as flowers gathered into a loose inflorescence. The leaf blades are sessile and entire. In reality they are covered with grey tomentose, due to which they are livid green. However, this feature was not included in the painting. The height of this species, in relation to the adjacent plants, is probable. The flowers have wide, overlapping petals of the corolla and are purple-red. Located next to them are numerous specimens with white flowers. It is difficult to conclusively determine the number of specimens growing in such a big cluster. However, it should be noted that these plants appear only in one place.

The next identified plant is a stock (*Matthiola* sp.) [**T**]. Unfortunately, it is difficult to conclusively identify its species. The highlighted morphological features indicate that it may be an evening-scented stock (*Matthiola longipetala*). Jan van Eyck painted the whole plant. He included its raised, straight stems, at the tops of which he set purple flowers. The leaf blades are not highly exposed. Their shape is obovate and prolonged. They are entire, and their tops are rounded. The height of the presented evening-scented stock is probable. It can be assumed that, in regard to the sizes of the adjacent plants, its height spans between 30 and 40 cm, thus being similar to the values observed in nature. It is due to the flowers that botanical identification of this plant is possible. The painter visibly highlighted its typical four-petalled corolla. The petals are prolonged, rounded and paired opposite to each other. In the painting the evening-scented stocks are gathered into a single cluster and it is difficult to assess the number of individual plants.

Also visible in this part of the painting is a grape-vine (*Vitis vinifera*) [**U**] spread upon a wooden support. This plant was presented in a clear and unambiguous manner. One can observe brittle shoots with tendrils, as well as big, three-segment leaves with dentate margins. The realism of depiction is intensified by the presence of yellow-green fruits gathered into hanging clusters. The height of the plant is difficult to assess, since it is a vine that, in nature, reaches even up to almost twenty meters in length. Its size depends on the support, on which it is spread. However, the proportions of the leaves and fruit are maintained. The depicted grape has no visible flowers. It may

be so due to the fact that the flowers of grape-vine are small and yellow-green, gathered into dense raceme. On the other hand when grape-vine frutificates it no longer blossoms. This plant was painted only in one location and is represented by a single spread specimen.

To the right of the grape-vine is pomegranate (*Punica granatum*) [V]. As in nature, the presented plant has the general habit of a tall shrub. Its straight and raised shoots are perfectly visible. The artist, however, did not highlight their aculeate character. Oblong-lanceolate leaves with entire margins are sessile and opposite. The size of the shrub is probable, although in reality this plant can be much higher, reaching up to 5 m in height. The presented specimen is captured in the state of blooming and fruiting. It is due to the flowers and fruits that complete species identification is possible. The brightly red flowers have a clear, funnel-shaped corolla. The petals, however, are not visibly marked. The artist included the phenomenon of dimorphism of flowers, typical for this species. He painted both the big funnel-shaped flowers growing on young shoots, as well as the small, less developed ones from the older shoots. In addition, the identification of this plant is made easier by the spherical fruits, also called pomegranates, which in their shape and size resemble apples. They are berries with the diameter reaching 12 cm. In nature the involucre of the pomegranates is red or yellowy. This species is represented by a single specimen.

Nearby, on the right side, the painter set an expansive, blooming rose shrub (*Rosa* sp.) [W]. As in the case of the left panel of the *Mérode Altarpiece*, it is highly difficult to determine the particular species. The visible plant has a general habit with straight shoots. The most highlighted elements, however, are the compound leaves and the full red-pink flowers. The leaf blades are imparipinate and consist of five elliptical leaflets. The height of the rose is probable. It can be estimated that it falls between 1.5 and 2 m. The points of reference are the nearby figures of bishops. The proportions of the leaves and flowers are maintained. The flowers of this rose are depicted in a clear and accurate manner. The artist painted both fully developed flowers, as well as those only developing from their buds next to each other. In the whole painting there is only one representative of this genus.

Presented above the rose is an impressive plant. Most probably it is a fig (*Ficus carica*) [X]. In nature this species appears in the form of a high tree with a broad corolla. The shown specimen is high; however it is difficult to conclusively determine whether it is a huge

shrub or a tree. Identification of the species and genus is possible due to big, characteristic leaves. The shape of the leaf blades is round and they are palmately-labed with 3-7 labes. In its natural environment this species reaches up to 15 m in height. However, the specimen presented in the panel is much smaller. Its height can be estimated to fall between 3 and 5 m. The diameter of the leaves, in relation to the whole plant, is proportionate. The depicted fig is not in the state of blooming or fruiting. The painter did not include its small flowers, or the impressive, pear-shaped fruits. In the painting this species is present only in the form of a single specimen.

Set deeper into the painting, against the background of the sky is the another identifiable plant. It can be assumed that it is a date palm (*Phoenix dactylifera*) **[Y]**. One may deduce it from the characteristic plume of pinnate leaves growing at the top of a straight, non-branched trunk. Below the base of the leaves one can see fruit hanging under the strain of their own weight. As in reality, they are red-yellow. In nature the height of the date palm may reach up to 20-35 m. The specimen painted by Jan van Eyck probably falls within that range, although it is difficult to assess its size. Especially due to the fact that the plant is located in the background and the depiction includes the distance created by perspective. In the *Adoration of the Mystic Lamb* panel, the described species is shown only once.

Behind the group of church dignitaries with palm leaves the painter portrayed a dense cluster of vegetation, among which one can observe two species. The first one is, most probably, a guelder-rose (*Viburnum opulus*) **[Z]**. It is indicated only by the characteristic inflorescences. They grow at the tops of shoots and have the form of a flat, broad corymb. Small flowers that comprise them are only indicated by spots of paint. Situating this plant in the background makes the shape of the leaves, as well as other important diagnostic features, not visible enough. The height of the guelder-rose in relation to the entire painting appears to be correct, and the proportions maintained. In the painting it is represented by a single specimen.

The other species is a funeral cypress (*Cupressus sempervirens*) **[AA]**. Identification of this plant is only possible due to its typical, columnar habit. It is the first coniferous species depicted in the analysed Flemish works. In nature it has the form of a tree with a dense crown and branches raised diagonally. In the painting these features are not visible, especially since the plants are situated deep in the

background of the painting. The artist painted them in a quite general and schematic fashion, focusing whole attention on the shape of the general habit and dark green colour. In nature funeral cypresses reach similar sizes as date palms, thus the height of the presented trees is probable and proportional. In the discussed panel one can observe four specimens of different height and width.

In the background the painter set a tree depicted in a quite specific fashion. It is possible that the plant is a wild cherry (*Prunus avium* = *Cerasus avium*) **[BB]**. The artist captured the whole general picture of this, in fact, low tree. However, it is not the shape of the crown, nor the distribution of the branches that make botanical identification of this plant possible, but, most importantly, its colouring. The presented specimen is livid green. Such is the colour of the lower parts of the leaves due to the fact that they are hairy. This colour can be gained additionally by the wild cherry during the period of spring blooming, when, apart from laves, the whole plant is densely covered with white flowers. Due to the distance created by perspective, it is difficult to determine the features of the leaves, as well as other important elements of morphological structure. The height of this tree is probable, especially that it can reach the maximum of 10-20 m. In the entire *The Ghent Altarpiece* there is only one plant presented in the described fashion.

Apart from the identified specimens worth special attention are also the plants whose species or genus is not conclusively identifiable. Often they are painted with great detail, including their general habit, shape of the leaves, and the type of the flowers. Located on the right side of the picture, in the vicinity of woodruff and columbine, are two such realistically depicted plants. The painter highlighted their general habit, spatulate, sessile leaves, as well as pale yellow flowers. The leaf blades are big, entire, with visible venation. The height of the specimens can be estimated to be 30 cm, however without species identification the accuracy of this estimate cannot be confirmed. The precision of depiction is highlighted by flowers gathered into anthodia which grow on top of the stems. They consist of distinct, lateral, ray flowers. These characteristics suggest that they belong to the *Asteraceae family*. These plants are represented by two quite similar specimens located only in one place in the picture.

On the left side of the panel, near the group of clergymen, is yet another plant difficult to identify. As in the case of previous plants,

the general habit was presented. One can see its raised and branched shoots, at the tops of which are white flowers gathered into inflorescences. The leaf blades are palmately parted and depicted in a highly schematic fashion. It is difficult to determine the number of segments they were divided into. There is only one plant presented in this fashion.

Located in the same section of the painting is a small plant with straight and branched stems. At their tops the artist set light, actinomorphic flowers whose corollas consist of five rounded petals. The physiognomy of the flowers resembles the generative organs of buttercups. Unfortunately, the lack of other, more visible similarities excludes the possibility that it is a representative of the buttercup genus (*Ranunculus*). The leaf blades are merely indicated. Their shape, margins, or distribution on the shoots are not visible. This plant is present in the painting in the form of a group consisting of a few individual specimens.

In the central section of the sward the painter placed another plant impossible to identify. It has straight shoots, at the tops of which one can observe small, bright yellow or white flowers. The leaf blades are relatively narrow and divided into three leaf segments with entire margins. The terminal segment is significantly longer than the two remaining ones. The leaves become visibly smaller, the closer they are to the tops. Located in the top sections of the shoots the leaf blades are very small, and their segments are almost linear. Despite so many depicted details, identification of this plant is highly problematic. It is represented, most probably, by two specimens. Both of them are located in the centre of the composition, near the kneeling angels.

To the right of the fountain Jan van Eyck painted a rosette of imparipinate leaves consisting of 7 or 9 elliptical leaflets. A plant shown in this manner, lacking the presence of flowers or inflorescences is difficult to identify as a member of any particular species. It is due to the fact that in nature there are numerous species with such compound leaves.

Vegetation of the panel is also supplemented by single stylised leaves and shoots. In addition, the space of the sward is filled with grasses distributed in clusters. Despite the fact that their botanical identification is impossible, they enliven the turf and create an illusion of naturalness. A similar role is played by numerous light spots scattered across the whole grassland. They indicate the presence of

flowers which, given their size and the fact that they are set in the middle ground and the background, could not have been captured with more precision.

Deeper into the painting one can find numerous plants, botanical identification of which is impossible. The majority consists of various shrubs and trees that create natural clusters. Their genaral habit, colour of leaves and texture of the bark are insufficient for species identification, especially due to the fact that the artist often treated them schematically, using the same forms for all of the plant life situated farther in the painting. Leaves, the most important diagnostic feature, in the case of trees and shrubs are almost completely invisible.

The analysed painting is dominated predominantly by perennial species. Some of them are woody plants, i.e. trees and shrubs, and some are perennial plants. The only exception is the evening-scented stock, which is a therophyte. Among the plants is also a grape-vine, the only vine in the painting.

The phytosociological analysis of vegetation in the discussed panel is very difficult. It is so due to the fact that there are numerous species from various biotopes, placed in uneven groups. In addition, some of the species used by the author do not occur in the natural phytocenoses of Western and Central Europe[5]. Therefore, the presented plants are not species characteristic of one, common unit of syntaxonomy. However, it should be noted that after dividing the vegetation of the painting into smaller fragments, a kind of synthesis can be made. The sward consists of, among others, meadow and pasture plants: common dandelion, daisy, and white clover. The last two plants in this group are characteristic of intensively utilised pastures in oak-hornbeam forest habitats. The turf is also supplemented by the sweet violet and greater celandine, i.e., nitrophyte communities of perennial plants of the forests edges. However, lesser celandine, woodruff, Solomon's-seal, lily-of-the-valley, and columbine are associated with

[5] The sketchbook, filled by Jan van Eyck probably during his trip to Portugal and The Holy Land was not preserved; however, it would be a priceless source of plant identification by the artist himself. This confirms the knowledge possessed by art historians regarding the realism of the works by Jan van Eyck, and the artist's goal to recreate the sensual world. One cannot diminish the symbolic sense in which plants, the whole nature, were portrayed in the medieval art in accordance with such natural codes as bestiaries, pharmacological and agricultural books. See: U.M. Mazurczak, *Pomiędzy wzorcem, a szkicem [Between the pattern and the sketch],* pp. 5-25.

plants of forest herb layer. The first three species are characteristic of mesotrophic and eutrophic broadleaf forests of Western and Central Europe. Lily-of-the-valley and columbine, on the other hand, are characteristic of xerothermic oak forests. The wild strawberry, which also appears on the sward in great numbers, grows in plant communities of forest clearings, while tansy in phytocenoses of ruderal habitats. Guelder-rose is a species characteristic of buffer communities of shrub formations of subatlantic and Central-European distribution[6]. Having compared the biotopes of the identified species one may come to the conclusion that the artist painted and combined plants belonging to different habitats. By doing so he portrayed forest and meadow species alongside each other. On the other hand, some of the presented plants may be a part of many diverse biotopes, travelling from one to another due to high adaptive capabilities. A good example is the dandelion, daisy and greater plantain, which are meadow species, at the same time they appear in ruderal locations and in scrub. What is more, the plant life of the painting is supplemented by numerous foreign species, which in Western Europe exist only as cultivated plants. Therefore, it can be stated that plant life presented in the panel is unnatural. In reality such phytocenosis, in which there are both plants of temperate and subtropical climates, does not exist. Alongside the wild-growing species are plants observed only in gardens. Therefore, vegetation is not a reflection of a real phytocenosis, but a purposefully created space, a background for a lofty, sacred scene – the New Jerusalem.

The *Adoration of the Mystic Lamb* panel of the *Ghent Altarpiece* presents the most numerous and diversified plant life of all works of the analysed Flemish masters of the 15th century. Next to the wild-growing species of Western and Middle Europe the painter set plants from the basin of the Mediterranean Sea. During his travels to Portugal, Spain, Italy, and even to The Holy Land[7] Jan van Eyck had the opportunity to observe the plant life of these far regions. Enriched

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6 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

7 A. Hagopian van Bruen, *Jan van Eyck*, in: *The Dictionary of Art*, ed. J. Turner, New York 1996, p. 707.

by new observations, he diversified his painting by utilising vegatation unknown and exotic in comparison to the flora of North-Western Europe. He used popular plant species that were known since antiquity in the Mediterranean countries. He showed trees, shrubs, and herbaceous plants. This vast group encompasses: date palm, funeral cypress, fig, pomegranate, bitter orange, grape-vine, garden peony, evening-scented stock, rose campion, and bearded iris. The straight majority of these plants come from the areas of South-Eastern, Central, or Western Asia, including the regions of Asia Minor and Near East.

The majority of the presented plants are captured in the state of blooming. On the basis of the period of flower development of these species, one can state that for the majority the common months are May and June. It is difficult, however, to determine a uniform period of time, in which all of the depicted plants could appear in the state of blooming. The greatest discrepancy pertains to the sweet violet and lesser celandine in relation to Madonna lily, rose campion, and tansy. The first two of the listed plants bloom from March until May, whereas the generative organs of the latter plants do not develop until June and July. Therefore, it is not probable for these plants to bloom simultaneously. The greatest disproportion is caused by tansy which blooms from July to October, thus colliding with the majority of the remaining species. The only mitigating argument is the fact that only one specimen of the tansy presents outlines of faintly visible flowers. It could indicate an initial stage of blooming of this particular species.

The spatial and compositional arrangement of the entire vegetation presents impressive innovation. It manifests itself in the highly natural presentation of plant life[8]. The artist, an excellent observer of nature, creates clusters of plants. He sets low, often decumbent species on the sward, in the compositional centre of the painting. He moves the taller species increasingly farther, into the more distant sections of the panel, grading them by their shape, as would a professional gardener tending to a flower-bed. In the end, he crowns the entire composition with magnificent shrubs and trees. An interesting solu-

8 In their research regarding the paintings by Jan van Eyck, art historians focused their attention on the "realism" and "resemblance" of faces, human physiognomy. D. Jansen, *Similitudo. Untersuchungen zu den Bildnissen Jan van Eycks*, Köln 1988. On the basis of floral analysis one can speculate that the painter had an analogical approach to the depicted object. This problem is wothy of futher study.

tion is also the usage of vegetation to mark the depth of perspective. The sward of the foreground and the middle ground is distinctive and darker, composed of identifiable specimens, situated among which are clusters of grasses. Spread immediately behind the angels and the altar of the Lamb is relatively lighter turf, covered only with pale yellow spots suggesting the presence of flowers. However, it should be noted that they have their function as well. Present both in the foreground and in the middle ground, they combine the whole sward of the painting into one, spatial complex.

The original character of the panel is also highlighted by the fact that the background of the scene is an open landscape[9]. It is the first among the examined works that enables the analysis of plant life to be performed in a broader aspect, beyond the foreground or the middle ground. The identified plants can be confronted with their habitat and the entire environment. Therefore, they become not only decorative details enhancing the expression of the content of a given scene, but also elements of the entire captured plant life. Specific only to this painting is the high number of specimens within a single species. This variety enabled the painter to increase the realism of depiction, and the turf ceased to be only a collection of individual, displayed plants.

The character of the space presented in the painting is ambiguous. It is difficult to decide whether it is a part of a natural landscape or a deliberately designed garden[10]. The forests, mountains, and the

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9 Inspirations regarding the landscape compositions by Jan van Eyck from the first half of the 15th century are the object of study of numerous scientists, here the present author names only the key figures. M. Meiss, *Jan van Eyck and the Italian Renaissance*, pp. 58-69; M. Davies, *The Earlier Italian Schools*, London 1951; L. Castelfranchi-Vegas, I rapporti Italia-Fiandra, „Paragone" 201 (1966), p. 195 as well as the book by the same author (see: L. Castelfranchi-Vegas, *Italia e Fiandra nella pittura del Quattrocento*, Milano 1983); O. Pächt, *Early Italian Nature Studies and the Early Calendar Landscape*, p. 13 and nn; E. Panofsky, *Early Netherlandish Painting*, Cambridge 1953, passim; G. Panhans, *Florentiner Maler verarbeiten ein Eyckisches Bild*, pp. 188-198. The basis for finding similarities is the concept of the landscape, which relates to the idea of nature, or the idea of man within a landscape. None of the monographs known to the present author analyses the role of plant life that fills the area of the landscape, while comparing the works of our artist with his inspirations in the works of Ghirlandaio, Verochio or Domenico Veneziano.

10 Setting this painting in garden realities, as in many other works by Jan Van Eyck serves the symbolic content of the painting. The spiritual dimension of the painting is not fully possible without botanical identification. M. W. Ainsworth, B. Bousmanne, L. Campbell, *Les primitifs flamands et leur*

river hidden in a valley are in favour of the first option. On the other hand, the presence of cultivated and exotic species, as well as the proximity of human settlements may indicate that it is a fragment of a flowering meadow, especially due to the fact that in the medieval times these were popular garden compounds established outside the defensive walls. They appeared in the form of vast clearings surrounded by dense, natural plant life enriched with cultivated species. They served as venues for more or less official meetings, festivities, and tournaments[11].

temps, in: *La Renaissance du Livre*, Louvain-la-Neuve 1994, pp. 304-305; E. Dhanens, *Hubert en Jan van Eyck,* pp. 295-297.

11 M. Siewniak, A. Mitkowska, *Tezaurus Sztuki Ogrodowej [Thesaurus of Garden Art]*, Warszawa 1998, p. 135; L. Majdecki, *Historia ogrodów. Od starożytnosci po barok*, *[History gardens. From ancient times to the Baroque],* t. 1, Warszawa 2008, pp. 82-83.

Rogier van der Weyden
(1399/1400-1464)*

* Dating of the painting by Rogier van der Weyden, as well as certainty regarding their actual author (sometimes debatable) was adopted from: H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes*.

Medici-Madonna
(Virgin with the Child and Four Saints)
(Frankfurt, Städelsches Kunstinstitut), 1450 [Fig. 5]

A	–	Madonna lily (*Lilium candidum*)
B	–	bearded iris (*Iris germanica*)
C	–	germander speedwell (*Veronica chamaedrys*)
D	–	redshank (*Polygonum persicaria*)
E	–	sweet violet (*Viola odorata*)
F	–	meadow buttercup (*Ranunculus acris*)
G	–	ribwort plantain (*Plantago lanceolata*)
H	–	forget-me-not (*Myosotis* sp.)
I	–	red campion (*Silene dioica*)
J	–	bugle (*Ajuga reptans*)
K	–	red clover (*Trifolium pratense*)
L	–	wild strawberry (*Fragaria vesca*)
M	–	greater celandine (*Chelidonium majus*)
N	–	crane's-bill (*Geranium* sp.)
O	–	feverfew (*Tanacetum parthenium*)

Fig. 5. Rogier van der Weyden. *Medici-Madonna, (Virgin with the Child and Four Saints),* 1450, Frankfurt am Main, Städel Museum, © Städel Museum, Details A-O

This work presents the scene in which Mary and Baby Jesus stand surrounded by saints. On the right side of the panel are St. Peter and St. John the Baptist, while presented on the left side are two saint doctors, Cosmas and Damian. Such selection of saints is not accidental. The work was commissioned by the Florentine family, Medici, whose patrons were the two saint doctors. St. Peter and St. John the Baptist were the namesake saints of two of the leading members of the family, i.e. Piero and Giovanni de Medici[1]. The compositional arrangement of the painting alludes to the *sacra conversazione* motif, known in Italian and North-European painting. Thus, the subject matter of the work discloses and confirms its principal. In accordance with the premises of the motif, Mary and Baby Jesus are situated in the centre of the panel, on a platform, under a canopy held by two levitating angels. The saints stand directly on the flowery sward, on which one can observe numerous identifiable plant species.

Painted in the foreground, in front of Mary, is a golden jug containing two plants. Situated on the right side is, with all certainty, a Madonna lily (*Lilium candidum*) **[A]**, and on the left is bearded iris (*Iris germanica*) **[B]**. Unlike the first of the listed plants, the identification of which is self-evident, determining the exact species of the second one is far more problematic.

