

THE MARKET FOR ARCHITECTURE IN HOLLAND,
1500–1815*

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Introduction

In the last twenty-five years or so, the study of the arts in the early modern Low Countries has been revolutionised by an infusion of economic and social history.¹ Not only have economic historians broadened the agenda, by including such new topics as output measurement, marketing, and innovation, their research has also helped to provide new interpretations of the changing faces of sixteenth- and seventeenth century art. As a result of this work we now know, for instance, that the number of paintings produced in the Dutch Republic during the seventeenth and eighteenth century was simply enormous, an observation that has fundamentally altered our appreciation of the balance between what has been preserved and what is lost, and also

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¹ It would seem fair to say that this process started with the publication, in 1982, of John Michael Montias, *Artists and artisans in Delft: A socio-economic study of the seventeenth century* (Princeton: Princeton University Press, 1982). For historiographical accounts: John Michael Montias, 'Socio-Economic Aspects of Netherlandish Art from the Fifteenth to the Seventeenth Century: A Survey', *Art Bulletin* 72 (1990), 359–73, and Marten Jan Bok, 'De schilder in zijn wereld. De sociaal-economische benadering van de Nederlandse zeventiende-eeuwse schilderkunst', in: F. Grijzenhout, H. van Veen (eds.), *De Gouden Eeuw in perspectief: Het beeld van de Nederlandse zeventiende-eeuwse schilderkunst in later tijd* (Nijmegen: SUN 1992), 330–359. A survey of the results of this type of work is Michael North, *Art and commerce in the Dutch Golden Age* (New Haven/London: Yale University Press, 1997).

highlighted the fact that the majority of Dutch painters were not Rembrandts or Vermeers, but rather poor craftsmen, struggling to make ends meet.² Work on art markets in the Low Countries has demonstrated the extent to which this art reached far beyond the borders of the Low Countries, to find customers in the rest of Europe, as well as in Latin America.³ It has demonstrated, in other words, how, during the sixteenth and seventeenth centuries, but continuing into the eighteenth, painting developed into a veritable export industry. And rather than the traditional focus on “genre”, i.e. the scenes from everyday life deemed typical of the Holland School, we can now see how Dutch painters actually developed a whole range of new topics, designed to target a variety of niche markets.⁴

This chapter hopes to make a contribution to a similar transformation in the study of architecture.⁵ As in the visual arts, many studies of architecture concentrate on the personality of the architect and

² John Michael Montias, ‘Estimates of the number of Dutch master-painters, their earnings, and their output in 1650’, *Leidschrift* 6 (1990), 59–74; Ad van der Woude, ‘The volume and value of paintings in Holland at the time of the Dutch Republic’, in: David Freedberg, Jan de Vries (eds), *Art in history. history in art. Studies in seventeenth-century Dutch culture* (Santa Monica: Getty Center for the History of Art and the Humanities, 1991), 285–329.

³ Neil De Marchi, Hans Van Miegroet, ‘Art, Value, and Market Practices in the Netherlands in the Seventeenth Century’, *The Art Bulletin* 76 (1994), 451–64; id., ‘Exploring Markets for Netherlandish Paintings in Spain and Nueva Espana’, in: Reindert Falkenburg et al. (eds), *Kunst voor de markt / Art for the market 1500–1700* Nederlands Kunsthistorisch Jaarboek vol. 50, 1999 (Zwolle: Waanders, 2000), 81–111; id., (eds.), *Mapping markets for paintings in Europe, 1450–1750* Studies in European Urban History vol. 6 (Turnhout: Brepols, 2006); Marten Jan Bok, ‘Pricing the unpriced. How Dutch 17th-century painters determined the selling price of their work’, in: Michael North, David Ormrod (eds.), *Markets for art, 1400–1800* Twelfth International Economic History Association vol. D3 (Seville, 1998), 101–10; ead., ‘The rise of Amsterdam as a cultural center: the market for paintings, 1580–1680’, in: Patrick O’Brien et al. (eds), *Urban achievement in early modern Europe: Golden Ages in Antwerp, Amsterdam and London* (Cambridge: Cambridge University Press, 2001), 186–209; Everhard Korthals Altes, *De verovering van de internationale kunstmarkt door de zeventiende-eeuwse schilderkunst: Enkele studies over de verspreiding van Hollandse schilderijen in de eerste helft van de achttiende eeuw* (Leiden: Primavera Pers, 2003).

⁴ John Michael Montias, ‘Cost and Value in Seventeenth-Century Dutch Art’, *Art History* 10 (1987), 455–66; ead., ‘Works of art in seventeenth-century Amsterdam: An analysis of subjects and attributions’, in: Freedberg, de Vries (eds), *Art in history*, 331–72.

⁵ In many ways the benchmark work still is Richard A. Goldthwaite, *The building of Renaissance Florence: An Economic and Social History* (Baltimore: Johns Hopkins University Press, 1980).

his—very rarely her—works. Next to that, there is a substantial body of work on so-called anonymous architecture, buildings of which the designer is unknown, either because there was no single designer, or because the sources are too incomplete to establish his name.⁶ The relatively new topic of Construction History has added another dimension, by paying far more attention to the technical sides of the building process.⁷ Taken together, the research agenda of the historians of architecture is limited by a focus on the buildings, and a handful of builders. Social and economic historians working on the building industry, meanwhile, have been limited by a narrow focus on the wage data provided by public building projects, and the attendant social position of workers in the industry. They paid scant attention to the development of the market for buildings, which was more or less taken for granted, or to the formation of human capital in the building industry.⁸ This chapter is an attempt to unite the research agenda's of the two types of inquiry by raising quantitative issues about the size and composition of the building market. More specifically, I want to relate the rise and decline of seventeenth-century Dutch architecture—and its specific style Dutch Classicism, to the changes in scale and composition of the market for buildings. At the same time, the chapter seeks to contextualise the contributions of architects to the building industry, by also looking at two other major types of actors, the stone-mason, and the brick-mason and carpenter. The focus of our investigation will be especially the design elements of the building process.

⁶ For a brief discussion of this type of architecture in the Netherlands, see K.A. Ottenheim, D.J. de Vries 'Bespreking *Huizen in Nederland*', *Bulletin KNOB* 99 (2000), 250–51.

⁷ Surveys are provided in A. Becchi, M. Corradi, F. Foce, O. Pedemonte (eds.), *Construction History: Research Perspectives in Europe* (Fucecchio: Kim Williams Books, 2004).

⁸ The single most famous work using wage data from the building industry is E.H. Phelps Brown and Sheila V. Hopkins, 'Seven Centuries of the Price of Consumables, compared with Builders' Wage-rates', *Economica* 23 (1956), 296–314. See also the more recent Donald Woodward, *Men at work: labourers and building craftsmen in the towns of northern England, 1450–1750* Cambridge Studies in Population, Economy and Society in Past Time (Cambridge: Cambridge University Press, 1995). Following in the footsteps of Phelps Brown and Hopkins, Jan de Vries and Ad van der Woude have also relied mainly on wage data from the building industry in their *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500–1815* (Cambridge: Cambridge University Press, 1997), 609ff.

