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On the defectiveness of the argument for the finality of the discovery of the remains of Nicolaus Copernicus. Part 1: Results and interpretation of historical, archaeological, anthropological and anthroposcopic research¹

Abstract

The article presents a comprehensive critique of the argument in favour of the finding of the remains of Nicolaus Copernicus formulated before the genetic research. The arguments based on the knowledge of historical sources are analysed here, as well as the results of archaeological, anthropological and anthroposcopic research, the comparison of the skull 13/05 and the facial reconstruction with the portraits of Copernicus, and also the iconography of Copernicus and the methodology of interdisciplinary research.

The critique leads to the following assertion: Based on the results provided by the team of Jerzy Gąssowski before the genetic research, it was not possible to have grounds to assert that the grave of Nicolaus Copernicus had been discovered with a probability of 97% or higher. Therefore, this research should be continued, in order to increase the strength of the argumentation and obtain new evidence.

Keywords: Nicolaus Copernicus, Copernican studies, iconography of Copernicus, facial reconstruction, comparison of the skull 13/05 and facial reconstruction with Copernicus's portraits, argument of authority, methodology of interdisciplinary research.

¹ The following article was peer-reviewed by: Professor Karolina Targosz, Habilitated Doctor in Humanities (Ludwik and Aleksander Birkenmajer Institute for the History of Science, Polish Academy of Sciences) – the historical issues and the iconography of Copernicus; Rev. Zbigniew Liana, PhD (Chair in Natural Philosophy, Philosophical Faculty, The Pontifical University of John Paul II in Kraków) – methodological issues.

This text elaborates some of the theses mentioned in the paper “The procedure of identification of the remains no. 13/05 as the remains of Copernicus in the light of rationality of reasoning and the



Welcoming the resurgence of interest in the thought of Copernicus, we call for further deepening of this research and its competent popularization.

Frombork Declaration (3 November 2005)²

1. Introduction

The information about the 2004–2008 successful search for the remains of Nicolaus Copernicus is widely known in Poland and abroad. This is due to, on the one hand, the organization of many spectacular media events³, and on the other hand,

rhetoric of persuasion” (delivered at the conference “The secret grave of Nicolaus Copernicus. Dialogue of experts”, Kraków, 22–23 February 2010) and the paper “The search for the grave of Copernicus. Reflections of *Advocati diaboli*” (delivered during the “Copernicus Center Colloquium” #1, Kraków, 20 March 2009). The topics discussed here will be developed in more detail in a separate comprehensive interdisciplinary monograph, to which the interested reader is referred now.

² Translation – M.K. As an expert of the Polish Academy of Sciences which was invited to sign the Frombork Declaration, I actively participated in the last phase of drafting of this document. I removed from it several material errors and omissions unobtrusive to those who only occasionally deal with the analysis of Copernicus’s achievements. In particular, I had a direct impact on the shape of the quoted sentence, emphasizing the need to deepen the research into the ideas of Copernicus (in the original form the text raised only the need to popularize this idea). That kind of modification of the original text was brought about by a discovery of an amazing fact of the decline of Copernican research in Poland in the last thirty years. In order to remedy this situation, at least partially, I published a special monograph – an introduction to Copernican research: *Różne oblicza Mikołaja Kopernika. Spotkania z historią interpretacji* (*Different faces of Nicolaus Copernicus. Meetings with the history of interpretation*) (Kokowski 2009b, 2010d). I would like to add that this book had evolved over the years and its first version was ready as early as 2003.

³ Such as, among others, (a) “Scientific session dedicated to the memory of Nicolaus Copernicus” (Frombork, November 3, 2005), (b) the Kronenberg Foundation press conference “The secret grave of Copernicus explained” (Warsaw, 20 November 2008), (c) the film *Tajemnica grobu Kopernika / Copernicus Tomb Mystery* (60 min), written and directed by Michał Juszczakiewicz (Michał Juszczakiewicz Art’s Agency, 2008), the preview presentations of which were held in Toruń, Olsztyn and Kraków, the première was organized in Washington, DC (Carnegie Institution for Science, 3 December 2009), and other screenings – in New York (the seat of the Kosciuszko Foundation, 4 December 2009), Los Angeles (Loyola University, 7 December 2009), Uppsala (28 April 2010) (Juszczakiewicz 2009c). The film was later broadcast several times on Swedish public television. It was also shown during the Kraków conference *The Nicolaus Copernicus grave mystery. A dialogue of experts* (Kraków, 22–23 February 2010). In September 2010, the film won the Złoty Smok Award (Golden Dragon Award) in the category of scientific archaeological films at the festival of China International Conference of Science and Education Producers Meeting (14–20 September 2010, Suzhou, China) (Juszczakiewicz 2010); (d) the organization of the multi-phase ceremony of the re-burial of Nicolaus Copernicus from February to 22 May 2010. In February the alleged remains were transferred to Toruń, the birthplace of Nicolaus Copernicus, later to Olsztyn, from where they were carried in a pilgrimage throughout the Warmia into the Metropolitan Cathedral of Frombork, (e) the organization of the session *Kopernikana* (i.e. Copernican session) within the scientific symposium held on the occasion of the 750th anniversary of the Warmia Cathedral Chapter (Olsztyn, 20 May 2010).

the very lively interest of the popular media in these events. There is no doubt that in terms of advertising they were very successful ventures. The following facts can testify to the measure of their success:

1. In 2008 and 2009, these studies were considered by “Rzeczpospolita”⁴, “Przekrój”⁵ and “PAP – Nauka Polsce”⁶ as a few of the most famous scientific events in Polish science.
2. Fundacja Bankowa im. Leopolda Kronenberga przy Citi Handlowy (Kronenberg Foundation at Citi Handlowy), which funded the second stage of the research (in particular research carried out by Polish and Swedish geneticists) and promoted the results of that research, was awarded the *Mocni Wizerunkiem Award (Strong Image Award)* granted on 22 April 2009 during the 8th Congress of Public Relations (22–24 April 2009, School of Information Technology and Management in Rzeszów).
3. The results obtained quickly became part of the online world literature, for example, they are described extensively in various language versions of *Wikipedia*.

