Façades and stripes:
An account of striped façades from medieval Italian churches to the architecture of Mario Botta

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Abstract

Stripes have adorned architectural façades for centuries, and can be found on buildings as diverse as the celebrated striped churches of medieval Italy, and Adolf Loos's notorious unbuilt house for Josephine Baker. It is the purpose of this paper to begin to piece together an account of such varied extant and unrealised striped façades, to establish an understanding of their techniques and forms, as well as the theoretical interpretations and justifications that have been put forward in support of their use. The study is significant as there appears to be no existing historical survey of striped façades, coupled with very little discussion or analysis of the compositional operation and use of stripes in architecture. By redressing this largely overlooked body of architecture, this paper is not only able to speculate on connections between numerous striped façades over nearly one thousand years of building, but also to suggest the presence of an inherently deceptive function of stripes, that has the power to manipulate, exaggerate, clarify and confuse the appearance of the architectural façade.

Overview

This paper brings together a broad collection of striped architectural façades, from the famed medieval church buildings of Northern Italy, to the striking polychromy of Mario Botta's work since the early 1970s, in order to speculate on the resemblances and continuities across these works that are otherwise chronologically disjointed and historically distinct. In particular, the survey is focused upon the use of horizontal stripes in Western architecture, in an attempt to highlight possible connections in their use over nine centuries of occidental construction.[1] Horizontal stripes are isolated here from other striped patterns due to their extensive use in architecture over this large time span, and due to their specific compositional operation on the façade. As is often suggested, stripes have the capacity to exaggerate the dimension of a surface or figure: horizontal stripes exaggerate width, and vertical ones cause an overestimation of height, as demonstrated

by the Helmholtz square illusion.[2] For reasons of scope, the discussion has also been largely limited to the intentionally decorative banding of coloured materials—be they structural, cladding or applied finishes—rather than oppositions of light and shadow (such as textured or rusticated surfaces), or solid and void (as often found in modern buildings with strip windows between expressed spandrels).[3] It seems that no such survey of stripes and their use in architecture has yet been written, and this short paper is an attempt to begin filling this gap. It is, however, an uneven historical account, focused primarily on four distinct groups of striped façades: the medieval Italian tradition; its revival in nineteenth century English polychromy; the curious striped projects of Adolf Loos; and Mario Botta's Post-Modern polychromy.[4]

The study also forms part of a larger research project on the artifice and composition of the architectural façade, which will attempt a formal analysis of stripes and their behaviour on building surfaces. Accordingly, this paper is conceived more as a catalogue of key works and techniques than as a comprehensive history. Nevertheless, it will also pursue, and speculate upon, some of the theoretical and practical questions arising out of striped façades. In particular, I will suggest that stripes are a compositional technique of deception used by architects to manipulate, contort or exaggerate appearances. Used in certain ways, stripes have the capacity to clarify form, strengthen the frontality of the façade by reinforcing the viewer's location perpendicular to it, while simultaneously dramatizing the building scale, unifying its parts, and flattening its surface. Used another way, stripes can also destroy these perceptual effects, by obscuring, confusing and camouflaging architectural form.[5]

This duality of clarity and obfuscation underpins the deceptive operation of stripes and, I will argue, forms a possible link between the various and fragmented examples discussed in this paper. Moreover, it locates stripes firmly within the realm of artifice—understood here in its suggestion of an artful or tactical trick—used to control outward appearances, to conceal or reveal; and to ignore or face their audience front-on.