To achieve our aims, the chapter will first look at a number of quantitative dimensions of the building market. On the basis of published tax records, we will be able to sketch a general picture of the expansion of the number of houses in the towns of Holland between 1500 and 1815. These can be supplemented with evidence on the numbers of public buildings erected during these three centuries, and estimates of rural building activities. In a next step we will try to enrich these general trends with more detailed figures on building in Amsterdam, Gouda and Rotterdam, which will also allow us to get a sense of repair and replacement building.

The second part of the chapter deals with the people designing and constructing these buildings. We will first look at the workforce in the building industry, again to get a sense of its size and composition. Then we move on to the various building professions, asking which part of the market was serviced by architects, what other professions were engaged in these design activities, and can we say something about the kind of knowledge they brought to the job? Obviously, the answers to these questions will have to remain tentative, given the state of current research and the space allotted to this chapter. Nonetheless it is hoped that its contents can make a contribution to the new type of architectural history that is currently emerging.

1. *The development of the market for buildings in Holland, 1500–1815*

The number of houses in Holland

According to the government's own tax registers, the urban housing stock in Holland increased from 23,158 in 1514 to 86,608 in 1732 (table 1a). Figures for a handful of towns suggest that, if anything, that number had dropped slightly by 1795. Much of the increase had been realised by 1632, when the number of houses in Holland's large towns had already increased three times compared to a century earlier; the small towns had doubled in size during the same period.⁹ Having

⁹ Following De Vries (fn. 11) we have defined 'large towns' as those that had at any one time during the period of investigation a population of at least 10,000. The small towns included in the sample are Asperen, Beverwijk, Edam, Gorinchem, 's-Gravenzande, Haastrecht, Heenvliet, Heukelum, Medemblik, Monnickendam, Mui-

said that, another substantial increase was realised during the rest of the seventeenth century.

For obvious reasons, these increases in the housing stock reflected changes in population sizes. Holland's urban population increased by 417 percent between 1514 and 1732, the large towns by 577 percent. Clearly, population increase outpaced the expansion of the housing stock. This implies that individual homes must have become more crowded. As we will see below, this was indeed one of the distinctive developments of the seventeenth century.

Population increases, and therefore increases in the housing stock, were general throughout Holland, i.e. the western part of the Dutch Republic.¹⁰ We can observe, however, marked variations between large and small towns, as well as between individual towns. Amsterdam outpaced all others. During this period it became one of Europe's metropolises, perhaps not quite competing with Paris and London, but at the head of the pack that followed behind these two leaders.¹¹ The Hague and Rotterdam also expanded more than the other towns. Enkhuizen, on the other hand, experienced a dramatic turn for the worse; having outpaced most other towns up to 1632, it actually lost a substantial amount of its population and housing stock in the subsequent century. None of this is especially surprising. The point of this exercise is not to demonstrate once more the various trends, but to get a sense of the number of houses built during these three centuries. On the basis of the figures in table 1a we can conclude that between 1514 and 1732 on average 291 houses were built in Holland's towns every year.

den, Naarden, Purmerend, Oudewater, Schiedam, Schoonhoven, Vlaardingen, Weesp, Woerden.

¹⁰ On urban planning in this period, Ed Taverne, *In 't land van belofte: in de nieuwe stad—Ideaal en werkelijkheid van de stadsuitleg in de Republiek 1580–1680* (Maarsse: Gary Schwartz, 1978), as well as ead. and Irmin Visser (eds), *Stedebouw: De geschiedenis van de stad in de Nederlanden van 1500 tot heden* (Nijmegen: SUN, 1993), pt. 1: De koopmansstad.

¹¹ For detailed data on Europe's urban populations, see Jan de Vries, *European Urbanization, 1500–1800* (London: Methuen, 1984), 269–87.

Table 1a. Numbers of houses in Holland towns, 1514–1732

	1514	1632	1732
Alkmaar	889	2,795	2,817
Amsterdam	2,532	16,051	26,035
Delft	2,616	4,019	4,341
Dordrecht	1,500	3,386	3,954
Enkhuizen	720	3,830	2,605
Gouda	1,94	2,452	3,974
Haarlem	2,714	6,490	6,163
The Hague	1,198	3,160	6,163
Hoorn	1,118	2,715	2,817
Leiden	3,017	8,374	10,891
Rotterdam	1,137	5,048	6,621
Large towns excl. A'dam	17,635 15,103	54,934 38,883	74,227 48,192
Small towns	5,526	10,688	12,381
All towns	23,158	65,617	86,608
Countryside*	10,954	29,559	35,266

Table 1b. Indices

	1514	1632	1732
Alkmaar	100	314	317
Amsterdam	100	634	1,028
Delft	100	154	166
Dordrecht	100	226	237
Enkhuizen	100	532	362
Gouda	100	145	235
Haarlem	100	239	293
The Hague	100	264	514
Hoorn	100	243	252
Leiden	100	278	361
Rotterdam	100	444	582
Large towns excl. A'dam	100 100	312 257	421 319
Small towns	100	201	233
All towns	100	283	374
Countryside	100	269	322

Source: Piet Lourens, Jan Lucassen, *Inwoneraantallen van Nederlandse steden ca. 1300–1800* (Amsterdam: NEHA, 1997), 54–70, 100–122; * estimated on the basis of Van der Woude, *Noorderkwartier*, 622–23 (see fn. 24).

In actual fact, of course, building activities varied across time. As Ad Knotter has been able to demonstrate for Amsterdam, the building industry was subject to distinct cycles.¹² Similar figures for seventeenth- and eighteenth-century Gouda and Rotterdam likewise suggest significant fluctuations. In Gouda between 1632 and 1654 the numbers wavered between 3 in 1633 and 1653, and a record 43 in 1648. In most years between 7 and 13 new houses were registered.¹³ In Rotterdam 53 new houses were built in 1740, but only 6 ten years later. In the 1740s between 11 and 19 houses were normally built, in the second half of the 1750s this slipped to less than 10, whilst in the 1770s and '80s 7–16 houses were built annually.¹⁴

Obviously, it is impossible to say how many of these newly built homes were designed by architects. It would be a fair guess to say that this was most likely to be the case along the major streets and canals, and much less likely in the lower middle class and proletarian districts of the towns. Thanks to a detailed study of one such major canal, the Leiden Rapenburg, we can at least test the first half of the hypothesis.¹⁵ One of the main buildings on the Rapenburg canal was a former abbey chapel which after 1575 was used as the university main building. Among the house owners along the canal were therefore many professors. Also much in evidence were members of the town council, and wealthy entrepreneurs, most famously the De la Court family who owned several houses along the Rapenburg.¹⁶ At number 25, moreover, was one of the seventeenth century's landmark buildings in the Dutch classicist style, the Bibliotheca Thysiana, designed by Leiden's most famous architect, Arend van 's-Gravesande. He and his successor as town-architect Willem van der Helm designed a handful of other houses along the Rapenburg, but the more active builder *and* designer seems to have been a stone-mason and building entrepreneur, Willem

¹² Ad Knotter, 'Bouwgolven in Amsterdam in de 17e eeuw', in: P.M.M. Klep, J.Th. Lindblad, A.J. Schuurman, P. Singelenberg, Th. Van Tijn (eds), *Wonen in het verleden, 17^e-20^e eeuw: Economie, politiek, volkshuisvesting, cultuur en bibliografie* (Amsterdam: NEHA, 1987), 25–37.