Reading various publications and interviews with the authors, who led the search for the grave, *leads to the unambiguous conclusions that they are deeply convinced that they have conclusively discovered the tomb of Nicolaus Copernicus, found his remains, determined his appearance around the age of seventy as well as his DNA profile. What speaks in favour of the discovery of the grave and the remains of this great thinker – in their opinion – are the irrefutable and consistent scientific arguments of varied nature:*

1. A detailed reading of historical sources.
2. The results of archaeological as well as anthropological and anthroposcopic research.
3. A comparison of the skull 13/05 with the portraits of Copernicus.

⁴ “Many researchers may view the past year as very successful. The journalists of the science column of »Rzeczpospolita« daily newspaper, as every year, reviewed the accomplishments of (Polish) researchers. *This, however, is not a ranking of discoveries. We only compiled a list of those that we think have become the flagships of Polish science and received most encouraging response in the media*” (Stanisławska *et al.* 2008; translation, italics – M.K.).

⁵ Cf. “Przekrój” 2009.

⁶ “The most important events in Polish science in 2008: the brightest, seen by people, optical flash coming from the distant universe, recorded by a Polish telescope; a breakthrough in the search for the grave of Nicolaus Copernicus and an innovative procedure thanks to which the patient can avoid diabetes – these are some of the most important events in the Polish science in 2008 [...] Research conducted at Uppsala University has shown that the DNA obtained from a hair discovered in one of the books belonging to the eminent astronomer is the same as that obtained from the skull found in the vicinity of the altar which he had looked after during his life. Thus, the grave of Copernicus has been identified in the cathedral in Frombork” (“PAP – Nauka Polsce” 2008b).

4. A comparison of the facial reconstruction from the skull 13/05 with the portraits of the astronomer.
5. The knowledge of the facts on the ethnicity of the population of Silesia and Toruń in 13th–14th century as well as Copernicus's parents and Copernicus himself.
6. The knowledge of the history of the manuscripts of Copernicus's writings and his library.
7. The results of the genetic research of the alleged remains of Copernicus and the hairs from the book by Johannes Stöffler (*Calendarium Romanum magnum, Caesariae maiestati dicatum*), which was used by the astronomer for a quarter of a century, including:
 - a) the comparison of the results of the analysis of HERC2 gene (which determines eye color) with portraits of Copernicus;
 - b) correct understanding of the methods of statistical analysis of genetic data;
 - c) the knowledge of the population databases of mtDNA and Y-DNA.

However, in the light of the detailed interdisciplinary analyses carried out by the author of this article, it transpires that despite the public-wide acceptance of the arguments in favour of the thesis of the conclusive finding of the remains of Nicolaus Copernicus, this argumentation *is flawed* for many relevant reasons.

2. Thematic scope

In this article, with reference to my earlier publications, I *explain synthetically the defectiveness of the arguments* regarding the first, the third, and the fourth of the issues above⁷. (Other issues, from the fifth to the tenth on the list, closely related to DNA research, are analysed in a separate article in this volume.)

To avoid any misunderstanding I would like to unambiguously point out that by undertaking the task of assessment of the results of the search for the remains of Nicolaus Copernicus (including the assessment of DNA research), I do not go beyond my professional expertise determined by both my education and scientific activity (for many years focused on, among others, the systematic work in the field of history and philosophy of science, including the history of Copernican research, the methodology of the empirical sciences and exact sciences, and lately on the so-called genetic genealogy). I refer here to the knowledge of the history

⁷ The second question, concerning the anthropological and archaeological findings, was discussed critically in the following articles: Kozłowski 2009a; 2009b; 2010a; Sołtysiak, Kozłowski 2009, and Sołtysiak 2010a; 2010b.

of the life and the descent of Nicolaus Copernicus, the coherence of the presented reasoning, the methodological issues and the statistical and mathematical issues (the latter are analysed in the said article in this volume).

3. Problems with the facial reconstruction from the skull and its comparison with portraits of Copernicus

As explained extensively in my earlier article (Kokowski 2005b / 2007a), the facial reconstruction from the alleged skull of Copernicus is fraught with a number of significant limitations:

1. In order to assess the reliability of the reconstruction better, it should have been entrusted to several independent professional teams (however in the analysed case only one team / researcher performed the reconstruction).
2. Only facial reconstruction of an individual at the age of about 70 was delivered, and no such reconstruction was made for another age, such as 25, 35–40, or 60 (which is needed to make a reliable comparison with the portraits)⁸.
3. The comparison is largely subjective, because:
 - a) what is compared – and only visually – is a graphical reconstruction of the face at the age of approximately 70 with the portraits depicting Copernicus aged 35–40;
 - b) in this comparison no objective, mathematical measures of the proposed similarity are used;
 - c) it is also maintained that the resulting reconstruction is very similar to the portraits (which does not convince me, because the reconstruction, beyond the general – i.e. in craniometric points – compatibility with the facial features shown on reliable portraits of Copernicus, significantly differs in many important details; I broadly explain this issue in the following sections of the article).

