Writerly Experimentation in Architecture: The Laboratory (not) as Metaphor

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Introduction

Within the last two decades, the use of the term laboratory or 'lab', as it is often abbreviated to, has become widespread in both the profession and in education. 'Spacelab', 'Arch LAB', 'Laboratory of Architecture' – these are but some of the names given to architectural practices today. Also, no self-respecting academic institution today lacks a 'research laboratory' or 'lab' of some kind, often set up in parallel to the conventional studio, but sometimes also as a substitute for it. In a more recent development, the laboratory has also been adopted as a place for exploring architectural themes through writing, as exemplified by the 'Writing Labs' set up at the Bartlett School of Architecture, UCL. This development that has seen the laboratory become the very paradigm of conceptualizations of practice and research in architecture revolves, I argue, around a renewed interest in the notion of experiment and the spaces of experimentation. The question I want to raise here concerns

the role of the laboratory as a metaphor in constructing spaces for writerly experimentation. For, outside the domain of science, how can a laboratory be understood as anything other than a (mere) metaphor? This question is not entirely new and already occupied the organizers and participants of the 'Laboratorium' exhibition held in Antwerp in 1999, which brought together scientists, architects, artists and scholars in a debate around the meaning of the laboratory within art and science.[1] Opinions as to the value of comparing scientific laboratories with artists' studios were clearly divided. Artist Carsten Höller, for one, criticized what he referred to as the 'aesthetization' of the laboratory in art, which he considers a form of appropriation devoid of any further meaning:

> *Of course there is a fascination with how a laboratory looks like, with all the bottles and strange machines, which produce an uncanny effect. At the same time, I think it's just a form of appropriation, and it's not yielding any further result.*[2]

Others, however, have pointed to the difficulty in defining the laboratory in a spatial and more specifically architectural sense. To the historian of science Peter Galison, for example, the laboratory appears as a dynamic space, always in flux, 'polymorphous' and subject to 'constant mutation'.[3] As Galison explains: '[t]he laboratory is, at different times, a chamber of magic, a parliament, a home, a cottage industry, a factory, a monastery, a networked web'.[4] Is it still possible, then, to attribute any specific meaning to the laboratory metaphor within the context of education and writing in particular? To answer this question, this article takes a closer look at the laboratory in its historical connection with alchemy. In so doing, this article aims to show that alchemy, understood as a historical phenomenon associated with the early-modern rise of science, produced a varied body of literature in which alchemists conceived of 'their' laboratory as the space par *excellence* of a form of experimentation with texts.

The Educational Experiment in Architecture

Before delving into the world of alchemy, however, a few words need to be said about the conditions that gave rise to the laboratory in institutions concerned with the architect's education. For, although not immediately conceived on these very terms, the origins of the architectural laboratory are in the domain of design education. Indeed, the first space dedicated to experimental research in architecture was established at the Bauhaus, where new ideas about teaching and design first crystallized around the notion of 'experiment'.[5] During the founding stages of the Bauhaus, Walter Gropius referred to this space as 'a large-scale experimental studio where practical workshop problems may be addressed in both the technical and formal senses, under the direction of a highly qualified practicing architect'.[6] Under Gropius's directorship, this 'experimental studio' became a cornerstone of the Bauhaus curriculum.[7]

The name given to the experimental studio was *Bauversuchsplatz*, literally 'place for building trials', which has been translated in English as 'building laboratory'.[8] It is significant, however, that the word laboratory does not appear in Gropius's early writing. In his manifesto for the Bauhaus, written in 1919, Gropius uses the term *Probier- und Werkplätzen*, literally 'places for attempting' and 'workshops', which, as scholars have pointed out, were modelled on the medieval guilds and the 'workshops' (*Werkstätte*) of the pre-industrial age.[9] Yet, in his *Scope of Total Architecture*, written whilst in America and first published in 1955, Gropius characterizes the Bauhaus workshops in retrospect as 'essentially laboratories in which the models for [industrially made] products were carefully evolved and constantly improved'.[10] Gropius's later writing thus reflects a marked shift in how the 'experimental studio' of the Bauhaus could be conceptualized, for it moves away from the medieval workshop of the past to the modern, technical laboratory of the present.

