Originalveröffentlichung in: Umění, 47 (1999), Nr. 6, S. 453-471

WHY DID MICHAEL WILLMANN STUDY PROPORTIONS OF CHILDREN'S BODIES? SOME REMARKS ON THE ARTIST'S NOTES IN THE STRAHOV LIBRARY, PRAGUE

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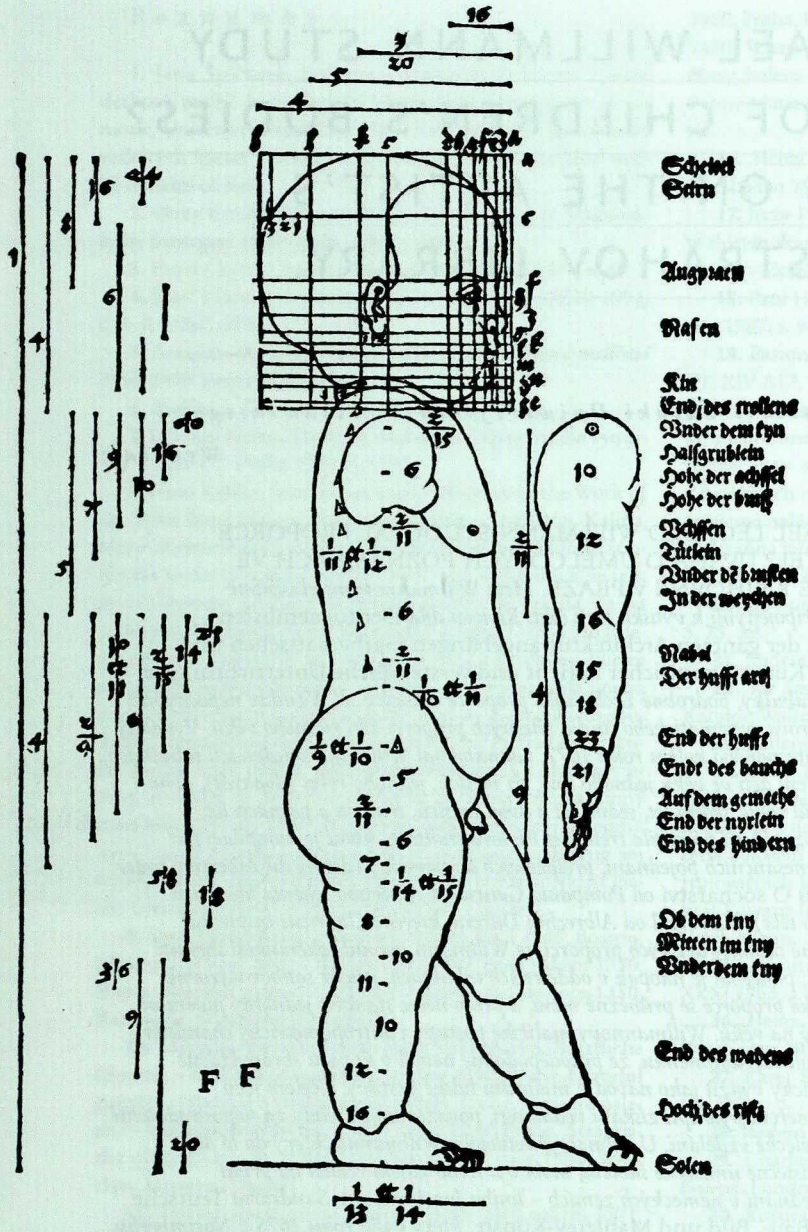
PROČ MICHAEL LEOPOLD WILLMANN STUDOVAL PROPORCE DĚTSKÝCH TĚL? ÚVAHA O UMĚLCOVÝCH POZNÁMKÁCH VE STRAHOVSKÉ KNIHOVNĚ V PRAZE. *Mezi Willmannovými vlastními poznámkami, připojenými k výtisku třetí části Riviova díla* Der furnembsten notwendigsten der gantzen Architektur angehärigen mathematischen und mechanischen Künst eygentlicher Bericht und verstendliche Unterrichtung, *se nacházejí četné tabulky, podrobně zachycující proporce dětských těl. Vznikly nepochybně na základě malířova systematického studia tělesných proporcí dětí různého věku. Výsledky průzkumu, uskutečněného kolem roku 1677, zaznamenal Willmann v jedenácti tabulkách, obsahujících měření dětí ve věku jednoho dne, tří měsíců, jednoho roku (dvakrát), dvou a tří let, pěti a půl roku, sedmi let, sedmi let a dvou měsíců, třinácti a patnácti let. Willmannovo pozorování podnítila třetí část Riviova traktátu, která je kompilací tří italských raně renesančních pojednání, přeložených do němčiny (druhý díl Albertiho práce* O malířství, *spis* O sochařství *od Pomponia Gaurica a Albertiho schéma ideálních proporcí lidského těla). Na rozdíl od Albrechta Dürera, kterého Gauricus inspiroval k sestavení obecné tabulky dětských proporcí, se Willmann vyhnul jakémukoli shrnutí získaných údajů; ponechal je naopak v oddělených tabulkách, jejichž soubor názorně ukazuje, že dětské proporce se průběžně mění, a proto nelze stanovit jednotný juvenilní kánon, nezávislý na věku. Willmannovy malířské postupy i antropometrický charakter jeho měření vyvolávají domněnku, že pravděpodobně neměl v úmyslu shromážděné informace prakticky využít jako návod k malování lidské postavy. Účelem jeho systematického měření bylo spíš získání vědomostí, považovaných tehdy za nepostradatelné pro „pravé" umělecké vzdělání. U sedmačtyřicetiletého Willmanna, který do té doby absolvoval jen částečné umělecké školení, mohl být tento zájem reakcí na první „klasicistní" pojednání v německých zemích – knihu Joachima von Sandrarta* Teutsche Academie der Bau-, Bild und Mahlerey-Künste, *která vyšla roku 1675 v Norimberku.*

ALTHOUGH MORE THAN 10 YEARS have elapsed since the notes written by Michael Willmann (1630–1706) were discovered in the library of the Premonstratensian monastery in Strahov (Prague), these notes still remain one of the least known documents connected with the Silesian painter. Of the few dozen pages included by Willmann with his copy of the third volume of a popular treatise by Gualterus Hermenius Rivius titled, *Der furnembsten, notwendigsten, der gantzen Architektur angehärigen mathematischen und mechanischen Künst* [...], the attention of researchers thus far has been attracted solely by the final page. That document contains a so-called family chronicle, consisting of the dates of eleven occurrences in the lives of the painter and his family.[1] The remainder of Willmann's notes, comprising sets of painterly and graphic formulae, as well as eleven charts of measurements of children's bodily proportions, has hitherto passed unremarked. Although a working set of technical recipes might well seem irrelevant for art historians, these charts actually appear to represent one of the painter's more intriguing activities, reaching beyond Hubertus Lossow's claim that the artist took an extreme interest in his own children.[2]

The measurements found in these charts are undoubtedly the result of systematic studies conducted by the artist on the proportions of children's bodies as they changed over time. Willmann's studies presumably were conducted around 1677, as the first entry is dated January of that year. This entry records the measurements of a boy aged 7 years and two months, and was made, according to the title of the chart, *"nach meinem Sohn Michil Leopoldt."*[3] The chart heads a separate part of the artist's notes de-