⁸ The validity of this criticism was accepted by Jerzy Gąssowski in 2006: “Still, none of the researchers claim that there is one hundred per cent certainty of the identification. This is due to the fact that the preserved realistic portraits of Nicolaus Copernicus – serving as reference material – come from the time when Copernicus was no more than 30–40 years of age. The reconstruction reveals a human face at least 30 years older, which might cause the obvious differences in appearance, and thus, it may be called into doubt” (Gąssowski 2006c, p. 1; translation – M.K.).

A confirmation of the validity of this type of criticism was also given in a J. Paszkowska’s interview with Dariusz Zajdel on 7 May 2007, and later a critical report of the subject by Bronisław Młodziejowski (2010), an expert in forensic anthropology, unrelated to J. Gąssowski’s group.

Although the researchers of J. Gąssowski’s group accept the legitimacy of this type of criticism, they do not refer to the article in which it was presented for the first time – cf. Kokowski 2005b / 2007. However, it is certain that they know this article – cf. Gąssowski 2005d; 2010; Piasecki 2005d.

4. With regard to the standard methodology of empirical measurements (especially the theory of measurement errors), not one, but three reconstructions for a given age should have been provided, which is equivalent to the minimum, average and maximum values of measurements. However – to my best knowledge – this type of requirement is not applied in the practice of reconstruction (which is a waste of important empirical information).
5. The authors of the comparison between the skull 13/05 from Frombork Cathedral and the facial reconstruction and the portraits of Copernicus did not have sufficient knowledge about him, and especially about the history of these portraits, which is explained at length in the following sections.

4. Familiarity with the knowledge about Nicolaus Copernicus among the authors who identified the remains from the grave 13/05 as the remains of Copernicus, and the question of the correctness of reasoning concerning the identification of the remains of the astronomer

In the first phase of the study (i.e. historical, archaeological, anthropological and anthroposcopic research and referring the results of this research to portraits of Copernicus) statements about the identification of remains of Copernicus were formulated by, among others, the following authors: Jerzy Gąssowski, Beata Jurkiewicz (archaeologists); Karol Piasecki (an anthropologist); Dariusz Zajdel (a specialist in anthroposcopy) and, fortuitously, Jerzy Sikorski, a historian. None of these people, with the exception of Jerzy Sikorski, had dealt with Copernican research before. Jerzy Gąssowski and Karol Piasecki openly admitted to it in their publications⁹. Despite this, the publications of the aforementioned authors, and especially of J. Gąssowski, abound with statements in which erroneous opinions concerning the most famous Canon of Warmia are notoriously spread (which will be shown and explained in detail below).

In the statements of these authors, an *implicit assumption* manifests itself clearly that a lack of expertise in the field of knowledge about Copernicus does not influence the correctness of the reasoning concerning the identification of the remains of the astronomer. It will be proven in this article that this seemingly reasonable assumption is incorrect. I also think that the adoption of this assumption has determined the overall rhetorical strategy of the publication of this team and resulted in a very serious weakening of the evidence presented by this team.

It should be noted here that I highly value the achievements of Jerzy Sikorski in the Copernican research. He belongs, in my opinion, to a small group of Pol-

⁹ Cf. for example Gąssowski / Hofman-Wiśniewska 2008, p. 1; Piasecki / Górka 2005.

ish experts, who in the last forty years, have made a significant contribution to the research into the life and work of Nicolaus Copernicus. An example of this – and it is one of many¹⁰ – can be found in his formulation of the hypothesis about the location of the grave of Nicolaus Copernicus on the basis of an analysis of historical sources and previous studies of the location of this grave. I have, however, two doubts with regard to this particular hypothesis, which I will reveal later in this article.

5. Identification of the remains from the grave 13/05 and the questions of the portraits of Copernicus (from the 16th–20th centuries) and his physical description

The fundamental weakness of the procedure of identification of the remains from the grave 13/05 as the remains of Copernicus is the omission of the specialized knowledge in the field of the history of the portraits of the astronomer from the 16th–20th centuries. This knowledge makes the anthropological comparison of the skull 13/05 with the portraits of Copernicus (made by K. Piasecki) and the comparison of the facial reconstruction from the skull 13/05 with the portraits of Copernicus (made by D. Zajdel) problematic (this will be elaborated on below). On the other hand, this difficulty determines a separate, but otherwise interesting research programme, consisting in searching for answers to the question which of the known portraits (in the visible or hidden layer) is the most consistent with or similar to the reconstruction.

In the context of these studies Karol Piasecki formulated a following strong thesis:

- There are plenty of images of the astronomer. – Obviously, each of us has seen Copernicus in portraits. The broken, big nose and the facial asymmetry are visible in all his images. It turns out, they are also present on the skull (Piasecki/Szczepkowska 2005, p. 11; translation – M.K.).