Yet, the historical process by which the architectural laboratory emerges is far from continuous. Already in 1928, under the directorship of Hannes Meyer, the *Bauversuchsplat*z was replaced by a *Bauatelier*, or 'building

studio', with direct connections to the construction industry.[11] This connection with the construction industry would continue to dominate the establishment of architectural laboratories during the post-war period, as at Princeton University, where the 'Architectural Laboratory' was built in collaboration with the engineering department for the testing of structures and the teaching of construction methods.
The first indications of a broader and extended interest in the laboratory as a place for scholarly research can be traced back to 1970s, with Bill Hillier's Space Syntax Laboratory established in 1972 at UCL and LADRHAUS (Laboratoire de Recherche Histoire Architecturale et Urbaine – Sociétiés) established in 1973 at the École Nationale Supérieure d'Architecture of Versailles, to name two examples. It is not until the mid-1990s, however, that the laboratory becomes a staple of architectural design education. Among the first of this type of laboratory is the Architectural Association's Design Research Laboratory (AADRL), founded in 1996 by Patrick Schumacher and Brett Steele. It is here, in the context of design, that architectural educators recover the experimental ethos as articulated by Gropius in defining its intellectual premise:

> *The AADRL was created out of a belief that the conditions under which architects work, think and learn today are changing in profound and unprecedented ways, and that these demand above all a willingness to experiment with the most basic assumptions that guide not just how architects think, but also how schools, offices and other seemingly stable architectural forms are themselves organised and operate.*[12]

The laboratory thus evolved, in theory at least, into the very paradigm of 'a genuinely new kind of architectural pedagogy', itself conceived as an 'open experiment in architectural education'.[13]

The Writerly Laboratory

The slow and by no means smooth process of pedagogical reform that has placed experimentation at the heart of architectural design education today has in recent years extended beyond the realm of design to challenge established modes of practice in the domain of history, theory and criticism. The 'Writing Labs' conceived and organized by Emma Cheatle, Tim Mathews, Mathelinda Nabugodi, Emily Orley, Jane Rendell and PA Skantze at the Bartlett School of Architecture, for example, point to an increased interest in creating places where researchers and practitioners can explore 'what writing can do critically and creatively' across the disciplines.[14]

This latest development that sees the laboratory extended to the domain of writing can easily be misunderstood as another form of appropriation bearing no relation to the space 'with all the bottles and strange machines'. Yet, the appeal, itself very architectural, of the laboratory as a space combining aspects of the magical and the scientific is not without its literary qualities and origins. Indeed, its popularity as a cultural trope cannot be explained without reference to Mary Shelley's novel *Frankenstein*, first published in 1818, in which the protagonist (Frankenstein) is conflicted about the development of 'modern natural philosophy', preferring, at least for a while, the 'dreams of forgotten alchymists'.[15] Through Shelley's literary imagination, the laboratory thus finds itself on the cusp of a cultural and spatial transformation: populated by 'various machines', it first enters the mechanistic world of modernity, but still retains its appeal as a place of mystery and magic.

With Shelley, the laboratory emerges as space of experimentation that literature evokes through writing, which in *Frankenstein* is intimately bound up with the protagonist's own appetite for books and the medium through which the story is recounted, which consists of an exchange of letters. This connection with literature forms an intrinsic part of the laboratory as a spatial trope, I argue – one that is latently present in films such as Fritz Lang's *Metropolis* (1927). In this film, a scene in Rotwang's laboratory is immediately followed by another in the library of his patron Joh Fredersen. Likewise, Peter Greenway's *Prospero's Books* (1991) portrays the magician's

library as a place of experimentation with words and images and the very medium of film. What I argue here is that these works are indicative of a connection between architecture and literature that defines the laboratory in its historical connection with alchemy.[16] In support of this argument I will point to an image of a laboratory produced for a publication by the German physician, writer and alchemist, 'Count' Michael Maier (1569-1622).