On the Nature of Striped Surfaces

The deceptive nature of stripes also emerges within the broader history of non-architectural striped surfaces, as detailed in Michel Pastoureau's book, *The Devil's Cloth: A History of Stripes*.[6] Pastoureau's research, however, is almost exclusively dedicated to the textile history of stripes, and makes no reference to their use on architectural façades.[7] Nevertheless, it offers some rare insights into the broader context, meaning

and reception of stripes through the ages and, for this reason alone, warrants consideration here. Most importantly, Pastoureau's book reveals that there have been no consistent semantic concepts attached to stripes and their use. Rather, his study highlights the ambiguous status of striped surfaces, and their constantly shifting array of positive and negative associations. This was, however, not always the case: early medieval references and representations of striped fabrics always carried a strong sense of marginality, fraudulence and deception.[8] And, while the sentiments attributed to striped surfaces have oscillated significantly over many centuries, Pastoureau notes that stripes never entirely lost their pejorative connection to deception. This can be witnessed even today in the familiar representations of clowns, tricksters and criminals in striped attire.

Compounding the problem for stripes in this study, is a broader mistrust of surfaces in architecture and Western culture, and their frequent connection to inauthenticity and superficiality. However, Pastoureau speculates that, for stripes, the original sense of deception was due less to their surface-bound format than the inherent visual ambiguity of the striped pattern itself. For any given striped surface, it is impossible to discern a figure from the background—a visual condition that, according to Pastoureau, was met with suspicion by the medieval eye.[9]

In his concluding remarks on stripes, Pastoureau writes:

> "There is, above all, the visual problem of the stripe. Why, in most cultures, is the stripe seen more distinctly than the plain surface? And why does it operate as a trompe-l'oeil at the same time? Does the eye see what fools it more clearly? As opposed to the plain, the stripe constitutes a deviance, an accent, a mark. But, used alone, it becomes an illusion, disrupts the gaze, seems to flash about, to flee. [...] It clarifies and obscures the view, disturbs the mind and confuses the senses."[10]

Pastoureau's description suggests a binary condition of stripes that oscillates between clarity and camouflage; confrontation and retreat; revealing and concealing. These themes—all variations of deception—are repeated throughout the various groups of striped façades discussed below.

Medieval Italian Churches and the Origins of Striped Façades

The medieval churches of Italy exhibit some of the earliest, and best known, examples of striped façades in Western architecture, and date largely from the twelfth to fourteenth centuries. The striped surface decoration is particularly associated with the Northern regions of Italy, but examples are also found in Central Italy. Regarding the emergence of striped architecture in Italy, Arthur Kingsley Porter points to "polychromatic tendencies" in some buildings as early as 1040, and a "distinct fondness for alternating stones of lighter and darker colours" late in the eleventh century.[11] However, he writes that the "earliest really polychromatic masonry which I know" dates from 1107, and that fully developed polychromy emerges from around 1120, citing examples including the Sant Stefano Church in Verona.[12]

While stripes are commonly found on buildings in the Romanesque style, they are most often discussed as a characteristic of "Italian Gothic", emerging at the beginning of the thirteenth century.[13] However, significant overlap exists between the styles, with many Gothic examples clearly combining Romanesque elements. This includes some of the best known and most striking examples of Italian Gothic, such as the thirteenth century cathedrals of Orvieto and Siena with their extensive use of polychromatic banding in light and dark stone. Many writers contend that the Gothic style was only reluctantly accepted by the Italians, who undermined its archetypal verticality with the combination of Romanesque features and the strong horizontality of stripes to exaggerate the buildings' breadth: an early example of the use of stripes to manipulate architectural appearances.[14] It should also be noted that such extensive and unbounded use of decoration over entire buildings façades, is relatively unique—not just in Italy, but in the history of Western architecture. Traditionally, ornament and decoration are limited in their extent, determined by, and subordinate to, the primary expression of the building form, order and structure. Striped façades regularly contradict such rules. However, an understanding of the origins of striped decoration may go some way to explaining this anomaly.

The genesis of explicit striped patterning using opposing bands of coloured construction appears to have a long history. Two primary sources are generally identified, both with Roman connections. First, a number of authors locate striped construction within a Byzantine tradition in which alternating layers of brick and stone are used to reinforce the wall structure, by tying the outer skin of the wall to its interior (often brick) fill.[15] This practice is said to originate from earlier Roman construction techniques.[16] It also had other advantages: where quality stone was scarce or expensive, it could be selectively

introduced between bands of inferior material (brick or stone) to strengthen the wall. And, while this composite construction may be grounded in principles of structure and economy, its decorative effect cannot be ignored, and may explain the medieval Italian use of stripes over entire building surfaces.