Madonna lily is painted with great detail. One can observe its rigid and quite thick shoot, at the top of which are four flowers on prolonged flower stalk. As in nature, present throughout the whole length of the stems are alternate sessile leaves. They have a lanceolate, sharpened shape and entire margins. The presented Madonna lily is in a container, thus it is difficult to assess its precise dimensions. It can only be stressed, that the dimensions of the individual elements of this plant are proportionate in regard to one another. The artist depicted the impressive flowers of this species with great care. They are

[1] H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes*, p. 257.

portrayed in different stages of development: three of them are fully in bloom, and only one remains closed. In accordance with reality, the flowers are big and funnel-shaped. The perianth is not differentiated into a calyx and a corolla. It consists only of six white tepals elliptical in shape. The precision of this depiction is highlighted by the presence of visible stamens with yellow anthers, as well as the long pistils. This species is represented only by a single specimen.

Next to the lily the painter set the aforementioned alleged specimen of bearded iris (*Iris germanica*). He highlighted its branched, straight and leafless shoot, at the top of which are two flowers. Under these he set foliaceous and scarious bracts, typical to this species. Emerging from the depicted vase are also big, basal, broadly sword-shaped, acuminate leaves. They have entire margins, but are devoid of clear parallel venation. As in the case of the lily, the assessment of the height of this plant is not relevant, since it is a cut specimen. On the other hand, the sizes of the plants appear to be maintained and proportionate to one another. The generative organs of the analysed iris are captured in different stages of development. The plant has one fully developed flower, and one that is only beginning to emerge from its bud. The structure and colour of the perianth is depicted with great precision. However, it should be stressed that in reality the three bigger segments of the perianth are purple-blue, while they should be of a lighter hue. There is only one such plant in the painting.

To the right of the vase is, most likely, a germander speedwell (*Veronica chamaedrys*) **[C]**. The painter captured the whole plant with great detail. One can observe its thin, raising stems which are forked in the top sections. Throughout the whole length they are sparsely and evenly leaved. The sessile or short-petioled leaves are opposite. They are of the right physiognomy. The height of the plant appears to be maintained and within the dimensions observed in this species in nature. What is more, the length and width of the leaf blades is proportionate to the diameter of the flowers. At the tops of the shoots, growing on long flower stalks in the axils of leaves, are visible inflorescences which, as in reality, appear in pairs. They take the form of loose racemes. The flowers themselves were also shown in great detail, including their structure and colouring. The precision of this depiction is additionally highlighted by a yellow-green spot situated in the middle of the perianth that indicates the presence of two sta-

mens and a pistil. This plant is represented in the painting by a single, spread specimen.

Yet another botanically identified plant is redshank (*Polygonum persicaria*) [**D**]. The whole general habit of this specimen is presented. It has straight, slightly branched and brown-purple stems, throughout the whole length. The leaf blades are alternate and their shape is prolonged and lanceolate. The upper leaves are acuminate, and the lower ones have visibly rounded tips. All of them have entire margins. There are, however, no dark spots, characteristic to this species, which should be visible on the upper side of the leaves. Nonetheless, it should be noted that not all specimens of this species observed in the natural environment possess this morphological feature. The painter might have depicted a specimen that did not have such spots. Also debatable is the question of the petioles, as well as the central midrib. None of the portrayed leaves of the discussed plant presents short petioles or proper venation. It can be estimated that the height of the depicted specimen falls between 30 and 40 cm. Therefore, its size is probable, since in natural conditions it may reach from 10 to 80 cm. At the tops of the shoots, in the axils of the upper leaves grow flower stalk with oblong cylindrical inflorescences. They have the form of dense, straight, or slightly curved spikes. The structure of the flowers is not visible, since in nature they are very small. The artist highlighted only their proper colour – pink. In the painting the plant forms a dense cluster, in which one can observe three stems. Therefore, it is difficult to ascertain if it is a single, spread specimen, or a cluster of individual plants.

To the right of the redshank is, most probably, a sweet violet (*Viola odorata*) [**E**]. This can be deduced from the overall external appearance of the plant, as well as its characteristic leaves and flowers. All of the leaves are basal and grow on long petioles, creating a basal rosette. They possess morphological features typical of this species. The height and proportions of the discussed species are debatable. In natural conditions specimens of sweet violets reach the maximal height of 15 cm, whereas the depicted plant is slightly bigger, and its size can be estimated to fall between 20 and 25 cm. Growing in the centre of the leaf rosette, on long pedicels, are single, purple-blue flowers. Their structure, however, is not visible, especially regarding the sepals of the calyx and five petals of the corolla. There are two specimens on the sward that represent this species. The second violet,

with quite different individual characteristics, is situated farther, on the right side of the painting.

Painted right behind the violet, at the edge of the stone stairs is a meadow buttercup (*Ranunculus acris*) [**F**]. The plant is presented whole. The painter captured its raised, branched shoots, with located at the tops single, golden-yellow flowers. The structure and distribution of the leaves is in accordance with botanical descriptions, as well as with specimens observed in the natural environment. Only the upper, cauline leaves are hardly visible. They are definitely smaller, and have three leaf segments with narrowly ovate lobes. The height of this buttercup can be estimated to fall between 30 and 40 cm. Therefore, its size is within the values observed in this species in natural conditions. Rogier van der Weyden captured the plant in the state of blooming. He painted some of its flowers as fully developed, whilst others as only developing in the spherical buds. He depicted the actinomorphic structure of the perianth, presenting the green sepals of the calyx that adjoin five petals of the corolla rounded at the tops. In this painting meadow buttercup is represented by only one specimen.

An identified plant, visible in the foreground of the discussed composition, is a ribwort plantain (*Plantago lanceolata*) [**G**]. The artist captured its whole general habit, i.e. the basal rosette of long, lanceolate leaves. The leaf blades are painted realistically. In accordance with reality, the majority of them spread on the ground, or are slightly raised. The precision of this depiction is additionally highlighted by the visible imperfection of the leaf blades, which in natural conditions appears due to mechanical damage or feeding of pests. The height and proportions of the analysed species appear maintained. Identification of this ribwort plantain is made easier by the three long, leafless peduncles of the inflorescences that emerge from the centre of the rosette of leaves. Located at their tops are short, cylindrical, light brown inflorescences. Unfortunately, the structure of the flowers is not visible due to the fact that, as in reality, they are small and inconspicuous. The painter marked only the stamens that form a characteristic shape of a ruff around the ovate inflorescence. Ribwort plantain appears in this painting only once.

Situated in the foreground, to the left of the golden jug is a wood forget-me-not (*Myosotis sylvatica*) or similar to it water forget-me-not (*Myosotis scorpioides =Myosotis palustris*) [**H**]. In nature both of these species differ only in terms of subtle details of flowers.The whole gen-

eral habit of the plant is presented. The painter marked two raised, leaved shoots, one of which is visibly branched. As in the specimens observed in the natural environment, its leaves can be divided into lower and upper cauline ones. The former group is more oblong, grows on short petioles and forms a basal rosette. The latter group, on the other hand, is sessile and alternate, and their leaf blades are oblong-ovate and acuminate with entire margins. The central midrib is perfectly visible on all of the leaves. The height of the discussed species is probable, and the sizes of the leaves and flowers are maintained. At the tops of the shoots are inflorescences in the form of racemes. Flowers are rotate, with visibly marked five-petal, blue corollas. Visible in the centre of the perianth are yellow spots suggesting the presence of stamens and pistils. This plant is represented by a single specimen.

Situated right next to the forget-me-not is, most probably, a red campion (*Silene dioica* = *Melandrium rubrum*) [**I**]. The painter presented the whole plant. He highlighted its typical general habit, i.e. the single, brittle stem, forked at the top. At the tops of the shoots are flowers gathered into loosely-flowered inflorescences. As in the natural environment, the leaves are divided into basal and cauline. The morphological features of leaf blades are captured with precision, which further confirms the accuracy of this identification. However, it should be stressed that venation is not visibly marked. The height of the visible red campion is in accordance with reality. The flowers were exceptionally helpful in the process of identification. They are presented in different stages of development. One can observe fully developed flowers, as well as those only emerging from the flower buds. They are painted with great precision, with their structure depicted in detail. The painter captured the brown-red, inflated, synsepalous calices, as well as corollas consisting of five light purple petals. Unfortunately, their shape is not visible; however, one can assume that, as in reality, there are characteristic incisions at their tops. This species is represented by a single specimen.

Yet another identified plant, growing next to the red campion, is bugle (*Ajuga reptans*) [**J**]. The general habit is visible. In accordance with reality, the painter depicted its leaved and non-branched shoots. Three of them are raised, and one is considerably leaning towards one side. As in the specimens observed in the natural environment, the leaves are divided into lower and upper. The ones belonging to the first type are big, obovate and form a basal rosette, the latter ones

are smaller, ovate, sessile and decussate. All of the leaf blades have sinuate margins and faintly marked image of venation. The estimated height of the discussed plant reaches above 30 cm and is not in accordance with reality. Its proportions were not maintained, especially in regard to the adjacent plants. Botanical identification of this plant is possible only due to the flowers, which grow in the axils of the cauline leaves in verticillasters, and form spikelike inflorescences at the tops of the shoots. The structure of the depicted flowers lacks precision. The artist limited it only to portraying their proper, purple-blue colouring. It is, therefore, impossible to recognise the individual elements of the perianth. Their shape indicates only that their generative organs have a zygomorphic structure. Also debatable is the number of the specimens that represent this species. It is difficult to conclusively ascertain whether there is a single, spread specimen or four individual plants shown in the picture. With all certainty, there is only one bugle presented in this particular fashion.

Also visible on the sward is a red clover (*Trifolium pratense*) **[K]**. The plant possesses characteristic trifoliate leaves growing on long petioles. The leaf blades of the leaflets are in accordance with reality, and visible on their upper side are characteristic outlines of a faint image. The height of this specimen falls within the norms observed in its natural environment. However, it should be stressed that in most cases the specimens are bigger than the one depicted in the painting. Identification of this plant is possible only due to the presence of red-pink, spherical inflorescences. Their colour indicates a particular species. Single flowers, as in the natural environment, are hardly visible. Despite this fact, the artist tried to present their character by covering the surface of the inflorescences with small spots of paint. That is how he created an illusion of numerous small flowers. However, an important feature is missing, i.e. in reality the capitula of the inflorescences are supported by leaflets, which is not sufficiently marked in the painting. In this panel red clover forms a single, dense cluster, due to which it is treated as a single specimen.

Farther into the painting, right behind the clover, one can observe a magnificently portrayed wild strawberry (*Fragaria vesca*) **[L]**. The artist captured all of its most important morphological features that enable botanical identification. Among these features are basal, long-petioled leaves gathered into a basal rosette. Their physiognomy was depicted in accordance with the natural environment. The height

of the depicted wild strawberry appears correct, and its proportions maintained. The specimen presented in the painting is captured in the state of blooming, as well as fruiting. Growing on raised peduncles are lax inflorescences consisting of one or more flowers. Two, fully developed, actinomorphic flowers are pictured in a schematic fashion. The artist highlighted only their corollas consisting of five white, round petals. In the centre of the perianth he set a yellow spot which indicates the presence of numerous stamens and pistils. Red fruits with visible protruding sepals of the calyx constitute another important diagnostic feature. They hang in a characteristic fashion, on arching pedicels. On the whole truf of the painting this plant can be seen in a single location, as a single specimen.

From the deepest section of the sward emerges yet another conclusively identified species, i.e. the greater celandine (*Chelidonium majus*) [**M**]. Rogier van der Weyden painted the whole general habit of the plant. He presented its intensely branched, raised stem, at the top of which he painted characteristic flowers. The leaves are depicted in quite a general fashion. One can only see that, as in nature, they are irregularly pinnatipartite, with ovate or oval segments, which are additionally deeply incised and crenated. The majority of the shown leaves grow on shoots, on visible petioles. The height of this plant is slightly lowered, especially since in nature specimens belonging to this species may reach the height from 30 to 50 or even 100 cm. On the other hand, it is possible that the painter depicted an adolescent plant, which had not reached its proper size, or the habitat conditions prevented it from reaching better parameters. The presented specimen of the greater celandine is captured in the state of blooming. This can be deduced from the flowers in full bloom gathered into loose inflorescences. As in the natural environment, the generative organs have golden-yellow corollas consisting of four obovate petals. The remaining structure of the perianth is not visible. This species is represented by a single specimen.

Vegetation of the analysed panel is enriched also by plants, the full identification of which was not possible. Such is the case of two specimens of crane's-bill (*Geranium* sp.) [**N**]. The morphological features of these plants allow for conclusive genus identification, however they are not sufficient in terms of successive species identification. The shape of the leaves, and, most importantly, the presence of the pink flowers with petals of the corolla incised at the tops, suggest that

it might be a small-flowered crane's-bill (*Geranium pusillum*), dove's-foot crane's-bill (*Geranium molle*), or hedgerow crane's-bill (*Geranium pyrenaicum*). All of the above species are similar; therefore it is difficult to ascertain which one could have been the source of this depiction. The choice of the correct plant is hindered by the fact that the painting was most probably created after Rogier van der Weyden had returned from Italy, which would also justify the presence of hedgerow crane's-bill, a species characteristic to the flora of the Mediterranean region[2]. The painter could have seen this and many other plants during his journey. The portrayed plant has raised and visibly branched shoots. Growing on long petioles are big, reniform leaves palmately parted into three segments. Each one is additionally incised at the top. The shape of the leaves, especially the division into three leaf segments is quite debatable. None of the aforementioned crane's-bill has its leaf blades divided into such a small number of segments. The height of the crane's-bill presented in the panel can be estimated to fall between 20 and 30 cm. Therefore, such range of estimated values is probable for all of the species of crane's-bill listed above. Both specimens of this plant are captured in the state of blooming and fruiting. Their single flowers are clearly visible and grow at the tops of long peduncles. Despite the fact that the structure of their perianth is not depicted with precision, important morphological features can be observed. The corollas consist of five pink-red petals, cordate at the tops. Species identification is possible due to the presence of characteristic fruits in the form of a schizocarp with a long beak. In the entire sward there are two plants with the aforementioned features. Therefore, one can risk the statement that they are two specimens of the same species. However, it should be stressed that the second specimen is not a copy of the first one, since it has a different distribution of shoots, leaves, and flowers, i.e. different individual characteristics.

In the foreground of the painting, at its left edge, is another plant, the botanical identification of which is debatable. It was painted whole and with great detail. One can observe its basal, long-petioled leaves gathered into a basal rosette. The leaf blades have a broadly ovate shape and are divided into deep segments with crenated margins. The height of this specimen can be estimated to fall between 15 and 20 cm. Any attempt at assessing the credibility of the dimensions

2 *Flora Europaea*, ed. T.G. Tutin, t. I-V, Cambridge 1964-1980, p. 198.

of this plant without determining the precise species would not be conclusive. Other important elements are the clearly visible generative organs. The painter depicted two inflorescences in type of anthodium growing at the tops of leafless peduncles. These shoots are longer than the leaves and grow from the centre of the basal rosette. The structure of the inflorescences is less detailed, since only the white, lateral ligulate flowers are visible. Unfortunately, all of the above features are not sufficient in order to ascertain the species Rogier van der Weyden meant to depict. It may be a feverfew (*Tanacetum parthenium* = *Chrysanthemum parthenium*) **[O]**. This can be deduced predominantly from the shape of the leaves and the colour of the flowers. On the other hand, however, the height and the habit of the shown plant definitely do not match the mentioned species, due to the fact that in natural environment it has raised shoots 60 cm high. However, in nature, it is possible to find low specimens of this plant, especially in the locations of cattle grazing. It should also be noted that plants with such morphological features had already appeared in other works by Rogier van der Weyden. They are always set in the foreground, and their features are displayed. They are almost analogical in appearance, manifesting itself in the structure of leaves and inflorescences[3]. In the *Medici-Madonna* panel this plant is represented by a single specimen.

The remaining space of the sward is filled with numerous clusters of botanically unidentified grasses. They create an illusion of a natural background for the identified species. Behind them one can spot another unidentified plant. It is situated on the right side of the painting, behind the legs of one of the saint doctors. It has a raised general habit and complex, pinnate leaves growing on long petioles. The outlines of the leaf blades and their margins are not clearly visible. The specimen is also devoid of visible flowers, inflorescences, or fruits. The height of this plant probably falls between 15 and 25 cm. Unfortunately, the distance created by perspective, and the lack of even a hypothetical identification hinders the assessment of its precise size and proportions. There is only one specimen of a plant portrayed in the fashion described above.

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3 P. Kulesza, *Szata roślinna w krajobrazach malarstwa niderlandzkiego XV wieku. Identyfikacja botaniczna roślin na wybranych obrazach [The Flora in the Landscacpes of 15th-century Netherlandish Painting. Botanical Identyfication of Plants in Selected Paintings],* Lublin 2011, pp. 161, 191, 202.

Nearly all species presented in this painting are perennial plants. Only redshank and red campion are therophytes. The latter species, however, can sometimes be a biennial plant.

In terms of phytosociological classification, the identified plants are not species characteristic of one, common syntaxon. They appear in different phytocenoses, of both forest and meadow type. However, some of them can be classified within the same class, order, and even association. A good example is the presence of red clover, meadow buttercup, ribwort plantain, and red campion, since all of these species grow in different, semi-natural and anthropogenic meadow and pasture phytocenoses. On the other hand, however, red campion is also a species distinctive of forest edge plant communities in fresh and damp forests. Characteristic to this type of phytocenoses is the additional presence of greater celandine and sweet violet in the painting. Also distinctive is germander speedwell. Wild strawberry and wood forget-me-not are plants growing in plant communities of forest clearings, and bugle is a plant typical of forest herb layer[4]. The above phytosociological analysis confirms the habitats, which are the natural environment of the identified plants. Some of them grow in forests and scrub. Among them are bugle, wood forget-me-not and sweet violet. In the sward the painter also presented species remarkably characteristic to open spaces such as fields, meadows, roadsides, and ruderal locations. Among such species are: red clover, ribwort plantain, meadow buttercup, and redshank. Germander speedwell and greater celandine have the widest habitat range, thus they vegetate perfectly in forests, as well as on ruderal terrains. Therefore, it can be concluded that the species composition presented by the painter does not mirror a real phytocenosis.

Nearly all of the identified plants from this painting appear in in their wild state, in the region of Europe with temperate climate. Only bearded iris and the alleged hedgerow crane's-bill come from the region of the basin of the Mediterranean Sea, from which they have spread onto the rest of the continent.

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4 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

All specimens captured in the panel are in the state of blooming. Unfortunately, determining one, common month in which their flowers could be fully developed appears impossible. The species that exclude each other are: sweet violet flowering in early spring, and redshank flowering in summer. The first species blooms from March to May, and the latter one from July until October. Therefore there is a significant time difference between the plants, as long as one month, which in nature is a period too long for them to bloom simultaneously. Also debatable is the presence of the blooming Madonna lily, whose sexual reproduction organs emerge in June and July, i.e. during the time when redshank is not ready to produce flowers. However, this time difference is not very significant, since it lasts for less than twenty days. The months common for the remaining plants are May and June. A unique phenomenon is the fact that the artist painted some plants the flowers of which appear within the same period, i.e. from May to September. These are: red clover, red campion and meadow buttercup.

In the *Medici-Madonna* painting the artist showed a fragment of a flowery sward. It is located on a platform, as if the whole scene was set at the top of a turf bench, or on a terrace. The sward is faced with stone slabs crowned with an ornate edge. However, its spatial arrangement and vegetation do not mirror any natural phytocenosis. The identified specimens are displayed and set at relative distances from each other, as if on one compositional line. The only exceptions are: wild strawberry, meadow buttercup and greater celandine, which are set in a deeper section of the painting, at the stone steps. Therefore, it can be assumed that it is a fragment of an intentionally designed garden, despite the fact that the species composition alone does not confirm this hypothesis. The portrayed species are not typical ornamental plants observed in flower-beds. The majority of them are specimens which grow in the wild almost in every part of Europe. Only bearded iris and Madonna lily, presented in a golden jug, are cultivated species. They form a floral composition of high symbolic value. With the exception of sweet violet and crane's-bill the majority is represented by single specimens. Both plants were depicted twice, as separate specimens with different individual characteristics. The analysis of this sward is complicated also due to the lack of an open landscape in the background. Thus, it is difficult to ascertain whether it is a fragment of a garden ensamble, or a type of sward with artistically conventional features.

Entombment of Christ (Florence, Galleria degli Uffizi), 1460 [Fig. 6]

A	–	columbine (*Aquilegia vulgaris*)
B	–	woodruff (*Galium odoratum*)
C	–	wild strawberry (*Fragaria vesca*)
D	–	common dandelion (*Taraxacum officinale*)
E	–	daisy (*Bellis perennis*)
F	–	greater plantain (*Plantago major*)
G	–	sweet violet (*Viola odorata*)
H	–	greater celandine (*Chelidonium majus*)
I	–	red clover (*Trifolium pratense*)
J	–	meadow buttercup (*Ranunculus acris*)
K	–	wood avens (*Geum urbanum*)
L	–	white dead-nettle (*Lamium album*)
M	–	wall lettuce (*Mycelis muralis*)
N	–	crane's-bill (*Geranium* sp.)
O	–	olive (*Olea europaea*)
P	–	male-fern (*Dryopteris filix-mas*)

6. Rogier van der Weyden. *Entombment of Christ,* 1460, Florence, Galleria degli Uffizi, Details A-P

The painting portrays the scene of lamentation of Christ prior to entombment of his martyred body. The composition of this work is a synthesis of two iconographic solutions derived from Italian art and the tradition of northern painting[5]. The presented event takes place within an open landscape depicting vegetation, as well as a panorama of a city. Rogier van der Weyden focused his attention not only on the tomb, but also on its surroundings, including the rich plant life[6]. Therefore, one can observe numerous plants, many of which have been botanically identified.

In the foreground, in the central part of the composition is, with all certainty, a columbine (*Aquilegia vulgaris*) **[A]**. The whole general habit of the plant, as well as crucial diagnostic features are presented. In accordance with reality, it has raised shoots. In the top sections they are branched, and visible at their tips are big, separate flowers. This identification is additionally supported by the proper depiction of the leaves which are divided into lower and upper, cauline ones. The height of this specimen appears correct, although it is not at its maximum. This plant is captured in the state of blooming. Evidence to this are the three fully developed, dark blue flowers, and one distinct, hanging flower bud. The artist captured the structure of the perianth in great detail. The precision of this depiction is highlighted by the presence of two, clearly marked fruits in the form of follicles. In this painting the species is represented by a single specimen.