Michael Maier's Golden Tripod

The image in question appears on the title page of Maier's *Tripus aureus (The Golden Tripod)*, first published in 1618 in Frankfurt.[17] The book, as the expanded title indicates, contains three 'chemical treatises' by three different authors: 1) The *Twelve Keys*, written, allegedly, by a fifteenth-century Benedictine monk named Basil Valentine; 2) the *Ordinall of Alchemy*, a poem from about 1477 by the English poet and alchemist Thomas Norton (ca. 1433-ca. 1513); and 3) the *Testament* by a probably fictitious, fourteenth-century abbot of Westminster named John Cremer.[18] Below the title, Maier inserted an engraving depicting a space divided into two alcoves with bookshelves on the left and a workshop on the right (see Figure 1). In the centre we see a furnace and a workshop assistant attending the fire. On top of the furnace stands a three-legged stand holding a flask with a small dragon coiled up inside, the sign of an alchemical experiment taking place inside the vessel. Standing on the left and observing the experiment are three men who can be identified by their attributes as the authors (monk, abbot and poet) of the three alchemical texts mentioned in the title (Valentine, Cremer and Norton). Maier had collected these texts on a trip to England and translated them into Latin for consumption and dissemination among the learned circles of his patron Moritz, the Landgrave of Hessen, near Kassel in Germany.[19]

Of interest here is of course the spatial division of the alchemist's 'laboratory' into two halves, with a library on one side and a workshop on the other. This type of division between a place for study and a place for practical experimentation is not unique to Maier's work and can be found in other

TRIPVS AVREVS,
Hoceſt,
TRES TRACTATVS
CHYMICI SELECTISSIMI,
Nempe

I. BASILII VALENTINI, BENEDICTINI ORDInis monachi, Germani, PRACTICA vna cum 12. clauibus & appendice, ex Germanico;

II. THOMÆ NORTONI, ANGLI PHILOSOPHI CREDE MIHI ſeu ORDINALE, ante annos 140. ab authore ſcriptum, nunc ex Anglicano manuſcripto in Latinum translatum, phraſi cuiuſque authoris vt & ſententia retenta;

III. CREMERI CVIVSDAM ABBATIS WESTmonaſterienſis Angli Teſtamentum, hactenus nondum publicatum, nunc in diuerſarum nationum gratiam editi, & figuris cupro affabre inciſis ornati operâ & ſtudio

MICHAELIS MAIERI Phil. & Med. D. Com. P. &c.

FRANCOFVRTI

Fig. 1. The title page of Michael Maier's Tripus aureus (1618). British Library 1033.k.7.(2.).

texts as well, including Heinrich Khunrath's *Amphitheatrum sapientiae aeternae* (first published in 1595), which features an alchemist's studio that is divided in a similar manner, but with the addition of a desk in the middle, covered with writing implements and musical instruments. Carl Gustav Jung was the first to draw attention to the dual aspect of this type of imagery in his book *Psychology and Alchemy*, first published in 1944.[20] Here, Jung argues that the workshop and the library represent two sides of the *opus alchymicum*: one practical, the other theoretical, where the practical side consists of 'a series of experiments with chemical substances' and the theoretical side 'a more or less individual edifice of ideas' constructed, presumably, through writing.[21] Although not irrelevant to our search for a deeper connection between the laboratory and writing, this interpretation leaves room for doubt as to the meaning of the tripod, positioned in the middle of the space.