The second often cited explanation for medieval stripes comes from the Venetian practice of applying patterned, polychromatic stone veneers to building surfaces.[17] This has been traced back to the early Christian use of geometric and polychromatic stone cladding and coloured tile mosaics. These Christian practices are understood to have emerged from two decorative Roman practices: the use of coloured mosaics, and the articulation of various parts of columns through the use of coloured stone. It is speculated that these Roman practices stem from the earlier Greek tradition of polychromatic painted decoration on both architecture and sculpture, which has been related to even earlier Egyptian and Mesopotamian practices of ornamental surface treatments. However, most seem to agree that, in its earliest usage, this application of colour to architecture emerges not just from a decorative, aesthetic sensibility, but with an equally sound constructional logic that entails the covering of poor quality construction and materials with protective claddings, renders and painted finishes. This duality of applied finishes—understood as both essential and superficial—remains a contentious debate in architecture today, contributing to the aforementioned marginality of the surface.

While these two traditions almost certainly overlap in medieval Italian polychromy, and have both been shown to stem from structural and decorative principles, George Edmund Street describes a persistent difference between the typically Venetian examples of the "encrusting school" and the integrally formed polychromy of the "constructional school".[18] Detailing the distinct function of each school's use of colour, he writes that: "It might almost be said that one mode [the encrusting school] was devised with a view to the concealment, and the other [constructional school] with a view to the explanation, of the real mode of construction."[19] Once again, the enduring duality of the striped surface, perceived as either deceptive or truthful, is reflected in Street's sentiments on polychromy more generally. And, as discussed below, this binary also divided debate on polychromy in nineteenth century England.

Polychromy and the High Victorian Movement
The next major wave of stripy façades emerged centuries later with the polychromy of the High Victorian Movement in England, which had its foundations in the successive travels

of a number of British architects through the European continent as part of the Grand Tour tradition. Their encounter with the striped façades of Northern Italy, particularly in the first half of the 1800s, led to a new fashion for polychromatic brickwork in English churches beginning as early as the 1840s and 1850s.[20] It was manifest not only in striped bands of brickwork, but also shaped motifs, diapers and other more complex patterns, often within the same building. (Interestingly, this English historicism was part of a broader medieval revival across Europe, including Italy, where it combined with an emerging nationalism and manifested in the construction of an eclectic range of striped buildings across the country.[21]) In England, the practice peaked during the 1850s and 1860s. It went into decline towards the end of the 1870s and, according to Neil Jackson, all but disappeared from architectural debate by the end of the century.[22] Elsewhere, the practice was continued: in Australia, for example, the polychromatic use of brick patterning and banding was popular well into the twentieth century as part of a common vernacular.

Arguably, the chief proponents of the High Victorian Movement and its revival of polychromy were John Ruskin and William Butterfield—Ruskin through his written works and lectures advocating the stone polychromy he witnessed in Italy, and Butterfield through his extensive practice using polychromy for more than forty years. Butterfield's boldly patterned brick church, All Saints', Margaret Street, London (1859) is an early and famed example, exhibiting an extensive array of red and black brick stripes with occasional inserts of a warm toned yellow stone.[23] Yet other notably striped projects include: New Scotland Yard, London (1886-1907) by Richard Norman Shaw; The Natural History Museum, London (1870-1880) by Alfred Waterhouse; and All Saints' Church, Maidenhead (1854-1857) by George Edmund Street. Curiously, Street also built a striped church in Rome: St Paul's (1872-1876). It is a striking example of English polychromy, if strangely positioned in time and place.[24]