¹³ Regional Archive Midden-Nederland, location Gouda, Oud-archief Gouda, 1917: Register van de nieuw-getimmerde huizen en schuren etc. sedert den jaare 1632.

¹⁴ Municipal Archive Rotterdam, Oud-archief der stad Rotterdam, 4094: register van nieuwe en verbeterde gebouwen 1740–1804.

¹⁵ See the seven volume series Th. Lunsingh Scheurleer, C.W. Fock, A.J. van Dissel (eds), *Het Rapenburg: De geschiedenis van een Leidse gracht* (Leiden: Repro Holland, 1986–1992).

¹⁶ On these residents, M. Prak, 'Aanzienlijke huizen, aanzienlijke bewoners: het Rapenburg ten tijde van de Republiek', in: *ibid.*, vol. IIIa (1988), 3–36.

Wijmoth, who built at least thirteen houses on the Rapenburg during the mid-seventeenth century.¹⁷ For the majority of houses along the Rapenburg, the designer or builder is unknown. This then seems to imply also that the second half of our suggestion must be true. If even in the most prestigious areas of a town like Leiden not all homes were designed by architects, it is highly unlikely that they were active in the 'lesser' neighbourhoods, either here or in other towns.

Public building in Holland

A second source of demand were public buildings. These could be subdivided into buildings with military purposes, infrastructural building (canals, quays, and so on), and civic buildings housing public activities. Although the first two must have been substantial in terms of volume, we have at present only data about the third type of building. These data are supplied by a series of books produced in the mid-eighteenth century, called *Tegenwoordige Staat van Holland* (Present State of Holland), which contain detailed town-by-town descriptions.¹⁸ Data were collected for Delft, Dordrecht, Gouda, Haarlem, and Rotterdam, as well as Amsterdam. In terms of population these towns constituted 60–75 percent of the urban population in Holland.¹⁹

Table 2. Public buildings in Amsterdam, Delft, Dordrecht, Gouda, Haarlem, Leiden and Rotterdam, 1500–1750

	1500–49	1550–99	1600–49	1650–99	1700–49	unknown
A'dam N		4	23	21	1	9
A'dam I		5	16	9	1	20
Delft N			2	2		2
Delft I	1		2	3	3	
Dordt N	4	3	3	3	1	1
Dordt I		3	3	1		3
Gouda N	1	1	1	1		1
Gouda I		3	3	3	1	

¹⁷ Numbers 29–31, 41–57, and 34–36; on Wijmoth see *ibid.*, vol. IIIa, 220–27.

¹⁸ Jan Wagenaar, *Hedendaagsche historie, of tegenwoordige staat van alle de volkeren, vervolgende de beschrijving der Vereenigde Nederlanden etc.* vols 4–8 (Amsterdam: Isaac Tirion, 1742–44). The fact that these data stem from the mid-eighteenth century has almost certainly produced 'under-reporting' for the earlier period, especially 1500–1550.

¹⁹ Sixty percent in 1514, 75 percent in 1732, according to figures in Lourens, Lucasen, *Inwoneraantallen*.

Table 2 (*cont.*)

	1500–49	1550–99	1600–49	1650–99	1700–49	unknown
HaarlemN		1	4	1	1	2
Haarlem I		2	1	1		
Leiden N		1	2	1	3	
Leiden I	1	7	5	3		
R'dam N		2	2	11	2	2
R'dam I		4	6	5	3	4
Total N&I	7	36	73	65	16	44

N = newly built, I = improvements of existing building

Source: Wagenaar, *Hedendaagsche historie*, vols. 4–5

We have distinguished between newly built, and the reconstruction of existing buildings. For instance, substantial numbers of so-called hidden Roman Catholic churches were built into existing structures. Unfortunately, the dates are not supplied by the source (they are therefore listed as ‘unknown’). During the 1570s, Dutch municipal authorities confiscated many Catholic monasteries and chapels, and gave these a new lease of life as hospitals, or even universities. At the same time, many new public buildings were created, especially during the seventeenth century. The most spectacular of these building projects was Amsterdam town hall, which was started in 1648, and took more than twenty years to complete.²⁰

Table 2 suggests several things. Between 1500 and 1749 a total of 119 new public buildings arose in the seven towns we investigated, whilst another 122 underwent major improvements. Sometimes these were the same buildings. Dordrecht, for instance, built a new town hall in 1544, but its interior was altered substantially again in 1680. Gouda town hall was upgraded in 1603, and again in 1690–91. But it is not such details we are after, but rather the general picture. On the basis of population figures we should assume that the grand total of public buildings and improvements during these two-and-a-half centuries must have been in the order of 310 and 385.²¹ Obviously, the great majority (about two-thirds) of these were created in the seventeenth

²⁰ On the building process, Pieter Vlaardingerbroek, *Het stadhuis van Amsterdam: De bouw van het stadhuis, de verbouwing tot koninklijk paleis en de restauratie* (PhD thesis Utrecht University, 2004).

²¹ Table 2 produces a total of 231 public buildings; depending on the percentage (60 in 1514, 75 in 1732) of the combined towns in Holland’s urban population this then leads to the numbers mentioned in the text.

century. In purely quantitative terms, the number of these public building projects was dwarfed, however, by the number of newly built homes.

Replacements and reconstructions

This imbalance between public and private building is further reinforced when we return for a moment to the private sector. Because there too we have to take into account reconstructions and improvements as a source of demand—an element that is often overlooked by both architectural and economic historians.²² Especially in the eighteenth century, when the market for new buildings became very slow, refurbishing must have constituted a significant percentage of all building activities. How significant is visible in data that have survived for Rotterdam for the years 1740–1805.²³

Table 3. Building in Rotterdam, 1740–1804, in 5-year periods

	New homes	New façade	Improved	Commercial
1740–44	117	51	7	22
1745–49	60	64	15	17
1750–54	54	96	17	34
1755–59	55	39	16	22
1760–64	42	81	7	20
1765–69	65	55	20	23
1770–74	58	52	9	23
1775–79*	39	48	8	13
1780–84	53	45	8	#8
1785–89	49	30	32	7
1790–94	26	29	33	10
1795–99	18	22	17	7
1800–04	11	35	18	10
Total	647	647	207	216

* 1776 is missing from the records; # includes a Roman Catholic church

Source: Municipal Archive Rotterdam, Oud-archief der stad Rotterdam, 4094: register van nieuwe en verbeterde gebouwen 1740–1804

²² The importance of maintenance is underlined in David Edgerton, *The shock of the old: Technology and global history since 1900* (Oxford: Oxford University Press, 2007), ch. 4.