For, when we consider the title page in its entirety, we cannot escape the fact that there are *two* 'tripods': the first is mentioned in the title (Tripus); the second is depicted in the engraving. Since the tripod of the title refers to the three texts by Valentine, Norton and Cremer, as indicated by the two words Hoc est ('that is'), we may infer that Maier hints at a double meaning of the experiment taking place in the vessel. For, given that the title and image are presented together, we as readers can conclude by way of inference that the experiment in the vessel is, in actual fact, a literary one involving the three 'chemical treatises'. Considering that the three authors are not contemporaries merely reinforces the fictitious nature of their 'meeting' in the library. Maier thus used the title page to conceptualize alchemy as a form of experimentation practised with texts.

Seen from a literary perspective, the experiment here consists in the bringing together, in a single volume, of three literary texts (in the form of an allegorical treatise, a poem and a 'testament'), which had not been published together and in a Latin translation before. To a German audience eager to educate itself about alchemy, the book thus presented a means to understand alchemy as an intellectual and literary pursuit intent on exploring print

as a place where texts can be made to 'react' to yield new meanings.
The popular understanding of alchemy as the art of transmuting lead into gold, already satirized by Ben Jonson in his play *The Alchemist* (1610), may henceforth be called inadequate. At the same time, it retains a feeling for the theatricality and sense of play associated with the published works of alchemists like Maier, who visualize them as staged performances requiring active participation on the part of their readers.[22] The 'staged' aspect of alchemical texts thus resonates with the great, Shakespearean metaphor of their time ('All the world's a stage, And all the men and women merely players') to suggest a deeper concern for the spatial aspects of their literary and textual-curatorial practices, including writing, translating and publishing.[23]
Elias Ashmole (1617-1692), the famous English antiquary and amateur of alchemy whose library and collection founded the Ashmolean Museum in Oxford, no doubt followed a similar impulse when he assembled his compendium of alchemical poetry and gave it the title *Theatrum chemicum britannicum*, first published in 1652.[24] In presenting his compendium through the metaphor of the theatre, Ashmole drew on a widely used literary device to invite his readers to see the publication as the staging of a literary event – something which today may strike us as strange or strangely literal, but which at the time resonated with a perception and experience of reading that was arguably more visual and spatial than our own.[25] This ability, which Ashmole and his contemporaries had, to conceive of the book in spatial terms as architecture, that is to say, by way of an alternative to building, should alert us to the fact that our own conception of writing and the text is perhaps less literally architectural than it once was and has closed in on the verbal in ways we are only dimly aware of.
Viewed in their historical connection with alchemy, it thus becomes possible to conceptualize the 'writing labs' and other 'laboratories' (for architecture and literature) not as mere figurative uses of speech or metaphors disconnected from the material and social reality of the world, but as concrete means to construct spaces for an alternative practice of architecture, at once inquisitive, open-ended and ever-changing.

Conclusion

The current and widespread use of the term laboratory across the domain of art and design no doubt reflects, in one way or another, the spirit of our age. A spirit we may describe as less concerned with maintaining the hard conventions of practice embodied by the traditional studio than with the possibilities which the laboratory opens up in its creative, if perilous, relationship to change and uncertainty – the very conditions, in other words, of our time.[26] This in itself may leave us ambivalent about the potential meanings of this development. For, while it may testify to the continued relevance of experimentation as a central pedagogic concern (the *Versuche* of Gropius), nothing can assure us of its continued operation or advancement at an institutional level. Which is why an expanded notion of writing capable of transforming the discipline is more relevant than ever. Alchemy, as this article has tried to show, offers us a conceptual model, at once literary and architectural, that recognizes in textual practices such as writing, editing and translating, so many means to construct spaces, both real and fictional, of experimentation and transformation. And so, as we search for new ways of looking at architecture, landscapes and the city, it becomes clear that writing as a resource for investigating alternatives is far from exhausted.