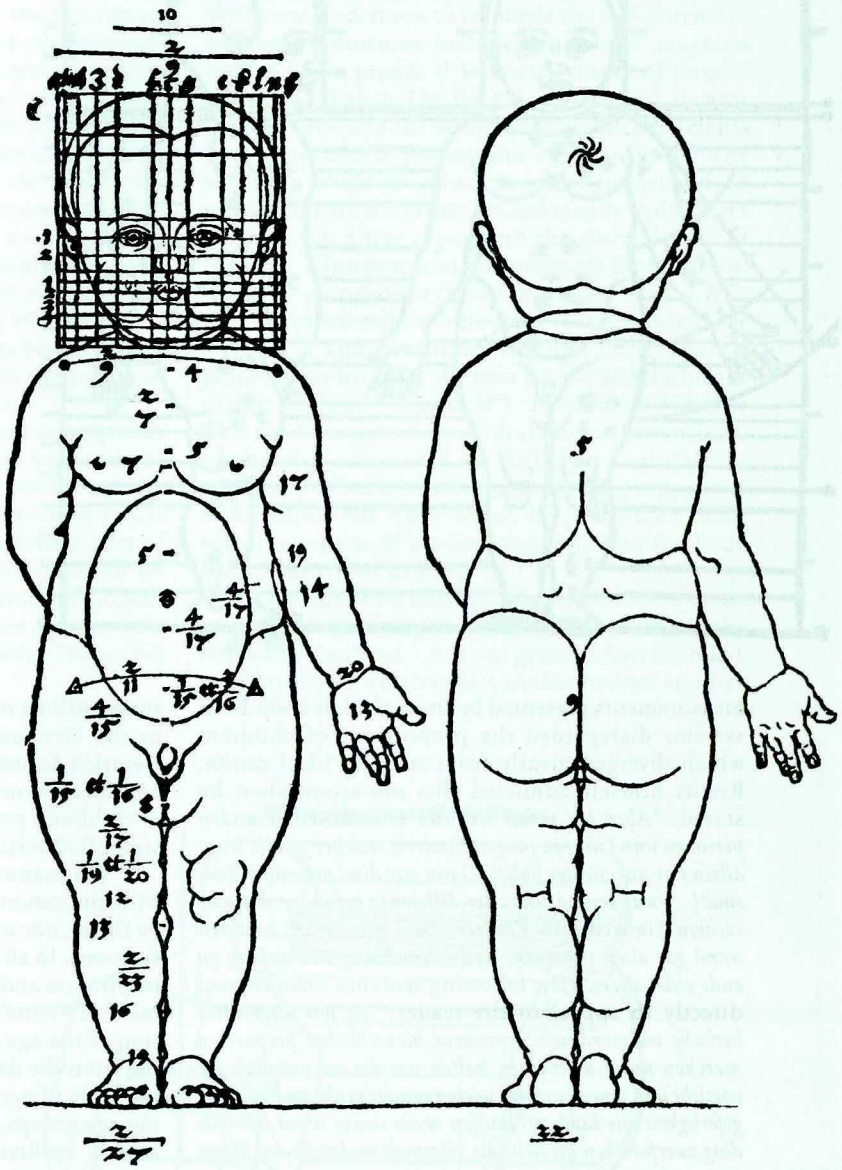


1/ The canon of a child's proportion

Reproduction: Albrecht Dürer, *Vier Bücher von menschlicher Proportion,* Nürnberg 1528

voted solely to the studies of proportions. The study includes eleven charts altogether, consisting of the measurements of children aged one day, 3 months, one year (twice), 3 years, 5 ½ years, 7 years, 7 years and 2 months, 13 years, and 15 years. The mensuration was conducted in a system wherein the basic unit of measurement was the foot of the child being measured, divided into 10 degrees that in turn were subdivided into 10 minutes. A straight line with a scale corresponding to the actual length of the child's foot usually preceded the chart with the figures. In two cases only did Willmann adopt a different unit: the measurement of a seven-year-old child was based on the foot of an adult man belonging, according to the chart, to Willmann himself. Similarly, the results of proportion studies of a 15-year-old child were recorded in ells and inches, most probably by mistake, which might explain Willmann's eventual decision to cross out these particular specifications.

The crucial data recorded by Willmann in his charts are the children's height measurements. The first measure to be included in a chart was usually the measurement of the height of the body, "*von Fuss biß auff den Wirbel des Haubtes,*" followed by numerous partial distances: from the foot to selected parts of the body (the knee, the "parts of shame" or navel) and in between chosen points such as the gluteal fold and the head, or the navel and hollow of the throat, or "freely" hanging arms and hands. The data concerning bodily height were supplemented by only a few measurements of width or depth of the chosen body parts, such as the head, the hand or hips. In only three of eleven charts – those concerning children aged three months, 2 years and 3 years – are the depth and width measurements comparable in their scope and quantity to the height measurements. In those cases, special attention was paid to the head of the child. Not only was its total height measured

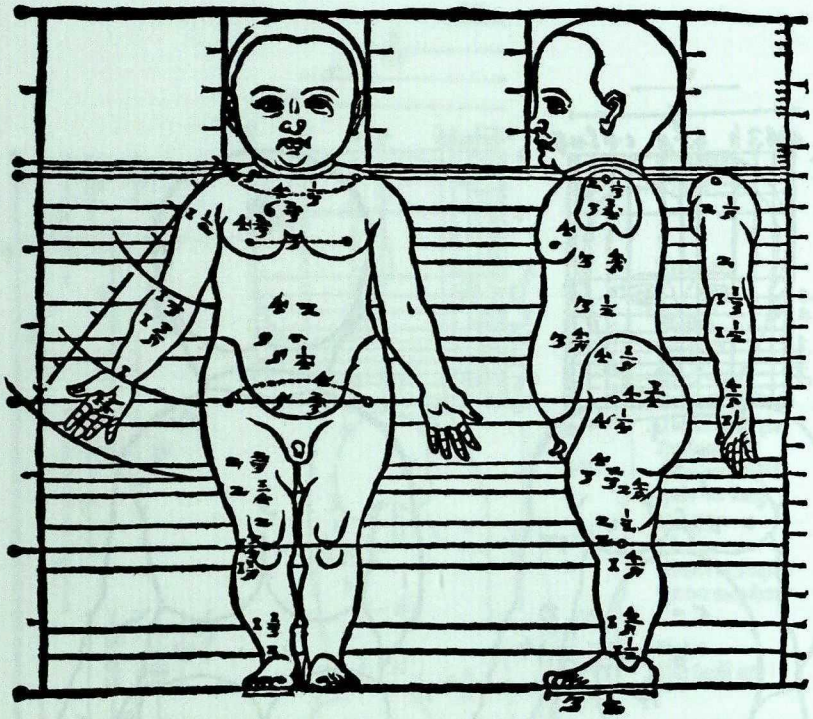


2/ The canon of a child's proportion
Reproduction: Albrecht Dürer, *Vier Bücher von menschlicher Proportion*, Nürnberg 1528

("*vom Kin biß zum Her wackß*"), along with partial distances between chin and mouth line, the tip of the nose and "cornus" of the eye, but the width of the nose and mouth, as well as the distance between the ear and the eye or nose, were meticulously checked as well.

Willmann's immediate inspiration for such systematic studies on the proportions of children in different age groups must have been his acquaintance with the third part of a treatise that he owned by Rivius. This book, comprising chapters on painting (*"Vom rechten grund und fürnembsten puncten recht künstlichs Malens..."*) and sculpture (*"Von der Sculptur oder kunstlicher bildung..."*), together with a vast physiologus (*"Der gantzen Phisiognomia kurzer außzug..."*), was in fact a compilation of various early Renaissance Italian treatises translated in their entirety by Rivius into German: the second volume of Leone Battista Alberti's work *De pictura* (1435); Pomponicus Gauricus' tractate *De statua*, published in Padua in 1504; and fragments of an earlier work of the same title by Alberti distributed in the form of hand-written copies. Willmann's interest seems to have been drawn by Rivius' considerations concerning the ideal proportions of the human body: excerpts of the chapter on sculpture about "*rechte Simmetria in Menschliche Cörper*," as well as the chart Rivius included showing ideal proportions of an adult person.[4] The artist's interest in this subject is evident on certain pages of the treatise, profusely annotated on the margin with his own hand, as well as by corrections made to the chart of ideal proportions provided by Rivius: for example, corrections to the measurement of the width of the chest, and the addition of missing measurements such as the measure of the distance between the nipples.[5]

The theory of human proportions by Gauricus reported in Rivius' text, as well as the chart of ideal proportions given by Alberti, dealt exclusively with



3/ The canon of a child's proportion
Reproduction: Heinrich Lautensack, *Des Circkels und Richtscheyts,* Frankfurt am Main 1564

measurements presented by an ideal adult body. Both systems disregarded the proportions of children, which diverged greatly from such an ideal canon. Rivius himself admitted this omission when he stated: "*Aber hie reden wir von erwachsnen gesunden personen unnd nit von jungen Kindern, welcher gantze lenge allein fier angesichter haltet. Dann wir dises orts nit willens sind [...] was verendrung oder differentz gefunden wirt der rechten Simmetria in Kindern, halb gewachsen, betagten unnd gar alten personen, nach verendrung von anfang zu endt yedes alters.*" The following sentence seems aimed directly to appeal to the reader: "*So wir aber diese herliche wolgeordnete Simmetria Menschlicher proportion mercken unnd warnemen halten wir die nit unbillich fur vorsicht und unweise so mit solcher grosser mühe und höchster geferligkeit alle land aus lauffen etwas newes unnd frembde ding zuerforschen die höhe des Himmels und tieffe des Meers unterstehen zu messen und aber ires eygenen leibs rechte maß und Simmetria nit wissen oder mercken.*"[6]

The above-quoted fragment of the treatise *De Sculptura* by Gauricus, much distorted here in its German translation by Rivius,[7] might have (according to Robert Klein) inspired Albrecht Dürer to undertake his own empirical studies on the proportion of children.[8] In his theory of human bodily proportions (1528), Dürer presented for the first time, along with 13 ideal types of men's and women's bodies, a complete chart featuring the body proportions of a small child [1, 2].[9] Following in Dürer's steps, the problem of children's physical proportions was discussed in turn by the majority of early modern authors who took up the issue of human proportions. Among those who tackled the subject were writers of teatises on sculpture and painting such as Giovan Paolo Lomazzo and Samuel van Hoogstraeten, authors of drawing primers such as Jean Cousin, Crispijn van de Passe and Willem Goeree, and even some authors of the "Kunstbuchlein's" then popular in the German lands, such as Erhard Schön and Heinrich Lautensack [3].[10] In general, those authors confined themselves to reproducing Dürer's canon of children's proportions or else referred to the more simplified version published by Schön.[11]

Willmann was most probably not acquainted with the canon of children's proportions published by Dürer, nor with any of its later imitations or modifications. In all likelihood, Willmann took as his sole inspiration and starting point the above-quoted fragment of Rivius' (Gauricus') text. The deliberate selection of the age of the children to be measured, starting from the day of birth and finishing at adulthood (15 years of age), in the rhythm of gradually increasing age groups, seems to stem directly from a crucial remark by Rivius (Gauricus) that the canon of human body proportions might fluctuate depending on the particular age of a person. The means adopted by Willmann for taking specific readings, as well as his units of measurement, are directly patterned after the Albertian chart of ideal human proportions published in Rivius' tract.