To the left of the columbine is woodruff (*Galium odoratum* = *Asperula odorata*) **[B]**. The artist showed it whole. Its non-branched, diagonally raised stems are visible. As in the natural environment, they

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5 Indicated here is the analogy to the scene by Fra Angelico entombment, from the cycle of frescoes in the San Marco Monastery in Florence, which the artist may have seen. (compare: M. Davies, *Roger van der Weyden*, London 1972, p. 21-22).

6 U. M. Mazurczak, *Miasto w pejzażu malarskim XV wieku [The city in Landscape Painting of 15th century. Netherlands],* pp. 149-150.

are densely leaved, and growing at their tops are loose inflorescences similar in form to corymbs. Identification is possible also due to leaves depicted with great precision, gathered into characteristic whorls. The height of this plant appears correct. The visible specimens of woodruff are captured in the state of blooming. The artist highlighted the overall outlines of small, white flowers, however, without their detailed structure. It is also difficult to assess the number of visible specimens of woodruff in this picture. Rogier van der Weyden only indicated its presence in the form of a spread cluster. In addition, above the tomb one can see two clusters of plants, the appearance of which resembles the discussed species. Unfortunately, the distance created by perspective, as well as the lack of details, cause this identification to remain only a speculation.

Near the left edge of the painting, next to woodruff, is a wild strawberry (*Fragaria vesca*) **[C]**. The whole general habit of this specimen is visible. Rogier van der Weyden portrayed only the characteristic trifoliate leaves; however, the depiction is very detailed. One can assume that they form a basal rosette, although it is not visibly marked in the painting. The height of the discussed plant is correct, and the proportions of its vegative and generative organs are maintained. This specimen does not show evidence of blooming. Nonetheless, in the top section of the plant one can observe a red oval spot. With all probability, it is a schematic depiction of a fruit. Apart from the proper colouring and the overall outline it does not present any vital morphological features. Wild strawberry appears in a single location, as an individual specimen.

Located in the left section of the discussed panel is also a common dandelion (*Taraxacum officinale*) **[D]** painted with great precision. As in the case of the previous paintings, identification of this plant is limited only to a coenospecies. Rogier van der Weyden captured its whole general habit, i.e. the characteristic rosette of raised and lying, basal leaves. The leaf blades are depicted very realistically and include the vital diagnostic features. The height of the presented dandelions is maintained. The diameter of the inflorescences and the size of the leaves are proportionate to one another. The discussed specimen, as many representatives of this species, is captured in the state of blooming and fruiting. It is indicated by the presence of thick, leafless peduncles ending in single anthodia that stem from the centre of the rosette of leaves. The precision of this depiction is highlighted

by different stages of their development. Two of them are fully developed, and one is slightly closed. The painter marked the dark green involucres, as well as the yellow, ligulate flowers. Visible on one of the inflorescences are also linear – protruding in the blooming period – leaflets of the involucre. The flowers alone are shown in an overall fashion, without a detailed depiction of their structure. Their presence is indicated only by the presence of a uniform spot. The frutification is portrayed in much greater detail. It should be noted that the artist took much effort to depict its spherical shape, fluffiness, and transparency. The painter depicted this species four times, in different sections of the panel. Three specimens are located in the foreground, and only one in the middle ground. Of all the dandelions, the least visible is the one situated at the right foot of the kneeling woman. It has only fragments of the characteristic leaves.

Yet another conclusively identified species is the daisy (*Bellis perennis*) [**E**]. The general habit of this plant is visible. It has a typical rosette of basal leaves and three leafless stems ending in inflorescences stemming from its centre. The leaf blades are painted realistically, with respect to all botanical realities. The size of this plant appears correct. Its identification is possible also due to the schematically depicted, single, terminal flower anthodia. They are partially closed. Evidence to this are the visible, white, lateral, ligulate flowers with characteristic red colouring. In reality, the external side of the oval flowers is slightly pink. Unfortunately, the structure of the generative organs of the discussed specimen was not depicted in detail. In this panel the daisy is represented by two specimens. The second representative of this species is situated on the right side of the sward. Emerging from under the golden vase are fragments of leaves and two spread inflorescences. One of them is painted in a fashion that enables the observer to see both ray-florets and central, disc-florets. Above the tomb one can see the silhouette of a plant that, in its morphological features, resembles a daisy. However, the lack of details makes classifying the plant to this taxon very difficult.

Another plant depicted in detail, situated in the central section of the painting, is a greater plantain (*Plantago major*) [**F**]. The artist captured its whole general habit, including the basal leaves gathered into a characteristic rosette, as well as three leafless peduncles stemming from its centre, at the tips of which one can see prolonged inflorescences. The presented leaf blades present all vital morphological

features. The precision of this depiction is additionally highlighted by the proper number of midribs, which in nature falls between 3 and 5. The height of the portrayed greater plantain can be assessed to fall between 10 and 20 cm, which seems to be correct. This species is shown in the state of blooming, making it even easier to determine its taxonomical classification. The long spikes are visible, the flowers, however, are not. It is due to the fact that, as in reality, they are quite inconspicuous. In this painting the species was depicted twice. The second specimen is situated under the foot of one of the men supporting the body of Jesus Christ. The whole general habit of this greater plantain is not depicted, however its leaf blades, portrayed in detail, are visible.

To the right of the daisy is, most probably, a violet (*Viola* sp.) **[G]**. However, conclusive identification of its species remains problematic. The overall external appearance, as well as the morphological features of the vegative and generative organs indicate that it may be a sweet violet (*Viola odorata*). The presented plant forms a rosette of basal leaves, typical to the aforementioned species. The shapes of the leaf blades also support this theory. It is probable that, as in nature, the leaves grow on long petioles, which, however, are not visible. The size of the shown specimen is in accordance with the sizes observed in this species in its natural environment. Rogier van der Weyden captured this plant in the state of blooming. Growing from the centre of the rosette of leaves are three, long, leafless flower stalk, at the tops of which one can observe single flowers. They were depicted in a highly schematic fashion, although, one of the specimens presents its proper structure and dark purple colouring. The corolla consists of five petals, and visible in its centre is a yellow throat. This species is represented by two specimens. The second sweet violet is located directly at the lower edge of the panel, in front of the kneeling woman in red robes. Both plants are captured in a similar and detailed manner.

Yet another fully identified plant is a greater celandine (*Chelidonium majus*) **[H]**. Rogier van der Weyden portrayed its heavily branched, raised shoots with flowers at their tops. The leaves were depicted in great detail. They have clearly visible features characteristic to this species, which make the identification much easier. The height of the depicted greater celandine is probable, and the proportions of the leaf blades and flowers are maintained. This specimen is captured in the state of blooming. As in reality, the flowers are gathered into loose,

terminal inflorescences and depicted in different stages of development. Some are in full bloom, others only in buds. The structure of the flowers is very detailed as well. They have golden-yellow corollas consisting of four obovate petals. The remaining parts of the perianth are not visible, nor are the numerous stamena, or single pistils. This species is represented by a single specimen.

In the foreground, just at the lower corner of the stone slab, is a red clover (*Trifolium pratense*) [**I**]. The painter presented general habit of the plant. He presented its general picture and the structure of leaves and inflorescences with great detail. It has three raised shoots with spherical inflorescences at their tops. The artist thoroughly depicted the physiognomy of the leaves. However, he did not mark the faint image of a wide arrow on the upper surface of the leaf blades. The height of the specimen falls within the values observed in this species in the natural conditions. An important diagnostic feature enabling species identification are the red-pink flowers gathered into terminal inflorescences. The precision of this depiction is highlighted by an important morphological element: the inflorescences are supported at their bases by small elliptical leaflets. The flowers themselves, as in reality, are small and hardly visible due to considerable distance created by perspective. There is only one red clover in the analysed painting. Nonetheless, it is difficult to conclusively determine whether it is an individual, broad specimen, or a group of individual plants in close proximity to each other.

To the right of the clover, in close proximity, one can observe a meadow buttercup (*Ranunculus acris*) [**J**] depicted with precision. The whole general habit of this species is visible. One can observe its numerous, raised, branched shoots with single flowers at their tops. As in nature, the leaves are visibly divided into basal, lower and upper, cauline ones. All of them present a magnificent scale of depiction of reality. The size of this plant is correct and proportional. The precision is additionally highlighted by accurately depicted flowers, captured in different stages of development. The ones that are fully developed have characteristic yellow-golden corollas. They are not clearly visible; however their shape presents their proper structure. In the entire painting the species is represented by four specimens distributed across different sections of the panel. With the exception of the specimen described above, the portrayed buttercups were captured in considerable distance created by perspective, therefore their

diagnostic features are less visible. Nonetheless, all of the specimens have characteristic leaves and yellow flowers.

Yet another conclusively identified plant is a wood avens (*Geum urbanum*) [**K**]. As do the specimens observed in nature, the plant has numerous branched stems and a raised habit. The leaves are divided into basal, as well as lower and upper, cauline ones. The painter focused his attention on portraying the long-petioled, basal leaves that form a rosette. They are trifoliate with an interruptedly lyrate-pinnate shape and two big stipulae. As in the natural environment they also have lower, cauline leaves. However, it is difficult to state the presence of the topmost leaf blades. In relation to other identified species, the height of this specimen appears correct, and the diameter of the leaves and flowers – maintained. Also helpful in this species identification were the visible generative organs, gathered into terminal, unifloral, sparse inflorescences. The structure of the perianth confirms the species identification as well. The corollas consist of five yellow, obovate petals. However, there are no visible green, lanceolate sepals of the calyx. In order to increase the realism of depiction, the artist painted what could be fruits or flower buds. Wood avens is present in this painting in the form of a single specimen.

On the right side of the sward, behind the golden vase, is a white dead-nettle (*Lamium album*) [**L**]. The painter showed its entire general habit: the raised stems, opposite leaves, and white flowers. The morphological structure of the leaf blades accurately depicts reality. The height and proportions of the depicted white dead-nettle are maintained. Nonetheless, it is due to the flowers that botanical identification of this plant is possible. The generative organs are distributed in the axils of upper, cauline leaves, a manner characteristic to this species, and form verticillasters. However, their structure is less visible, although it can be assumed that it is in accordance with reality. In the discussed panel this species forms a dense cluster, which makes it difficult to distinguish an accurate number of individual specimens. Nonetheless, it should be noted that it is not portrayed in any other location.

In the right lower corner of the panel, one can observe a magnificent plant, the morphological features of which indicate that it is a wall lettuce (*Mycelis muralis*) [**M**]. As in nature, it has a raised, straight stem which is branched in its upper section. In the natural environment this plant has two types of leaves, i.e. lower and upper,

however only the first type is depicted in the painting. The leaf blades are lyrate and pinnately divided into serrate segments which get smaller with their proximity to the base. The terminal lobe is big and often with a triangular outline. The assessed height of this specimen falls between 40 and 50 cm. Therefore, its size is probable, since in the natural environment the species can reach the height between 50 and 100 cm. Also in favour of this identification are the characteristic generative organs. As in nature, they take the form of flower anthodia gathered into terminal, panicle inflorescences. The structure of single anthodia is not highlighted. They consist of yellow, ligulate flowers and cylindrical involucres. Unfortunately, there are only three ligulate flowers visible in the painting, when, in fact, there should be five of them. This species is represented by a single specimen.

The sward of this painting consists also of plants that were not identified conclusively. Among these worth special attention are the specimens with the habit, the shapes of leaves and flowers indicating that they are crane's-bills (*Geranium* sp.) [**N**]. Unfortunately, a precise identification of the species is quite problematic. It is due to the fact tat they are portrayed with a high level of stylisation. In addition, in nature there are numerous species with similar morphological features that belong to this taxon. The presented crane's-bills have raised shoots, at the tops of which one can observe the silhouettes of single flowers. The outline of the leaf blades is round and palmately parted into five wedge-shaped segments additionally incised into three smaller lobes at their tops. The size of these specimens ranges between 20 and 30 cm in height. The artist depicted the plants in the state of blooming; however, neither inflorescences, nor single flowers are distinctly visible. They are painted in a highly schematic fashion, without the structure of the perianth. It is only possible to determine their bright pink colouring and to assume that, as in the natural environment, they are actinomorphic. None of the shown specimens of crane's-bill show evidence of fruiting, which significantly hinders species and genus identification. Taking the aforementioned features into consideration, it can be concluded that the appearance of these plants is the most similar to the small-flowered crane's-bill (*Geranium pusillum*), or to the dove's-foot crane's-bill (*Geranium molle*). In nature both species have from 5- to 7-parted leaf blades, and small, purple-red flowers. In this painting there are three plants with the features discussed above. Two specimens are situated in the central section of the panel, next to the weeping women, whereas

the third one is situated next to the path running alongside the left edge of the painting.

Situated on the rocky slope, next to the entrance to the tomb of Jesus Christ, is, with all probability, an olive (*Olea europaea*) **[O]**. It has the habit of a small, branched, leaning tree with a thin trunk. In favour of this identification are predominantly the small and lanceolate leaves. In accordance with the natural environment, they are opposite and have entire margins. The height of this plant does not correspond to reality. In nature olive usually takes the form of a tree that reaches the height of 4 to 12 m. The estimated size of the depicted specimen does not exceed 50 cm, which can be explained by the technique of portraying trees with significantly lowered proportions. Such manner was utilised by Rogier van der Weyden, which can be justified by the intentional expression of human figures. Until the first half of the 15th century the significantly smaller size of trees could also be the result of inspiration drawn from miniature painting, in which the tendency to draw "small trees" as "bouquets" remained intact for a long period of time[7]. An alternative interpretation could be the fact that the specimen grows on a rock or in non favorable conditions. The botanical identification is also problematic due to the lack of typical fruits in the form of spherical drupes which in the stage of full maturity are dark purple or black. In this painting there are three more plants with appearance similar to olive. Nonetheless, it is difficult to conclusively ascertain whether they belong to the same species, due to the fact that despite many similarities they present same discrepancies as well. These refer predominantly to their overall general habit and the shape of the leaf blades. The shoots of two woody plants located on the right side of the panel grow diagonally, creating dense crowns. The tree situated in the right section of the scene has a less dense crowns, and its boughs are branched and distributed in a different manner.

Farther into the painting, above the wooden gate, is another plant, conclusive identification of which was not successful. The features of its external structure resemble a specimen painted earlier in the *Bladelin Tryptych*. It may be a highly stylised specimen of male-fern (*Dryopteris filix-mas*) **[P]**. This can be supported by some of its features, i.e. the form of the fronds, as well as the hypothetical bud of

7 See: Ch. Sterling, *La peinture medieval*, p. 148.; E. Panofsky, *Early Netherlandish Painting*, p. 52.

a new leaf with the shape of a crosier. Unfortunately, due to the distance created by perspective there are not many details visible. What is most important, the plant is raised and has big, basal leaves form an infundibule resembling a rosette. The leaf blades are visibly pinnate with numerous pairs of segments and appear to have a narrowly ovate shape tapering downwards, as well as sharpened, characteristically curved tips. The height of the described plant can be assessed to fall between 30 and 40 cm. However, it does not show evidence of blooming or fruiting. Visible on one of the specimens is only a single, raised shoot curved spirally in its top section. It may be a developing young leaf. There are two plants with the above morphological features portrayed in this panel. Apart from the described specimen there is also one located on a rocky cliff.

The space of this painting is also filled with plants that were not successfully identified or assigned to any given taxon. A good example is a specimen with white flowers that is situated directly above the tomb. It has raised stems and unclear outlines of leaves. At the tops of shoots one can find small spots indicating the presence of numerous flowers gathered into loose inflorescences. Due to the distance created by perspective and the lack of any premises regarding its identification, the assessment of its size is highly problematic. There is only one specimen depicted in the described manner in this painting.

Also visible on the sward are numerous leaves which, despite detailed depiction, are difficult to identify. The first unidentified cluster is situated under the feet of the kneeling woman in the foreground. These leaves are clearly pinnate, with serrate segments or incised into smaller lobes. The remaining parts of this plant are not visible. The vegative organs with such features can also be seen below the daisy.

Situated near the left edge of the panel, behind the standing woman are quite different leaf blades. They are elliptical in shape, and through the centre of each one runs a visible midrib. The margins appear to be entire or delicately sinuate. As in the previous case, the artist did not capture the remaining parts of the plant, thus making its identification highly problematic. A somewhat more detailed depiction is that of a low specimen painted directly above the greater plantain. It has a raised shoot with decussate, ovate, dentate leaf blades. The lack of flowers makes the identification impossible. It may be one of the species belonging to the vast mint family *Lamiaceae* (*Labiatae*).

There are also numerous plants in this painting that were treated so schematically, that it is difficult to determine any of their morphological features. Such are the two specimens situated in the background. They are quite small and have raised shoots. Their leaves create a basal rosette, but also grow densely on stems. Their shape or type of their margins can not be determined. There is a lack of visible flowers, inflorescences or fruits.

Grasses constitute an important, abundant element of the presented vegetation. They appear in the form of single blades, as well as dense clusters. As in the case of other paintings, the identification of their species, or even genus, is not possible. An analogical problem concerns trees and shrubs that build the structure of the portrayed landscape. The lack of clearly visible leaves renders identification impossible. They enliven the scene, as well as the entire panorama of the landscape.

In the *Entombment of Christ* the artist painted predominantly perennial plants. The only exception is the olive which, in its natural environment, is a tree. The only therophyte is small-flowered crane's-bill, provided that it is a species of crane's-bill.

In terms of phytosociological classification, the plants identified in the painting are not species characteristic of one, common syntaxon. However, it should be noted that some of them appear in certain similar phytocenoses. Red clover, daisy, common dandelion, meadow buttercup and greater plantain grow in different semi-natural and anthropogenic meadow and pasture phytocenoses. Sweet violet, greater celandine and wood avens, on the other hand, are forest-edge species. Such type of plant life is characteristic to wall lettuce identified in the painting. White dead-nettle is a plant characteristic to ruderal terrain. Wild strawberry is a species characteristic to phytocenoses of forest clearings, and woodruff grows in broadleaf forests of Western, Middle, and partly Eastern Europe[8]. The analysis of the habitats in which the identified plants appear allows the statement that the painter presented

[8] See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

species belonging to different biotopes, or even climatic zones. Some of them appear on meadows, pastures and similar open terrains. Others, on the other hand, are connected to different forest and scrub biocenoses. There are also plants characteristic to habitats heavily transformed by man, i.e. on roadsides or in ruderal locations. In addition, many of them have a high range of ecological tolerance, due to which they can grow in various biotopes. Therefore, it is difficult to conclusively determine whether the depicted vegetation is a reflection of a phytocenosis that exists in reality. Most probably, the sward presented by the painter is a synthesis of observed nature and his imagination. He supplemented the phytocenoses that he might have known from his own surroundings with species of symbolic or medicinal value[9].

As in the case of the previous paintings, the herb layer consists predominantly of popular species of Western and Middle Europe. Only the olive is characteristic to the basin of the Mediterranean Sea. In natural conditions the majority of identified plants occupy habitats situated on lowlands, foothills, and mountains.

Nearly all plants that create this space are captured in the state of blooming. The only exception is wild strawberry which indicates only the signs of fruiting. The common month for the majority of the portrayed plants is June. A discrepancy arises only in the case of two species, i.e. sweet violet and wall lettuce. Specimens belonging to the first species bloom between March and May, and those that belong to wall lettuce do not bloom before June. Therefore, a significant difference can be observed. However, it can be assumed that the artist painted the turning point of the two months, especially that their blooming phase can become longer, depending on the atmospherical and habitat conditions. Therefore, the above deliberations suggest that the presented scene takes place in spring. The painting depicts one of the events related to Paschal Triduum. Celebration of this, most important, Christian holiday is moveable. In the liturgical calendar they can take place between March 22nd, and April 25th. Therefore, the presence of some blooming species in the painting is impossible. That is why it is not possible to confirm the correspondence between the portrayed events and natural reality.

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9 P. Czikow, J. Łaptiew, *Rośliny lecznicze i bogate w witaminy [Medicinal and vitamin-rich plants],* Warszawa 1988, pp. 249-250.

The spatial and compositional arrangement of the vegetation of this work indicates it to be a fragment of a freely growing sward; however its species composition does not reflect any natural phytocenosis. On the other hand, it is not an artificially designed garden interior. There are no designed flower-beds, paths or other elements typical to medieval gardens. Rogier van der Weyden captured a floristically rich turf with numerous and common species of plants partially considered to be weeds. The appearance of the sward indicates that the artist intended to show the perceptible and real nature as accurately as possible. The individual identifiable specimens are distributed in an irregular fashion across the whole turf. Placed among them are dense clusters of grasses and single leaves and shoots. As in the natural environment, they are freely bent and spread in various directions. A quite interesting painting solution in terms of depicting nature is the utilisation of a highly dark background, as opposed to the considerably lighter plants. As an effect, a high contrast emerged that displayed individual plants and their parts. It also had an effect on the degree of their identification. Among the works by Rogier van der Weyden it is one of the paintings with the highest rate of botanical identification and the lowest contribution of unidentified plants. The precision of this painting is also highlighted by the properly maintained mutual proportions and sizes of individual species. What is more, the painter depicts some of the species more than once, thus increasing the realism of vegetation. However, it should be stressed that they are not direct copies of one another, but show a significant degree of difference in terms of individual characteristics. The visible trees and shrubs that form groves and free shrublands are depicted in a general and schematic fashion. Determining their accurate taxon is not possible. Only on the basis of the texture and shape of their corollas one can assume that they are broadleaf species[10].

[10] Therefore, the indicated inspiration by the work of Fra Angelico remains solely within the concept of characters, especially Christ against the background of the stone tomb. Vegetation utilised by the analysed painter is a type of "image" of the flora of that region, which was not transferred from the Italian prototype.