As an illustration of this thesis four images of Copernicus are given, “drawn and painted during his lifetime and after his death” (fig. 1) in the following articles: Kowalski 2005, p. 10 (reporting the results of Gąssowski’s research team) and Piasecki / Pohl, Zielinski 2005, p. 7. There is a number of significant concerns regarding these pictures, of which the authors of these articles are not aware.

¹⁰ Cf. numerous references to his various publications in: Kokowski 2009b. However, I must point out that I do not share J. Sikorski’s fascination with the issue of Anna Schilling (the alleged mistress of Copernicus). In my opinion there is not enough source data to put forward definite conclusions.



Fig. 1. Alleged and actual portraits of Copernicus.



Fig. 2. An alleged portrait of Copernicus (photograph: W. Skiba i A. Wyporek; source: Wasiutyński 1938, the illustration following p. 536).

The first portrait (fig. 2) – the person with a characteristic aquiline nose, despite the explicit inscription, does not represent Copernicus at all, but... Johannes Stöffler (1452–1531)¹¹. This portrait was made by J. Mittannour Chamahista and was published by Baltazar Moncornet (d. 1668).

¹¹ What is easy to see on the frontispiece of Stöffler's own work: *Ephemeridum opus Joannis Stoeffleri Justingensis Mathematici...*, Tubingae per Hulderricum Morhart Ann. XXXIII (1533), and the portrait of this author included in, for example, *Icones virorum illustrium doctrina et eruditione*



Fig. 3. The so-called Goluchów portrait of Copernicus – an oil painting of the German school (mid-16th century), a copy made by Nora Zinck (circa 1942; National Museum in Warsaw, the deposit of the District Museum in Toruń, inventory number MNW 190310; MT/MK/Dep/1).

The second portrait (fig. 3), the so-called Goluchów portrait of Copernicus, is considered as a controversial image of the astronomer at the age of 40–60. Zygmunt Batowski (1933, pp. 69 and 99), for example, stated that it was a portrait of an unknown man aged about 40.

The third portrait (fig. 4), the so-called Toruń or college (Academic Gymnasium) portrait of Copernicus, is not a self-portrait (this statement is not found in K. Piasecki's paper, however it is proclaimed by J. Gąssowski and B. Jurkiewicz – see Gąssowski, Jurkiewicz 2005b, p 19; Gąssowski 2008b, p 26; 2009a,

praestantium, cum eorum vitis by Jean-Jacques Boissard, 1652–1669, p. Tt4. The Johannes Stöffler mentioned here is the author of ...*Calendarium Romanum magnum, Caesariae maiestati dicatum* (1518). In the copy of this work owned by Copernicus two hairs attributed to Copernicus were found in Uppsala.



Fig. 4. The so-called Toruń or college portrait of Copernicus (The District Museum in Toruń, inventory no. MT/Ad/217/M/N).

p. 49) and is not the image created during the life of Copernicus (this statement is not found in K. Piasecki's paper, however it is proclaimed by Zajdel 2006, p. 39) – this is explained below in Section 5. Moreover, there is no source evidence that Copernicus painted any portraits, including self-portraits. The silence of the sources in this case speaks for the claim that he did not do it, otherwise – as the author of the Toruń portrait – he would have had to be an artist of great esteem and for this reason he would have had to paint numerous paintings.¹²

Finally, the fourth portrait (fig. 5) is a composition of Titus Maleszewski (1827–1898), published by W. Korn & Co. around 1860 in Berlin, in the lithography by G. Engelbach (1823–1885), and in 1873 in Warsaw in the lithography by W. Walkiewicz and included in the Polish translation of C. Flammarion's book *Vie de Copernic et histoire de la découverte du système du monde* (Polish: *Życie*

¹² I mentioned this already clearly in an earlier article: Kokowski 2008, p. 80.



Fig. 5. The portrait of Copernicus in a composition by Titus Maleszewski (1827–1898) (source: Flammarion 1873, p. 8).

Mikolaja Kopernika, translated by F. Sulimerski; published in Warsaw by Unger and Banarski's Bookstore, 1873, p. 8). So far it has also been claimed that the image of Copernicus in this portrait was supposed to be a copy of a painting by Ridolf Curandi (Ghirlandajo) of 1505 or 1508. However, as I prove it, it is an imaginary, free vision of Copernicus's figure, just like the alleged portrait by Ghirlandajo itself.¹³

6. Reliable portraits of Copernicus

The experts in the history of portraits of Nicolaus Copernicus know very well that there are no original images of the astronomer which *were created during*

¹³ I discuss this thread in another article published in this volume, see pp. 252–253.



Fig. 6. The so-called Reusner woodcut created by Tobias Stimmer (or his school) and published in N. Reusner's book (fragment) (source: N. Reusner, *Icones sive imagines virorum literis illustrium*, Argentorati 1587; Jagiellonian Library, Kraków, signature: Cim. 1422 Mag. St. Dr.).

his lifetime. In particular, the Toruń portrait (fig. 4) is no such image, since the dendrochronological analysis of oak plank on which the picture was painted, performed by Tomasz Ważny in 1987, proved that it came from a tree felled in 1571. Thus, due to the period of wood maturation, the picture could have been created in 1573 at the earliest and taking into account the issues of the technique of image formation – most likely only in the years 1580–1585.¹⁴

In the light of current knowledge a whole group of early portraits, derived from a lost original (called autographon) are considered as likely portraits of the

¹⁴ I discuss this at greater length in: Kokowski 2009b, p. 434, fn. 585.