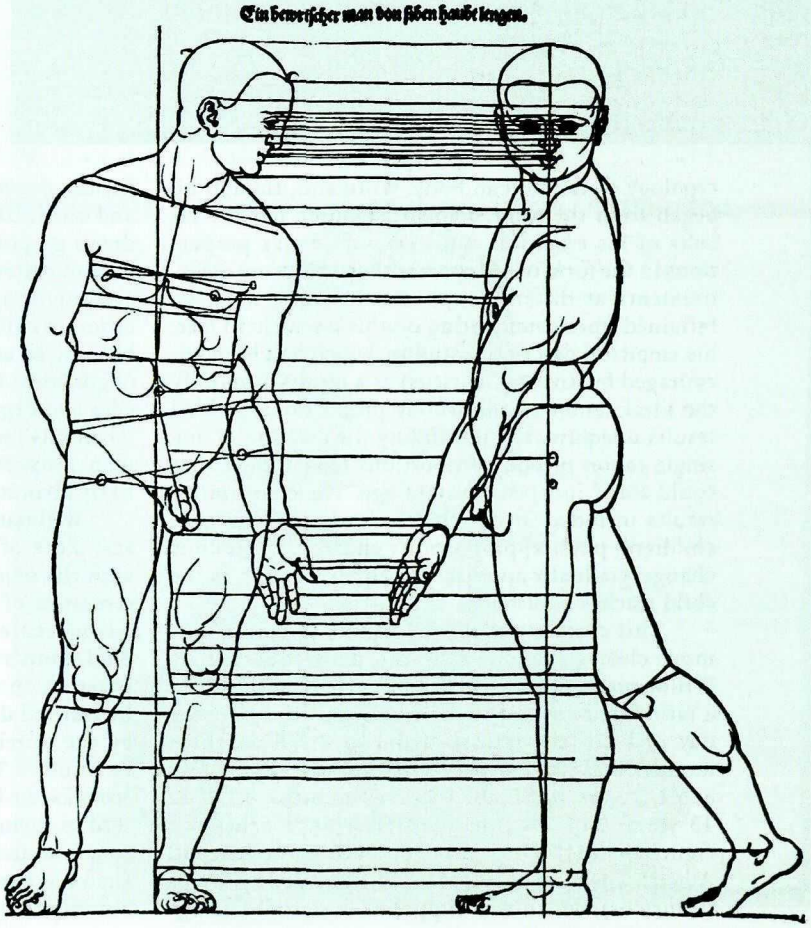
Willmann's decision to adopt the compilatory work by Rivius as the basis for his own studies on human proportions was not one of the most felicitous he could have made. Rivius, by adding to Gauricus' considerations on proportions the chart of human measurements worked out by Alberti, combined (in all probability unwittingly) two decidedly contrasting theories of proportion. In Gauricus' system, based on a so-called pseudo-Varron's canon, the head figured as the basic module of measurement and was understood to correspond to one-ninth of the overall body length. The Albertian canon of proportions, on the other hand, derived from an "exempeda" formula, that is, from the division of the body longi-

tudinally into six equal parts conventionally called feet. Moreover, Rivius published Alberti's chart of ideal proportions without repeating the description of the "exempeda" method Alberti had originally provided in the preface to his treatise *De statua*. Owing to that omission, readers not acquainted with Alberti's work *in extenso* were unclear as to the precise interpretation of the unit "Fuß" as it appeared in the accompanying charts. Willmann used the unit in his own studies in two ways: the measurements of one of the children were made adopting as a unit of measure an adult man's foot, but in the remaining cases measurements were based consistently on the foot of the individual child being measured, which in effect allowed Willmann to minimise a possible difference of results gained by mensuration with the length of an actual foot and an "Albertian" foot.

The claim that the length of a foot corresponds to one-sixth of the length of an entire human body dates back to Vitruvius, and it was corroborated by Alberti. Rivius himself suggested adopting an actual foot as a unit of measurement. In the former part of his work, on painting, he provided information on the module used in a "Vitruvian" canon of human proportions: *"Vitruuius der hochgelert un vast berumbt Architectus Mensurieret die lenge Menschliches Cörpers mit schuhen oder der füß lenge."*[12]

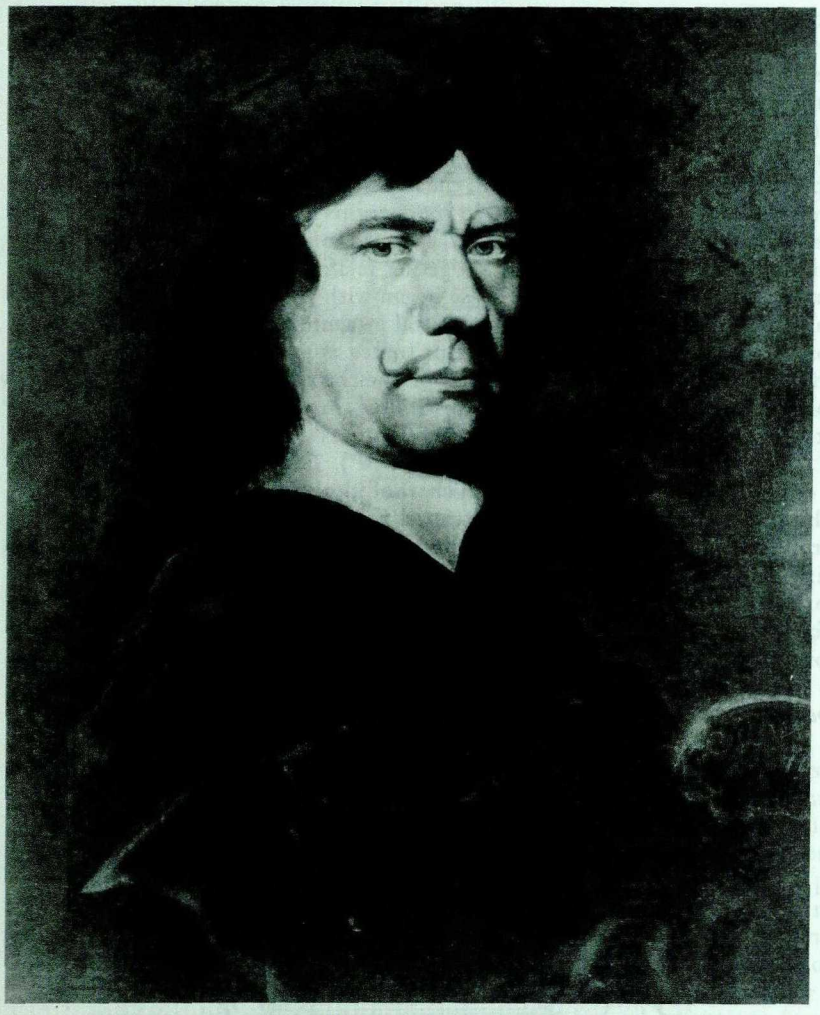
Availing himself of the measurement corresponding to a real adult foot (most probably his own), Willmann undertook to reconcile the two systems of human proportions included in Rivius' magnum opus. Chosen points of Gauricus' theory of proportion were calculated by the painter into feet, degrees and minutes, and the results of those measurements were annotated in the margins of Rivius' text.[13] The resulting chart of concordance encompassed 13 measurements altogether, related mainly to distances on the head. These began with the overall length of the head, a fundamental measurement for Gauricus' canon of proportions (noted *in margine "7 gr: 1 M"*), plus a measurement of one-third that distance (*"2 gr 3 1/2 M"*), and continued through such detailed points as the length of the nose (*"2 gr"*) and the height of the forehead (*"2 gr 2 M"*). These data, together with the Albertian chart of ideal human dimensions, presumably constituted for Willmann a satisfactory repository of basic knowledge about the proportions of an adult, one upon which he could then build with the results of his investigations into the body measurements of children.