Dierick (Dirk) Bouts
(1415-1475)*

* The basis for the present author's concerning this painter is the latest, full monograph of the artist, which is the effect of long-term studies by the group centred around the late proffessor Maurits Smeyers connected with The History of General Art Department. The international exhibition on Dirk Bouts which took place in 1998 in Leuven (Sint. Pieterskerk and Predikherenkerk), that has been continued as a permanent monumental critical edition which addressed conclusive theses regarding the author of the paintings, their dating, as well as the intellectial community of Leuven – the town, where Dirk Bouts lived and worked; see: *Dirk Bouts (ca. 1410-1475) een Vlaams primitief te Leuven*, ed. M. Smeyers, Leuven 1998.

The Last Judgement
(Lille, Musée des Beaux-Arts), 1470
Left wing: Ascent of the Blessed into Paradise [Fig. 7]

A	–	agrimony (*Agrimonia eupatoria*)
B	–	wild strawberry (*Fragaria vesca*)
C	–	ribwort plantain (*Plantago lanceolata*)
D	–	daisy (*Bellis perennis*)
E	–	greater celandine (*Chelidonium majus*)
F	–	sweet violet (*Viola odorata*)
G	–	buttercup (*Ranunculus* sp.)
H	–	common dandelion (*Taraxacum officinale*)
I	–	wall lettuce (*Mycelis muralis*)
J	–	crane's-bill (*Geranium* sp.)
K	–	lungwort (*Pulmonaria officinalis*)
L	–	sorrel (*Rumex* sp.)
M	–	mint family (*Lamiaceae, Labiatae*)

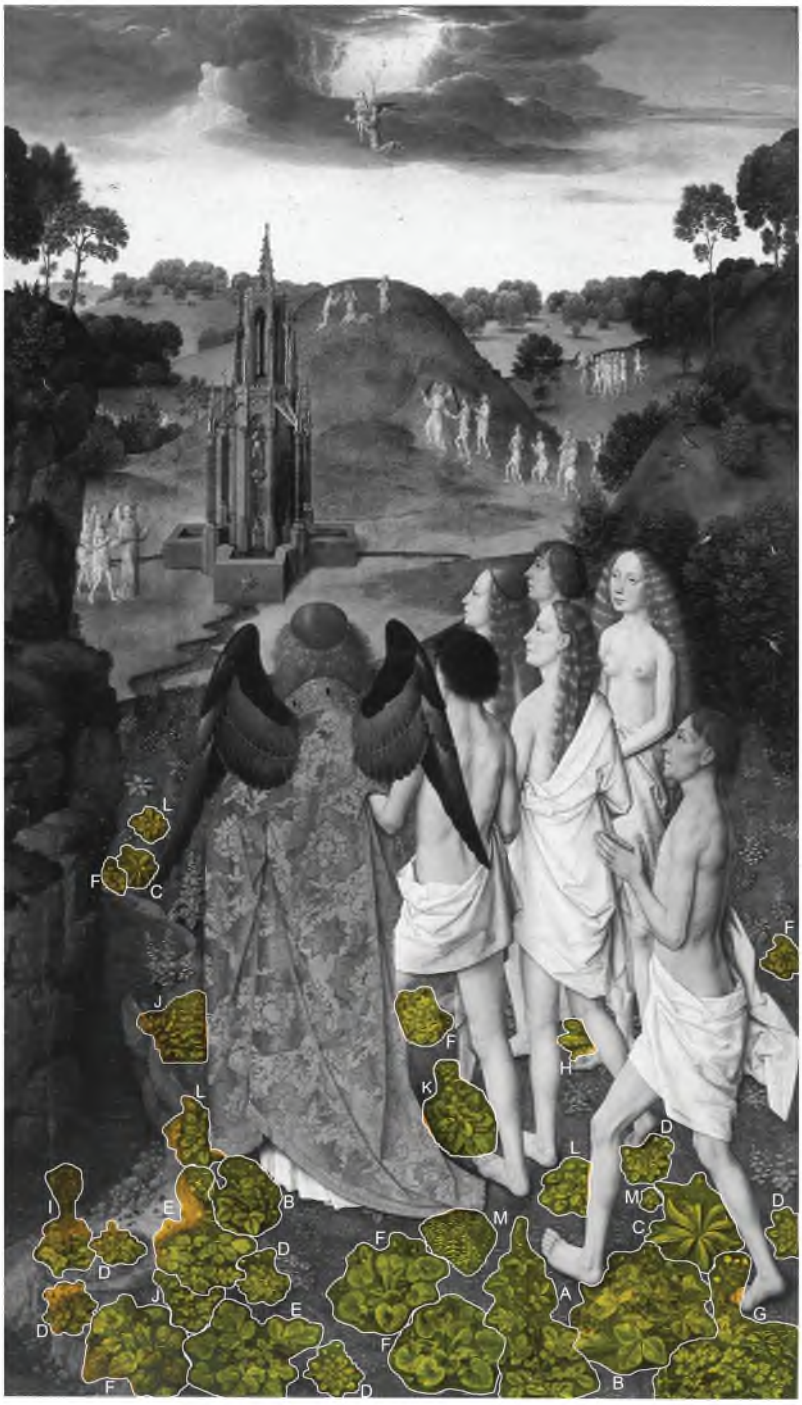

Fig. 7. Dierick Bouts. *The Last Judgement,* 1470. Lille, Musée des Beaux-Arts. Left wing: *Ascent of the Blessed into Paradise,* Details A-M

This work refers to an iconographic motif popular in the Netherlandish painting, i.e. Last Judgement and an image of Heaven[1]. It should be stressed that the analysed wing presents a seldom portrayed image of paradise. The artist captured the moment in which the angels lead retinues of saved human souls into the long-awaited heavenly kingdom. The central section of Eden is dominated by a magnificent source of life (*Fons vitae*)[2]. It takes the form of a gothic well, from which four meandering streams take their origin. Water from these streams irrigates the presented space and makes the plant life of this mystic place very rich and diverse. It gradually spans onto all of its surfaces both in the foreground and in the background. Some of the depicted plants are captured with enough accuracy for them to be botanically identified.

Near the lower edge of the painting, in its middle section, is agrimony (*Agrimonia eupatoria*) **[A]** depicted in great detail. The whole general habit of the plant is shown. As in the natural environment, it has a straight and raised shoot, at the top of which are flowers gathered into a very prolonged inflorescence. The artist portrayed the proper structure of all its leaves, which adds confirmation to the accuracy of this species identification. The height of this specimen is in accordance with reality, and the size of its vegative and generative parts are correct. The presented agrimony is captured in the state of blooming. It is indicated by numerous, small, yellow flowers growing

1 The painting was ordered by the Town Council of Leuven, as a triptych alluding to the typical medieval triptychs of the Last Judgement, with three wings. H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes*, p. 213. The evidence for the popularity of the motif of paradise utilised by Bouts – with Archangel Michael leading the saved, however, standing with his back to the observer – are numerous copies, for example in Monachium Alte Pinakothek. The number of such copies of the known and preserved original, arouses the curiosity of historians, as well as botanists, regarding the question whether only the concept of the characters was copied, or vegetation as well.

2 H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes*, pp. 213-214.

on short pedicels. The structure of the perianth of the generative organs is not detailed, however, as in nature, they form a characteristic raceme inflorescence. In the painting this species is represented by a single specimen.

Located not far away, to the right, is a wild strawberry (*Fragaria vesca*) [**B**]. The whole plant is presented. With great care concerning the details, the artist captured the most important elements of its morphological structure. It has characteristic, long-petioled basal leaves that form a basal rosette. The appearance of the leaf blades also corresponds with the indicated species. The height of the discussed specimen can be assessed to fall between 15 and 30 cm and is in accordance with reality. The presented plant is shown in the state of blooming. It is indicated by numerous flowers gathered into loose and branched inflorescences. The painter depicted the structure and colour of the generative organs with same accuracy. Botanical identification is also possible due to the fruits of this plant. They are red, spherical in shape, with protruding sepals at their bases. An important diagnostic feature highlighted in the painting is the fact that, as in the natural environment, the mature fruits hang on arching flower stalk. In this panel the species is represented by two specimens. The second wild strawberry is located right behind the central figure of an angel. It is portrayed in great detail, in the state of blooming and fruiting. Its size is smaller, due to the distance created by perspective. What is more, despite mutual similarity, the two plants are not exact copies of each other.

Yet another conclusively identified species is the ribwort plantain (*Plantago lanceolata*) [**C**]. The artist painted its characteristic general habit, lanceolate leaves, and inflorescences. The leaf blades are depicted as they are in reality, however the bases, which should narrow into a cauliculate petioles, are not visible. The height of the plant, as well as its proportions, corresponds to the specimens observed in the natural environment. The clearly visible flowering stems are worth special attention. From the centre of the basal rosette are growing three raised, long leafless peduncles with inflorescences at their tops. They, however, are not presented in detail, apart from their shape of letter V. It should be clarified that the inflorescence of the ribwort plantain is usually in the form of dense, brown spikes shortly cylindrical in shape. The artist also did not include single flowers, possibly because, as in nature, they are small and inconspicuous. There are two

specimens of this plant in the discussed painting. The second specimen is located deeper into the composition, at the bank of the stream. It has a similar general habit and raised flowering stems. Against the background of the sward one can see two other plants depicted in less detail. Their appearance indicates that they also may be ribwort plantains. However, the insufficient number of details makes their classification within this taxon remain in the sphere of speculation.

In the foreground one can also observe numerous specimens of daisy (*Bellis perennis*) **[D]**. All of them have a characteristic genaral habit and a typical shape of their leaves. However, it should be noted that their bases are hardly visible, and only some of the leaf blades become visibly smaller with their proximity to the indistinct petioles. The precision of this depiction is highlighted by the clearly marked single central midrib. It can be assumed that the size of the portrayed daisies is correct. The proportions of the generative and vegative parts are in accordance with reality. One can see single anthodia growing from the centre of the rosette of leaves on three long, leafless peduncles. All of these are developed unevenly. Two of them are open, and only one is closed. None of them present detailed structure. The majority is captured as though from the side, therefore only the green involucres of the inflorescences and outlines of white, marginal, ray flowers can be seen. Less visible are the yellow disc flowers, limited to a symbolic, colourful spot. In this painting the species is represented by six specimens. All of these are quite similar to each other, with the only difference in the number of inflorescences and the degree of their development. The daisies presented most often have slightly closed anthodia.

The next fully identified species in the panel is the greater celandine (*Chelidonium majus*) **[E]**. Evidence to this botanical identification is the detailed general habit of the plant, as well as its individual elements. It has a raised, quite branched stem with blooming flowers at its top. Nevertheless, the leaves depicted in accordance with botanic reality are the most important diagnostic element of this species. The precision of this depiction is highlighted by a triangular terminal segment, quite common in real leaf blades. The height of the presented greater celandine is probable, and the proportions of its vegative and generative sections are maintained. This specimen is captured in the state of blooming. As in the natural environment, the flowers are gathered into loose, terminal, inflorescence with very few flowers. In addition, they are captured in different stages of development. Some of them are

in full bloom, while others are only formed into buds. Their structure is depicted accurately as well. They have golden-yellow corollas consisting of four obovate petals. The remaining sections of the perianth – yellow-green sepals, numerous stamens and individual pistils – are not visible. Vital and clearly visible elements of morphological structure are the fruits in the form of linear capsules that resemble siliques. The species is represented by two specimens in close proximity. However, it should be stressed that the second specimen of greater celandine is limited to the form of leaves depicted with high precision.

Species composition of this painting is also enriched by numerous specimens of violets (*Viola* sp.) **[F]**. The external structure of these plants enables conclusive genus identification; however, it is not possible to determine the exact species. After an analysis of the diagnostic features it can only be assumed that it is sweet violet (*Viola odorata*). It can be deduced predominantly from the shape of the leaf blades, as well as the dark blue colouring of the flowers. The rounded and broadly ovate leaves grow on long petioles and form a basal rosette. They have rounded tips, and deeply cordate bases. The slightly crenated or nearly entire margins are marked with less precision. What is more, some leaf blades are characteristically curled, as they are in nature. Pinnate venation is visible on their upper surface. The height and proportions of the presented sweet violets appear to be visibly enlarged. It should be stressed that in the natural environment the assumed species reaches the maximal height of 15 cm. The assessed size of the presented specimens falls between 20 and 30 cm. All of the violets are captured in the state of blooming. There are clearly visible silhouettes of flowers, which, in the case of some specimens, are portrayed with remarkable detail. They grow on long, thin flower stalk, stemming from the centre of the rosette of leaves. They are shown in different stages of development, showing a varied degree of precision of depiction. Some of them are limited to a dark spot, while others are characterised by dorsiventral flower structure and five-petalled corollas. In the discussed panel the species is represented by five, well displayed specimens, as well as by one highly probable. Three violets are situated in the foreground, while the three remaining ones are in a deeper section of the composition. The majority look alike, however, the painter did not copy the same arrangement of leaves or flowers. On the contrary, he presented them with distinct individual characteristics.

In the lower right corner of the analysed work one can find what, in all probability, is a representative of the buttercup genus (*Ranun-*

culus) **[G]**. It is difficult to conclusively determine its exact species. One can only assume that it may be a bulbous buttercup (*Ranunculus bulbosus*) or a creeping buttercup (*Ranunculus repens*). The whole general habit of the plant is visible. It has a raised, straight and sparsely leaved shoot, heavily branched in its top section. However, the most interesting elements in the case of this specimen are the leaves divided into basal and cauline. The first type is visibly long-petioled and trifid. Single segments are deeply incised and dentate. An additional important diagnostic feature is the fact that the middle leaflet usually grows on a short petiole, and the two remaining ones are sessile. Nonetheless, it should be noted that some of the depicted leaf blades are somewhat different, i.e. their lateral segments have what appears to be short petioles. Therefore, it is difficult to classify this plant within a single taxon, especially when the leaves of both species are characterised by varied shape. The leaf blades of the upper, cauline leaves are smaller, sessile, and more incised into narrow lobes. The height of the analysed specimen falls between 35 and 45 cm. Thus, it can be assessed to be probable for both of the aforementioned buttercups. Other important elements of morphological structure are the flowers. It is their presence that enables identification of this plant, as well as determining its genus. The painter captured four fully developed generative organs, as well as three only formed into spherical buds. Single flowers grow at the tops of prolonged flower stalk. They have an actinomorphic structure; to be specific, their corollas consist of five golden-yellow, broadly oval petals. There are no clearly visible sepals or numerous stamens and pistils, the presence of which can only be indicated by a small spot of paint. The buttercup portrayed in that manner is present only in one location, as a single specimen. Nonetheless, it should be noted that a specimen with similar leaves, however smaller, is situated between the daisy and violet in the foreground. The lack of visible flowers hinders its full botanical identification. Nonetheless, it can be assumed that it is a creeping buttercup.

In the middle ground, against the background of the sward, one can observe a short plant, especially its leaves growing in the form of a rosette. They have a specific shape, i.e. they are oblong and sinuate-dentate. Individual lobes are triangular and face the base of the leaf. The top section is the biggest. Running through the centre of the leaf blades is a clearly visible midrib. It is difficult to ascertain the accurate height of this specimen, as well as the length or width

of its leaves. It shows no visible evidence of blooming or fruiting. The aforementioned features allow the assumption that it is a common dandelion (*Taraxacum officinale*) [**H**]. The lack of more detailed diagnostic elements leaves this identification in the sphere of hypothesis. There is only one plant presented in the manner described above.

Situated on the left side of the composition, right at the bank of the stream, is yet another unidentified species. The painter showed its highly characteristic general habit. The plant has a straight, raised stem, very branched in its top section. All leaves are situated in the lower part of the shoot and grow on long petioles. It is not possible to conclusively determine their shape. In all probability they are separate, with deeply dentate margins, or pinnate leaf blade. What is more, visible on their upper side is the clear image of a central midrib. The upper sections of the plant are leafless. The height of this specimen falls between 30 and 40 cm. Nonetheless, an accurate assessment of its size is highly problematic, especially without a conclusive species identification. At the top of the stem one can see the outlines of yellow flowers gathered into a type of panicle inflorescence. However, the structure of the generative organs is unclear. The aforementioned features, especially the overall exterior, approximate size of the leaves, the colour of the flowers indicate that it may be a highly stylised specimen of wall lettuce (*Mycelis muralis*) [**I**]. Unfortunately, there is no conclusive evidence to support this hypothesis. All of the presented morphological components of this plant only resemble the vegative and generative organs of the aforementioned species. They, however, are not its direct depictions. There is only one such specimen in this painting.

In the foreground, among the greater celandines, is a plant that has not been conclusively identified, despite its detailed structure. The painter portrayed its whole general habit, i.e. the raised, slightly branched shoots. The leaf blades are not clearly divided into lower basal and upper cauline ones. Such a division can only be assumed from their overall distribution against the background of shoots. The outlines of all leaves are round and palmately parted into five wedge-shaped segments. Some of them are additionally incised into smaller lobes. A number of the leaves also have quite long petioles. The height of this plant can be assessed as 20 cm; however, without its taxonomical classification, any assessment of its size is incomplete. Vital diagnostic elements of this specimen are also its flowers. They

grow at the tops of shoots, creating a type of loose inflorescences. The painter did not capture the structure of the generative organs in detail. He only indicated their presence by means of what might be blue-purple corollas. One can also see light, prolonged spots that may indicate fruits. Identification of this plant is highly difficult. The only indications are the shapes of the leaf blades, as well as the colour and appearance of the flowers. These morphological features resemble some of the species of the crane's-bill genus (*Geranium*), especially the meadow crane's-bill (*Geranium pratense*) [J] There is no conclusive evidence to support the classification of this plant to the above taxon. Therefore, this identification remains a speculation. In favour of this hypothesis are predominantly the blue flowers, characteristic to this species. In all probability yet another specimen belonging to the same species is situated at the left side of the angel, in the central section of the panel. The whole plant is visible. One can see its numerous raised, arching, non-branched shoots. The leaves are round and palmately parted into smaller segments. However, in this case their number is not as constant as in the case of the previously described specimen. The leaf blades have between 5 and 7 leaf segments, the tops of which do not show additional incisions. The plant is probably not higher than 20 cm. As in the earlier cases, it is depicted in the state of blooming, as evidenced by the outlines of its blue flowers. The painter did not present their detailed structure, but only the overall appearance. In addition, on one of the flower stalk has a characteristic shape that resembles the characteristic fruit of crane's-bills. Both analysed plants appear in the form of dense clusters, which may indicate that they are represented by several specimens. However, it is not possible to determine the exact number.

The centre of the painting is visually dominated by yet another plant. The painter depicted the whole plant in considerable detail, with its slightly branched, raised stem. The precision of this depiction is additionally highlighted by the leaves divided into upper and lower. The first type forms a type of dense, basal rosette. The latter ones are short-petioled and alternate. All leaf blades are separate and elliptically ovate in shape. The ones situated in the lower sections of the plant are definitely bigger than the ones growing directly on the shoot. They also have rounded tips and more visible margins that seem to be slightly crenated. All lower leaves are probably petiolate and basal. This can be deduced from their distribution, as well as

from the fragment of a petiole discernible next to one of the leaf blades. The pinnate venation and lighter spots is also visible on most of them. These spots on the leaves allow the assumption that it is a representative of the lungwort genus – *Pulmonaria*. In favour of this hypothesis is also the outline of the flowers gathered in a type of a loose inflorescence at the top of the shoots. The structure of the generative organs is not depicted in detail. It can only be assumed that they have prolonged, synsepalous calices and red-claret corollas. The height of this specimen can be assessed to fall between 20 and 30 cm. The aforementioned features allow more accurate identification, and indicate the exact species, i.e. the lungwort (*Pulmonaria officinalis*) [**K**]. There is only one plant portrayed in such manner in this painting.

Against the background of the sward one can observe a low plant, rosette-like in shape. Its leaf blades are basal and long-petioled. The majority of them have spear-shaped or are oblong-ovate with entire margins. What is more, on the upper surface of the leaves one can clearly see the central midrib. The estimated height of this plant is 10-15 cm. It does not show evidence of blooming or fruiting. The lack of many vital morphological features hinders its identification. Nonetheless, the outlines of the leaves indicate that it may be a common sorrel (*Rumex acetosa*) or a sheep's sorrel (*Rumex acetosella*) [**L**]. It should be noted that in nature both species have similar leaf blades that form a basal rosette. There are three plants presented in this manner. Two specimens are situated in the foreground, and the third one in a deeper section of the composition. They are all very similar general habit, but are not direct copies of each other.

Directly in front of the angel is a remarkable cluster of low plants with raised shoots. They have a characteristic decussate, small, elliptical leaves. The majority of them are probably sessile, and their margins are entire. Their small size makes other diagnostic features difficult to observe. The assessed height of this unidentified species reaches no more than 10 cm. Using great magnification one can see small light blue spots. These are probably flowers growing from the axils of leaves. Unfortunately, their structure is not visible. The described features indicate that it might be a representative of the mint family (*Lamiaceae, Labiatae*) [**M**]. It is difficult to determine the exact species solely on the basis of the aforementioned elements of morphological structure. Also problematic is the accurate number of the specimens that represent this plant.

Situated on the left side of the painting is yet another mysterious plant. It has three raised, densely leaved stems. Single leaves are elliptical, probably sessile and entire. The tips of the leaf blades are sharpened, and the bases are hardly marked. The height of the shoots can be assessed to fall between 20 and 30 cm, the lack of identification, as well as the distance created by perspective render the proper assessment of its size impossible. None of the portrayed shoots shows evidence of blooming or fruiting. There are no perceptible flowers, inflorescences or fruits. There is only one plant with such appearance.

A little farther away is a specimen depicted in detail that has two raised shoots. They are densely leaved throughout their whole length. The leaf blades are broadly ovate or elliptical, with entire margins. The majority of them lack visible petioles. Only one lower leaf has one. It is difficult to conclusively ascertain whether the leaves are divided into cauline and basal. In favour of such hypothesis are the varied diameters of single leaves, as well as their distribution. The largest ones are gathered at the base of the plant, creating a type of a basal rosette. The remaining ones grow on raised stems, and their size decreases with the proximity to the tip. The height of this specimen is difficult to assess, however, it probably falls between 20 and 30 cm. The lack of visible, developed flowers indicates that the plant was not captured in the state of blooming. In the entire painting it is represented by a single specimen.