The rise of polychromy in England was a complex and slow process. It seems that, at first, few of the travelling architects noticed (or at least recorded) the presence of stripes on the Italian precedents.[25] Later, as an increasing number of architects began documenting the striped surfaces in drawings and texts published from their travels, they were often treated disparagingly, and viewed as a defacement of otherwise sound examples of Gothic building. Ruskin quotes one contemporary commentator: "a practice more destructive of architectural grandeur can hardly be conceived."[26] Its ultimate acceptance appears to come alongside a similarly hesitant recognition of ancient Greek

polychromy—a phenomena that was to became central to (and somewhat confused with) the English revival of the Italian striped façades.[27] It may even be argued that it was fervour for colour itself that primarily compelled Victorian architects towards polychromatic decoration. While declaring a strong admiration for the Italian precedents, Street complains of the lack of feeling, richness and warmth in much English architecture, relating it to the "puritanical uniformity of our coats" and a "prevailing lack of love of art and colour of any kind."[28] Similarly, the argument for the expression of horizontality in architecture was also considered independently of the Italian medieval tradition: its merits seemingly transcending time and style. For Street, banded construction simply offered the best means to display the colours of the building material.[29] For William White—friend and ally of Street—it carried an ancient and sacred "spirit of repose."[30]

But the importance of the Italian tradition cannot be understated, particularly for Ruskin. While Ruskin advocated the Venetian "encrusted" style of veneered stone polychromy, he was also particularly fond of the horizontal stripes of the Northern medieval churches. In their support, he put forward not only practical and aesthetic advices for his contemporaries, but divine and metaphysical arguments for their use as well.[31] Regarding his practical instruction, Ruskin's arguments for the horizontal largely follow the previously discussed logics of construction and economics.[32] However, in his book, *Val d'Arno*, Ruskin introduces the notion of using stone "couchant": that is, as found positioned in the quarry. According to Ruskin, using stone in the same orientation as it lay in the ground, ensures greater "permanence, as well as propriety," and enables the material to better resist the effects of weathering.[33] Similarly, in *The Stones of Venice*, Ruskin describes another geological determinant for striped construction: the stratified stone of Mont Cervin in the Alps, with its layers of thin, soft red shales, interspersed with hard bands of white quartz that tie the mountain together.[34] Such allusions to the natural world need to be read within an emerging Victorian interest in geology, which combined both scientific and religious sentiments. To express the natural strength of the stratified alpine geology in architecture, was to also express the world made by God. Hence, Ruskin adds a divine justification to the use of horizontal expression.

Yet all this rationalisation aside, Ruskin actually appears to accept horizontality for its decorative value alone.[35] For Ruskin, the charm and beauty of the horizontal line is irrefutable, and forms part of his concept of the wall-veil. However, Ruskin's approach to the wall-veil and his preference for decorative appearance over structural expression, divided architects of the High Victorian Movement.[36] In contrast to Ruskin, Street and

White maintained a strict sense of structural order in their use of constructional colour.[37] In particular, Street believed that a principle of truth underlies expression in all of the arts, as revealed in his stated preference for structural over applied polychromy, and evidenced in his built work where he used coloured banding to reveal internal divisions and floor levels.[38] In short, colour had a functional purpose. Ruskin, on the other hand, argued that the beauty of ornament was independent of form, and operates as a function of mind, not structural logic.[39] His promotion of colour therefore included a strong advocacy for the Venetian style of veneered polychromy. Thus, as Neil Jackson has detailed, a division developed between Street and Ruskin, whose positions he describes respectively as "clarifying" and "camouflaging" architectural form.[40] The debate subsided with the decline of polychromy in England at the end of the nineteenth century—the preference for 'truth' in the arts gaining purchase in modern architecture. Yet, importantly for this paper, this capacity of colour to conceal or reveal construction and form closely mirrors the earlier discussion on the operation stripes, and reinforces their ability to disguise or define the architectural façade.