The final outcome of Dürer's studies – initiated, as it is generally thought, by his reading of the treatise by Gauricus – was one general chart of child's measurements, which in fact constituted yet another



4/ The canon of proportion of an adult man in motion

Reproduction: Albrecht Dürer, *Vier Bücher von menschlicher Proportion*, Nürnberg 1528



***5**/ Michael Willmann, Selfportrait*
1682
Warsaw, Muzeum Narodowe
Reproduction: *Michael Willmann 1630–1706* (exh. cat.), Salzburg 1994

typology of the human body. Willmann, though he began from the same premise as Dürer, left the results of his empirical studies on children's proportions in the form of 11 separate charts showing measurements at different ages. At the same time, he refrained from commenting on this research. In fact, his empirical descriptive studies, which had been encouraged by Rivius (Guaricus) as a means to modify the ideal canon of adult body proportions, yielded results unequivocally precluding the creation of any single canon of body proportions for children that could stand independently of age. The comparative results included in the charts clearly indicate that children's physical proportions undergo continuous change, gradually approaching an ideal canon as the child reaches adulthood.

This correlation of proportions to maturity is most clearly evidenced by the data collected by Willmann on the ratio of head length to body length, a ratio fundamental to Gauricus' theories. On the day of birth the ratio is equal to 0,270; at three months, 0,255; at one year, 0,247; at three years, 0,210; at 5 1/2 years, 0,181; at 7 years two months, 0,170; at 13 years, 0,137. It thus inexorably approaches the figure of 0,117 (1:9) given by both Gauricus and Alberti. The ratio of 1:4, or 0,250, indicated by Rivius (Gauricus), which was supposed to describe as *differentia specifica* the canon of children's proportions and which Dürer himself repeated in his canon of children's proportions, was in fact shown by Willmann's data to correspond only to the proportions of a child aged about eight months. The elaboration of a general canon of children's proportions would then be possible only by establishing an arbitrarily chosen period of growth as normative for all of childhood. Willmann, who had begun simply by putting into effect Rivius' (Gauricus') stipulation to verify an ideal canon of human proportions though descriptive studies, most likely abandoned such an attempt.[14]

Willmann probably did not gather this relatively vast store of knowledge about human proportions with the objective of applying it directly in the construction of human figures in his painting. Such a conjecture is supported by our knowledge of Willmann's methods of pictorial composition, based upon the technique of graphic "prototypes" he learned during his studies in Amsterdam,[15] and by the purely anthropometric character of the artist's studies. The compilation of Gauricus' and Alberti's remarks on human proportions that Willmann had read in Rivius' book, as well as the results of his personal research, referred exclusively to the measures of the objective structure of a human body viewed as a static, three-dimensional, solid mass. Among the

notes for Willmann's studies, and among the extant drawings, there is no evidence of any attempt to apply those data about human proportions to the artist's needs as a painter. The only drawing found among his notes on human proportions is a chalk sketch of a boy resting his head on his arms while leaning against a table top. This work bears no connection whatsoever to the charts directly after it, which contain the measurements of a seven-year-old child.

It may be assumed accordingly that Willmann's creation of subsequent charts of human body measurements was not accompanied by work on a corresponding planimetric system. Such a system would have encompassed the drawings of side and back "views" of a human body into a network of bodily proportions, as well as a scheme for the planar construction of a human figure in motion and in perspective, while at the same time respecting the empirically determined canon of proportions [4]. Following the publication of Dürer's treatise on proportions, planimetric systems had become a desirable element of any work devoted to the subject of human proportions and intended for practical use by painters or draftsmen.[16] The conversion of analytical knowledge about human proportions into a coherent system of planar views remains even today the basis for rules in contructing a human figure, as exemplified by lessons contained in early modern drawing coursebooks on how to sketch the silhouette of a man.[17] Such a rational elaboration of a human figure in concordance with the canon of proportions was obviously foreign to Willmann. He seemed to cherish the traditional workshop practice of employing principally pre-existing graphic models showing specific views, which did not require the painter to possess any additional knowledge about mensuration. Why then did the Leubus artist so conscientiously study the issue of human proportions?

For lack of further supporting evidence in connection with this unusual activity, we are left only with conjectures. It is our contention that Willmann undertook such systematic investigations simply to further his acquaintance with a kind of knowledge assumed in his day to be an indispensable element of any "real" artist's education. Following that reasoning, Willmann's studies on human body proportions might be seen as an attempt to enrich his incomplete artistic education which, following a short stay in Amsterdam about 1650,[18] had never been crowned with the intended trip to Italy. Reading Rivius' compilation of Italian Renaissance treatises, Willmann must have come across those fragments of the text which advised artists to learn thoroughly the proportions of the human body. In the section devoted to painting, Rivius (Alberti) strongly encouraged novice painters to study proportions from nature, assuring them that *"die Natur selber sich des befleisset das sie alle solche maß und Commensuration selber erzeiget und herfur bringet..."*[19] In those parts of the text dealing

***6**/ Anonymous engraver, Portrait of Stefano della Bella*
Reproduction: Joachim von Sandrart, *Teutsche Academie*, Nürnberg 1675

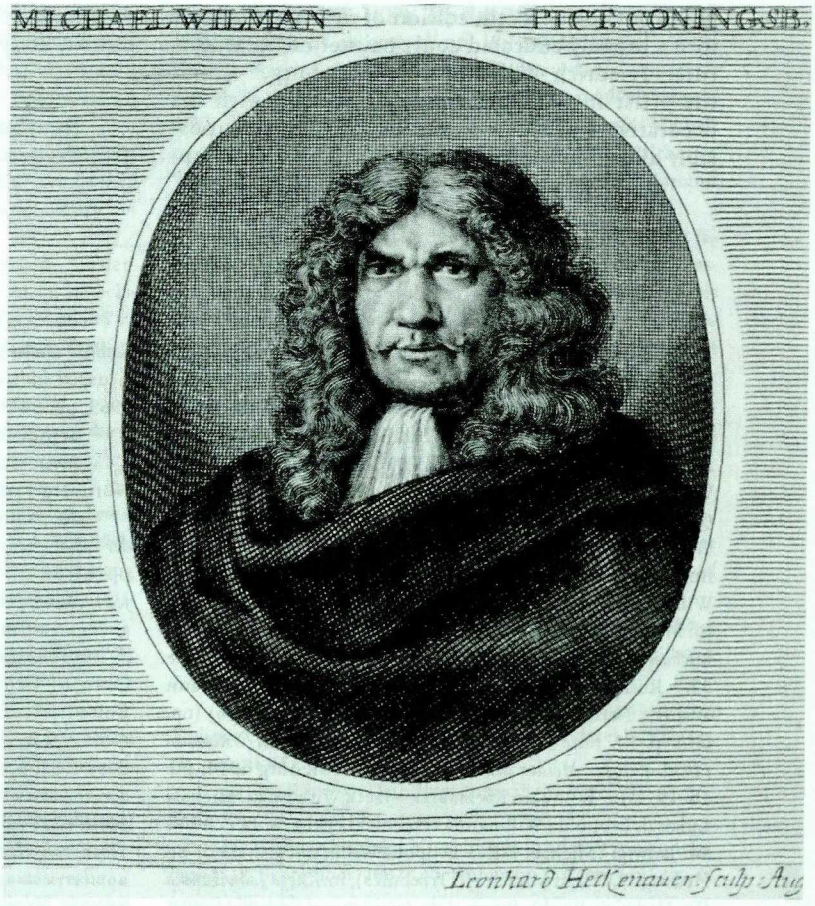
with sculpture, knowledge of human proportions was presented, along with perspective, not only as the basis of all the fine arts, but as an almost mystical means of understanding the divine harmony governing the universe: *"So wir nun diese wolgeordnete vergleichung der proportz mit fleiß betrachten wer wirt sich solchs wunderbarlichen wercks nit hochlichen werwundern? und gentzlichen fur ein sonderliche Götliche schöpffung halten? aus welcher fleissiger betrachtung ein yeder wol erachten kan was fleiß und grosse mühe jm von nöten sein wirt der solches wunderwerck von keinem Künstler sonder von der ewigen weißheit selber gebildet unterstehet nach zu machen und das selbig leblich zu bilden das er in solcher Simmetria und eygentilcher proportz nit fehle oder yrre."*[20] Besides stressing the intellectual merits of the study of proportion, Rivius (Gauricus) made sure to turn attention to its vital social aspect, continually emphasizing knowledge of the "proper symmetry" of a human body: *"...nit allein der Maler unnd Bildner, sonder aller andren so sich in diesen künsten üben und bearbeiten wollen ein gewisser grundt und trewer wegzeiger ist [...] hoch lob unnd hochberümbten Namen souil namhaffter künstreicher Maler, Bildner und Architecti erlangt und so lang biß auch zu unsern zeiten und on zweiffel auff lang Jar hinfur erhalten und weiter auffbringen werden."*[21]