Also noteworthy is the specimen situated at the right edge of the panel. Its structure is detailed as well however, it is not identified botanically. It has a single, raised and sparsely leaved shoot. Its leaves are clearly divided into lower basal leaves and upper cauline ones. The first type grows in the form of a basal rosette. The latter, smaller ones, are short-petioled and alternate. All leaf blades are elliptic or ovate, with entire margins. The only considerable difference is their size. The lower leaves are bigger, and the upper ones are smaller. The height of the whole specimen can be assessed to fall between 15 and 25 cm. Visible at the top of the shoot are the outlines of branched inflorescences. Their structure, as well as single flowers, is not visible. It is difficult to determine their colour and overall shape. There is only one plant with such features in this painting.

In the immediate vicinity is a specimen characterised by its general habit. It has single stem with visibly decussate leaves. The leaves are separate and sessile. All of them seem to be entire and acuminate.

They are elliptical or ovate in shape. The height of this specimen does not exceed 20 cm. Nonetheless, it is difficult to ascertain its accurate size without species identification. The plant shows no evidence of blooming or fruiting. It does not have visible generative elements. There is only one plant presented in such manner and it is probably represented by two similar specimens.

Vegetation of the portrayed paradise is also supplemented by numerous plants, the structure of which was not depicted in detail[3]. The majority of them are low, with a raised stem or a leaf rosette. Some of them resemble species described earlier; however this fact cannot be conclusively confirmed. That is why, despite partial resemblance, they were not classified as members of any particular taxon. It can be stated that the space of the sward consists of plants stylised to look like daisies, ribwort plantains or violets. They appear in the form of clusters or single leaves. Numerous grasses with linear blades and leaves add some naturalness. They fill all empty spaces in the foreground and the middle ground, creating a type of background for the displayed specimens. In the deeper sections of the painting one can see shrubs and trees with various general habits. They are characterised by the inhomogeneous texture of their leaves, the silhouettes of the crowns, and their colouring. Despite such diversification, it was not possible to identify their genus or species. Nonetheless, it should be stressed that their overall appearance indicates that they are mostly broadleaf plants.

All of the identified species in this panel are in reality perennial herbaceous plants.

In terms of phytosociological classification, the presented plants are not species characteristic of one, common syntaxon. Ribwort plantain, daisy, and the alleged common dandelion grow in different meadow and pasture plant communities. Greater celandine, and sweet violet are characteristic to phytocenoses of perennial plants nitrophyte at the edges of forests. A similar type of plant life is also represented by

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[3] In the monumental work, edited by M. Smeyers, one can find a few-pages-long reflection by Dominique Vanwijnsberghe, i.e. (*Fleurs de vanité et Cardin de para dis Polysémie du „langage des fleurs" chez Bouts*, in: *Dirk Bouts*, pp. 223-229), in which the author acknowledges the specific flora of the paintings by Bouts. However, she uses a language typical to humanists who search in a work of art – that of fine arts or literatue – plant life in the function of visual language „langage des fleurs". (D. Vanwijnsberghe, *Fleurs de vanité*, pp. 225-226).

agrimony. However, it appears in termophilous communities of plants at the forests edges. The turf of this painting is also supplemented with wild strawberry, a species characteristic of plant communities of forest clearings. In the case of the buttercup, its phytosociological classification is not credible or uniform without determining its exact taxon. It should be noted that the alleged creeping buttercup grows in meadow plant communities, while a hypothetical bulbous buttercup represents termophilous grasslands of a steppe character[4].

The analysis of biotopes, in which the discussed species exist, allows the statement that Dirk Bouts compiled a set of plants that in their natural environment exist in different habitats. Some of them grow on meadows and pastures, others appear in forests and scrub. In addition, they can also occur on the margins of these plant formations, creating ecotones. What is more, the vast majority of these species can appear in locations highly transformed by man. With the exception of the sweet violet, they can be observed on roadsides. Some species, on the other hand, are characteristic of highly ruderal locations. Therefore, it is difficult to ascertain whether portrayed vegetation is a reflection of a real phytocenosis. Its species composition is in favour of the thesis that it is not any particular phytocenosis.

The plant life of this painting consists predominantly of species that exist in their wild state across entire Europe. They are common on lowlands, foothills, as well as in mountains.

The analysis of blooming revealed that there is no single, common month in which the flowers of all the identified species could develop. For the majority of them this period falls in June and July. The most problematic species is the sweet violet in relation to agrimony and wall lettuce. The first of these species develops in early spring, and its generative organs appear between March and May, while the remaining two species bloom not earlier than in June. One should remember that the period of development of generative organs is variable and depends also on external factors. The analysis of the painting and its

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4 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

vegetation in terms of botanical rules may indicate that the painter depicted the turning point of these bordering months, that is, May and June. In botanical terms, the presented scene can take place during full spring, in a temperate climate. In favour of such hypothesis are also the remaining blooming species.

The *Ascent of the Blessed into Paradise* depicts a fragment of a natural landscape. It shows no evidence of anthropopression, with the exception of the well surrounded by architectural frames. It is dominated by varied relief and rich vegetation. The portrayed sward does not reflect any particular phytocenosis, and only imitates real natural environment. In comparison with the earlier works by this painter, it does not become its real reflection. This fact is highlighted predominantly by its spatial arrangement and varied floristic composition characteristic of different habitats. Individual specimens are depicted in great detail, however, they are not incorporated into the background of the sward in a natural manner. On the contrary – they were visibly displayed against it. Their arrangement is not clearly planned. They are scattered, often in remarkable distances from one another. The core of vegetation constitutes predominantly of species that were not identified botanically. The unidentified specimens only complement it and are predominant in the deeper sections of the composition. The schematically painted grasses that form a dense turf are also an important element of the turf. A vital feature of this phytocenosis is the presence of a number of specimens of the same species. That is how Dirk Bouts highlighted the realness of depiction of plant life and utilised the solutions of the earlier master, i.e. Jan van Eyck[5]. In the *Ghent Altarpiece*, for instance, this painter quite extensively utilised the technique of representing one species by means of several specimens. This technique successfully displays natural

[5] Dirk Bouts knew the works by Jan van Eyck, which is confirmed by such great art historians as E. Panofsky, *Early Netherlandish Painting*, Cambridge Mass. 1967, pp. 320-333. However, he maintained his own personality, which was the result of working for donors and recipients from the university town of Leuven especially the Confraternity of cult and worship of the Eucharist. His painting, iconographic, and naturalist visions were formed within this spectrum. Jan van Eyck represented the royal community of Bruges, with particular content needs regarding paintings. Analogies concerning nature presented by the two painters, as a result of life led in the communities of Flandria and Brabant, will not exclude the differences stemming from Jan van Eyck's long travels.

reality. In nature every phytocenosis is a collection of numerous specimens belonging to one or a few dozens of species. The plant life of the background consists of shrubs and trees. Some of them grow freely, others form dense groups. The botanical analysis of this work forces yet another question, that is, whether the portrayed space is of a garden character. On the one hand, in favour of this hypothesis is the content of the painting. The painter depicts an artistic vision of Eden, the divine garden. In addition, he places in its centre a spatial element characteristic of medieval garden compounds, i.e. a well. On the other hand, the character of this space, as well as its species composition, indicate a landscape of North-Western Europe. Nonetheless, one should remember that medieval gardens were not necessary closed geometrical spaces. Some of them were established on larger areas, open landscapes, and took the form of a flowering meadow. In floristic terms they were dominated by wild-growing plants of the given climate. A similar solution was used by aforementioned Jan van Eyck, who set the scene of *The Adoration of the Lamb* in a similar fashion. A considerable difference in the case of the paintings by Bouts is the lack of a visible city or castle, which was present in the work by Jan van Eycka. Flowering meadows serving the role of fairgrounds were situated in the near vicinity of feudal estates. In addition, the plant life of the *Ghent Altarpiece* is supplemented by exotic species, as well as by those cultivated in gardens, which can not be stated in the case of the work by Dirk Bouts.

Hugo van der Goes

(1440-1482)*

Monforte Altarpiece
(Berlin, Staatliche Museen), 1470-1472
Central panel: Adoration of the Magi [Fig. 8]

A	–	herb-Robert (*Geranium robertianum*)
B	–	greater celandine (*Chelidonium majus*)
C	–	bearded iris (*Iris germanica*)
D	–	columbine (*Aquilegia vulgaris*)
E	–	maidenhair spleenwort (*Asplenium trichomanes*)
F	–	oak (*Quercus* sp.)
G	–	wallflower (*Cheiranthus cheiri*)

Fig. 8. Hugo van der Goes. *Monforte Altarpiece*, 1470-1472, Berlin, Die Staatlichen Museen zu Berlin – Gemäldegalerie (sind eine Einrichtung der Stiftung Preußischer Kulturbesitz), Central panel: *Adoration of the Magi*. Details A-G

This painting[1] is a part of a non-preserved triptych and presents a religious scene, that is, the adoration of the Three Magi. The event takes place in a desolate stable, the architecture of which alludes to archaic palace building. Visible in the background is a suburban landscape, in which nature plays a major role. Also important are the plants that enliven the entire scene and highlight its symbolic message[2]. Some of them are captured in detail more than sufficient for their botanical identification.

Located in the foreground, in the central section of the panel is a herb-Robert (*Geranium robertianum*) [**A**]. The plant is not captured whole, however the visible features of its leaves and flowers allow for conclusive species identification. As in the natural environment, the outline of the leaf blades is triangular and pentagonal, visibly palmate, and consisting of 3 to 5 segments. The individual segments are pinnatisect, and the lobes have dentate margins. Without the whole general habit of the plant, it is difficult to assess the height of this specimen, or ascertain whether it is in accordance with the size reached by herb-Robert in nature. The presence of fully developed generative organs enables botanical identification of this plant. As in the reality, its flowers grow in pairs on pedicels. They are actinomorphic and consist of clearly marked calices and corollas formed by five wedge-ovate-shaped petals rounded at their tops. The precision of depiction is also highlighted by their properly captured colour, which can be both pink and red. The last of the aforementioned features is high-

1 J. Sander recognises the work as an element of the early period of the painter, in which he repeated the realities, as well as the combination of landscapes and characters, after Jan van Eyck. The characteristics of the portrayal of the whole composition is, without doubt, inspired by the St. Columbanus's tryptych by Rogier van der Weyden. J. Sander, *Hugo van der Goes. Stilentwicklung und Chronologie*, p. 233.

2 U. M. Mazurczak, *Miasto w pejzażu malarskim XV wieku [The city in Landscape Painting of 15th century. Netherlands],* pp. 191-192.

lighted in the painting. This species is most probably represented by a single specimen.

Another fully developed species is the greater celandine (*Chelidonium majus*) **[B]**, situated in the right corner of the painting. The plant is not captured in great detail. The painter limited it only to the most important features of the species, due to which botanical identification is possible. Therefore, one can observe the outlines of irregularly pinnatipartite leaves with ovate, crenated segments. The height of this plant is considerably lowered in relation to the size that this species can reach in reality. However, on the other hand, the size of this specimen may prove to be captured correctly, especially with the assumption that it is growing on poor and rocky ground. Identification of this plant is made easier by an single, yellow flower, growing at the top of a shoot. The corolla consists of obovate, rounded petals. Unfortunately, their number, an important diagnostic indicator, is not visible. The precision of depiction is highlighted by the presence of a yet not open bud, as well as two fruits in the form of linear capsules that, in their shape, resemble siliques. This species is represented by a single specimen.

On the left side of the painting, behind St. Joseph, is a bearded iris (*Iris germanica*) **[C]**. The plant is captured in great detail. It has raised, leafless, branched stems with characteristic scarious bracts situated under the flowers. The leaf blades, as in nature, are broadly sword-shaped, sharpened, with entire margins and parallel venation. The size of this plant is in accordance with reality, and the proportions of its generative and vegetative organs are maintained. The most important diagnostic elements are flowers. Hugo van der Goes captured them in different stages of development. Three of them are fully developed, while the four remaining ones are closed in buds to a different degree. The painter focused the most on the complex structure of the perianth. He depicted it in accordance with botanical reality. In the panel this plant is represented by a single specimen.

Situated in close proximity, to the right, is most probably a columbine (*Aquilegia* sp.) **[D]**. The features of this plant allow the assumption that it is a columbine (*Aquilegia vulgaris*) The artist captured the whole general habit of this specimen, presenting its morphological elements in great detail. The depicted plant has two raised, branched and sparsely leaved shoots. Its leaves are visibly divided into lower and upper cauline ones. The leaf blades of the first group are long-petioled,

trifoliate with three segments, while the leaves situated in the upper parts are smaller, sessile, narrowly ovate. The height of this specimen can be assessed to fall between 30 and 40 cm. Therefore, it is within the norm observed in the natural environment. The proportions of the entire plant also appear maintained. The columbine is captured in the state of blooming. It can be deduced from a large flower growing on a long flower stalk at the top of a stem, which hangs characteristically under the strain of its own weight. The precision of this depiction is highlighted by the structure of the perianth captured in great detail. The corolla consists of five infundibular leaflets ending in hooked spurs. In addition, the painter highlighted the presence of five buds captured at different levels of development. There is only one specimen of this species in the painting.

To the right of the columbine one can observe a plant, the appearance of which indicates that it may be a maidenhair spleenwort (*Asplenium trichomanes*) [**E**] The artist presented its characteristic general habit. In accordance with reality, its raising or lying fronds form a dense, low cluster. The outline of the leaf blades is narrowly lanceolate and pinnate, consisting of oval leaflets distributed in pairs. They are dark green in colour, and have unequal bases. The stalk is quite visible and, as in nature, dark brown. This feature allowed species identification. The height of the depicted specimen appears probable, especially since in the natural environment the plant reaches 30 cm. The size of the portrayed maidenhair spleenwort can be assessed as 10 cm. The plant belongs to the ferns (*Filicopsida*), therefore, it does not produce flowers, but sori, where spores are developed. Nonetheless, they are not visible in the painting. In the discussed panel maidenhair spleenwort is presented in a single location, as a single specimen.

Located on the left side of the painting, behind the desolate wall of the stable is a magnificent broadleaf tree. The shape of its leaves allows us to conclusively identify it as an oak (*Quercus* sp.) [**F**], however, the lack of more details of its morphological structure hinders conclusive species identification. What is more, the leaf blades do not present enough vital diagnostic features. They certainly are divided into leaf segments. The assessment of the height of this tree is problematic as well. It is due to the fact that it is situated in considerable distance created by perspective. However, assuming the height of the nearby man as a reference point, one can assume that the height of the tree is in accordance with reality. It should be noted that the di-

ameter of its trunk indicates that it is a considerably young specimen. The plant does not show visible evidence of blooming or fruiting. The oak (*Quercus*) is represented by a single specimen. It is not possible to assign the remaining trees to the same taxon solely on the basis of their general habit.

Set in the foreground is yet another plant that has not been conclusively identified. It can only be assumed that it is wallflower (*Cheiranthus cheiri* = *Erysimum cheiri*) **[G]**. In favour of such identification are the raised shoots with yellow flowers at their tops. In accordance with reality, its leaves grow on stems, as well as form a basal rosette. The leaf blades are lanceolate, entire, and visible on their upper sides are clearly marked midrib. The height of the shown plant is probable, especially that in the natural conditions the species can reach the height of 30 to 50-70 cm. The artist captured this plant in the state of blooming and fruiting. The flowers are gathered into top raceme inflorescences. Their structure is depicted in detail. The perianth consists of a long, dark brown calyx, and a four-petal corolla, whereas the fruits take the form of prolonged siliques. This hypothetical species is depicted in the form of a cluster, thus it is difficult to ascertain whether it is a single, spread specimen, or two single plants in close proximity.

Set on the wall of the dilapidated stable are plants that were painted in a quite schematic fashion, without vital species-specific traits, which rendered their identification impossible. One of them has linear leaf blades with entire margins that form a type of a rosette. The second one is more impressive. The outlines of its shoots and pinnate leaves are highlighted. None of them shows evidence of blooming or fruiting. Located on the right side are also plants that, in their general habit, resemble vines. They have prolonged, non-branched stems that cover the stone wall. However, they are devoid of visible leaves, flowers, or fruits. With the use of schematic spots the painter tried to indicate the presence of small oval leaf blades. In the near vicinity there is probably a large, leafless shrub. One can only see thin, raised, heavily branched shoots. Vegetation of the painting is supplemented with trees and shrubs that cannot be assigned to any taxon in particular. Their sole purpose is to enrich the distant landscape.

Nearly all of the identified plants in this painting are perennial herbaceous plants. The only exceptions are herb-Robert which is a therophyte or a biennial plant, as well as the oak, which is a tree. It should

be noted that the hypothetical wallflower in temperate climate is often treated as a biennial plant. In its natural environment, which is the basin of the Mediterranean Sea, it is a perennial species[3].

In terms of phytosociological classification, the identified plants are not species characteristic of one, common unit of syntaxonomy. They belong to different classes, orders and associations, although they appear in similar habitats. Good examples are wallflower and maidenhair spleenwort. Both species grow in rock crevices, on walls and ruins, especially in the southern part of Europe. Bearded iris is connected to termophilous grassland, common in southern and south-eastern regions of the continent. Herb-Robert and greater celandine appear in similar communities of plants at the edges of forests[4]. The syntaxonomic classification of the columbine is difficult due to the fact that it is not fully identified.

Greater celandine, herb-Robert, bearded iris, maidenhair spleenwort, and wallflower appear in ruderal locations, walls and rubbles. Therefore, it is the first instance when the species composition of the painting and the depicted habitats are matched perfectly[5].

In the analysed panel Hugo van der Goes utilised common species of wild-growing plants, the majority of which occupy whole Europe. The only exceptions are: bearded iris and wallflower. This two

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3 The existence of plants of Mediterranean origin can confirm the journey of Hugo van der Goes to Italy in 1467, well known to art historians. J. Sander, *Hugo van der Goes*, p. 234. Noticing this fact in paintings is connected with the knowledge and utilisation of linear perspective, so highly developed in the Italian painting of the second half of the 15th century, it was nature that played a mayor role in this painter's works. The majority of works regarding Italian inspirations in the painting of Hugo van der Goes, as well as Petrus Christus, and Dierick Bouts concern research into linear perspective, and not into what constitutes its "filling", i.e. nature in a landscape. (compare: J. M. Collier, *Linear Perspective in Flemish Painting and the Art of Petrus Christus and Dirk Bouts*, University of Michigan 1975).

4 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

5 The analysis of space, including deliberations over its idealness in the works of Hugo van der Goes, see: F. Winkler, *Das Werk des Hugo van der Goes*, Berlin 1964.

plants probably come from the region of the Mediterranean Sea, their natural habitat.

The blooming periods of all of the identified plants that possess developed generative organs are similar. The months common to all of them are May and June. The conducted analysis shows that the time in which the scene is set is at the turn of spring and summer, which obviously does not correspond with liturgical time.

This painting depicts a fragment of space of anthropogenic character. The artist captured a typical ruderal location. This is confirmed also by the species, which in reality grow in such habitats. Single plants grow on rocky ground, which appears nearly impossible; however, in nature they are adapted to such unfavourable environmental conditions. Vegetation of this painting is quite poor. There is no dense turf, full of unidentified grasses. Few of the identified plants are displayed and are characterised by significant spatial fragmenation. They are situated at considerable distances from one another, growing freely. The majority of them are located solely in the foreground, in the central section of the painting. They grow from behind an impressive rock that covers them extensively. A similar situation can be observed in the case of the group of irises which emerge from behind a stone wall, at the left edge of the painting. The artist set the entire event on a dry, barren ground. Its appearance indicates that it may be a type of a threshing floor, with scattered dry blades of grass and fragments of sparsely leaved shoots. The spatial and compositional arrangement of the entire vegetation does not show evidence of a designed garden interior. Nonetheless, it should be noted that bearded iris, columbine and wallflower portrayed in this painting are plant species popular in the Middle Ages, that were cultivated in gardens[6]. Thus their presence in a typical landscape of north-western Europe is understandable. The last of the listed species appeared quite often near old stone houses and castle walls.

The landscape captured in the background is a reflection of the area closest to Ghent, where the artist lived and worked[7]. One can observe green hills with numerous trees and shrubs in the form of dense clusters and groves. As in the earlier cases, it is not possible to classify them as members of any particular taxon. The shapes of their crowns, as well

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6 L. Majdecki, *Ochrona i konserwacja [Protection and preservation of historic garden ensamble]* p. 300.

7 U. M. Mazurczak, *Miasto w pejzażu malarskim XV wieku [The city in Landscape Painting of 15th century. Netherlands],* p. 193.

as the outlines of the leaves indicate only that they are most probably broadleaf species. Situated directly next to the residential buildings is a single, broad tree. Its botanical identification is also quite problematic.

Adoration of the Shepherds
(Berlin, Staatliche Museen), 1480 [Fig. 9]

A	–	wheat (*Triticum* sp.)
B	–	herb-Robert (*Geranium robertianum*)
C	–	germander speedwell (*Veronica chamaedrys*)
D	–	black nightshade (*Solanum nigrum*)
E	–	pale persicaria (*Polygonum lapathifolium*)
F	–	hoary plantain (*Plantago media*)
G	–	grass-of-parnassus (*Parnassia palustris*)

9. Hugo van der Goes. *Adoration of the Shepherds,* 1480, Berlin, Die Staatlichen Museen zu Berlin – Gemäldegalerie (sind eine Einrichtung der Stiftung Preußischer Kulturbesitz), Details A-G

This work presents a scene in which shepherds find the newborn Son of God. The event takes place in a stable with a partially wooden partially brick structure. Its austere interior is shown by two prophets who gradually fold the curtains, as if they were theatre curtains. Situated on the left is prophet Isaiah, and on the right, prophet Habakkuk [8]. They seem to invite the observer to experience this religious mystery with them[9]. The space of the scene is enriched by a few plants depicted in great detail, the majority of which can be botanically identified.

In the foreground, in front of the manger, is a bound sheaf of corn. The appearance of the golden spikes allows the assumption that it is wheat (*Triticum* sp.) **[A]**. The lack of vital features of morphological structure hinders conclusive species identification.