Fig. 7. The so-called Boissard portrait, i.e. a copperplate by Theodore de Bry, published in Jean Jacques Boissard, *Icones Virorum Illustrium* (Frankfurt 1597, k. XVI; District Museum in Toruń, inventory number MT/MK/46; photo: Krzysztof Deczyński).

astronomer. The original was in the possession of a councillor of Gdansk, the nephew of Bishop Tiedemann Giese, a friend of Copernicus (the councillor happened to share the name with the bishop). This group of portraits includes:

1. The Strasbourg portrait painted by Tobias Stimmer in 1571–1574 (but before repainting in 1838, which likened this picture to the Toruń portrait).
2. The so-called Reusner woodcut published in 1587, which was made probably before 1584 (see fig. 6).
3. The so-called Boissard portrait, i.e. a copperplate by Theodore de Bry, published in 1597 (fig. 7).



Fig. 8. The epitaph portrait of Copernicus of the Church of SS. Johns in Toruń (1580) – oil painting by an unknown artist (ca. 1582–1589), founded by Melchior Pirnesius (a copy of Karl Hemmerlein, 1943; District Museum in Toruń, inventory number MT/MK/183).

4. The Toruń portrait from around 1580–1585 or rather its original form – similar to the Boissard portrait – revealed by the study of the X-ray spectrum (as well as infrared and ultraviolet spectrum).
5. The epitaph portrait from the Church of SS. Johns in Toruń from 1580 (fig. 8).¹⁵

The group of unquestionably reliable, but created somewhat later portraits of Copernicus includes among others the Kauffmann woodcut (fig. 9), representing the Reusner type and made in Wittenberg in the late 16th or early 17th century.¹⁶

¹⁵ Cf. Flik 1973; 1974; 1990.

¹⁶ Cf. Batowski 1933, p. 33–37 and illustration 5; Flik-Fizek 1992, p. 165.



Fig. 9. The so-called Kauffmann woodcut (fragment), Wittenberg, late 16th or early 17th century (source: Batowski 1933, illustration 3).

7. Elementary proof of falsity of the thesis by K. Piasecki (2005b), J. Gąsowski, B. Jurkiewicz (2005b) and J. Gąsowski (2008b) that a crooked nose appears on all portraits of Copernicus

The unquestionable early portraits of Copernicus above (fig. 4 and 6–9) are counter-testimonies to the thesis of K. Piasecki, J. Gąsowski and B. Jurkiewicz¹⁷ that a crooked nose appears on all portraits of Copernicus.

¹⁷ “Both in the preserved portraits (sic) and in the skull, a deformation of the nose can be ascertained; it is deflected to the left and this could be the result of an injury suffered at the age of 7–12 that subsequently could lead to visible deformation of the skull symmetry” (Gąsowski, Jurkiewicz 2006a, p. 18).

8. Doubt regarding K. Piasecki's thesis of the asymmetry of Copernicus's face

I think that K. Piasecki's thesis of the asymmetry of Copernicus face visible on the portraits of the astronomer is worth further interdisciplinary discussion, because the effect of this asymmetry (if it exists) is inconspicuous, and thus cannot be large (Kokowski 2005b/2007a).¹⁸

On this occasion, I would like to point out that human faces are not perfectly symmetrical, which we do not see in ordinary perception. Hence, doubts as to the existence of *the asymmetry of Copernicus face presented in his portraits*, can only be dispelled by accurate measurements. Until we have such measurements, I postulate that we treat the second thesis of Karol Piasecki as an untested empirical conjecture, a hypothesis. The burden of proof rests on the shoulders of Piasecki, because no one before him spoke regarding this effect. I stress the need for accurate measurements and *the publication of the results*, not mere verbal statements that this asymmetry is supposedly visible in the paintings.

9. The scar on the alleged skull of Copernicus and the scar on portraits of Copernicus

According to Gąssowski, Jurkiewicz 2005b, p. 18 and Gąssowski 2008b, p. 24:

A very important detail is the double vertical scar over the right eye-socket noticeable on the skull – probably the scar from a wound. The self-portrait (sic) reveals the same irregularity in the appearance of the left eyebrow, which in a small fragment seems to disappear. [In the classical technique of self-portrait, the method of a mirror image is applied. Hence, the comparison regards the right part of the skull and the left part of the head presented on the painting – annotation M. K.].

It is worth adding a few words of comment to the quotation above:

1. The aforementioned effect of the atrophy of the left eyebrow on the alleged self-portrait of Copernicus (on this picture, see also the remark below) was only revealed by L. Torwirt (1953), which, by analyzing the image in infrared and normal light, detected a “flaw, like a scar” at the base of the left eyebrow. This discovery was then strengthened by J. Flik (1973, 1974, 1990), who – in the study of this portrait in X-ray, as well as in infrared and ultraviolet radiation – detected on the X-ray photo of this portrait that the scar appears both on the left and the right side of the base of the nose.

¹⁸ It is worth noting that the fact of a small asymmetry was also noted by Zajdel / Paszkowska 2007.



Fig. 10. Fragment of the skull 13/05 (magnified part of the photograph made by chief commissioner D. Zajdel, M.A.¹⁹; source: Gąssowski 2009c, p. 16; <http://i.wp.pl/a/f/jpeg/23516/kopernik4.jpeg>).²⁰

2. Let us note that on the portrait we cannot see at all the “double scar above the left eyebrow” analogous to the “double scar” above the right eyebrow on the alleged skull of Copernicus and the facial reconstruction by D. Zajdel (cf. fig. 10 and 11 and Kokowski 2005b/2007a).