The need for artists to gain adequate knowledge of human proportions was also discussed by Karel van Mander in a work written for beginning painters in 1604, *Der grondt der edel vry schilderkonst*. Although Mander gave relatively little space in his treatise to the problem of proportions, and even warned future painters against excessive attention to measuring the human body *("zu viel Messen nützt den Malern wenig oder nichts, da ihr Ziel gutes Malen ist...")*, he nevertheless shared Rivius' convictions concerning the need to familiarize oneself with the proper symmetry of a human body. Proportion, according to van Mander, signified not only *"ein schöner herrlicher Zierrat der Natur"* but also a law responsible for the existence of *"eine gewisse Uebereinstimmung der Glieder oder der Eigenschaften entsprechend den Ordnungen der Gebäude, so wie in der Kunst aufgestellt werden."*[22] The role of knowledge about proportions in painterly work was discussed along similar lines in an anonymous opus titled "Discourse on noble painting", which was annexed by the translator to the German edition of a work by Abraham Bosse, *Der Radier- und Etzkunst...* (1652). In this essay, which Willmann also read, *"die Proportion oder Ebenmaß der Bilder"* was listed as one of the five elements which *"zu einem vollkommenen Kunstgemähl werden v. Stücke erfordet."* Painters were accordingly requested, *"den Zirkel in den Augen [zu] haben und alle Risse in gleichrichtigem Ebenmaß mit kühner Feder oder Pinsel zuvollführen wissen."*[23]

One may logically ask, in relation to the hypothesis presented above, why Willmann waited until around 1677 to try to "complete" his education in this manner. What made the artist who had for over 20 years been using the method of graphic prototypes suddenly commit himself to systematic empirical studies of human bodily proportions? It is possible that Willmann felt spurred to undertake this unusual activity by the appearance in Nuremberg in 1675 of the first volume of Joachim von Sandrart's work, *Teutsche Academie der Bau-, Bild und Mahlerey-Künste*. We have pointed out elsewhere that Sandrart's exclusion of Willmann from his list of contemporary German artists, whose biographies were included next to those of *"aller berühmten Künstler"* from antiquity to Sandrart's own time, diverged considerably from the opinion Willmann held about his own artistic status.[24] In spite of the fact that the accessible sources do not comment upon the aspirations Willman cherished at the time, there are two traces which might help us detect his long-term intention to have his biography and effigy figure among the lives and portraits of "all the famous artists".

The first such trace is Willmann's self-portrait from 1682 [5], which stunningly resembles a portrait of della Bella Stefano della Bella reproduced in Sandrart's book [6].[25] The similarities between Willmann's self-likeness and the portrait of the Florentian engraver run so deep and entail elements so crucial to the image itself that we may speak of a conscious identification with the image of "a famous artist".[26] In the same year, Willmann set about the realisation of his ambition, most probably upon hearing that work had begun on the Latin edition of the *Teutsche Academie*.... This inference is furthered by a second piece of evidence: a congratulatory letter Willmann sent at this time to Joachim von Sandrart. The letter, written in an extremely flattering and obsequious tone, arrived together with an ingenious drawing depicting an *Apotheosis of Joachim von Sandrart*. This deftly planned communication seems to have produced the intended result, for Willmann's biography and likeness found their way one year later into the Latin edition of the *Teutsche Academie*.[27]

Willmann's desire to see his own biography and portrait among the lives and effigies of famous artists of all times must have been accompanied by apprehensions concerning insufficiencies in his artistic education. Reading the current state of knowledge about painting, sculpture and architecture as summarized in Sandrart's book – especially the connecting idea given there of "Arte del disegno" – must have made Willmann painfully aware of the limited extent of his artistic education. His own knowledge, gained in workshop circles of Amsterdam and Königsberg, diverged from the accepted educational standards of his times. Willmann may well have taken personally the sharp critique Sandrart gave of Rembrandt: *"[er] bliebe [...] beständig bey seinem angenommenen Brauch und scheute sich nicht wieder unsere Kunst-Reglen als die Anatomia und Maas der menschlichen Gliedmaßen wider die Perspectiva und den Nutzen der antichen Statuen wider Raphaels Zeichenkunst und vernünftige Ausbildungen auch wider die unserer Profession höchst-nöhtigen Academien zu streiten..."*, given that his own art had been shaped in the workshop of the Amsterdam master.[28] This awareness of the shortcomings in his artistic education accompanied Willmann until the end of this life. For instance, in a late letter addressed to Heinrich Snopek, the abbot of Sedlec monastery, the master of Leubus praised the skills of his step-son Johann Christoph Liška, who had spent his apprenticeship in Italy, while expressing regret at his own less than comprehensive education in Holland.[29]



7/ Leonhard Heckenauer II, Portrait of Michael Willmann
Reproduction: Joachim de Sandrart, *Academia nobilissimae Artis Pictoriae...*, Nürnberg 1683

While criticizing Rembrandt for not being proficient in "*Maas der menschlichen Gliedmaßen,*" Sandrart at the same time whole-heartedly recommended to all artists the study of human proportions. Although he included few practical clues in his short chapter, "Von des Menschlichen Leibes Maß und Proportion" – Rivius' treatise, with its detailed Albertian chart, was in this respect a decidedly better example – Sandrart left no doubt as to the indispensability of such an undertaking. Proportion studies supposedly led to an understanding of the build of the person to be depicted, as Sandrart phrased it, because "*hat der große himmlische Werkmeister in Erschaffung des Menschen die allergröste Vollkommenheit bewisen und dessen Leib mit verwunderlich-schöner Gestaltung an Gliedern Maß und Form unvergleichlichzierlich und vollkommen ausgebildet.*" Therefore, Sandrart concluded, "*Diese des Menschen Gestalt und Proportion recht zu verstehen ist eines der vornehmsten und nötigsten Studien von unserer Academie...*"[30]

The systematic studies conducted by Willmann around 1677, encompassing the verification of the ideal proportions of a human body as well as measurements of children at different ages, could therefore be perceived as an attempt to supplement his education with a certain knowledge (knowledge to be furthered by his own studies) considered by Sandrart as fundamental for a "German Academy of Fine Arts". At the same time, it bears repeating that Willmann's research seems to have been intended not so much to gain useful information to be incorporated into his own art, but rather to comply with the standards for "genuine" artistic education set forth by the author of *Teutsche Academie.* Willmann's knowledge, which neglected the achievements of Dürer fundamental to the artistic study of proportions, and which in all likelihood would have proven unusable in actual pictorial practice, could not have been for Willmann anything but an attribute of *pictor doctus.* Although Willmann included his charts with a set of several paintings and engraving formulae – knowledge of paramount importance for the functioning of his own workshop – their role may be supposed to relate mainly to the artist's sense of self-confidence.

The knowledge about proportions that Michael Willmann had achieved through self-taught discipline, together with his own assurance of his great talent and proofs of recognition garnered from wealthy founders, undoubtedly contributed to Willmann's high artistic self-esteem. This sense of self-worth must have been lofty enough for Willmann, working as a provincial Silesian "Dorff-mahler",[31] not only to strive to have his biography and effigy printed in the Latin edition of Sandrart's *Teutsche Academie,* but to amend his biography in crucial ways in the notes sent to Sandrart in Nuremberg. As a result of Willmann's changes, the artist known to us from extant archival sources and works as an artist at the Cistercian abbey in Leubus is transformed on the

pages of the new Latin edition of *Teutsche Academie* into a broadly educated court painter of Great Kurfürst, Friedrich Wilhelm of Brandenburg.[32] Could the artist in Sandrart's work image [7], with his decorative wig, his jabot and a coat *à l'antique*, possibly allow himself to be ignorant in an area of understanding so crucial as the proportions of the human body?

Translated from Polish by Małgorzata Haładewicz-Grzelak. Revised by Matthew S. Witkovsky

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Notes

1. Gualterus Hermenius Rivius, *Der furnembsten notwendigsten der gantzen Architektur angehärigen mathematischen und mechanischen Künst eygentlicher Bericht und verstendliche Unterrichtung.* Nürnberg 1547, part 3. Strahov Library, Prague, sign. AY XII 15. The work is reprinted in: Karl-Heinz Manegold - Wolfgang Treue (eds.), *Dokumenta Technica. Darstellungen und Quellen zur Technikgeschichte*, series II: *Quellenschriften zur Technikgeschichte*. Hildesheim - New York 1981. On Willmann's notes see: Bożena Steinborn, O życiu i twórczości Michaela Willmanna (About the Life and Work of Michael Willmann), in: Marek Adamski - Piotr Łukaszewicz - Franz Wagner (eds.), *Michael Willmann (1630–1706)*. Salzburg 1994, pp. 14, 27, note 32. - Rüdiger Klessmann, Willmann i Niderlandy (Willmann and the Netherlands), in: *Michael Willmann (1630–1706)* (op. cit.), p. 74, note 49. - Hubertus Lossow, *Michael Willmann (1630–1706) – Meister der Barockmalerei.* Würzburg 1994, pp. 18–19, 131. - Romuald Kaczmarek - Jacek Witkowski, Michała Łukasza Leopolda Willmanna trzebnicki cykl żywota i cudów św. Jadwigi (Michael Lucas Leopold Willmann's Cycle of St. Hedwig's Life and Miracles in Trzebnica), in: *Księga Jadwiżańska* (St. Hedwig's Book). *Papers of the International Scientific Symposium St. Hedwig in the History and Culture of Silesia.* Wrocław 1995, pp. 307–308, n. 25. - Andrzej Kozieł (review): Hubertus Lossow, Michael Willmann. *Dzieła i Interpretacje* III, 1995, pp. 135–136.