The nearest to the central section of the composition, at the edge of a stone wall, is a herb-Robert (*Geranium robertianum*), depicted in great detail **[B]**. The artist captured nearly the entire general habit of this plant. One can see numerous, raised, red, branched stems. The leaves are captured in accordance with botanical reality, and in greater detail than in the case of *Monforte Altarpiece*. As in the natural environment, the middle section of the leaves grows on a long petiole, while the remaining sections are sessile or short-petioled. The height of this

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8 Art historians interpret the prophets folding the curtains to present a symbolic plane of the scene of Nativity, explained by St. Paul in the Second Epistle to the Corinthians (2 Kor. 3,13). Revealing the secret of the Saviour's birth, which, due to the curtain imitates real, theatrical scenes presented in religious theatres – may inspire us to ask the question regarding depictions of nature, which would confirm the theatrical scene seen and depicted by the author. For the symbolism of the prophets see: B. Ridderbos, *„Die Geburt Christi" des Hugo van der Goes – Form, Inhalt, Funktion*, „Jahrbuch der Berliner Museen", XXXII (1990), pp. 137-152. The author presents the busts of the characters, as well as the curtains, an element of the backstage of a theatre. He completely omits the landscape and nature as real elements of the composition.

9 U. M. Mazurczak, *Miasto w pejzażu malarskim XV wieku [The city in Landscape Painting of 15th century. Netherlands],* p. 198.

specimen, as well as the diameter of its leaves appear correct and in accordance with reality. The plant is captured in the state of blooming and fruiting. The painter presented two fully developed flowers with correct structure of the perianth. The detail of depiction is highlighted by fruits, portrayed with precision, in the proper form of elliptical schizocarps with a long beak. In this panel the species appears in a single location and is probably represented by a single spread specimen.

To the right of the herb-Robert on the upper surface of the stone wall is germander speedwell (*Veronica chamaedrys*) **[C]**. The whole plant is shown. Hugo van der Goes accurately depicted its morphological features – the raised, sparsely leaved shoots, forked in their top sections. Upper leaves are sessile and opposite, while the lower form a type of a basal rosette. The leaf blades are ovate, with visible dentate margins. The height of this specimen can be assessed to fall between 20 and 25 cm. Therefore, the size of the presented germander speedwell is in accordance with the size reached by this species in nature. Nonetheless, in relation to the adjacent plants it appears to be too big and disproportionate. The diameter of its leaves and flowers in relation to the height of the entire specimen appears correct. Important diagnostic elements are blooming generative organs gathered into terminal inflorescences in the form of loose racemes, which, as in reality, grow from the axils of leaves. The flowers have short pedicels and are zygomorphic in structure. One can observe four lanceolate sepals of the calyx, as well as corollas consisting of four oval, fused petals. The colour of the flowers is blue, which is not entirely in accordance with reality. Real specimens of this plant have azure-blue corollas. Visible on the two remaining shoots are the top sections of the inflorescences with yet undeveloped flowers. This species is represented by a single specimen.

In close proximity one can observe another conclusively identified plant, i.e. a black nightshade (*Solanum nigrum*) **[D]**. The whole specimen is depicted and has a non-branched, raised stem. Its leaves are long-petioled and alternately distributed on shoots. As in nature, the leaf blades have a rhomboid-ovate or broadly oval shape with sharpened tips and entire margins. The height of this plant is probable, since in the natural environment this species can reach the height of 50-70 cm. It should be noted that the specimen presented in the painting is far from this maximal value. Its size can be assessed to be 15 cm. Botanical identification of this plant is possible only due to the presence of

characteristic flowers and fruits. The generative organs grow on flower stalk located at visible distances from the leaf bases. The flowers have clearly visible corollas consisting of five, white, narrowly triangular petals. In their centres are schematically marked gold-yellow anthers that in nature are fused and form a fastigiate centre of the perianth. This feature is also shown in the painting. The fruits constitute an important diagnostic element of this species. As in their natural environment, they take the form of black berries the size of a pea, which hang in groups, creating characteristic racemes. There is only one plant with the aforementioned features.

In front of the kneeling figure of St. Joseph, near the corner of the stone wall is, with all probability, a knotweed (*Polygonum* sp.) **[E]**. However, identification of the exact species is not easy. Visible morphological features allow us to believe that it may be a pale persicaria (*Polygonum lapathifolium*). The only doubt arises from the fact that in nature this species can cross-breed, for example, with redshank (*Polygonum persicaria* = *Persicaria maculosa*). What is more, in reality, its external structure is similar to the aforementioned species. The plant presented in the painting has a raised, branched stem. As in the specimens observed in nature, lateral shoots are shorter than the main one. All of them are green and lightly filled with red. Leaves are sessile or short-petioled and alternate. The leaf blades are broadly lanceolate, entire and have sharpened tips. On their top side one can observe clearly visible central midrib. An important diagnostic feature visible in the painting is the presence of so-called ochrea which encompasses the stem at the base of petioles. The height of this plant is correct, and the size of its leaves and inflorescences appear maintained. This specimen is captured in the state of blooming, as evidenced by the terminal, thickly-cylindrical inflorescence in the form of dense spikes. Single flowers are small, so the structure of their perianth is not visible. The artist depicted only their overall appearance and the correct, green colour. This species is represented by a single specimen.

A similar situation can be observed in the case of another plant, situated to the right of the pale persicaria. Without doubt, it belongs to the plantain genus (*Plantago*) **[F]**, however, it is difficult to determine its species. The shapes of the leaf blades indicate that it probably is a hoary plantain (*Plantago media*). The plant is captured whole. Its genaral habit is characteristic to this taxon, and has the form of a basal rosette of leaves. The leaf blades constitute the most important diag-

nostic element. They are elliptical and sharpened in shape, all of them are entire, and on their upper surface one can usually see five parallel midribs. The height of this specimen, as well as the length of its leaves, is in accordance with botanical reality. Growing from the centre of the rosette are three leafless peduncles, ending in terminal, cylindrical, and quite short inflorescences. The flowers are not visible, since – as in nature – they are small and inconspicuous. There are also no visible characteristic purple stamens with light violet anthers. There is only one location in this painting where such a plant can be found, and it is, most probably, a single specimen.

The painting is also enriched with plants that have not been botanically identified. These are not only clusters of grasses emerging from crevices in the stone wall, but also plants that were more displayed. The most distinguishable are the light green patches of low turf which, in appearance, somewhat resembles mosses or certain types of dense grass. The lack of vital details hinders any type of identification.

Visible on the right side of the painting are small, rounded leaves growing on long petioles. They have entire margins and reniform bases. Their overall appearance resembles only the basal leaves of a grass-of-parnassus (*Parnassia palustris*) **[G]**. Due to the lack of a greater number of details it is extremely difficult to determine the exact taxon of this plant. A similar situation can be observed in the case of a low specimen growing on the right side of the panel, near the lower edge. The plant has entire, ovate or elliptical leaves, most probably decussate. This specimen does not show evidence of blooming or fruiting, which additionally hinders identification. Above the levitating angel, emerging from the darkness is yet another plant. It has densely leaved shoots, and the single leaves are sessile or short-petioled. The leaf blades are entire and obovate. This plant does not possess any visible generative organs or fruits. It appears in a single location, as a single specimen.

It is for the first time that vegetation of a painting consists in majority of species of annual plants. Only germander speedwell and hoary plantain are perennial plants. It should also be noted that in certain climatic zones the life cycle of herb-Robert may include two periods of vegetation.

In terms of phytosociological classification, the plants identified in this panel are not species characteristic or distinctive of one, common syntaxonomical unit. Only herb-Robert and germander speedwell

are considered to represent plant communities at the edge of forests. Black nightshade is characteristic to phytocenoses of garden and in-field weeds. Hoary plantain, on the other hand, grows on termophilous grassland of a steppe character. The basic form of the pale persicaria is characteristic to communities of therophytes at the edges of bodies of water[10].

The botanically identified species present significant similarity in terms of biotopes inhabited in nature. All of them grow in habitats anthropogenic in character, especially in ruderal and roadside locations. The vast majority of the depicted species are common weeds. In addition, they can develop in such environmental conditions, as those depicted in the painting – on rocky ground or in crevices of a damaged wall. Despite the fact that they do not reflect any particular phytosociological unit, in terms of habitat, they form a credible phytocenosis which the painter could have observed in reality. It is believed that the painter knew the plants utilised in this painting from a herbal garden in Rode Kloostar, where he resided from 1478[11].

In the discussed painting Hugo van der Goes depicted only common plant species that grow in their wild state in the region of temperate climate in Europe. The vast majority of the shown plants have visible, fully developed generative organs. Therefore, it can be assumed that the period of blooming, common to all considered plants, is from June to August.

The presented scene takes place in a space quite similar to that portrayed in the central panel of the *Monforte Altarpiece*. The artist painted a fragment of land synanthropic in character. It is the austere interior of a stable, devoid of a dense, homogenous sward. The ground consists of flat dirt floor, scattered with straws and a bound sheaf. Individual, identified plants are situated only in the foreground, where they emerge from crevices in the stone wall. They do not form a dense turf, but grow at considerable distances from one another. Therefore,

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10 See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities]* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana, [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

11 R. A. Koch. *Flower Symbolism in the Portinari Altar*, „The Art Bulletin" 46 (1964), p. 72.

their external appearance, as well as all crucial diagnostic features are clearly visible. The visible specimens grow freely in various directions. That is how the artist highlighted the fact that he depicted real nature. The compositional arrangement of vegetation, as well as its species composition, excludes the possibility of a designed, artificial garden interior. All presented plants are common species seen in an anthropogenic habitat. In addition, some of them are considered to be cereal and garden weeds. Hugo van der Goes did not copy the species composition of the *Monforte Altarpiece*. The only exception is herb-Robert. However, it should be stressed that in the *Adoration of the Shepherds* it is depicted in greater detail.

The landscape presented in this painting is considerably poor. One can only see green slopes of a low hill. Discernible on the left side are the top of trees that emerge from behind rural buildings. They are captured in a leafless state. This may indicate that the artist meant to portray a season, in which the majority of plants in temperate climate cease to vegetate and shed their leaves. On the other hand, however, in the foreground one can observe blooming specimens of early spring to summer plants. Therefore, there is a considerable discrepancy in the understanding of depicted time, in which the scene takes place.

Hans Memling
(1430/1440-1494)*

* The synthesis of research concerning Hans Memling, as well as the latest findings in terms of dating of paintings is adapted from: D. de Vos, *Hans Memling. L'oeuvre complet*, Anvers 1994.

Triptych of Willem Moreel [Fig. 37]
(Brugia, Groeningemuseum), 1484
Central panel [Fig. 10]

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A	–	daffodil (*Narcissus pseudonarcissus*)
B	–	white clover (*Trifolium repens*)
C	–	red clover (*Trifolium pratense*)
D	–	daisy (*Bellis perennis*)
E	–	common dandelion (*Taraxacum officinale*)
F	–	sweet violet (*Viola odorata*)
G	–	dwarf mallow (*Malva neglecta*)
H	–	ground-ivy (*Glechoma hederacea*)
I	–	greater plantain (*Plantago major*)
J	–	wild strawberry (*Fragaria vesca*)
K	–	nettle (*Urtica dioica*)
L	–	woodruff (*Galium odoratum)*
M	–	bulbous buttercup (*Ranunculus bulbosus*)
N	–	sow-thistle (*Sonchus* sp.)
O	–	creeping buttercup (*Ranunculus repens*)
P	–	hawksbeard (*Crepis* sp.)
Q	–	corn poppy (*Papaver rhoeas*)
R	–	common sorrel (*Rumex acetosa*)
S	–	rush (*Juncus* sp.)

Fig. 10. Hans Memling. *Triptych of Willem Moreel* 1484, Brugge, Musea Brugge, Central panel, Details A-S

In terms of composition, this work[1] portrays the iconographic motif of *sacra conversatione*. The painter presents the entire family of Moreel, who, in the form of contemplation, commune with saints. Located on the left panel of the analysed triptych is Willem Moreel, the mayor of Bruges, praying with his sons in the presence of St. Wilhelm. Analogically, shown on the opposite panel is the donor's wife, Barbara van Vlaenderberch, who, in the presence of St. Barbara and eleven daughters is also participating in this mystical gathering. The central panel presents a group of saints, i.e. St. Christopher, St. Maurus, and St. Giles. This unique spiritual experience of *sacra conversatio* takes place in an open landscape which creates a homogenous space for all of the three parts[2]. The characters are situated on the same plane, i.e. on a luxuriantly flowery sward. It consists of numerous plants, the majority of which is botanically identifiable.

At the bank of a river, in which St. Christopher is standing, is a daffodil (*Narcissus pseudonarcissus*) [**A**]. The artist painted the whole plant. He visibly marked the presence of long, basal, linear leaves, which resemble grass. As in nature, the leaf blades are entire and blue-green. The image of venation is not visible on their surfaces. The estimated height of this plant falls between 15 and 20 cm. Therefore, the size of the presented daffodil appears correct. The length of its leaves is also proportionate and in accordance with reality. The open flowers constitute an important element of morphological structure and enable botanical identification of this plant. They grow individually at the tops of non-branched flower stalk and, as in reality, they are more or less raised. Just below the perianth one can also observe

1 The altar was ordered by Willem Moreel and his wife, Barbara van Vlaenderberch, for their tomb chapel in St. James's Church in Bruges, devoted to the cult of St. Giles and St. Maurus. (see: H. Belting, Ch. Kruse, *Die Erfindung des Gemäldes*, p. 255.)

2 U. M. Mazurczak, *Miasto w pejzażu malarskim XV wieku [The city in Landscape Painting of 15th century. Netherlands],* pp. 213-215.

the outlines of characteristic scarious bracts. The generative organs were also depicted in detail. On them, the painter marked six free, oval tepals of the proper perianth, as well as a funnel-shaped corona. It is broadened at the top, with a visibly crenated margin. The colour of the flowers is correct since, as in nature, they are yellow or light-yellow. Nonetheless, there are no long stamens that should emerge from corona. This species appears in a single location in the painting. However, it is difficult to determine the exact number of specimens that represent it. In all probability, there are three plants growing in close proximity.

Another conclusively identified species is the white clover (*Trifolium repens*) **[B]**. The artist captured its characteristic external appearance, i.e. the low cluster of numerous, long-petioled leaves with a small number of flowering stems. The leaf blades are portrayed in detail, including the vital features of their morphological structure. There is, however, no visibly marked venation which should be darker in relation to the leaves. The height of the plant is correct, and its proportions are maintained. Situated on few long flower stalk are hardly visible spherical terminal inflorescences. Single flowers are small, and their presence was only indicated with small spots. Memling also tried to capture their colour correctly – they are white, and some of them are even dark brown. They reach this colour after shedding their blossom, in the process of withering. White clover is present in two locations in the panel. The second specimen is situated farther into the painting, on the right side of the river.

It should be stressed that a group of plants with similar leaves is situated in close proximity to another species, i.e. the red clover (*Trifolium pratense*) **[C]**. Therefore, it is difficult to conclusively state that the presented leaves belong to a particular plant, especially that in both cases they are comparable. In the aforementioned species the leaves are also trifoliate, petiolate and entire. They have an obovate or oval shape, entire margins, and light spots on the upper surface. The size of the presented red clover appears correct. In favour of this identification is also the pink colour of the flowers gathered into capitular inflorescences. It is also additionally confirmed by the outlines of small leaflets that grow at their base. This species is represented by a single specimen.

In close proximity to the clover one can observe, in all probability, a daisy (*Bellis perennis*) **[D]**. The whole plant is visible. The painter

depicted its basal rosette of leaves with features characteristic to that species. The height of this specimen is in accordance with reality. The plant is captured in the state of blooming. It can be deduced from three fully developed anthodia. Two of them grow at the tops of leafless and quite long peduncles, while one is situated against the background of leaves, thus its flower stalk is not visible. The painter depicted the structure of the generative organs with precision. He highlighted the presence of white ray flowers, as well as yellow disc flowers. He presented not only their proper colour, but also particular silhouettes. The daisy is represented by two specimens. The second plant is situated in the lower left corner of the discussed panel. The general habit of the plant is also depicted, with two fully developed inflorescences.

The next identified species, a coenospecies, to be precise, is the common dandelion (*Taraxacum officinale*) **[E]**. The general habit is presented, with a typical, lying rosette of basal leaves. The leaf blades are also depicted in accordance with reality. The assessed size of this plant is probable and proportionate. The specimen is captured in the state of blooming and fruiting. Growing from the centre of the rosette are two leafless stalks, at the ends of which one can observe both a slightly closed inflorescence, as well as a fully developed frutification. The artist depicted the structure of both aforementioned elements with great care concerning the details. The species is represented, in all probability, by two specimens. Uncertainty is caused by the fact that the second specimen has somewhat different outlines of its generative elements. Great variety within the common genus *Taraxacum* renders this identification debatable.

On the left side of the panel is, beyond doubt, a violet (*Viola* sp.) **[F]**. However, it is not possible to conclusively determine the exact species. All features of this plant allow only an assumption that it is a sweet violet (*Viola odorata*). Evidence to this is the low, rosette-like habit of the plant, the shape of the leaves, as well as the outlines and colouring of the flowers. As in reality, the leaf blades are broadly ovate, with rounded tips, and deeply cordate bases. All of them have crenated margins, and a visible image of pinnate venation, while some have long petioles, the presence of which also confirms this identification. The estimated height of this specimen is in accordance with the specimens observed in nature. In relation to the size of the entire plant, the diameter of the leaves also appears proportionate. Three dark blue

flowers constitute an important diagnostic element. Two of them are perfectly visible, whereas one emerges from a dark green background. Two visible ones are fully developed, and their silhouettes present a zygomorphic structure of the perianth that consists of five fused petals of the corolla. Discernable in the middle are yellow spots that reflect lighter throats. Nonetheless, there are no visible flawer stalks, with flowers growing at their tops. There is only one violet presented in such way on this painting. It is represented by a single specimen.

Locted under the right foot of St. Maurus is spread dwarf mallow (*Malva neglecta*) **[G]**. As in its natural environment, the plant is branched and creeps along the ground. Its long-petioled leaf blades are round. They have between 5 and 7 shallow and lightly crenated leaf segments. What is more, the majority of their leaves have deeply cordate bases. It is difficult to assess the size of this plant due to its general habit. However, it can be assumed that its size is in accordance with reality, since it falls between 10 and 50 cm. Apart from the vegative elements, the identification of this specimen is possible also due to its flowers, captured in different stages of development. Two of them are developed unevenly, and one remains still in its bud. As in nature, they have white corollas consisting of five petals, slightly incised at the top. In this panel the dwarf mallow can be found in a single location, however, it is not possible to conclusively answer the question whether it is represented by a single, branched specimen, or by few single plants.

On the opposite side of the painting, at its lower end, is a ground-ivy (*Glechoma hederacea*) **[H]**. It can be deduced from the overall general habit, as well as the shapes of the leaf blades. There are typical, raised, densely leaved flowering stems. The leaves are long-petioled, nephroid, crenated, and opposite. The height of the presented ground-ivy is correct and proportionate. The plant does not show clear evidence of blooming or fruiting. It does not have the small purple-blue flowers, which should form verticillasters in the axils of the upper leaves. This species is portrayed in the form of a dense cluster, therefore, it is difficult to discern its individual specimens. One can only state that there is only one plant with the above features depicted on this painting.

To the left of the ground-ivy the artist set a greater plantain (*Plantago major*) **[I]**. The plant is presented whole. One can observe its basal rosette of leaves. The structure of leaf blades is also in accordance

with botanical reality. What is more, the precision of depiction is highlighted by naturally bent edges of the leaf blades. The height of the presented greater plantain is correct. Growing from the centre of rosette of flowers are four leafless flowering stems. At their tops one can not discern spikes, or even small, inconspicuous flowers. However, it should be stressed that after a more thorough observation, one can find some prolonged bulges. This species is represented by two plants. The second specimen emerges from under the shoes of St. Giles. Its depiction is fragmentary, and limited only to a few leaves and two peducles. On one of them it is even possible to discern a linear inflorescence with small spots which imitate single flowers.

The middle ground of the discussed composition is supplemented with a wild strawberry (*Fragaria vesca*) captured in great detail [**J**]. The painter showed its whole general habit, including its numerous trifoliate leaves gathered into a basal rosette. The single leaflets are captured realistically, including the most vital features of external structure. The height of this plant is within the range of values that wild strawberries can reach in the natural environment. The generative organs were painted in great detail. The small, white flowers grow on non-leaved, thin flower stalks and form The small, white flowers grow on non-leaved, thin flower stalks and form an inflorescence consisting of one or more flowers. consisting of one or more flowers. The flowers have clearly marked corollas with five oval petals. There are, however, no green, narrowly lanceolate sepals of the calyx. In the centre of the perianth are yellow spots which symbolise numerous pistils and stamens. Identification of this species is additionally confirmed by fruits hanging characteristically on arching flower stalks. Their appearance is in accordance with reality. After a more thorough observation, one can even discern green spots indicating the presence of protruding sepals of the calyx. In this panel the wild strawberry is represented by a single specimen.

Near the left edge of the analysed painting, next to St. Maurus is a nettle (*Urtica dioica*) [**K**] depicted whole and in great detail. It has two raised, non-branched stems with petiolate, opposite leaves. The leaf blades typical to this species are ovate and ovate-lanceolate with dentate margins. However, the typical small stipulae are not visible. The height of the presented nettle appears correct and proportionate. This specimen does not show evidence of blooming or fruiting, which significantly hinders its botanical identification. Memling did not show

the panicle inflorescences that should be stemming from the axils of leaves. There are probably two specimens of this plant portrayed in the aforementioned manner. The second specimen of this species emerges from behind the legs of a hind or doe, which is standing next to St. Giles. This plant has an analogical habit, leaf arrangement, as well as the shapes of leaf blades. The only significant difference is the presence of bright spots of paint in the upper section of the shoots. They indicate the presence of white or pale yellow flowers. Therefore, identification of this plant becomes debatable. It can be imagined to be a white dead-nettle (*Lamium album*) which in nature is quite similar to nettle in its morphological structure.