Thus, the indicated discrepancy of the features of the alleged skull of N. Copernicus and of Copernicus’s “self-portrait” (i.e. his Toruń portrait), mentioned by J. Gąssowski and B. Jurkiewicz, significantly weakens the probative force of the argument in favour of identifying the skull. Since if we accept assumption₁ (on the credibility of the “self-portrait” and the historical records, which were mute regarding any double scar), and assumption₂ (on the fact that the double scar on the skull 13/05 had been formed before the “self-portrait” had been created), the fact of finding the skull leads us to a falsification of the thesis regarding the ultimate finding of the remains of Copernicus. If we accept assumption₂ and assumption₃ (that the found skull belongs to Copernicus), it leads us to a falsification of the thesis regarding the credibility of the “self-portrait” and the historical records.

¹⁹ Although the article of Jerzy Gąssowski (2009c, p. 16) does not give the name of the author of the photograph of Copernicus’s skull, through the exchange of correspondence between the Publishing House of the PAU and Professor Jerzy Gąssowski it transpired that it was podinspektor (underinspector) Dariusz Zajdel, MA (then nadkomisarz, chief commissioner).

²⁰ Since the publisher of the monograph did not receive from podinspektor (underinspector) Dariusz Zajdel, M.A. and professor Jerzy Gąssowski a consent to include all the photographs of the skull in the monograph, using the right to quote – in accordance with Article 29 §1 of *Ustawa o prawie autorskim i prawach pokrewnych* (*The Act on Copyright and Related Rights*), dated 4 February 1994, full text: *Dziennik Ustaw* 2006, No. 90, item 631) – I enclose some of them. Cf. Stanisławska-Block 2009, especially p. 166, Section 3.3 and Section 3.7, p. 169.



Fig. 11. The facial reconstruction from the skull 13/05, made by chief commissioner Dariusz Zajdel, M.A. (Central Forensic Laboratory of the Polish Police)²¹. “One of the skin damages (scars) over the right superciliary arch, mentioned in anthropological analysis, was clearly reflected in the damage to the skull’s bone structure” (Piasecki, Zajdel 2005, p. 34).

Hence, in order to save the credibility of the “self-portrait” and the historical evidence, and the credibility of finding the skull 13/05 we would have to reject assumption₂ and assume that the double scar on the skull 13/05 was formed – at the earliest – after the “self-portrait” had been painted or, according to K. Piasecki, even after the death of Copernicus, caused by gravediggers. However, also

²¹ This illustration is a part of the illustration no. 3 (file “plansza_03.jpg”) distributed on a CD-ROM at the ceremony in Frombork on 3 November, 2005 (see Zajdel 2005a). I do so in accordance with the directive set out in the reproduced on this disc file entitled “Copyright.txt”: “In the case of publication of the entire image or its part, the name of the Author along with the institution details should be stated each time, [...]” that is chief commissioner Dariusz Zajdel, Central Forensic Laboratory of the Polish Police. (Also notes on the right to quote given in the previous footnote apply here.)



Fig. 12. Mirror image of the fragment of the skull 13/05 (a magnified part of a mirror image of the photograph taken by chief commissioner D. Zajdel, M.A.; source: Gaśowski 2009c, p. 16; <http://i.wp.pl/a/f/jpeg/23516/kopernik4.jpeg>).²²

this explanation is not satisfactory, because, according to T. Kozłowski (2009a, 2009b) and A. Soltysiak (2010a), the scar is not at all the result of a damage to the skull (either during the life of Copernicus, or after his death), but what remained of the arterial groove.

Let us notice, however, that the divergence of views on the origins of this scar has no effect on the fundamental fact that *no* artist included this type of scar on portraits of Copernicus.²³

The only dubious case is the so-called Reusner woodcut, on which an elongated, left-bulging flaw can be seen above the right eyebrow. This flaw, however, seems to be accidental damage. This is because if we assume that a flaw such as the one on the skull 13/05 was present on the skull of Copernicus, it should appear – according to the technique of creating woodcuts (i.e. a mirror image of the original) – above the left (not right) eyebrow in the so-called Reusner woodcut and have a right-sided (a not a left-sided) bulge – see fig. 6 and fig. 12.

Consequently, the so-called Reusner woodcut does not support the argument in favour of the discovery of the said scar on of the portraits of Copernicus (unless we assume, in accordance with the experts of iconography of Copernicus, that the so-called Reusner woodcut does not represent a mirror view of Copernicus's face, and it is e.g. the Toruń portrait that shows such a mirror view).

²² Cf. fn. 20 and 21.

²³ The earlier researchers, among them the famous Owen Gingerich of Harvard University, overlooked that (cf. Gingerich 2011b): “What seemed to be a forehead wound matching a faint scar in the Toruń portrait turned out to be a common arterial depression” (Gingerich 2010b, p. 229).

Prof. Gingerich did not mention the name of the author of the thesis recognizing the scar on the skull 13/05 as an arterial groove – it was Tomasz Kozłowski, already mentioned here.