2. Hubertus Lossow (op. cit. in note 1), p. 19.

3. According to the so-called "family chronicle" written by Willmann, his son Michael Leopold was born 10:00 a.m. on Saturday 16 November 1669. Cf. Hubertus Lossow (op. cit. in note 1), p. 131.

4. Gualterus Hermenius Rivius (op. cit. in note 1), XXVII–XXVIII. The title of this chart reads as follows: *"Tafel der außtheilung gerechter Simmetria aller glider Menschlichs Cörpers aus eygentlicher vergleichung mancherley sonderlicher ausserletzner wol gebildeter recht natürlich geformirter proportion genomen."*

5. In his measurement of *"Die groste breyte in der Brust unter den Armen,"* Willmann changed the results: *"1 Fuß 1 Grad 0 Min"* instead of *"1 Fuß 3 Grad 0 Min."* For the measurement of *"Die groste breyte zwischen den Tütlein,"* Willmann wrote in missing results: *"O Füß 7 Grad 1 Min."*

6. Gualterus Hermenius Rivius (op. cit. in note 1), XXIII.

7. The original text of Gauricus reads as follows: *"Ac de Adulto loquimur iuro, non de Putis infantibus, quorum in longitudinem mensura omnis nisi quattuor constant faciebus. Nam de humana per singulas aetates Symmetria que in prima, media, atque ultima Pueria, item Adolescencia, Iuuentute et Senectute deprehendatur, Certi nihil nunc affere possemus, Et iam cogitamus in puero, si quis mihi nepos ex Sorore nascetur, eam omnem obseruare, atque obseruatum litterarum monimentis demandare, ut aut beneficio mihi quam gratam posteritatem deuinciam, aut certe ad aliquid semper quod expediat excogitandum exemplo excitem, Nonne summa stulticia est, hominem, Terrasque tractusque maris coelumque profundum dimetri, et suam mensuram ignorare?"* Pomponius Gauricus, *De sculptura* (eds. André Chastel - Robert Klein). Genève 1969, pp. 94–95.

8. Ibidem, p. 95, note 9.

9. Albrecht Dürer, *Vier Bücher von menschlicher Proportion.* Nürnberg 1528, book I, pl. Fiijb, Fiija.

10. Samuel van Hoogstraeten, *Inleyding tot de hooge schoole der schilderkonst: Anders de zichtbaere werelt...* Rotterdam 1678, pp. 61–63, pl. D. - Jean Cousin, *Livre de portraiture de maître Jean Cousin, peintre et geometrien très-excellent. Contenant par une facile instruction plusieurs plans & figures de toutes les parties separées du corps humain...* Paris 1595, pl. Gija, Giija, Hja. - Crispijn van de Passe, *'t Light der teken en schilder konst* (intro. and ed. Jaap Bolten). Soest 1973, part 1, pl. XXIX. - Willem Goeree, *Natuurlyk en schilderkonstig ontwerp der menschkunde....* Amsterdam 1682, pp. 79–80 with pl. - Erhard Schön, *Underweissung der proportzion unnd stellung der possen, liegent unnd tehend ab gestolen wie man das vor augen sieht in dem puchlein durch Erhart Schön von Norennberg fur die Jungen geselenn unnd Jungen zu unntherrichtung die zu der Kunst lieb thragenn und in den truck gepracht.* Nürnberg 1538, pl. Dija. - Heinrich Lautensack, *Des Circkels unnd Richtscheyts, auch der Perspectiva, und Proportion der Menschen und Rosse, kurze, doch gründtliche underweisung, des rechten gebrauchs...* Frankfurt am Main 1564, vol. III, pl. Liija (43a).

11. Cf. Jaap Bolten, *Method and Practice. Dutch and Flemish Drawing Books 1600–1750.* Landau 1985, p. 292, note 75.

12. Gualterus Hermenius Rivius (op. cit. in note 1), VI.

13. Ibidem, XXIII, XXIV.

14. Among authors of treatises dealing with the determination of children's physical proportions, only Giovan Paolo Lomazzo and Willem Goeree took into consideration the relation between such proportions and the age of the subjects. Both these men published charts of their studies, which contained three types of measurements for children at different stages of growth. Cf. Jaap Bolten (op. cit. in note 11), p. 292, note 75.

15. For more on this subject, cf. Bożena Steinborn (op. cit. in note 1), p. 18. - Rüdiger Klessmann (op. cit. in note 1), p. 56. - Andrzej Kozieł, Michael Willmann's Way to "the Heights of Art" and His Early Drawings. *Bulletin of the National Gallery in Prague* 7–8, 1997–1998, pp. 54–66.

16. Dürer based his theory of proportion on observational measurements of a human body, and he was the first who added to his work a system of drawings showing the body in front, side and back views. Dürer used these views to demonstrate a scheme for constructing the representation of a human figure in motion and in perspective. His work enabled a more general application of theories of proportion in the practical construction of images of the human figure. Cf. Erwin Panofsky, Die Entwicklung der Proportionslehre als Abbild der Stilentwicklung. *Monatshefte für Kunstwissenschaft*

XIV, 1921, p. 207. - Jan Białostocki, *Albrecht Dürer jako pisarz i teoretyk sztuki* (Albrecht Dürer as Writer and Theoretician of Art). Wrocław 1956, pp. 80-84. - Georg Kauffmann, Poussin und das Problem der Proportion, in: *Poussin - Studien*. Berlin 1960, part 1, pp. 15-35.

17. Cf. Jaap Bolten (op. cit. in note 11), pp. 188-231, 261-272. - Hans Dickel, *Deutsche Zeichnenbücher des Barock. Eine Geschichte der Künstlerausbildung*. Hildesheim - Zürich - New York 1987, pp. 66.

18. On the subject of Willmann's sojourn in Amsterdam around 1650 cf. Rüdiger Klessmann (op. cit. in note 1), pp. 55-62. - Andrzej Kozieł (op. cit. in note 15), pp. 54-66.

19. Gualterus Hermenius Rivius (op. cit. in note 1), V.

20. Ibidem, XXIIII.

21. Ibidem, XXIIII.

22. *"Al te veel metens den Schilders onhut / oft weynich dewijl hun schietwit is't wel schilderen..."; "Proporcy oft ghelijckmaticheyt puere / Is [...] Een schoon heerlijck cieraet in der Natuere [...] Een seker over-een-comingh der leden / oft eygnenschappen als ghebouws in orden / Als sy wel beleydt nae der Conste worden." Das Lehrgedicht des Karel van Mander* (transl. and ed. Rudolf Hoecker). Haag 1916 [=Quellen zur Holländischen Kunstgeschichte (ed. Cornelis Hofstede de Groot), 8] pp. 66-67, 70-71.

23. *Kunstverständiger Discours von der edlen Mahlerey*, in Abraham Bosse, *Der Radier- und Etzkunst...* (transl. Georg Andreas Böckler). Nürnberg 1652, pp. 140-141. We may be sure Willmann knew this discourse about art, because at least three prescriptions for preparing etchings from his notes are cribbed from the German edition of Bosse's treatise.

24. Andrzej Kozieł, Rysunki Michaela Willmanna, 1630-1706 (Drawings of Michael Willmann, 1630-1706). Ph. D. dissertation. Wrocław 1998, vol. 1, p. 137.

25. Hubertus Lossow (op. cit. in note 1), A 145. On this portrait see especially Ernst Kloss, *Michael Willmann. Leben und Werke eines deutschen Barockmalers*. Breslau [1934], p. 101. - Ewa Houszka (ed.), *Portret na Śląsku XVI-XVIII wieku* (Portraiture in Silesia 1500-1800). Wrocław 1984, no. 129. - *Michael Willmann* (op. cit. in note 1), no. 19 (Ewa Houszka). - Piotr Oszczanowski, Krótka historia "powinowatych w sławie i cnocie" czyli XVII - wieczni artyści wrocławscy od Walthera do Willmanna (A Short History of "Related in Fame and Virtue", or Seventeenth Century Artists of Wrocław from Walther to Willmann], in: Mateusz Kapustka (ed.), *Prawda i twórczość* (Truth and Creation). Wrocław 1998, p. 76.

26. Willmann most probably knew two particularly famous examples by Rembrandt of expressing one's artistic aspirations in this way, his self-portrait etching of 1639 and his painting of one year later, modeled on the portrait of an unknown man by Titian and the portrait of Baldassare Castilione by Raphael, respectively. Cf. Eddie de Jongh, The Spur of Wit: Rembrandt's Response to an Italian Challenge. *Delta* XII, no. 2, 1969, pp. 49-67. Rembrandt's own pupils often imitated these self-portraits of Rembrandt, cf. Albert Blanckert, *Ferdinand Bol (1616-1680). Rembrandt's Pupil*. Doornspijk 1982, nos. 61-63.