²³ Municipal Archive Rotterdam, Oud-archief der stad Rotterdam, 4094: register van nieuwe en verbeterde gebouwen 1740–1804. These data are different in detail, but not in overall pattern, from those supplied by Hans Bonke, *De kleyne mast van de Hollandse coopsteden: Stadsontwikkeling in Rotterdam 1572–1795* (Amsterdamse Historische Reeks, kleine serie vol. 32 (Amsterdam: Historisch Seminarium, 1996), 104, who used a different source.

Almost a quarter of the houses registered for the real estate tax were ‘improved’, rather than newly built. The number of new façades is even more impressive; it balances the number of new houses. Combining the façades and ‘improved’ houses suggests an amount of activity that may have actually come quite close to the work created by the building of completely new homes. The same source incidentally points us to another, and often overlooked, type of building, created for commercial purposes. The Rotterdam register lists stables and warehouses in particular. The numbers were substantial.

Rural building

Even though Holland was urbanised to a level unknown in other European regions, it still had a significant rural population. These people too required roofs over their heads, churches to worship in, and so on. Unfortunately, it is at this point difficult to say how much rural building was going on, and at exactly what time. The best available data are those collected by Ad van der Woude for the Noorderkwartier area, to the north of Amsterdam. The total number of homes recorded in 1514, 1630 and 1731 was 3,834, 10,328, and 12,343 respectively.²⁴ The Noorderkwartier was home to about 35 percent of Holland’s rural population,²⁵ so this suggests an increase of approximately 45 percent on top of the urban numbers of new homes we established for 1632, and 41 percent for 1732 (see table 1).

We also know that public buildings were created in that same area during our period. For instance, villages to the north of Amsterdam like Barsingerhorn, Graft, De Rijp, Groet, Jisp, Noordschermer, Oosthuizen, Ransdorp, Schoorl, Spanbroek, and Zuidschermer all built new ‘town’ halls, invariably with a strong urban flavour in their design, during the seventeenth century.²⁶ Another significant development during the seventeenth century was the rise of country homes (*buitenplaats*

²⁴ A.M. van der Woude, *Het Noorderkwartier: Een regionaal historisch onderzoek in de demografische en economische geschiedenis van westelijk Nederland van de late Middeleeuwen tot het begin van de 19^e eeuw* (Utrecht: Hes publishers, 1983; orig. AAG-bijdragen 16, 1972), appendix 4, 622–23. I have deducted the numbers for Alkmaar, Beverwijk, Edam, Monnickendam, and Purmerend from Van der Woude’s totals, because these were considered to be urban communities.

²⁵ Calculated on the basis of A.M. van der Woude, ‘Demografische ontwikkeling van de Noordelijke Nederlanden 1500–1800’, in: D.P. Blok et al. (eds), *Algemene geschiedenis der Nederlanden* vol. 5 (Bussum: Unieboek, 1980), 131.

²⁶ C. Boschma-Aarnoudse, ‘Een hujs om te vergaderen ende tgerrecht te houden’: *Renaissance-raadhuizen boven het IJ* (Zutphen: Walburg Pers, 1992), 79–97.

in Dutch), built by townites who wanted to escape the summer heat and smell of the towns. Around Amsterdam alone, some 500 had been erected by the early eighteenth century.²⁷ A rough estimate leads us to assume that there were at least one thousand such buildings created in all of Holland.

2. *The builders of early modern Holland*

Numbers of builders

Unfortunately, there are no data covering the workforce in the building industry in quite the same way as they exist for the number of buildings. Instead, we have to make do with more fragmented source material. However, tax registers for various Holland towns do provide some detail about the size and composition of the workforce in the building industry. The best data are those for Amsterdam. The 1806 registers for the French 'patente' taxation on occupations give an unusually detailed picture.²⁸

These figures are very suggestive in that they demonstrate that architects cut a negligible figure against the masons and carpenters in par-

Table 4. Amsterdam building occupations in 1806

Architect	1
Wall-paperer	70
Glazier	130
Pile-driver	3
Plumber	55
Brick-mason	119
Plasterer	27
Carpenter	298
Journeyman (unspecified)	1,813
Total	2,516

Source: H. Diederiks, *Een stad in verval: Amsterdam omstreeks 1800* Amsterdamse Historische Reeks vol. 4 (Amsterdam: Historisch Seminarium, 1982), 160.

²⁷ Marc Glaudemans, *Amsterdams Arcadia: De ontdekking van het achterland* (Nijmegen: SUN, 2000), 184–85.

²⁸ The absence of stone-masons is somewhat puzzling, but it is possible that they were counted under the Arts.

particular, who together constituted almost sixty percent of the known occupations, a percentage that would only increase if we could have taken the journeymen into account. In 1806, the Amsterdam building industry accounted for fourteen percent of the industrial workforce.²⁹ That figure is on the one hand a reflection of the significance of the industry, but at the same time testimony to the impoverished state of many of Amsterdam's other industries at the time. In earlier times, the percentage was substantially lower. Among the grooms registered in Amsterdam between 1601 and 1700, carpenters made up 8.9, and masons 4.4 percent of the industrial workforce, and together 4.8 percent of all grooms. Together with the tailors, builders were, nonetheless, among the most numerous industrial workers in seventeenth-century Amsterdam.³⁰ Knotter was able to demonstrate, on the basis of these same marriage data, that the number of builders closely followed the building cycle in the industry. As a result, the number of builders fluctuated significantly across time.³¹

In Leiden in the middle of the eighteenth century we cannot expect to find a flourishing building industry, because the town was in deep economic trouble. Its textiles industry had entered a stage of freefall in the late seventeenth century and swept along the local economy as a whole. Leiden's population had decreased by at least a third as a result, slowing down the demand for buildings to a considerable extent, one must assume. Some of Leiden's well-off did bring the façades of their canal-side homes up to date with the latest fashion,³² but that was hardly enough to keep many hands busy. Against this gloomy background it is surprising to nonetheless find 7.0 percent of all heads of households listed as builders. After the still very significant textile

²⁹ Diederiks, *Stad in verval*, 151 (table 58). These figures have been disputed by Ad Knotter, who suggested that the Amsterdam industrial workforce was underestimated by Diederiks; see the debate in *Tijdschrift voor sociale geschiedenis* 10 (1984), 197–208.

³⁰ Calculated on the basis of Ad Knotter, Jan Luiten van Zanden, 'Immigratie en arbeidsmarkt in Amsterdam in de 17^e eeuw', *Tijdschrift voor sociale geschiedenis* 13 (1987), 414 (table 3); repr. in Jan Luiten van Zanden, *The rise and decline of Holland's economy: Merchant capitalism and the labour market* (Manchester: Manchester University Press, 1993), 53.

³¹ Knotter, 'Bouwgolven'.