10. To what extent Copernicus images reflect his true physiognomy

The authors of the identification of the remains of Copernicus take it for granted that the most famous portraits of Copernicus, and especially the Toruń portrait (called by them ‘the self-portrait’), represent the physiognomy of Copernicus with complete realism.

We may, however, have reasonable doubts as to the appropriateness of this assumption:

1. As we remember, the Toruń portrait is not a self-portrait at all, because it was painted early in 1580, perhaps from the so-called lost autographon (Kokowski 2009b, p. 434, fn. 585). It is obvious that the artists who painted these images might not have represented his physiognomy completely realistically – a painting, after all, is not a photograph (cf. Kokowski 2005b/2007a, p. 137).
2. It is also highly doubtful that in 1580 (37 years after the death of Canon of Warmia) anyone in Warmia and Toruń remembered well enough what Copernicus actually looked like: in old age, and even more in adolescence. This is not a groundless statement – since it is known that when in 1581 Marcin Kromer, the bishop of Warmia, decided to fund the memorial for Copernicus, there was no-one in the chapter of Warmia who could give the bishop elementary information on this canon (Kokowski 2009b, p. 40).

Hence, if we wanted to compare the portraits of Copernicus whether with the alleged skull of Copernicus, or with the facial reconstruction created from the skull, we would have to maintain a large degree of criticism. Unfortunately, the authors of this comparison, i.e. K. Piasecki, D. Zajdel and J. Gąssowski, neglected this type of considerations.

11. On the status of the claim of the 97% probability of the discovery

As I explained extensively in my earlier paper (Kokowski 2005b/2007a), no mathematical reasoning had been given that would have led Jerzy Gąssowski to the precise determination of the degree of probability of the discovery of the tomb and the skull of Copernicus at 97%. Hence, claiming the 97% probability of this discovery is merely a rhetorical figure.²⁴

²⁴ Full confirmation of the validity of my criticism of the thesis of the “97% probability” of the discovery of the grave of Copernicus was brought by the interview which K. Piasecki gave on 7 May, 2007 to J. Paszkowska (the author forgot only to quote... my name in this context): “K. Piasecki: What is the degree of the likelihood that the skull we found is the skull of Copernicus, it is difficult to estimate. But in accordance with all that we know about it, it is very high” (Piasecki / Paszkowska 2007).

I will also add that the claim made by J. Gąsowski regarding the “97% probability” of the discovery used as the conclusion of the phase of historical (J. Sikorski), archaeological (a team of archaeologists), anthropological (K. Piasecki) and anthroposcopic research (facial reconstruction by D. Zajdel) can be interpreted as a precise measure of his *subjective certainty* regarding the (allegedly) unequivocal discovery.²⁵

12. Sikorski’s hypothesis regarding the location of the grave of Copernicus and the 100% certainty of the discovery of this tomb

Already before the discovery of the tomb was recognized with the alleged “97% probability” (i.e. well before the DNA analyses were made), Jerzy Sikorski had announced the thesis that he was “100% sure that this must be the remains of Copernicus” (cf. Sikorski / Belz 2008; Sikorski / Czartoryski-Sziler 2010), since already an analysis of historical sources led him to this conclusion. However, such a conclusion is unjustified for two reasons:

1. It neglects to mention the hypothesis of Górski (1973a; 1973b), according to which Copernicus could have been buried in Frombork Cathedral near the altar of St. Catherine or St. Martin.²⁶
2. It ignores two facts disclosed by the early archaeological research of Gąsowski’s group, which showed who was buried in the area of the altar of St. Cross, namely:
 - a) Canon Andrew Gąsiorowski, who did not take care of this altar, but the altar of St. Anna (until 1639 the altar of St. Paul), and who should have been buried in the crypt under the chancel, which served this purpose at the time (cf. Sikorski 2005, p. 168 and 189; Gąsowski, Jurkiewicz 2005b, p. 13–14);
 - b) an anonymous young woman in a decorative *secular* dress – which means that the Cathedral statutes did not prohibit to bury lay people at the altar, and hence, an anonymous man at the age of around 70 could also have been buried there (we do not discuss here the difficulty of determining the age with such precision).

In order to defend himself against such criticism, Jerzy Sikorski would have to introduce an additional (*protective*) hypothesis that: (a) Canon Gąsiorowski was buried near the altar of St. Cross, because he could not be buried for some

²⁵ This thesis has strong epistemological grounds. It is known that so far the so-called inductive logic and inductive probability measure failed to be formulated. Cf., for example, Popper 1977, p. 29–31, 205–213.

²⁶ For more on this subject see Kokowski 2005a / 2007a and 2005b / 2007a.

important reasons at his altar; (b) there was no such reason in the case of Copernicus; and (c) no other secular man at the age of about 70 was not buried near the altar (since it is known that among the Canons of Warmia buried in the cathedral only Copernicus lived to that age). I must be said that it actually could have occurred, but it could also have occurred somewhat differently. Therefore, in order to confirm this additional three-part hypothesis, one would have to show historical sources which would disclose such facts or reasons. In the absence of such historical sources, this additional hypothesis would have the status of an *ad hoc hypothesis, formulated only to defend the fundamental hypothesis*, making it intractable to any undermining (falsification) or rejection (refutation), and thus transforming it into a thesis devoid of scientific content.