27. Cf. Bożena Steinborn (op. cit. in note 1), p. 26, note 4. - Rüdiger Klessmann (op. cit. in note 1), p. 55. - *Michael Willmann* (op. cit. in note 1), R 8 (Volker Manuth).

28. Joachim von Sandrart, *Teutsche Academie der Bau-, Bild und Mahlerey-Künste*. Nürnberg 1675, vol. 1, part 2, book 3, p. 326.

29. The letter is dated 22 May 1702. Státní oblastní archiv, Třeboň (Czech Republic), sign. XLVII/4. Cf. Andrzej Kozieł (op. cit. in note 15), p. 54.

30. Joachim von Sandrart (op. cit. in note 28), part 1, book 3, p. 67.

31. Willmann named himself thus in a letter to Sandrart dated 12 September 1682, cf. Hubertus Lossow (op. cit. in note 1), p. 132.

32. Joachim de Sandrart, *Academia nobilissimae Artis Pictoriae...* Nürnberg 1683, part 2, book 3, p. 292.

Annex

Charts of measurements of the proportions of children's bodies, made up by Michael Willmann on cards, which were added to the copy of the third part of G. H. Rivius' work "*Der furnembsten notwendigsten der gantzen Architektur angehärigen mathematischen und mechanischen Künst eygentlicher Bericht und verstendliche Unterrichtung*", Nürnberg 1547 (Strahovská knihovna, Prague, Czech Republic, sign. AY XII 15). I would like to express my sincere thanks to Anita Frank (Wrocław), for verification of my transcription of Michael Willmann's notes.

fol. 8 r

Einer Theylung, nach dem fuß des Knaben von 7. Jhr undt 2. Monadt aldt, nach meinen Sohn Michil Leopoldt abgemeßen, undt Halt diese maß, nach rechter Manneß größ des Handtes von 20 grh. lang, 8 grh. 2. m.

[a straight line about 18 cm long, divided into 10 equal parts, from which the first part from the left is subdivided into 10 equal parts]

	fuß	gr	M.
Die gar gantze Höhe von fuss biß auff den wirbel des Haubtes	6	4.	–
Der Kopff von unter den Kin biß auff den wirbell	1	–	9
Von fuß auff biß in den Nabel	3	7	–
von fuß auff biß Zur schamb	3		
von fuß auff biß unter daß Knie	1	5	2
von der biß uber dem Knie	–	3	3
Der fuß biß unten ein Knichell Hoch	–	3	7
Auß dem Nabell, gleich den Zitzlin	1	–	4
Auß dem Nabell biß inß Halßgrübell	1	4	–
von fuß auff biß unter die arschbacken	2	8	2.
vom Haubt biß unter die arschbacken	3	5	7.
Der Hangende arrmen, biß Zur Handt	2	2.	
von der Handt, dem glencke, biß in Ellenbogen	–	9.	6.
oberhalb der Handt langk	–	7.	
Die Handt breit	–	3	6

fol. 9 r

Fuß Eines 5 ½ Jährig Knaben

[a straight line about 16,5 cm long, divided into 10 equal parts, from which the first part from the right is subdivided into 10 equal parts]

	fuß	gr	M.
Die gantze Höchte, von fuß auff biß auff die scheitel	6	1	7
Der Kopff von unter den Kin biß auff den wirbel	1	1	2
Von fuß auff, biß Zum röhr, auch So viel biß unter die nahße	2	6	7
von fuß auff biß inß Kniehe	1	6	3
gleiche lange Hälbe der Arm, ohn die Handt, biß an die brustan.			
die Handt Häldt 7. gr. undt alßo lanck ist des fuß bladt			
von unter dem Kinn, biß auff den Nabel, v. aufß Knie	1	7	3
von nabel inß halßgrüblein. 1 f. 6 gr. 4 M: / der Halß	–	2	5

Fuß Eines 7. Jährigen Kindeß.

[a straight line about 16,8 cm long, divided into 10 equal parts]

Auch ist folgnde außtheilung nach Meinem, alß Erwakßen 3 Ehligen Mannes Höhe, Nach dem fuß größ getheillet *.....* sonsten *.....*

	fuß	gr	M.
Die gantze Höhe des Kindes Halt	4	–	8+
Der Kopff, von unter dem Kin, biß auff den wib.	–	7,5	
des fußes lang halt		6	5.
breite des fußes		2	6
Höhe von d. Erden, biß unteren inß Knie	1	–	6,5
Höhe von d. Erde biß Zur scham	1	9.	
Höhe von d. Erde biß in den Nabel	2	2	8
Höhe von d. Erde biß inß halßgrübel	3	1	7.
Daß Ärmelin Zum d. Apel biß Zur hadt Hanged	1	2	4
Daß ober theil das ärmli*..*, biß Zum Ellenbogen. gr.	–	8	
auch so lang biß den die finger an d. hand			
D. unter theil des ärmlies, von Ellenbogen Zur hadt	–	5	5.
Die Handt lang 4. gr. 2 M: halb so vil ist die breit			
ohne des *..*unen, undt so vil der finger lang	–	2	1
Vom Kin biß Zur Naß, auch so vil die ober 2 theil iedes	–	2	
Das Haubt Zu beiden schläffen breidt	–	4	2
breite oben die Apel von so*..*en	1.		
Zur den henden	–	7	4.

≤+ nach des Kindes fuß aber, Halt die gantze lange von fuß auff die Scheitel – 6. fuß, undt 3. grad. ≥

fol. 10 r

4. Kindeß fuß eines Tages alt

[a straight line about 7,8 cm long, divided into 10 equal parts, from which the first part from the right is subdivided into 10 equal parts]

	fuß	gr	M.
Die gantze längte vom Haubt biß zum fußen soll sein	6	2.	
Das Haubt von unter dem Kin biß auf den wirbel	1	7	*.*
von fuß auff biß Zur scham	2		
von fuß auf biß Zum nabel	3		
von fuß biß inß Knie	1	4.	
vom Nabel an biß inß halßgrüblin	1	7.	
das gantze ärmlein biß zur Spitze des Finger	2	7	3
von dem Ellenbogen biß zum glenck d. Handt	1		
Die Handt ist langk	7	7-	4
Daß fißlein breit, gleich der Handt		4	3
Die dicke im Knie, die breit		5	4
Die breite in der Hüfte, d. lenden	1	4	7
Die dickste breite im Leibe	1	6	–
Die wärtz. d. Zitzlin von einand.	1	–	–
Daß ärml: dick, die der Elen bogen		4	7

[from one side of the chart a perpendicular line running the whole page]
≤Diese Linii ist der Mutters haubts längte≥
[beside a perpendicular line about 23,1 cm long, divided into 10 equal parts]
≤Diß andere ist die längt der Fuß.≥

fol. 10 r

4. Fuß eineß virteljährige Kindeß

[a straight line about 8,3 cm long, divided into 10 equal parts, from which the first part from the left is subdivided into 10 equal parts]

	fuß	gr	M.
Daß Haubt von der Scheitel biß unters Kin	1	6	5
Die gantze langte vom Haubt biß Zur solen	6	4	7.
von fuß auff biß in der Nabel	3	–	7.
vom Nabel biß auff die Scheytel	3	4	
von Fuß auff biß zur Scham	2		
von fuß auff biß inß Knie	1	5	*.*
von der fersch biß auffs fußbladt höhe		4	3.
Höchte auß dem Nabel biß gleich den brustlin	1	3	4.
des Ärmlin Von des Handt biß in den Ellenbogengrüb.	–	8	7
Von den biß auf die acßel		9	6
der gantze hangende armen ohne die handt	1	8	3.
die langte der Handt		6	3.
folget die breite, von d. rechten Zur lincken			
Daß Haubt in den schläffen	1	1	2
unter den ärmlin, die bruß bredt	1	2	8.
Zu beyden schultren ad. achßelen	1	8.	
in den Hufften	1	4	5
oben da d. bein am dicksten	–	8	3:
in dem knie	–	5	5
in dem waden	–	5	
unten in den knichtlen	–	3	2
der breite fuß voren	–	4	2.
die sohlen hinten	–	3	–
Daß ärmlin ober der handt	–	3	5.
in mitel des armlin auch oben	–	4.	–
zu unterste an der handt	–	2	7.
Daß Haubt dick 1 f: 4 gr 3 M:/ Nacken u. Kinlin	1	–	–
der rucken und brust 1 f: 1 gr. 8 M: daß ärmlin oben	–	5	4.
vom Nabel zu Heu*...* 1 f: 3 gr: den bein zum arschbacken	1	–	–
im Kine. 4 gr 8 M: in der wade zum schinbein	–	5	4
zu untersten armfußlin	–	4	1.