Situated behind the figure of St. Maurus is woodruff (*Galium odoratum* = *Asperula odorata*) **[L]**. The plant is presented whole, with its four straight, non-branched stems. At their tops one can observe lanceolate and sessile leaves growing in characteristic whorls. They are entire, although in the natural environment they have small spikes. The precision of depiction is also highlighted by the proper number of leaves that form one whorl. As in nature, there are between 6 and 9 of them. The estimated height of this plant is also maintained and proportionate. At the top of one of the raised shoots one can observe small white spots. These may be the outlines of blooming flowers, however depicted in a somewhat schematic fashion. Their exact shape or the structure of the perianth can not be determined. The generative organs do not form an inflorescence in the form of a corymb. Only their light colour is similar to the proper one. In the painting this species is portrayed in the form of a cluster, therefore, it is not possible to conclusively state whether it is represented by a single plant with multiple shoots, or by four adjacent specimens.

Vegetation of this painting is supplemented with buttercups (*Ranunculus* sp.) **[M]**. Genus identification leaves no doubt, however determining the exact species is more problematic. It is due to the fact that within this taxon there are numerous plants with quite similar leaves, which are one of the most crucial diagnostic elements. The features of the presented specimen indicate that it may be a bulbous buttercup (*Ranunculus bulbosus*). In favour of this identification are predominantly the shapes of the leaf blades that are visibly trifid, with deeply incised and dentate segments. What is more, the petiole of the central leaflet is considerably longer than those of the two lateral ones. The painter captured only long-petioled basal leaves, gathered

into a type of a dense cluster, while the cauline ones are not visible, despite the plant's two raised shoots. The height of this specimen is probable, especially since in nature the species reaches the height of 15 to 50 cm. The sizes of the vegative and generative elements are proportionate in relation to each other. The plant is in the state of blooming. Evidence to this are the flowers growing at the tops of leafless pedicels. One of them is fully developed, and the second one is formed into a spherical bud. Memling did not show the structure of the perianth in detail, limiting it only to a quite big, gold-yellow corolla portrayed in a schematic manner. Neither did he depict the sepals of the calyx, or the numerous stamena and pistils. This hypothetical species is represented by a single plant.

Located between the figure of St. Giles, and the right edge of the painting is probably a perennial sow-thistle (*Sonchus arvensis*) [**N**], or a smooth sow-thistle (*Sonchus oleraceus*) [**N**]. The duality of identification is caused by the lack of conclusive evidence in favour of one of the above species. What is more, the plant bears the evidence of a high level of stylisation. The whole plant is captured, together with its raised, branched stem. Its leaves are clearly divided in terms of shape and distribution on the shoot. In the lower section they are bigger, and visibly lyrate, with a big, triangular terminal segment. They are, in all probability, sessile and form a type of rosette near the ground. The central midribs are clearly visible on their surfaces. In the upper sections of the plant, the leaf blades are similar, however, they are smaller and alternate. The ones located in the top section of the stem are not incised and are lanceolate in shape. The estimated height of this specimen falls between 30 and 40 cm. In nature, both aforementioned species can reach such size. Most often, however, they reach the height of 1 m. Therefore, the size of the analysed plant is not in accordance with reality, despite being lowered. The artist painted this plant in the state of blooming. Evidence to this are the anthodia, presented at different stages of development, gathered into a branched inflorescence. Single anthodia consist of clearly marked green involucres and yellow ray flowers. The structure of either of these elements is not depicted in detail. They were limited to their approximate shapes and correct colouring. It is not possible to discern the leaflets of the involucres, or single ray flowers. Therefore, one can state that the appearance of the vegative organs is more similar to those of smooth sow-thistle, while the appearance of the generative

organs – to perennial sow-thistle. There is only one specimen portrayed in the described fashion on this panel.

Floral composition of the central composition of the analysed triptych consists also of species that have not been botanically identified. Among these is the specimen situated between the figure of St. Giles and the animal standing next to him. The plant is limited to a dense cluster of leaves that are visibly pinnate and bipinnate, with clearly dentate segments. It has no visible shoots, flowers or fruits, which hinders its full identification. Only the shapes of leaf blades are somewhat similar to the leaves of the creeping buttercup (*Ranunculus repens*) [**O**] or the herb-Robert (*Geranium robertianum*) [**O**]. Due to the lack of other morphological features that could confirm such identification, it remains in the sphere of speculation. The height of the specimen is difficult to estimate. In all probability, its size does not exceed the height of 15 cm.

Situated in the middle ground of the panel is a mysterious plant with a raised habit. It has two raised, slightly branched stems. The leaf blades are situated mostly in their lower section and form a type of a basal rosette. They have labeolate outlines and are sinuate-dentate or parted pinnately. The majority of the leaves are sessile, with the central midrib on the upper side. In the upper sections of the shoots the leaf blades are hardly visible. After a more thorough observation it is possible to confirm their presence. The estimated size of this plant falls between 30 and 40 cm. However, without determining its exact species, the assessment of its size is highly problematic. In the top section of the plant one can observe yellow spots which symbolise open flowers. They are presented in a highly schematic fashion, without detailed structure. There is only one plant with such features on the sawrd. Its overall external appearance, colour of the flowers, and, most importantly, the silhouettes of leaves, seem to resemble some species belonging to the hawksbeard genus (*Crepis*) [**P**].

In a deeper section of the panel one can see a specimen with its whole general habit clearly visible. The artist highlighted its raised, non-branched stem that grows from a rosette of pinnate leaves. The estimate of the size of this unidentified species is debatable, due to the fact that it is situated in considerable distance created by perspective. In addition, the lack of credible points of reference renders the estimate of its height nearly impossible. In the top section, one can see two red spots that, in all probability, depict the generative

organs. Their structure was not captured with precision. All features of this plant resemble a highly stylised specimen of the corn poppy (*Papaver rhoeas*) **[Q]**. Due to the lack of vital morphological details, this identification remains a hypothesis. There is only one such plant in the painting.

The artist captured also the entire appearance of the next unidentified plant. It has a single, raised shoot. Its leaf blades are gathered into a type of a basal rosette. They are separate, entire, oblong and arrow-shaped. The tips of the leaf blades are slightly sharpened or rounded. In the base section they are visibly arrow shaped and have bent lobes. What is more, the lower cauline leaves and basal leaves are petiolate. The estimated height of this specimen does not exceed 15-20 cm, however, the assessment of its proper size and proportions is problematic. Hans Memling did not depict this species in the state of blooming or fruiting. The vegative organs constitute the most important diagnostic element. It is the shape of the leaf blades that resembles the appearance of a common species, i.e. the common sorrel (*Rumex acetosa*) **[R]**. The lack of generative organs hinders conclusive confirmation of this identification. There are three plants with the aforementioned, or similar, features in this painting. None of the specimens has developed flowers or fruits.

Visible on the bank of the river, on the right side of the analysed work, is yet another unidentified species. Its general habit and characteristic linear leaves or stalks form a type of dense and thick cluster. The height of this specimen can be estimated to fall between 30 and 40 cm. However, without determining its taxonomic positionp, the assessment of its size is problematic. The plant does not show evidence of blooming or fruiting. Its morphological features, as well as its location in the painting indicate that it may belong to the rush family (*Juncaceae*) **[S]**. This mysterious species is represented by a single specimen.

The remaining vegetation of this work is filled with clusters of grass, as well as outlines of other small herbaceous plants. In the background the space is enriched with numerous trees and shrubs which form freely growing groups. The overall silhouettes and patterns of the crowns indicate that these are broadleaf plants. They are additionally characterised by varied colouring, which allows the assumption that they are specimens of more than ten species.

Nearly all of the identified plants in this painting are perennial plants in the natural environment. The only exception is the dwarf mallow, a biennial or perennial species.

In terms of phytosociological classification, the presented plants are not species characteristic of one, common unit of syntaxonomy. They appear in varied phytocenoses, belonging to various syntaxa of different rank in the systematic arrangement. Nonetheless, some of the identified species are characteristic of the same, or similar, plant formations, for example, daisy, greater plantain, common dandelion, red clover and white clover. All of the above species grow in meadow and pasture communities. A similar situation applies to the sweet violet and ground-ivy, since both plants appear on forest edges of fresh and damp broadleaf forests. Nettle is characteristic to ruderal habitats, and forms the herb layer in riparian forests. Dwarf mallow is a species distinctive of communities of perennial plants which cover ruderal terrains. In nature it is also the main floristic component of terrains adjacent to fences and farm buildings. Wild strawberry appears in plant communities of forest clearings. Woodruff forms the herb layer in broadleaf forests of western and central Europe. The remaining hypothetical species are characteristic or distinctive of inhomogeneous phytocenoses[3]. However, without conclusive identification, they can not be taken into consideration in phytosociological analyses.

As was proven by the above deliberations, the plants portrayed in this panel belong to various, and often quite different, habitats. Some of them grow on grasslands, i.e. meadows and pastures, others are connected to forest and scrub biocenoses. They often form ecotone formations at the boundaries of these phytocenoses. Nonetheless, it is important to stress that some of them are characteristic to synthropic communities. Therefore, they can be observed on roadsides, near human dwellings, in ruderal locations, or even in gardens. This visible discrepancy in terms of biotopes leads to the conclusion that the presented vegetation does not reflect a real phytocenosis. It is a set of

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[3] See: W. Matuszkiewicz, *Przewodnik do oznaczania zbiorowisk roślinnych Polski [Guide for the determination of Polish plant communities],* Warszawa 2007; Cz. Wysocki, P. Sikorski, *Fitosocjologia stosowana [Practical phytosociology],* Warszawa 2002; E. Oberdorfer, *Pflanzensoziologische Exkursionsflora*, Stuttgart 1979; H. Ellenberg, H. E. Weber, R. Düll, V. Wirth, W. Werner, D. Paulißen, *Zeigerwerte von Pflanzen in Mitteleuropa,* Scripta Geobot. 18(1991), pp. 1-248.

less than twenty plants that were artificially combined into a whole, so as to form an illusion of naturalness. It is however, impossible to exclude the assumption that some combinations of species could have been drawn from a real natural environment. An example of such a combination is the dwarf mallow in the close vicinity of the nettle.

The floristic composition of the discussed panel consists predominantly of plants common in nearly all regions of Europe, with the exception of the far northern parts of the continent. Only the daffodil has a more narrow range, i.e. it appears naturally in the forests and meadows from northern England, through Holland to western Germany due south[4]. What is more, it should be noted that this species has been cultivated in gardens since the medieval times[5].

The majority of the specimens visible in this painting are captured in the state of blooming, and even fruiting. Therefore, it should be determined whether such situation is in accordance with reality. As evidenced by the above analysis, nearly all identified species in this panel can develop generative organs at the same time. The months common to the majority are May and June. The highest discrepancy is in the case of three species, i.e. the sweet violet, daffodil and dwarf mallow. The first two plants shed their blossom in May, whereas the last one begins to bloom not earlier than in June. Therefore, there is a considerable time difference concerning the period in which the portrayed scene takes place. On one hand, the plants indicate that it is May, on the other hand, that it is June. However, keeping in mind the fact that the period of blooming is changeable, and depends on climatic conditions, it can be hypothesized that the event takes place at the turn of the two neighbouring months. In that time the sweet violet, daffodil, as well as dwarf mallow can have open flowers. The lack of visible generative organs in nettle remains a problematic issue. Within the suggested period of time they should have already emerged, since this specimen reproduces generatively from June until September. In purely natural categories, the scene depicts the full of spring.

In spatial terms, the depicted sward is quite diversified. It consists of numerous species of herbaceous plants, situated in the foreground

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4 B. Gibbons, P. Brough, *Atlas roślin Europy Północnej i Środkowej [The Hamlyn Photographic Giude to the Wild Flowers of Britain and Northern Europe],* p. 308.

5 J. D. Godet, *Rośliny zielne Europy. Rozpoznawanie gatunków [Herbaceous plants of Europe, species identification],* Warszawa 1999, p. 102.

and the middle ground. The deeper section of the composition is dominated by unidentified trees and shrubs. The presented vegetation imitates a solely natural or semi-natural phytocenosis. However, it is not a reflection of a real plant community, as evidenced by its floristic composition. The artist created a type of a sward with inhomogenous density and land cover. In the central section of the painting it is poor and limited only to scattered plants. At the edges, around the standing figures of St. Giles and St. Maurus, the sward is more dense and rich. It consists of freely growing specimens, among which are numerous clusters of grass. To date, they have not been botanically identified and comprise a type of background ensuring an illusion of naturalness. The precision of depiction of turf gradually decreases with the distance from the foreground. Behind the displayed species, the surface of the groundcover is filled with outlines of small herbaceous plants. The presented topography and land cover reflects the landscape of the Netherlands, especially the region of Bruges[6]. On the other hand, however, the presence of sharp and high mountain tops excludes such possibility. They do not fit the topography of this presumed geographical region. They are, rather, an alien element, and a part of a purposefully planned, idyllic landscape which constitutes the scenery of the portrayed scene. The depicted physiocenosis is cultural in character, as evidenced by the present natural and anthropogenic elements. Nonetheless, it is not a part of any garden or park.

6 U. M. Mazurczak, *Miasto w pejzażu malarskim XV wieku [The city in Landscape Painting of 15th century. Netherlands],* p. 215.

Conclusions

Having conducted the analysis described in the previous chapters, one can state without doubt that Netherlandish painting of the 15th century is quite rich in terms of nature. It is conclusively confirmed by the number of portrayed and botanically identified plants. In ten selected paintings the present author was able to identify 80 plant species. However, it should be stressed that this namber includes also the hypothetical specimens. There are 53 fully identified plants, in the case of which there is no doubt. The difference is a result of the fact that the painters did not often depict all diagnostic features in detail. Thus, it is possible to determine the genus, but not the exact species, especially in the case of the plants that are characterised by high morphological variety within the taxon, or by high similarity of the vegative and generative organs. This concerns, predominantly, the species that belong to such genera as crane's-bill (*Geranium*), buttercup (*Ranunculus*), violet (*Viola*), dandelion (*Taraxacum*), and rose (*Rosa*).

Perennial plants are the most dominant among all depicted plants. There are 48 of them, which constitutes 60% of all identified species. The following, considerably smaller group consists of annual and biennial plants. There are 19 of these, and they constitute 23.8% of the total number. Trees, shrubs and undershrubs are represented by 12 species, which equals 15% of all identified plants. The smallest group consists of vines, since in all of the paintings there was only one such plant, which translates to 1.2%. In addition, the floral abundance is highlighted by the utilisation of species from 37 families and 66 genera. The most numerous group belongs to the daisy family (*Asteraceae*, *Compositae*). The identified plants belong to the fern class (*Pteridophyta*), as well as to the class of seed plants (*Spermatophyta*). The second group, however, dominates, especially the representatives of the flowering plants (*Angiospermae, Magnoliophytina*) and of the dicotyledons class (*Dicotyledones, Magnoliopsida*).

High variety of plants, presented above in the form of numeral data, translates into the paintings of individual painters. The majority of them utilise a similar, however, not identical, species composition. The most recurring plants in all of the analysed painters are: daisy and sweet violet – present in seven analysed paintings, as well as wild strawberry, common dandelion, greater

plantain, greater celandine, and red clover, which were present in five paintings. However, it should be noted that none of the identified species was present in all paintings of the analysed masters. Among the frequently observed species are also: meadow buttercup, agrimony, woodruff, columbine and bearded iris. The remaining identified, not listed species are repeated by one, or maximally two, painters. The majority of presented plants are captured with their whole habit visible. With great care concerning the details, the artists include nearly all most vital elements of external structure. They show shoots and leaves. They depict not only their overall outlines and colours, but often also minute details, such as the edges of leaf blades, or the image of venation. As in nature, the portrayed leaves show diversity, distribution on the stem, as well as the length of petioles characteristic of a given species. The flowers are depicted with equal precision. Usually they have the correct structure, number of petals of the corolla and sepals of the calyx. A distinct exception is the flower of marsh-marigold in *Mary with Child* by Robert Campin, where the flower of this plant has six petals of the corolla, despite the fact that it should have five of them. The generative organs of the plants in the remaining works of this artist, as in the case of other masters, are in accordance with reality. What is more, they are correctly gathered into various inflorescences, which even further highlight the realness of depiction. For instance, the craftsmanship and artistry of the masters are enhanced by the meticulously painted anthodia of the species belonging to the daisy family (*Asteraceae* = *Compositae*), as well as the magnificent perianths of the columbine (*Aquilegia* sp.). In addition, some species present varied levels of development. Present in one painting are buds, open flowers, as well as fruits. It is the last group of organs that are often the only indicators that enable the identification of a whole plant. Worth mentioning in this matter are the schizocarps with long beaks in crane's-bill (*Geranium*), as well as the tufted frutification of dandelions (*Taraxacum*). The vast majority of the specimens are captured in the state of blooming. The analysis of blooming periods of the analysed works indicates that the period of flower development is, in most cases, correct for all of the presented plants. It does not, however, correspond with the content of the presented religious scenes, in relation to the liturgical calendar of the Catholic Church. The presence of blooming plants implies the season of the year, in which the depicted composi-

tions might have taken place. For the majority of the discussed panels, development of the portrayed plants indicates spring or early summer.

In the analysed paintings there are no significant discrepancies in the manner of depicting the same plants by individual painters. Subtle differences concern only the shape of leaf blades, colouring, the level of flower development, as well as proportions. The analysis of the manner of depicting plants by individual painters allows determining their specificity. In his paintings Robert Campin focuses on detailed depiction of individual plants, presented in the foreground. He clearly omits the background, limited in his works by ornate fabrics or architectonic objects. Single plants, especially in his later works, become very realistic. It is visible especially in *Mary with Child* and *St. Veronica,* where the plants are nearly perfect copies of those observed in nature. Jan van Eyck also painted plants accurately; however, he paid more attention to detailed depiction of vegetation as a whole, rather than to individual plants. Common dandelion, or greater plantain painted by him in *Adoration of the Mystic Lamb* in the *Ghent Altarpiece* are depicted with less detail than the same species painted by other painters, for instance, by the Master of Flémalle. On the other hand, however, Jan van Eyck for the first time combined herbaceous plants, shrubs, trees, and even vines in a single composition. What is more, he utilised species characteristic to different climate zones, which was an innovation in comparison to the other masters. Rogier van der Weyden continues to use the methods of portraying nature presented by his predecessors. However, his plants are more displayed, and depicted with greater precision. One can even risk a statement that specimens painted by him are the most similar to their natural prototypes. In addition, his paintings are characterised by a high variety of selected species. Dierick Bouts also depicts plants accurately. Evidence to that is his painting, *Ascent of the Blessed into Paradise,* in which, similarly to Jan van Eyck, he focused more on vegetation as a natural whole. This is indicated by numerous specimens of the same species distributed across the sward as they can be observed in nature. In his works Hugo van der Goes diverges the most from other analysed masters due to the fact that in his compositions vegetation is limited to only a few specimens, which, nonetheless, are depicted perfectly. He paints them in great detail, including their individual morphological features. What is more, his floral composition fits the depicted habitats the most. It should be noted that other analysed

artists did not usually combine the portrayed plants with their natural biotopes. Hans Memling returns to greater species variety, painting plants in a manner enabling their conclusive identification. However, his plant life is characterised by visible repeatability of utilised species. This phenomenon is not characteristic only of this painter. The avocation of the artists towards certain plants can be observed in much earlier cases.

Highly interesting are the species characteristic only of one artist. They constitute a unique element and highlight the individual character of the work or technique of a given master. The presence of such unique species among the ten analysed paintings is the most visible in the works of Jan van Eyck and Robert Campin. In their panels one can find the greatest number of rare plants among the analysed depictions. In the case of Jan van Eyck these species include: funeral cypress, wild cherry, date palm, fig, rose campion, pomegranate, lesser celandine, guelder-rose, Solomon's-seal, evening-scented stock, garden peony, bitter orange, red currant, grape-vine and tansy. Unique to Robert Campin are: southernwood, marsh-marigold, purple-loosestrife, pot marigold, borage, common couch, silverweed, heath speedwell, field mouse-ear, monk's-hood, as well as the not fully identified corn marigold. It should be stressed that, compared to a complete analysis of the works of Netherlandish masters of the 15th century, the above analysis is subject to considerable discrepancies. The present author described, in a broader and more detailed scope, the results of this research, as well as the floral co-dependency between the individual painters, in the English summary of his earlier book[1].

The most important goal of this publication was to present the floristic diversity in Netherlandish painting of the 15th century. Therefore, the natural selection of the scenes prevented the comparison of the paintings in terms of the plants, which would simultaneously include painting motifs and types of presented scenes. Nonetheless, the ten selected works allow the assumption that regardless of the presented scene, vegetation is present and represented by numerous identifiable species.

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[1] P. Kulesza, *Szata roślinna w krajobrazach malarstwa niderlandzkiego XV wieku. Identyfikacja botaniczna roślin na wybranych obrazach [The Flora in the Landscapes of 15th-century Netherlandish Painting. Botanical identyfication of Plants in Selected Paintings],* Lublin 2011, pp. 591-604.

The analysis of the compositional arrangement of the plants of individual paintings showed that in all of the portrayed scenes the most fully identified specimens are situated in the foreground. They are the most displayed, depicted with greatest precision, as well as the greatest number of crucial diagnostic detail. The farther into the background of the composition, the less precise they become, and the frequency of their appearance visibly decreases. The middle ground and, especially, the background are almost completely devoid of botanically identifiable specimens. The plant life of this section of the paintings consists mainly of outlines of trees and shrubs. The vast majority is treated in a highly schematic fashion, which renders the identification of genus or family virtually impossible. The few exceptions concern predominantly the species with characteristic shapes, as in the case of date palm or funeral cypress. In a small number of cases identification is possible due to the visible shapes of leaf blades. It is that element that enabled the identification of olive, fig, and oak observed in the paintings. In addition, the presence of fruits or flowers allowed the identification of, among others, bitter orange, or guelder-rose. The remaining woody plants are visibly stylised and schematised. Nearly in every painting, with the exception of *Adoration of the Shepherds*, they are densely leaved. Their crowns are nearly the same, i.e. they are very dense and spherical or oval in shape. They consist of numerous clusters of small spots of paint which imitate leaves. Sometimes they have clearly marked spots at the bases of trunks, which may symbolise basal shoots observed in nature. The trunks and boughs also do not correspond with reality, because they are too thin and brittle in relation to the width of the remaining plant elements. They do not have the textures and colours that would be suitable for particular species. Trees presented in this manner indicate that they are broadleaf, not coniferous, plants. The latter ones appear only in *Ghent Altarpiece* by Jan van Eyck. These are the aforementioned funeral cypresses with slender, columnar crowns visible in the scene of *Adoration of the Mystic Lamb*. The portrayed trees and shrubs appear individually, as well as in bigger groups, thus imitating a fragment of a real landscape. They make up various groups of trees in the form of groves, forests, as well as mid-field vegetation or that observed near architectural objects and urban architectural complexes. They form a framework for the views, or a dominant.