Loos's Unbuilt Stripes

With ornament out of favour, few notable striped façades are known until the second half of the twentieth century. Exceptions to this include some built works by Josef Hoffmann, and some intriguing unbuilt ones by Adolf Loos, such as the renowned scheme for the Josephine Baker House (1928).[41] While Hoffman's striped works consist largely of monochromatic horizontal textures and mouldings that produce bands of light and shade, Loos's house was proposed to use applied stone polychromy as promoted by Ruskin. For this reason, and as a particularly salient and much debated modern façade, the project warrants some extended attention here.

Designed for the 'exotic' American performer, Josephine Baker, the house exhibits bold black and white stripes over the top two of its three stories. The project is unusual not only in Loos's oeuvre, but in the context of modernism more generally—its blatant use of ornament appears to undermine Loos's own writings that advocate an unadorned façade in the name of efficiency and modernisation. Although Loos's precise intentions are uncertain, a number of explanations for the stripes have been offered. The stripes are commonly likened to 'primitive' tattoos, although this would contradict his stated abhorrence of the tattoo decorated skins of supposedly 'uncivilised' peoples that he connected to degeneracy and criminality.[42] Some have cited the connection that exists between the representation of the reclining female figure and the horizontal line.[43] Others

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have suggested that the stripes are emblematic of modern technology through the repetition and precision of their scribed lines.[44] It is also likely, given Loos's stated admiration for modern English culture, that he was aware of the stripes of the Victorian polychromists. There may therefore be a link between the stripes of the Baker House, and those of Butterfield and his contemporaries.

While Loos's striped façade for the Josephine Baker House is unusual, it is not, however, unique. Numerous of his other works betray similar striped surfaces, including the vertical stripes of the Spanner Country House façade in Lower Austria (1923), as well as the horizontal brick banding of an early proposal for the façade of the Looshaus, Vienna (1909-1911).[45] But most striking of all are the alternating bands of yellow brick and black polished granite proposed for his 1907 unbuilt design for the War Ministry building in Vienna. This bold combination of colour—suggested to be an unmistakable reference to the Hapsburg Empire—may offer a clue into the much contested stripes of the Josephine Baker House.[46] Considered in this context, it is perhaps the symbolism of the black and white stripes that is most significant, and may have been intended as a reference to Baker's public image as an icon of racial unification, her rumoured mixed-race parentage, or maybe her activism for racial equality.

Loos's exact intentions for the Josephine Baker House stripes will probably never be known, but their origins do seem to lie outside of the direct line of influence, from medieval Italian stripes to English polychromy, discussed so far. And, while the house also stands somewhat apart from my argument on the deceptive nature of stripes, it nevertheless throws into relief unresolved tensions between the decorative nature of the stripes as ornament, and the strict rationality of the white, modern architectural form. These tensions reinforce the persistent marginality of the striped surface, and echo with the broader discussion on stripes in this paper, oscillating between truth and deception. Even today, such tensions remain close to the surface, particularly when concerning stripes.

Mario Botta and Post-Modernism
In the second half of the twentieth century, stripes once again came into wide, if varied, usage, most of which can be placed under the rubric of Post-Modernism. This includes works by James Stirling, Robert Venturi and Denise Scott Brown (VSBA), Robert Stern, Michael Graves and Terry Farrell. And, just as the High Victorian Movement found inspiration in the medieval Italian tradition, banded patterning in much Post-Modern

architecture is widely interpreted as an exercise in historicism, mediating both the Italian and English practices of striped façades.[47]