1 Hans U. Obrist and Barbara Vanderlinden (eds.), *Laboratorium* (Antwerp: Dumont, 2001).
2 Höller quoted in Obrist and Vanderlinden (eds.), *Laboratorium*, op. cit. (note 1), 25.
3 Galison quoted in Obrist and Vanderlinden (eds.), *Laboratorium*, op. cit. (note 1), 99. See also Peter Galison and Caroline A. Jones, 'Factory, Laboratory, Studio. Dispersing Sites of Production', in Peter Galison and Emily Thompson (eds.), *The Architecture of Science* (Cambridge, MA: MIT Press, 1999), 497-540.
4 Galison quoted in Obrist and Vanderlinden (eds.), *Laboratorium*, op. cit. (note 1), 97.
5 Rainer K. Wick, *Teaching at the Bauhaus* (Ostfildern-Ruit: Hatje Cantz, 2000), 56.
6 Gropius quoted in Barbara E. Ascher, 'The Bauhaus. Case Study Experiments in Education', in AD: *Architectural Design*, 85, 2 (2015), 30-33, 31.

7 Ascher, 'The Bauhaus. Case Study Experiments in Education', op. cit. (note 6), 31.
8 Wick, *Teaching at the Bauhaus*, op. cit. (note 5), 58.
9 Ascher, 'The Bauhaus. Case Study Experiments in Education', op. cit. (note 6), 31.
10 Walter Gropius, *Scope of Total Architecture* (London: George Allen and Unwin, 1956), 30.
11 Ascher, 'The Bauhaus. Case Study Experiments in Education', op. cit. (note 6), 33.
12 Brett Steele, 'The AADRL. Design, Collaboration and Convergence', in AD: *Architectural Design*, 76, 5 (2006), 58-63, 58.
13 Steele, 'The AADRL. Design, Collaboration and Convergence', op. cit. (note 12), 58.
14 https://www.ucl.ac.uk/bartlett/architecture/events/2017/nov/writing-labs [Accessed 19 February 2018].
15 Mary Shelley, *Frankenstein* (London: Penguin, 2003), 48.
16 For a broader contextualization of the subject, see Willem de Bruijn, Book-building: A Historical and Theoretical *Investigation into Architecture and Alchemy*, unpublished PhD thesis (London: University of London, 2010).
17 Michael Maier, *Tripus aureus* (Frankfurt: Lucas Jennis, 1618).
18 Hereward Tilton, The Quest for the Phoenix: *Spiritual Alchemy and Rosicrucianism in the Work of Count Michael Maier* (1596-1622) (Berlin and New York: De Gruyter, 2003), 109.
19 See Frances A. Yates, *The Rosicrucian Enlightenment* (London: Routledge, 2002), 118, and Bruce T. Moran, *The Alchemical World of the German Court: Occult Philosophy and Chemical Medicine in the Circle of Moritz of Hessen* (Stuttgart: Franz Steiner Verlag, 1991).
20 Carl Gustav Jung and Richard F. C. Hull (transl.), *Psychology and Alchemy* (London: Routledge and Kegan Paul, 1968), 291.
21 Jung, Psychology and Alchemy, op. cit. (note 20), 288.
22 See Urszula Szulakowska, *The Alchemy of Light: Geometry and Optics in Late Renaissance Alchemical Illustration* (Leiden: Brill, 2000), 115.
23 See Yates, The Rosicrucian Enlightenment, op. cit. (note 19), 82-96, and Helmar Schramm, Ludger Schwarte and Jan Lazardzig (eds.), *Kunstkammer, Laboratorium, Bühne. Schauplätze des Wissens im 17. Jahrhundert* (Berlin: De Gruyter, 2003).
24 Elias Ashmole, *Theatrum Chemicum Britannicum* (London: Brooke, 1652).
25 Walter J. Ong, *Interfaces of the Word: Studies in the Evolution of Consciousness and Culture* (Ithaca: Cornell University Press, 1977), 163.
26 See on this note Dalibor Vesely, *Architecture in the Age of Divided Representation* (Cambridge, MA: MIT Press, 2004), 298-99.