With the exception of plants placed in ornate containers, the majority of specimens grow directly on the ground. Most often it is a sward with a dense turf, although, in some cases it can also be a dry, barren ground, or even crevices of stone or brick walls. The depicted specimens grow freely in different directions, creating an illusion of a natural or semi-natural phytocenosis. Usually among them one can find numerous clusters of grasses that fill free spaces, creating the impression of spatial depth. Together with the fragments of botanically unidentified shoots and leaves, they become the background for plants depicted with more precision. An excellent example of such a solution is the panel by Robert Campin, *Mary with Child*. In this work the artist meticulously integrated the identifiable species with numerous unidentified plants. In the paintings analysed after this work prevails the technique of contrast, i.e. the plants are set against a dark or very bright background. Due to that, they become distinctive, which aids identification.

Species composition of the majority of the analysed paintings is not a reflection of any real phytocenosis. Often the painters combine species which in nature occupy different habitats. One can observe synthropic, meadow, as well as forest species. On the other hand, they select plants with high ecological tolerance, which often appear in different biotopes. Good examples are daisy and common dandelion. These species, despite the fact that they represent meadow and pasture communitiess, can often be seen on roadsides, near human dwellings and in ruderal locations. What is more, the artists complement the presented scenes with cultivated species quite popular in the medieval gardens. Disregarding their natural range and habitat requirements, they combine them with wild-growing species of the north-western Europe (Flandria). Therefore, they create a phytocenosis which is the outcome of a painter's vision rather than an accurate reflection of reality. Among all plants identified in the paintings, the biggest group consists of species of synthropic phytocenoses, ruderal in character. They are supplemented with a smaller number of meadow and forest plants. The remaining plants are characteristic or distinctive of a broad spectrum of various phytocenoses of Central and Western Europe.

The scenes of the analysed paintings usually take place in open landscapes, and only a few compositions are set against the background of ornate fabrics or architectural interiors. That is why it is

possible to carry out a broader analysis of the presented vegetation in relation to the presented surroundings. The land cover and topography in nearly all of these paintings indicate that the portrayed events are, in all probability, set in the landscape of Netherlands, native to the painters. This hypothesis is confirmed by the identified species, the majority of which grow in their wild state nearly across whole Europe. Thus, their natural range encompasses, among others, the region of historic and modern Flandria, as well as the neighbouring regions. Nonetheless, some works show species native to the basin of the Mediterranean Sea. However, it should be noted that in relation to all identified plants, there are not many foreign plants, and these include: hedgerow crane's-bill, southernwood, funeral cypress, date palm, fig, rose campion, clove pink, pomegranate, bearded iris, wallflower, evening-scented stock, Madonna lily, pot marigold, borage, olive, garden peony, bitter orange, feverfew, and corn marigold.

Another indication in favour of the hypothesis that fragments of Netherlandish landscapes are involved is the presence of mildly wavy hills framed with mountain ranges, or vast gulfs on the horizon. This is also indicated by the character of the depicted architecture and urban arrangements. It is the visibly highlighted presence of numerous anthropogenic elements in the form of buildings, roads, canals, fields and meadows, that indicates that it is a cultural landscape, i.e. one, in which human interference is strongly present.

The landscape depicted by the analysed painters does not correspond with the content of individual compositions. The same situation applies to vegetation, not corresponding with the climatic zones, in which the presented event should take place. An excellent example is *Adoration of the Mystic Lamb*, where one can find plants from the southern and northern regions of Europe, or even Asia.

The vast majority of the panels do not reflect the typical medieval garden ensambles. Nonetheless, some works bear evidence of purposefully planned spaces. A good example is *Mary with Child* by Rogier van der Weyden, where one can observe elements of small architecture, quite often found in gardens of the Midle Ages. These are, for instance, the ornate canopy in the form of a tent, as well as the raised turf bench. The remaining analysed paintings do not depict typical gardens, and their character is not purely that of a garden. However, one should remember that a cultural landscape is also a type of space purposefully transformed by man. This way the artists

become designers of the landscapes they create, and create space in their works. They select proper plants and utilise selected species, in order to achieve the best effect that can reflect reality.

As one can observe, the plant life in Netherlandish painting of the 15th century is quite diverse and abundant, and the manner of depicting individual species is surprisingly detailed. One has to remember that these works were created long before the birth of modern methods of plant description. Therefore, they can be analysed not only in artistic and symbolic categories, but also as an invaluable source of knowledge regarding the medieval natural environment, especially the European plant life. They present the floral diversity of the Middle Ages, depicting plant species that were present in that period and survived until modern times. On the other hand, the presence of unidentified specimens indicates that they might represent extinct species and can not be found in the flora of modern Europe.

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List of identified plants

Aconitum napellus L. – monk's-hood
Agrimonia eupatoria L. – agrimony
Ajuga reptans L. – bugle
Aquilegia L. – columbine
Aquilegia vulgaris L. – columbine
Artemisia abrotanum L. – southernwood
Asplenium trichomanes L. – maidenhair spleenwort
Bellis perennis L. – daisy
Borago officinalis L. – borage
Calendula officinalis L. – pot marigold
Caltha palustris L. – marsh-marigold
Caryophyllaceae – pink family
Cerastium arvense L. – field mouse-ear
Cheiranthus cheiri L. = *Erysimum cheiri* (L.) Crantz – wallflower
Chelidonium majus L. – greater celandine
Chrysanthemum segetum L. – corn marigold
Citrus aurantium L. – bitter orange
Convallaria majalis L. – lily-of-the-valley
Crepis L. – hawksbeard
Cupressus sempervirens L. – funeral cypress
Dianthus caryophyllus L. – clove pink
Dryopteris filix-mas (L.) Schott – male-fern
Elymus repens (L.) Gould = *Agropyron repens* (L.) P.B. – common couch
Ficus carica L. – fig
Filicopsida L.– ferns
Fragaria vesca L. – wild strawberry
Galium odoratum (L.) Scop. = *Asperula odorata* L. – woodruff
Geranium L. – crane's-bill
Geranium molle L. – dove's-foot crane's-bill
Geranium pratense L. – meadow crane's-bill
Geranium pusillum L. – small-flowered crane's-bill
Geranium pyrenaicum Burm. fil – hedgerow crane's-bill
Geranium robertianum L. – herb-Robert
Geum urbanum L. – wood avens
Glechoma hederacea L. – ground-ivy
Iris germanica L. – bearded iris
Juncaceae – rush family
Lamiaceae (*Labiatae*) – mint family
Lamium album L. – white dead-nettle
Lilium candidum L. – Madonna lily
Lychnis coronaria (L.) Desr. – rose campion
Lythrum salicaria L. – purple-loosestrife
Malva neglecta Waller. – dwarf mallow
Matthiola L. – stock
Matthiola longipetala (Vent.) DC. – evening-scented stock
Mycelis muralis (L.) Dum. – wall lettuce
Myosotis L. – forget-me-not
Myosotis scorpioides L. = *Myosotis palustris* Hill. – water forget-me-not
Myosotis sylvatica Hoffm. – wood forget-me-not
Narcissus pseudonarcissus L. – daffodil
Olea europaea L. – olive
Paeonia L. – peony
Paeonia officinalis L. – garden peony
Papaver rhoeas L. – corn poppy

Parnassia palustris L. – grass-of-parnassus
Phoenix dactylifera L. – date palm
Plantago L. – plantain
Plantago lanceolata L. – ribwort plantain
Plantago major L. – greater plantain
Plantago media L. – hoary plantain
Polygonatum multiflorum (L.) All. – Solomon's-seal
Polygonum L. – knotweed
Polygonum lapathifolium L. – pale persicaria
Polygonum persicaria L.= *Persicaria maculosa* Gray. – redshank
Potentilla anserina L. – silverweed
Prunus avium (L.) L. = *Cerasus avium* (L.) Moench – wild cherry
Pulmonaria L. – lungwort
Pulmonaria officinalis L. – lungwort
Punica granatum L. – pomegranate
Quercus L. – oak
Ranunculus L. – buttercup
Ranunculus acris L. – meadow buttercup
Ranunculus bulbosus L. – bulbous buttercup
Ranunculus ficaria L. = *Ficaria verna* Huds. – lesser celandine
Ranunculus lanuginosus L. – woolly-leaved crowfoot
Ranunculus repens L. – creeping buttercup
Ribes rubrum L. = *Ribes vulgare* Lam. – red currant
Rosa L. – rose
Rumex acetosa L. – common sorrel
Rumex acetosella L. – sheep's sorrel
Senecio L. – ragwort
*Silene dioic*a (L.) Clairv. = *Melandrium rubrum* (Weig.) Garcke – red campion
Solanum nigrum L. – black nightshade
Sonchus arvensis L. – perennial sow-thistle
Sonchus oleraceus L. – smooth sow-thistle
Tanacetum vulgare L.= *Chrysanthemum vulgare* (L.) Bernh. – tansy
Tanacetum parthenium (L.) Schultz-Bip. =*Chrysanthemum parthenium* L. – feverfew
Taraxacum Weber – dandelion
Taraxacum officinale coll. – common dandelion
Trifolium L. – clover
Trifolium pratense L. – red clover
Trifolium repens L. – white clover
Triticum L. – wheat
Urtica dioica L. – nettle
Veronica chamaedrys L. – germander speedwell
Veronica officinalis L. – heath speedwell
Viburnum opulus L. – guelder-rose
Viola L. – violet
Viola odorata L. – sweet violet
Viola reichenbachiana Jordan ex Bor. – early dog-violet
Vitis vinifera L. – grape-vine

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Zusammenfassung

Pflanzen in der niederländischen Malerei des 15. Jahrhunderts
Botanische Analyse ausgewählter Bilder

Gegenstand des vorliegenden Buches ist ein vom Naturforscher, einem Landschaftsarchitekten, unternommener Versuch, die Geheimnisse der Natur, insbesondere der in vorwiegend religiösen Szenen der niederländischen Malerei des 15. Jahrhunderts dargestellten Pflanzen, aufzudecken. In dieser malerischen Gattung tauchten zum ersten Mal seit der Antike die sorgfältig ausgearbeiteten Landschaftskonzepte auf. Die Pflanzenwelt als ein in der Kunst dargestellter Gegenstand ist mehrmals von Kunsthistorikern unter vielfältigen Aspekten untersucht worden: als ein mit menschlichen oder göttlichen Gestalten integral verbundener Teil der Natur oder im Zusammenhang mit unterschiedlichen religiösen, mythischen, historischen Ereignissen und Genrebildern. Sie war auch bei der Darstellung der Einzelfiguren, darunter auch auf Porträts, unentbehrlicher Bestandteil der Komposition, der ihre inhaltliche Botschaft durch Symbole, Allegorien und Metaphern ergänzte. Die Natur, vor allem Pflanzen, erschien auch als Zierat an Kunstgegenständen in ihren diversen, ob religiös-kultischen oder ästhetischen, oder auch Gebrauchsfunktionen. Durch seine Beziehung zur Natur stellt ein Kunstwerk unter allen seinen Aspekten immer neue Fragen, weckt Interesse der Forscher und bedingt somit ihre Forschungsmethode.

Die Bestimmung der Pflanzen in der niederländischen Malerei habe ich aus der Perspektive eines Naturforschers, unter Anwendung einer den botanischen Untersuchungen adäquaten Methode, vorgenommen, obwohl auf diesem Forschungsgebiet bekannterweise hauptsächlich geisteswissenschaftliche Methoden eingesetzt werden. Mit meiner Arbeit habe ich die Forschungsrichtung fortgesetzt, die von anderen Naturforschern bzw. Kunsthistorikern in Zusammenarbeit mit Botanikern initiiert wurde.

Als Naturforscher konzentrierte ich mich auf die Analyse der Pflanzenwelt in den Landschaften der niederländischen Malerei des 15. Jahrhunderts. Die von mir unternommene botanische Bestimmung der dargestellten Pflanzen wird vom Standpunkt der Naturforschung her ausgeführt, d.h. sie berücksichtigt die Genauigkeit ihrer Wiedergabe, ihr Habitat und gegenseitige pflanzenso-

ziologische Verbindungen. Darüber hinaus habe ich die Pflanzen in ihrem Bezug zur dargestellten Landschaft und zu Gartenbauprinzipien analysiert.

Die Werke von wichtigsten niederländischen Meistern des 15. Jahrhunderts, deren Lebens- und Schaffenszeit ohne jegliche Zweifel in diese Epoche fällt, wurden zur Analyse herangezogen. Aus diesem Grund ist auch Gerard David von der Analyse ausgenommen: Sein Schaffen geht nämlich über den in dieser Arbeit abgesteckten zeitlichen Rahmen hinaus. Die Werke von Petrus Christus wurden im Buch ebenfalls nicht besprochen, weil er unter dem naturwissenschaftlichen Aspekt keinen neuen Beitrag zur Entwicklung der Malerei geleistet hat. Auf seinen zahlreichen und zweifellos hervorragenden Bildern beschränkt sich die Pflanzenwelt auf immer dieselben wenigen Gattungen.

Bei der Auswahl des Forschungsmaterials, d.h. exemplarischer Bilder, stützte ich mich grundsätzlich auch auf die naturwissenschaftlichen Kriterien. Als besonders hierfür geeignet wurden diejenigen Werke betrachtet, die Eigenart und Reichtum der dargestellten Pflanzenwelt am besten wiedergeben und ihre vollständige botanische Analyse möglich machen.

Die von mir durchgeführte Analyse hat ergeben, dass die niederländische Malerei des 15. Jahrhunderts einen großen Naturreichtum aufweist, was die Zahl der dargestellten und botanisch bestimmten Pflanzen – 80 Arten auf zehn ausgewählten Bildern – bestätigt. Zwar werden in diese Zahl die nur vermuteten Pflanzen auch miteinbezogen, es gibt darunter allerdings 53 mit voller Sicherheit bestimmte Arten. Die Zweifel entstehen dadurch, dass nicht alle diagnostizierten Merkmale von den Malern deutlich genug abgebildet wurden. So konnte zwar die Gattung, nicht aber die konkrete Art bestimmt werden, besonders bei den Pflanzen, die sich durch ihre morphologische Vielfalt innerhalb eines Taxons oder starke Gemeinsamkeiten ihrer vegetativen und reproduktiven Organe kennzeichnen, wie etwa die zu der Gattung Storchschnäbel (*Geranium* L.), Hahnenfuß (*Ranunculus* L.), Veilchen (*Viola* L.), Löwenzahn (*Taraxacum officinale* Weber) und Rose (*Rosa* L.) gezählten Pflanzen.

Der Pflanzenreichtum äußert sich auch durch die Vielfalt der dargestellten Arten, die zu 37 Familien und 66 Gattungen gehören. Am meisten ist die Familie Korbblütler (*Asteraceae, Compositae*) ver-

treten. Die von mir bestimmten Pflanzen gehören sowohl zur Abteilung Farnpflanzen (*Pteridophyta*) als auch zu Samenpflanzen und Blütenpflanzen (*Spermatophyta, Anthophyta*). Es überwiegen jedoch die letzteren, ganz besonders aus der Unterabteilung Bedecktsamer (*Angiospermae, Magnoliophytina*), Klasse Zweikeimblättrige (*Dicotyledones, Magnoliopsida)*.

Die oben dargestellte große Pflanzenvielfalt verteilt sich allerdings auf die Bilder einzelner Maler. Auf den meisten von ihnen beobachtet man eine ähnliche aber nicht gleiche Artenauswahl. Folgende Pflanzen sind am häufigsten und bei allen untersuchten Meistern anzutreffen: Gänseblümchen und Duftveilchen - auf sieben analysierten Bildern, Wald-Erdbeere, gewöhnlicher Löwenzahn, Breitwegerich, Schöllkraut und Wiesen-Klee, die auf fünf Bildern dargestellt wurden. Es ist zu erwähnen, dass keine der bestimmten Arten auf allen untersuchten Bildern auftauchte. Bei den meisten Pflanzen wurden alle ihre äußeren Merkmale erfasst. Mit der größten Sorgfalt haben die Künstler den Pflanzenaufbau mit den wichtigsten Bestandteilen wiedergegeben: nicht nur Sprosse und Blätter in ihren Formen und Farben, sondern auch kleine Details, wie Linie des Blattrandes oder die Nervatur, so dass sie wie in der Natur eine typische für die gegebene Art Differenzen, Position am Stängel und Stiellänge aufweisen. Ebenso präzise sind die Abbildungen von Blüten. Sowohl ihr Aufbau, als auch die Anzahl der Blätter in der Blütenkrone oder der Kelchblätter entsprechen den realen Eigenschaften. Besonders bei den fein ausgearbeiteten Blütenkörbchen der Arten aus der Familie Korbblütler (*Asteraceae, Compositae*) und prächtigen Blütenhüllen der Akeleien (*Aquilegia* sp.) kommt die handwerkliche Kunstfertigkeit und Perfektion der niederländischen Maler voll zur Geltung. Bei manchen Arten werden dabei ihre unterschiedlichen Entwicklungsstadien erfasst, so dass an einer Pflanze sowohl Blütenknospen als auch voll aufgeblühte Blumen und Früchte zu sehen sind. Grundsätzlich werden die meisten Pflanzen allerdings in ihrem Blütestadium abgebildet. Die Untersuchung der Gemälde hat ergeben, dass die Blütenentwicklung fast aller Pflanzen zeitgerecht dargestellt wurde. Die Blütezeit weicht jedoch von der nach dem liturgischen Kalender der katholischen Kirche festgelegten Zeit der religiösen Szenen ab.

Die meisten Pflanzen - ausgenommen diejenigen in Ziergefäßen – wachsen direkt aus dem Boden, hauptsächlich im Rasen mit dichter Grasdecke, manche jedoch auch auf trockenem und unfruchtbarem

Boden oder aus den Spalten in einer Stein- oder Ziegelmauer. Sie wuchern in alle Richtungen und wirken wie eine natürliche oder fast natürliche Pflanzengemeinschaft. Mehrere Grasbüschel füllen üblicherweise die freien Räume zwischen Pflanzen und vermitteln den Eindruck von Tiefe. Die floristische Zusammensetzung entspricht in den meisten Fällen keiner real existierenden Phytozoenose. Auf einem Bild werden häufig die in der Natur in verschiedenen Biotopen auftretenden Arten - sowohl die synanthropen als auch Wiesen- und Waldarten - zusammengestellt. Andererseits überwiegen darunter Pflanzen mit hoher ökologischer Potenz, die in recht unterschiedlichen Biotopen anzutreffen sind. Ohne Rücksicht auf ihren natürlichen Standort und Lebensbedingungen werden sie mit den im Nordwesten Europas (Flandern) wild wachsenden Arten zusammengestellt. Die so entstandene Pflanzengemeinschaft entspringt grundsätzlich der Vorstellungswelt der Künstler und strebt keine getreue Wirklichkeitswiedergabe an. Die dargestellten Szenen spielen sich hauptsächlich vor offener Landschaft ab, nur wenige werden in Interieurs platziert, wo den Hintergrund feines Ziergewebe bildet. Diese Tatsache macht es möglich, die Pflanzen in Bezug auf ihre dargestellte Umgebung eingehend zu analysieren. Der Bewuchs und die Geländeformation weisen in beinahe allen Fällen auf die vertraute niederländische Landschaft hin. Diese Annahme wird durch die Bestimmung der in fast ganz Europa wild wachsenden Arten bestätigt. Auf manchen Bildern sind zwar auch einige für den Mittelmeerraum typische Arten abgebildet, die jedoch einen relativ kleinen Anteil aller dargestellten Pflanzen ausmachen.

Die Landschaften werden im Prinzip an die Inhalte malerischer Darstellungen nicht angepasst und auch die Pflanzen entsprechen nicht den Klimazonen, in denen die abgebildeten Ereignisse stattfinden. Die meisten Tafelbilder weichen völlig von den typischen mittelalterlichen Gartenbauprinzipien ab, in einigen Werken kommt jedoch eine bewusste Raumgestaltung zum Vorschein. Ein Beispiel dafür ist das Bild „Jungfrau mit dem Kind und vier Heiligen“ von Rogier van der Weyden, in dem einige in mittelalterlichen Gärten übliche Elemente der Kleinarchitektur zu erkennen sind: ein zeltförmiger Zierbaldachin und eine Rasenbank. Auf sonstigen untersuchten Bildern sind keine typischen Gärten zu sehen, sie weisen auch keinen echten Gartencharakter auf. Man darf aber dabei nicht vergessen,

dass jede Kulturlandschaft auch als eine bewusste Raumgestaltung zu betrachten ist.

Die niederländische Malerei des 15. Jahrhunderts zeigte eine reiche und vielfältige Pflanzenwelt. Diese Kunstwerke sind nicht nur nach ästhetischen und symbolischen Kategorien zu bewerten, sondern auch als Quelle des Wissens um die Umwelt im Mittelalter - vor allem um die Flora Europas zu betrachten. Die niederländischen Maler dokumentierten sowohl die damalige floristische Vielfalt als auch einzelne bis heute erhaltene Pflanzenarten. Vielleicht ist die Annahme berechtigt, dass die nicht bestimmten Pflanzen diejenigen Arten darstellen, die ausgestorben sind und in Europa nicht mehr auftreten.

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WYDAWNICTWO KUL

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