13. Defectiveness of the argument from authority in the reasoning in favour of recognizing the finding of the grave of Nicolaus Copernicus in the first phase of research

As we know from rhetorics, the art of persuasion, one of the means used in the procedure of argumentation (for or against any thesis) is *argumentum ad verecundiam*, that is an argument referring to respect, authority. It entails that in order to justify a thesis proclaimed by us we refer to some authority: a person or a whole environment who already accepted our thesis. This argument was used by Jerzy Gąssowski and his followers in two ways: to confirm the theses propounded by them and at the same time to defend the theses criticized by few opponents, including their first critic – the author of this article (cf. Kokowski 2005a; 2005b/2007a).

This argument has the following structure (*I provide it here in my own synthetic formulation*): “You criticize our research and its results, but: (1) we conducted model research and made a model interpretation of the results obtained, and (2) our achievements aroused great interest and scientific appreciation around the world”. Such an argument (*in a different, but semantically equivalent phrasing*) was reported, among others, by Jerzy Gąssowski, Adam Kosecki, Rector of the Pułtusk Academy of Humanities, and Karol Piasecki (cf. among others Gąssowski 2005d; Piasecki 2005d; J. Śniegocki, P. Kiela, R. Śniegocki 2008).

This argument, however, is flawed because it does not alter in any way the fact that the first phase of the research contained numerous shortcomings and errors which I pointed out above, and which were overlooked by:

1. The authors of this research (who, with the exception of Jerzy Sikorski, had never conducted their own Copernican studies).

2. Their many supporters, including the prominent promoters of research, journalists and authors of *Wikipedia* entry (who have never conducted their own Copernican research).
3. André Goddu, an American scholar of Copernican issues (2007).²⁷

14. The fundamental shortcomings of the first phase of research – insufficient knowledge of the Copernican iconography and the lack of sufficient sensitivity to interdisciplinary issues

As I indicated in earlier sections of this article, the authors involved in *the first phase* of the research into the identification of the putative remains of Nicolaus Copernicus (i.e. the phase of historical, archaeological, anthropological and anthroposcopic research and the evaluation of their results) committed a variety of errors (material and formal) in these studies. They arose from three main reasons:

1. From the lack of specific knowledge relating to Copernicology (that is the knowledge of the life of Nicolaus Copernicus and the origins, the contents and the reception of his achievements), especially one of its sections: the Copernican iconography.²⁸
2. From the subjective certainty (accompanying this lack of knowledge) of the conclusions resulting from the absence of sufficient knowledge of the various intricacies of Copernicology.
3. The above-mentioned errors were a consequence of another fundamental shortcoming, namely insufficient sensitivity of the authors of these studies to the problems of interdisciplinary research. It just resulted in these authors not feeling sufficiently strong need to conduct *integrated* interdis-

²⁷ It is worth mentioning that Professor Owen Gingerich had, however, some vague doubts about the certainty of the discovery of the grave of Copernicus and his remains: “When in 2005 Polish archaeologists led by Jerzy Gąssowski found fragments of a skeleton tentatively identified as the remains of the 16th-century astronomer Nicolaus Copernicus, some doubts remained” (Gingerich 2009, p. 12215).

The doubts about the credibility of the alleged self-portrait of Copernicus were reported also by said André Goddu: “If not a self-portrait or not copied from a self-portrait, then one of the comparisons between the forensic reconstruction and the portrait may be based on a false inference” (Goddu 2010, p. 436, fn. 125). I would like to point out that I discussed this issue extensively already before my colleague (who knows Polish): Kokowski 2005a; 2005b / 2007a; 2007b; 2009b, p. 40–45, 135–136, 434, fn. 585; 2010c.

²⁸ I would like to emphasize that ignoring the knowledge of Copernican iconography in the identification phase of the alleged remains of Nicolaus Copernicus constitutes the same kind of elementary error, as e.g. undertaking research into hieroglyphs ignoring the achievements of Jean François Champollion and his many successors in this field.

ciplinary research. And for that reason there was no methodologist of interdisciplinary research on their team and no expert in the portraits of Copernicus (the team did not even take advantage of the assistance of Jerzy Sikorski, who discussed the issue of portraits of Copernicus in his book: published in 1973 and having two later editions (1973/1985, 1999).

The above considerations refute *the implicit assumption* (see above, chap. 3) adopted by the team of Jerzy Gąssowski in the first phase of the research that a lack of specialized knowledge of Copernicus does not affect the correctness of the reasoning concerning the identification of the remains of astronomer.

15. Conclusion – the failure of argumentation in favour of the discovery of the remains of Nicolaus Copernicus in the first phase of the research

As indicated in this article, in the context of the numerous gaps in the argumentation formulated by the authors involved in the search for the tomb of the astronomer, I believe that in the first phase of the research (that is in the historical, archaeological, anthropological and anthroposcopic studies):

1. No scientific evidence to support the thesis regarding the discovery of this grave with “97% probability” or “high probability” was given.
2. It has only been proven that the remains found in grave 13/05 in Frombork Cathedral may but do not have to be the remains of the astronomer.

Therefore the research should have been continued to seek stronger arguments in favour of the discovery (I would like to recall here that I pointed to such a need already in December 2005, in a publication well-known to the team of Jerzy Gąssowski – cf. Kokowski 2005b/2007a).²⁹

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²⁹ In a separate article in this volume, I discuss the question whether the DNA studies conducted by Swedish and Polish researchers constitute final, or at least sufficient evidence of the discovery of the remains of Nicolaus Copernicus.

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