³² This rebuilding can be observed in great detail in Lunsingh Scheurleer, Fock, Van Dissel (eds), *Het Rapenburg*.

industry, building constituted the second largest industry in town.³³ In Delft, in 1600, 4.9 percent of heads of households were builders; both textiles and food production were significantly larger in terms of job opportunities.³⁴ In Leiden, in 1581, 115, or 3.8 percent of all heads of households were builders. This amounted to 9.4 percent of the industrial workforce. After the inevitable textile industry, and the more surprising leather production, building shared third place with food in the rank-size order of industrial production in late sixteenth-century Leiden.³⁵

Taken together, these figures suggest that building was never a leading industry, but everywhere one of the larger industrial occupations nonetheless. The size of its workforce was roughly 4–7 percent of the total professional population, and 10–15 percent of the industrial workforce. It shared this position with such other ‘service industries’ as food and clothing.³⁶

Architects

By far the most famous members of the building profession are, no doubt, the architects. Many of them are known to us by name, the best-known even have biographies and oeuvre-catalogues devoted to them. As a profession, the architect in Holland was a creation of the seventeenth century. As we will discuss in greater detail below, before 1600 architectural designs were usually made by stone-masons, and in the sixteenth century also by sculptors. The first use of the word ‘architect’ in the seventeenth century, in the context of the building of Amsterdam town-hall, refers to the supervisor of the building process, rather than the designer. It was only in the second half of the century that the word actually began to refer to those responsible for the

³³ H.A. Diederiks, ‘Beroepsstructuur en sociale stratificatie in Leiden in het midden van de achttiende eeuw’, in: ead, D.J. Noordam, and H.D. Tjalsma (eds), *Armoede en sociale spanning: Sociaal-historische studies over Leiden in de achttiende eeuw* Hollandse Studiën vol. 17, (Hilversum: Verloren, 1985), 49 (table 3.7).

³⁴ A.Ph.F. Wouters, *Nieuw en ongezien: kerk en samenleving in de classis Delft en Delfland 1571–622* vol. 1: De nieuwe kerk (Delft: Eburon, 1994), 296–302.

³⁵ F. Daelemans, ‘Leiden 1581: Een socio-demografisch onderzoek’, *A.A.G. Bijdragen* 19 (1975), 172 (table 17) and 213 (appendix 7).

³⁶ The term ‘service industries’ refers to a distinction made by Ad Knotter, *Economische transformatie en stedelijke arbeidsmarkt: Amsterdam in de tweede helft van de negentiende eeuw* (Zwolle: Waanders, 1991), 23–27, between dynamic, i.e. export industries, and service industries, necessary to support any urban population.

design.³⁷ However, the shape of ‘architecture’ as we now understand it, was already emerging in earlier decades.

Architects’ biographies provide three essential pieces information about their contribution to the building industry. The first is that their output was not particularly large. Pieter Post, who was court-architect to the Orange dynasty and designed many landmark public buildings in the seventeenth century, including Huis ten Bosch, the present residence of the Queen of the Netherlands, was active between 1633 and 1668, a year before he died. From those 35 years we know 44 designs of buildings, of which 39 were actually executed.³⁸ This is 1.1 building per annum. Philips Vingboons, who was the most popular private architect in Amsterdam during his lifetime, designed 45 known buildings, mostly expensive homes in Amsterdam and country retreats in Amsterdam’s hinterland, during the 35 years of his career (1637–1672).³⁹ This amounts to 1.3 per annum. These figures are almost certainly an underestimate of the real productivity of these architects. But if we double, or even triple the figure, Post and Vingboons between them cannot have designed more than 200 or at most 300 buildings, or 100–150 per architect.

In the recent textbook of Dutch architecture, we hear about 28 architects active between 1500 and 1800.⁴⁰ The great majority of these were working during the seventeenth century, when the profession really came into its own. If we accept the above productivity figures as typical, these 28 architects together may have designed something between 2,800 and 4,200 buildings between them. Not all of these were located in Holland, but it would be reasonable to assume that at least three-quarters were. These included the majority of public buildings,

³⁷ Konrad Ottenheim, ‘The rise of a new profession: The architect in 17th-century Holland’, in: G. Beltrami, H. Burns (eds), *L’architetto: Ruolo, volto, mito* (Venice: Marsilio, 2009), 199–219. On the earlier development in Italy: Michael Lingohr, ‘Architectus: Überlegungen zu einem vor- und frühneuzeitlichen Berufsbild’, *Architectura* 35 (2005), 47–68.

³⁸ J.J. Terwen, K.A. Ottenheim, *Pieter Post (1608–1669), Architect* (Zutphen: Walburg Pers, 1993), 243–44.

³⁹ Koen Ottenheim, *Philips Vingboons (1607–1678), Architect* (Zutphen: Walburg Pers, 1989), 178–79.

⁴⁰ K.A. Ottenheim, ‘Architecten en architectvormen’, in: Koos Bosma, Aart Mekking, Koen Ottenheim, Auke van der Woud (eds), *Bouwen in Nederland, 600–2000* (Zwolle: Waanders, 2007), 240–57.

at least in the towns,⁴¹ as well as many of the urban and rural dwellings for the upper crust of society.

A second interesting thing about the seventeenth-century architects is that they were artists, rather than constructors. Post was the son of a glass painter, and himself apprenticed as a painter in the renowned guild of St. Luke in Haarlem.⁴² His brother Frans Post was also a painter, and became famous for his work in Brazil. In fact, Pieter was quite a distinguished painter in his own right. Like Post, Vingboons came from a painter's family; his father, painter David Vinckboons, had emigrated from Malines to the North, arriving in Amsterdam in 1590. Possibly, Vingboons worked after his apprenticeship in the Haarlem studio of Jacob van Campen, by whom Pieter Post had also been introduced to the arts of painting and architecture.⁴³ Van Campen himself, whose claim to fame is the Amsterdam town hall, was a master in both arts, and combined architecture and the visual arts throughout his career.⁴⁴

It has been argued that the combination of painting and architecture was unusual, and that these three stood out from the pack in this respect.⁴⁵ Be that as it may, it is still striking that the three most influential and innovative architects of the Dutch Golden Age were designers rather than engineers. As the foremost expert on Dutch architecture states it: these were 'the first group of professional designers, that is to say architects who lived from their designs and advice alone, without direct attachments to a craft or building firm'.⁴⁶ In this they mirror a distinction between modern routine architects, who have to work within the constraints of strict budgets and time schedules, and the famous avant-garde architects, who produce stunning designs but are

⁴¹ On the absence of architects designing village halls, see Boschma-Aarnoudse, 'Een huijs', 59–61.

⁴² Terwen, Ottenheym, *Pieter Post*, 9, 12–18. About the Haarlem guild, Ed Taverne, 'Salomon de Bray and the reorganization of the Haarlem guild of St. Luke in 1631', *Simiolus* 6 (1972), 50–69, and Hessel Miedema (ed.), *De archiefbescheiden van het St. Lucasgilde te Haarlem 1497–1798* (Alphen a/d Rijn: Canaletto, 1980).