≤Daß angesicht biß Zu dem harwachß, 1 f. 1 gr. 4 M.
Von unteren Kin biß mittel inß aug 6 gr. 8 M.
biß unter die Naße 4 gr. 4 M:
biß in den Mundt von der Naßen 1 gr. 6 M:
Daß Ohr gleich dem Naß v. augbrauen
die augbraen stehen in Mittel daß Haubteß 8 gr 2,5 M:≥

fol. 11 r

Fuß Eines Jährigen Kindes,

[a straight line about 10,5 cm long, divided into 10 equal parts, from which the first part from the left is subdivided into 10 equal parts]

	fuß	gr	M.
Daß Haubt, von d. scheitel biß unters Kin	1	5	–
Die gantze langte, von Haubt biß Zum füßen	6	–	7
Von fuß auff biß in d. Nabel: u. so hoch biß Zur scheitel	2	9	–
Von fuß auff biß Zur scham, auch so weit von oben scham	2	1	5
Von fuß auff biß inß Knie	1	4	–
sitzend biß unter d. Knie, von den fußsohlen	1	6	4
auch so lang von hinten den arschbäcken biß zum von Knihen			
nach diese *...* auß der scham in den Nabel	–	8	9
auß dem Nabel inß halß grublin	1	5	5
von fuß auff biß uber die Hufften	3	–	–
von d. schulter in den Ellenbogen	1	2	3
von Ellenbogen biß zum Handt - - auch so weit	–	7	4
auß dem Mittelen ärmlin, biß unter die ärmlin		6	8
die Längte der Handt	–	6	8
die breit unter den Ermlin	1	3	–
die breite in der Huffte	1	2	8
von fornen deß bauchs, biß hindten deß rücken	1	2	7

fol. 11 v

Fuß auf Zwey Jähriges Kindeß

[a straight line about 11,5 cm long, divided into 10 equal parts, from which the first part from the left is subdivided into 10 equal parts]

	fuß	gr	M.
Die gantze lengte, Von fuß biß auf die schäitel	6	2	2
Daß Haubt, von d. scheitel biß unter Kin	1	*.*	*.*
Höhte von fuß auf biß in den Nabel +	3	–	9.
Von fuß auf biß inß Halßgrübel	4	7	4,5
Von fuß auf biß Zur scham	2	7	7.
Von fuß auf biß inß Knie	1	4	5,5
biß auf den fuß	.	3	2
Der hangende arm von d. Astel biß Zur Handt	1	9	3.
Von der Handt biß in Mittel des ärmlin glanck	–	8	2
die langte der Handt , - die Halft deren Zur finger	–	7	.
folget die breit von der rechten zur linken,			
breite ober die Achßelen	1	5	6.
die breite der brust	1	2	
die Zitzlein von samen	–	7	5.
breit in der Hufften	1	2	7
oben da d. bein am dicksten	–	6	7
im Knie	–	5.	
Zu unterst daß bein		3	4.
die breite deß fußes	–	4	3,5
breit in miten deß ärmlin	–	4	2
ober der Handt	–	2	7
die Handt breit ist gleich der fuß	–	4	3
breite d. Haubt in den schläffen	–	8	2.
folget von hinten, biß zu fornen,			
Daß Haubt in d. sti*..*ren, biß zu hindersten	1	2.	
der Halß	–	5	8.
der Schulter v. d. rücken biß zur brust	–	9	3.
im bauch vom Nabel biß zu hinten	1	1	2
von ärschbäcken biß d. ober bein	–	7	9.
d. bein oben Düchs unter den bällen	–	6	1
in dem Knie	–	4	3
in der wade biß inß schin bein	–	4	6
zu unterst d. beinlen ober dem fuß	–	3	7
Daß ärmlin oben bey den achsselen	–	4	4.
daß unter ärmlein	–	3	1
Dauht an der Handt	–	2	2.

≤+ von den Nabel zu gleich den bristlin hoch 1 1gr:
Daß angesicht vom Kin biß zum Her wackß 1 f 1 gr
vom Kin biß inß Auge 5 gr 7. M: d. aug lang 1 gr 5 M:
vom unter Kin biß unter die Naß: 3 gr 7 M:
vom unteren Kin biß an die unter leffts 2 gr
der Mundt sambt den ober leffts 1 gr
von dan biß zur naße auch 1 gr
die Naße breidt 1 gr 7. M: hoch 1 gr - 1 M:
der Mundt weite 2 gr 5 M:
daß ohr ist gleich den augbraen von d. Naße 3 gr 7 M;
7 gr hinten die ohren *.....* me*..* F
F d. ohr vom auge 4 gr.≥

fol. 12 r

Auß Theilung Einer 15. "Jährige" Jung f, Nach
der Ellen Undt Zoll geweichtet.

	Ell	gr	Zol
Die gantze Höhe od. Längde sol sein	2	2	3
Daß Haubt, von oben dem wirbel biß unters Kin	-	1	3,5
Daß Haubts von oben zu beiden schläffen	-	1	
Die breite oben der Apel	-	2	1,5
die den Hufften v.d. lenden	-		
die hangende arm von d. apel, biß zum Ellenbogen		2	1
Daß ander Theil biß zur Handt	-	1	3,5
sitzende von hinten, biß auffs Knie	.	3	2
sitzende, von ober Knie biß zum sohlen		3	
der fuß langke	-	7	3.
der Handt breit 3 1/4 Zollen, langk	-	6	1/3
sitzende, biß auff d. Haubt	-	5	1.

[the chart is crossed out]

fol. 12 v

Fuß Einer 3 Jähriges Kindes

[a straight line about 13,8 cm long, left half is divided into 5 equal parts]

	fuß	gr	M.
Das Haubt, vom oben biß Mitl: d. Kin	1	2	3.
vom Kin biß in die aug winckell	–	5	
vom Kin biß unter die Naß	–	3	5
vom Kin biß inß Maul, undt wider umb gleich so lang die Naß, undt disser Zweytheill ist die stirnen von d. naß hoch. den maul lang Ein Theil	–	2	2
Daß Näßlin breit	–	1	8
die gantze länge od. höhe ist	5	8	4.
von d. Erdt biß unter die schamb	2	3	
Undt biß in den Nabell	3	–	7.
vom Nabell inß Halßgrübell	1	5.	.
Vom Halßgrüblin biß zu Zitzlin	–	5	6.
Von Zitzlin unter die arm höch	–	1	2
den Halßgen lang von Halßgrubel	–	3	
von fuß biß mitte inß Knie	1	4.	
des füßleis höhe	–	3	
daß gesicht gleich d. schläffen breit	–	7	5
Undt von d. stirnen bi. hinten zu, ein fuß. 8 gr	*.*	5	8
d. Hälßgen dick 5. gr die breit aber	*.*	5	5.
in d. beiß breit unter d. armlin	1:	1.	
die Zitzlin von samen	–	6	5
die dicke brust und rück	–	8	2
in den Huffte am brusten	1	2	5
auß dem Nabell biß hinten zu	1	–	5
Oben d. bein dick von foren	–	6	7.
- mitten den Knie .4,5 gr in d. wade, auch d. füßlin breit. 4 gr. uber d. Knihelln	–	2	8
von arschbacken biß vorren auffs dicke bein		7	7.
daß bein unter den arschbacken von hinten biß foren	–	5.	5.
Der Knie Ellen biß forn dem Knie	–	4	3
von d. wade zum schinbein 4 gr, uber d. fersch	–	3	3
von der fersch biß aufs fuß bladt	–	5	
Der rucken breit unter d. armen	1	2	5.
in den schultern breit	1	5	9.
in den weiche 1 f. 1 gr, 3 M: d. unter theill des ärm ist von d. Handt lang			

fol. 13 r

Zwey Jähres Kindes fuß, daß 3 Haubt leng

[a straight line about 11,7 cm long, divided into 10 equal parts]

	fuß	gr	M.
vom fuß biß in Nabel	3	2	*.*
Sitzendt biß auf die Achsel	2	4,5	*.*
Von hinten biß forn auß End deß Knieß	2		*.*
Vom fuß biß auff Knie	1	8	*.*
Von der Achsel biß unter den Elnbogen.	1	3	*.*
Von Elnbogen biß an die Hand.	1		*.*
Die breiten unter den armen	1	6	*.*
Vom fuß büß unter d. gesäß	2	1	*.*
NB. d. Haubt Ein Halben grad weiger von d. stirnen biß hinten, alß die lenge ist, zwischen beiden schläffen die breidt. hat des fusses leng 10 gr			*.*

[the column "M" is illegible because of the damage of the page]

13. Jährig, daß Haubte Lange v. 10 gr

[a straight line about 14,8 cm long, divided into 8 equal parts]

	fuß	gr	M.
von die stirnen biß zu hinten d. Haubt	–	8	*.*
Die gantze Höhe von fuß auff biß in wirbell	7	3	*.*
Von fuß auff biß in d. Nabel	4	5	*.*
Von fuß auff biß in inten des Knie	2		*.*
Die lenge des fußes	1	1	*.*
Die sohle am breitest	–	3	*.*
Von d. Achsell biß in Ellenbogen auch so lang biß an die finger Handt.	1	4	*.*
sitzendt v. hinter biß dem Knie	2	2	*.*
sitzendt biß auffs Haubt	3	4	*.*
sitzendt biß auf die Achssell	2	4	*.*

[the column "M" is illegible because of the damage of the page]