⁴³ Ottenheym, *Vingboons*, 13, 20–21.

⁴⁴ Jacobine Huisken, Koen Ottenheym, Gary Schwartz (eds), *Jacob van Campen: Het klassieke ideaal in de Gouden Eeuw* (Amsterdam: Architectura & Natura Pers, 1995).

⁴⁵ Koen Ottenheym, 'Inleiding: de schilder-architect', in Huisken, Ottenheym, Schwartz (eds), *Jacob van Campen*, 9.

⁴⁶ Ottenheym, 'Architecten en architectuurvormen', 248.

less impressive as constructors.⁴⁷ Seventeenth-century architects like Van Campen, Vingboons and Post, were all great innovators of style in their own right. Together they were the most influential developers of what became known as Dutch Classicism, a style copied in other parts of Europe, and in the Baltic area in particular.⁴⁸ In terms of time, however, their role was mainly limited to the seventeenth century. Vingboons, whose first work has been dated to 1637, has been called the ‘first professional architect’ in the Netherlands, because uniquely, his income was more or less completely derived from his drawings.⁴⁹ Around 1700, moreover, architects became so rare again, that the eighteenth century has been characterised as an ‘era without architects’.⁵⁰

The third element is that the emergence of the architect in Holland, and indeed his decline, only superficially coincided with the building boom. This occurred between roughly 1580 and 1625, but most of the famous works of Dutch Classicism were produced when the expansion of the building stock was past its prime. Although, clearly, the architects as a profession benefited from the boom, there must also have been a separate process that explains their rise to prominence. During the middle decades of the seventeenth century ideas about the urban built environment were clearly shifting. Whereas the expansion of the Holland towns around 1600 had been a scramble, new plans highlighted sophisticated designs, usually produced by architects. In Haarlem, Pieter Post was on a committee of three charged with designing a plan for a new residential district in 1642, while a later committee included painter Salomon de Bray.⁵¹ The Haarlem plans were never executed, but when the city of Amsterdam decided to expand its eastern perimeter during the 1660s, the town’s official architect Daniel

⁴⁷ Cf. Niels L. Prak, *Architects: the Noted and the Ignored* (Chichester: John Wiley & Sons, 1984).

⁴⁸ Badeloch Noldus, *Trade in good taste: Relations in architecture and culture between the Dutch Republic and the Baltic World in the Seventeenth Century Architectura Moderna*, vol. 2 (Turnhout: Brepols, 2004); Konrad Ottenheim, ‘Dutch Contributions to Classicist Architecture in Sweden and Northern Europe in the 17th Century’, *Biblis* 38 (2007), 57–66.

⁴⁹ R. Meischke et al, *Huizen in Nederland: Amsterdam—Architectuurhistorische verkenningen aan de hand van het bezit van de Vereniging Hendrick de Keyser* (Zwolle: Waanders, 1995), 63.

⁵⁰ *Ibid.*, 76; also Freek Schmidt, ‘Het architectenloze tijdperk: Ambachtslieden en amateurs in de achttiende eeuw’, *KNOB Bulletin* 104 (2005), 138–161; reprinted in expanded version in Freek Schmidt, *Paleizen voor prins en burgers: Architectuur in Nederland in de achttiende eeuw* (Zwolle: Waanders, 2006), ch. 1.

⁵¹ Taverne, *In ‘t land van belofte*, ch. 7.

Stalpaert was put in charge. It was, moreover, well understood that the architecture of the homes to be built along the stately canals was to reflect the dignity of the city, and this stimulated the demand for quality designs.⁵² These were also the decades when local history, and the description of local highlights, especially remarkable buildings, were becoming fashionable, as was a new type of paintings, the so-called town-scape.⁵³ Employing an architect, in other words, was not merely a private fashion statement, but also implied making a contribution to the embellishment of the city and could thus be perceived as a civic statement.⁵⁴ When Constantijn Huygens built a new, palatial home in central The Hague in the 1630s, he possibly felt that his studies of Vitruvius and other classical authors qualified him to make his own designs, so he merely called on Van Campen for advice. But he did make the point of civic duty in a Latin treatise that he wrote to accompany the building in 1639, when he argued that “one who is born in a significant place and fails to improve it [architecturally], belongs in an insignificant community and should be deprived of his citizenship”.⁵⁵

Likewise, their disappearance from the industry during the first half of the eighteenth century cannot, perhaps, be totally ascribed to the economic slow-down and the de-urbanisation of Holland, which brought the ambitious building projects of the Golden Age to a halt. Even the more specific slump in public buildings, as table 2 clearly demonstrates, can only partially account for the problems of the profession. One additional factor may well have been a saturation of the market;⁵⁶ with their newly built premises, local institutions could abstain from commissions during subsequent decades. Because public commissions provided a very substantial proportion of architectural commissions—if not in volume, then at least in prestige and visibility—this would have seriously undermined the anyway precarious architectural profession. But in some sense, architects also made

⁵² Jaap Evert Abrahamse, *De grote uitleg van Amsterdam: Stadsontwikkeling in de zeventiende eeuw* (Amsterdam: Toth, 2010), 145–52.

⁵³ On the rise of local history: E.O.G. Haitsma Mulier, ‘De eerste Hollandse stadsbeschrijvingen uit de zeventiende eeuw’, *De Zeventiende Eeuw* 9 (1993), 97–116. On the painted townscapes: Leonore Stapel, *Perspectieven van de stad: Over bronnen, populariteit en functie van het zeventiende-eeuwse stadsgezicht* Zeven Provinciën Reeks vol. 18 (Hilversum: Verloren, 2000).

⁵⁴ I owe this idea to John Shovlin.

⁵⁵ F.R.E. Blom, H.G. Bruin, K.A. Ottenheim, *Domus: Het huis van Constantijn Huygens in Den Haag* (Zutphen: Walburg Pers, 1999), 17, 65.

⁵⁶ For a parallel argument on painting: Montias, ‘Cost and value’, 463–64.

themselves superfluous, as we will see, by making knowledge about architectural design available in printed form, allowing other builders, as well as amateur architects,⁵⁷ to substitute for the architects themselves.⁵⁸ Their position was further weakened by their concentration on the aesthetics, rather than the construction side of the building industry. This put their direct competitors, the stone masons, in an excellent position to catch up on the aesthetics, and combine it with their own longstanding technical expertise.

Stone-masons

Instead of continuing to create new objects, our figures have suggested that during the eighteenth century the building industry focussed on repairs and improvements of existing buildings. As a result, we observe after 1700 the re-emergence of an older specialist, the stone-mason. During the late Middle Ages and the sixteenth centuries stone-masons dominated the industry and were its most significant source of innovation.⁵⁹ They were the inventors of new designs, and in charge of major building projects. Many of them originated from the areas where building stone was quarried, i.e. in the Southern Netherlands and to a lesser extent Germany.⁶⁰ Thus, the Keldermans family from Malines were involved in many significant building projects in the second half of the fifteenth and first half of the sixteenth centuries.⁶¹ Likewise, the Van Neurenberg family from the Liège area played a major part in stone building during the sixteenth and seventeenth centuries.⁶² Both families were at one and the same time responsible for supplying the stone and supervising the building process. This could include providing the designs as well. It is quite obvious that their pivotal position in the building process

⁵⁷ For the amateur architect of the 18th century: Schmidt, *Paleizen*, 42–47.

⁵⁸ On architectural publications of the era: K.A. Ottenheym, 'Architectuurtraktaten', in: Bosma et al. (eds), *Bouwen in Nederland*, 258–69.

⁵⁹ R. Meischke, *De gothische bouwtraditie* (Amersfoort: Bekking, 1988); see also Klaus Jan Philipp, "'Eyn Huys in Maniere van eynre Kirchen": Werkmeister, Parliere, Steinlieferanten, Zimmermeister und die Bauorganisation in den Niederlanden vom 14. bis zum 16. Jahrhundert', *Wallraf-Richartz Jahrbuch* 50 (1989), 69–113.

⁶⁰ See map in H. Janse, D.J. de Vries, *Werk en merk van de steenhouwer: Het steenhouwersambacht in de Nederlanden voor 1800* (Zwolle: Waanders, 1991), 21.

⁶¹ J.H. van Mosselveld (ed.), *Keldermans: Een architectonisch netwerk in de Nederlanden* (The Hague: Staatsuitgeverij, 1987).

⁶² Gabri van Tussenbroek, *The Architectural Network of the Van Neurenberg Family in the Low Countries (1480–1640)* Architectura Moderna vol. 4 (Turnhout: Brepols, 2006).

was based on an intimate knowledge of how to work the raw materials. This also allowed them to work in many different places; they simply went after the demand for their product. The most important innovator in Dutch architecture in the late sixteenth century, Hendrick de Keyser from Amsterdam, was trained as a sculptor. He was especially noteworthy for his innovative façade designs and for his original use of ornamentation.⁶³

Stone-masons had, in all probability, continued their contributions during the seventeenth century but became more prominent again during the eighteenth. In the absence of single-authored designs, the contributions of the various parties involved in building projects is difficult to establish, but stone-masons definitely had a role to play in the embellishment of façades, the replacement of which became an important activity for the industry. The chance survival of the business records of one such firm from the eighteenth century allows a closer look at the activities of a local stone-mason. The Van Traa firm was active in Rotterdam, on the Wijnhaven, where it operated a stone-yard. In 1778 customers were offered a choice from a range of stone types, including marble, Bentheim stone, and flagstones from Bremen. The firm could provide ready-made mantle-pieces, as well as many other types of stone objects. The total value of the stock was put at 12,512 guilders in that year. Among the tools, valued at 455 guilders, were 26 saw blades, and a cart horse aged twelve. It had claims of 5,498 guilders, plus another 1,000 or so that would probably never be recovered.⁶⁴ The accounts show that it was doing business mainly in Rotterdam itself, and most of the work was executed on private homes. This work consisted mainly of repairs and embellishments. For example, in 1765 the firm delivered and installed a marble fire place, marble tiles, blue columns and their bases in the home of one Mrs. De Visser. Hendrik Meesing had major works executed on the façade at the back of his house.⁶⁵

Stone-masons like the Van Traa firm utilised published works for inspiration.⁶⁶ In their business library we find works such as Serlio's treatises on classical architecture from the sixteenth century, Bosboom's

⁶³ Meischke et al., *Huizen in... Amsterdam*, 52–55.

⁶⁴ Municipal Archive Rotterdam, archive 264: Steenhouwerij en tegelbakkerij Van Traa, 277 (probate inventory 1778).

⁶⁵ *Ibid.*, 1 (*Memoriael*, or Account book), 1765.

⁶⁶ In this they were not alone; see José de Kruif, *Liefhebbers en gewoontelezers: Leescultuur in Den Haag in de achttiende eeuw* (Zutphen: Walburg Pers, 1999), 250–51.

and Dancker's interpretations of Scamozzi from the seventeenth century, as well as more recent works like the *Vignoble moderne, ou Trait e Elementaire d'Architecture* by Lucotte in an edition from 1777.⁶⁷ The designs offered by these authors were, however, often combined in novel ways to suit customers' specific tastes and desires to produce original designs.⁶⁸ Thus, even though the stone-masons of the eighteenth century were not quite as cutting-edge as their sixteenth-century predecessors had been, they still continued to carry the torch of innovation.

Carpenters and Brick-masons

By far the most numerous workers in the building industry were carpenters and brick-masons. In seventeenth-century Amsterdam, the former were about twice as numerous as the latter. This was due to the particular role of the wooden frame in the construction of houses at the time. Bricks were used to fill in the spaces created by these frames. Because of the importance of the wooden frame, carpenters usually acted as the master builders. Partly due to limitations of the sources, partly because of the prejudices of art historians, this most numerous group of builders is also the least known.⁶⁹ The majority of them must have worked individually, but some firms were actually capable of undertaking substantial projects. Especially Amsterdam builders were active in a large area, which also included the countryside of North-Holland.⁷⁰ Subcontracting was standard practice in the building industry. Public works were normally handled by the *stadsfabriek*, the municipal office responsible for buildings as well as infrastructural and defence works.⁷¹

⁶⁷ Municipal Archive Rotterdam, archive 264: Steenhouwerij en tegelbakkerij Van Traa, 262–274 (library), esp. 262–264, and 267; on Bosboom's significance for artisan-builders, see also Schmidt, *Paleizen*, 53–55.

⁶⁸ Schmidt, *Paleizen*, 22, 36–42.

⁶⁹ A helpful survey of the 19th-century building industry and its workforce is provided by W.R.F. van Leeuwen, 'Woning- en utiliteitsbouw' in: H.W. Lintsen et al. (eds), *Geschiedenis van de techniek in Nederland: De wording van een moderne samenleving 1800–1890* vol. Iii (Zutphen: Walburg Pers, 1993), 197–231.

⁷⁰ See R. Meischke et al., *Huizen in Nederland: Friesland en Noord-Holland—Architectuurhistorische verkenningen aan de hand van het bezit van de Vereniging Hendrick de Keyser* (Zwolle: Waanders, 1993), ch's 4, 5 and 9.

⁷¹ The most recent work on these municipal building offices is Geert Medema, 'In zo goede order als in eenige stad in Holland': het stedelijk bouwbedrijf in Holland in de achttiende eeuw, PhD dissertation Utrecht University 2008.

Artisan builders seem to have worked without paper designs or wooden models. Their work was determined by the 'constructive traditions',⁷² or conventions of their trade. It would, however, be wrong to assume that they were unable to change their ways. Significant changes in house construction were introduced during the three centuries under consideration.

The most important of these can be observed in concentrated form in seventeenth-century Amsterdam.⁷³ While the city expanded, building density increased in two ways. Firstly, houses were no longer built as separate units, but in rows. As a result, they started to share side-walls, which were also more often constructed completely in brick. Houses also became taller, by adding floors for storage, or extra apartments as sub-letting became more significant in the housing market. However, these developments were part of a much more extended process transforming the construction of homes in pre-industrial Holland between the fourteenth and the eighteenth centuries.

In general, even the simpler types of houses became much more sophisticated in their design during the early modern period, than they had been in the Middle Ages. Early house types consisted of one, at best two spaces. The hall encompassed sections for cooking, living and sleeping. These functions were allocated separate spaces in the course of time, by building extra rooms as it were into that larger hall space, or as outbuildings. Relatively early additions were the separate kitchen, very often as a second kitchen, the creation of a separate reception room into which the front door would open, and, in the seventeenth and eighteenth centuries, another division between the area into which the front door opened and the actual reception room, to better keep out the draught.

Construction-wise, the most significant development was of course the transition from wood and mud construction to one of wood and brick, or wood, brick and stone. This process started in the fourteenth century, and by the mid-fifteenth century several Holland towns required newly built houses to be made of brick. In Amsterdam in

⁷² Chr. J. Kolman, *'Naer de eisch van 't werck': De organisatie van het bouwen in Kampen 1450–1650* (Utrecht: Matrijs, 1993), 132.

⁷³ Due to a lack of research on this group of builders, this section has to rely heavily on Meischke et al., *Huizen in Nederland: Amsterdam*, on ead., *Huizen in Nederland: Friesland en Noord-Holland*, and on R. Meischke, *Het Nederlandse woonhuis van 1300–1800: Vijftig jaar vereniging 'Hendrick de Keyser'* (Haarlem: Tjeenk Willink, 1969), 95–125, 424–39.

1452, exactly eight days after a ruinous fire, the Amsterdam authorities ruled ‘that nobody shall build new homes, other than with stone [i.e. brick] walls and a hard roof’.⁷⁴ In the eighteenth century, the design of house windows was changed from one consisting of many small glass panes into one which had only two, much larger panes.⁷⁵ This obviously improved the influx of natural light into the rooms. Lighting was likewise improved by another innovation of the eighteenth century: plastered ceilings. Before their introduction, the ceiling consisted basically of the floor boards of the next storey. Plaster, usually executed in white, helped carry the light around the room.

Still different types of improvements were made to homes that also served as business premises. From the fifteenth century, but especially in the seventeenth, merchants’ homes were executed with special doors in the top of the façade, to provide easy access to the storage space in the attic. The design of the hoist was also improved. In the Middle Ages shop porches had roofs sloping towards the street. As a result, rainwater would drip onto the street and by implication onto customers trying to reach the shop’s front door. Around 1600 a new design was introduced, sloping away from the street towards the façade; rainwater was carried off by a special drainpipe.

All those changes may look insignificant by themselves, but taken together they helped to fundamentally change the outlook of the Holland towns between 1400 and 1800. But their time-frame suggests incremental, rather than revolutionary changes. This is perfectly compatible with the normal pattern in pre-industrial crafts, where innovation was common, but usually of the slow, piecemeal type.⁷⁶ Many of them had been first developed in expensive homes, sometimes designed by architects. Through a trickle-down effect—which, however, at the same time implied adaptation to new conditions of size, materials, and budget—they reached a much wider market. In

⁷⁴ Quoted in Meischke, *Nederlandse woonhuis*, 111.

⁷⁵ H. Janse, *Vensters* (Nijmegen: Koninklijke Drukkeij Thieme, 1971), 57–61. On the development of the sash window, where builders from England, France and the Dutch Republic all made significant contributions, see Hentie Louw, ‘The origin of the sash window’, *Architectural History* 26 (1983), 49–72; ead., ‘A constructional history of the sash window, c. 1650–c. 1725’, *Architectural History* 41 (1998), 82–130 and 42 (1999), 173–239; the role of the Dutch esp. on 84 and 190, 197–98 respectively.

⁷⁶ An elaboration of this argument in S.R. Epstein, Maarten Prak, ‘Introduction: Guilds, innovation, and the European economy, 1400–1800’, in ead. (eds), *Guilds, innovation, and the European economy, 1400–1800* (Cambridge: Cambridge University Press, 2008), 1–24.

that transfer and transformation, building workers like carpenters and brick-masons played a key role.

* * *

As De Vries and Van der Woude observed in their survey of the Dutch economy, there still is a noticeable, and regrettable, discrepancy between the economic importance of the construction trades and our knowledge of their development during the early modern period.⁷⁷ De Vries and Van der Woude used records of the tax on building materials (the excise on *grove waren*) to reconstruct general trends in the building industry between 1650 and 1790. In this paper we have attempted to expand that picture, by covering a longer period—including the building boom of the first half of the seventeenth century, by estimating the production of various types of buildings, and by looking at the role of three types of actors in the building sector. Our conclusions may be unsurprising, but seem to be significant nonetheless.

First and foremost, in terms of numbers the market for building was completely dominated by private homes. Between 1500 and 1815 the housing stock expanded by an estimated 357 percent. This was less than the population increase, suggesting that crowding may have increased. During the eighteenth century, when as much as half the industry may have been busy replacing or renovating existing buildings, house construction was in fact even more significant than the stock figures suggest. The great majority of these homes were not designed by architects, nor did they involve fancy stonework. Rather, they were the products of the industry's craft producers, especially carpenters and brick masons. These worked according to more or less standardised designs, which were not even put on paper as far as we can tell. This part of the industry might be called 'traditional', but only if we understand that word to refer to a relatively slow pace of change. As we have seen, house construction evolved significantly, especially during the seventeenth century, if only to produce the larger homes necessary to house a rapidly expanding population.

Next to the voluminous expansion of house building, the seventeenth century in particular was a period in which many new public buildings were constructed. This boom in the construction of public buildings was obviously connected to the expansion of Holland's

⁷⁷ De Vries, Van der Woude, *First Modern Economy*, 330.

towns, necessary to accommodate the influx of immigrants. It also provided the economic foundation for the rise of what was, in the northern Netherlands at least, essentially a new profession: the architect. Seventeenth-century Dutch architects were artists rather than builders. They helped launch a new style, Dutch Classicism, which was successful as an export product, especially in Scandinavia and the Baltic countries. But its rise was as short as it was sweet. By 1680 the great innovators were all dead. The heyday of the architects—roughly between 1630 and 1680—was bracketed by those of the stone-masons. During the three centuries covered by this chapter, they were in charge of major building products. In the sixteenth century the introduction of innovative, Renaissance forms happened mainly through stonework and was, by implication, the work of stone-masons. As with the architects, this type of innovation was primarily connected to public buildings and the top end of the housing market. Looking at the history of architecture in this particular way, does not in any way diminish the achievements of the famous architects. It does, however, set these achievements in the wider framework of the expansion of the construction industry, and more particularly in the context of specific segments of that industry's markets.