For Stirling in particular, stripes are a recurrent motif, used in such projects as the Staatsgalerie, Stuttgart (1977-1984), Centre for the Performing Arts, Cornell University, New York (1984-1989); and No. 1 Poultry, London (1986-1998). Likewise, VSBA frequently incorporate brick banding, but in more diverse ways. Guild House (1960-1963) and the Gordon and Virginia MacDonald Medical Research Laboratories, University of California, Los Angeles (1986-1991) are but two distinct examples. Like much Post-Modern architecture, both Stirling and VSBA approach their façades with a Ruskinian independence from structure (flagrantly demonstrated in Venturi's concept of the decorated shed).[48] Yet also present in their work is a strong contextual consciousness, employing stripes to articulate form and manipulate scale in reference to external context cues. For example, the patterned stripes and decorative brickwork of VSBA's MacDonald Medical Research Laboratories relate not only to the immediately adjacent buildings, but also to the striped Italian revival buildings across other parts of the UCLA campus.[49] Venturi's earlier Guild Hall project also implements banding—a single course of white brick used to modulate the proportions of the six-storey mass into that of a three storey "Renaissance palace."[50] Once again, the deceptive capacity of stripes used to consciously manipulate scale and form—even if only through suggestion—is fundamental.

However, of all the architects of the second half of the twentieth century, none have used stripes as incessantly as Swiss-born, Mario Botta. Botta's striking catalogue of striped façades since the 1970s exhibits bold structural polychromy executed variously in banded coloured block, brickwork, concrete and inlaid stone. Notable striped projects include: single-family houses in Ligornetto, Ticino (1975-1976) and in Breganzona, Ticino (1984-1988); The Church of St John the Baptist, Mogno, (1986 / 1992-1998); and the Watari-um Museum of Contemporary Art, Tokyo (1985-1990).

Curiously, and echoing the reluctance of the English architectural tourists to acknowledge the striped medieval façades they encountered on tour in Italy in the early nineteenth century, commentators on Botta's projects, (including Botta himself), pay little attention to his frequent use of boldly striped construction. When Botta's stripes are acknowledged, it is most often as part of a physical description of the building. Accordingly, some of the rare, if brief, discourse on the function of his stripes deserves attention here. For

example, a remark on Botta's website regarding the Church of St John the Baptist suggests that its striped stonework "stresses the classic stratification of the stone building and underlines the attention to gravity involved in this technique."[51] Charles Jencks on the other hand suggests that Botta's stripes function as a Mannerist form of rustication.[52] And Mirko Zardini proposes that Botta's stripes heighten the artificiality of construction, contrasting it with nature.[53] Furthermore, it seems inevitable that the close geographic proximity of Botta's early work and life in Ticino in southern Switzerland—facing and almost surrounded by Northern Italy—as well as his studies in Milan and Venice, make a strong circumstantial case for a connection to the striped medieval Italian churches discussed earlier.[54] This is supported by numerous commentators on Botta's work that have suggested that his buildings display a strong formal relation to the simple geometries of rural houses in Northern Italy, and their use of 'poor' and exposed construction techniques.[55]

The reluctance of critics and writers to engage with Botta's stripes in any detail is surprising: other regularly used motifs, such as the vertical strip window and central skylight, are discussed at great length, particularly in relation to the idea of a symbolic connection of the building between earth and sky. Perhaps this omission is due to a certain degree of complicity with the more widely accepted rhetoric that surrounds Botta's work: as spiritual, timeless, emotional and grounded in its place.[56] Alternatively, it may be that the reference to the striped Italian precedents is so completely self-evident that the connection need not be articulated. Or perhaps it is another example of the caution and hesitation practiced around stripes: intentionally ignored or simply overlooked in order to excavate a more essential truth supposedly hidden beneath the surface.

Whatever the case may be, Botta's buildings seem to take advantage of the full range of deceptive operations of stripes. They are used to clarify and confuse form simultaneously. This can be seen in many built works, including the striped Watari-um Museum, located on a tiny 157m² site in central Tokyo. Here, the pre-cast concrete façade panels are inlaid with bands of black stone, producing a flat and unified wall surface. Changes in the scale of the stripes articulate the edges of the façade, define the building outline, and reinforce a strong sense of frontality. Yet the stripes also confuse the perception of the building's scale and disguise its five-storey organisation. This ambiguity contributes to the monumental presence of the façade, creating an impression much bigger than its built fact. Evidently, Botta's stripes are carefully manipulated to produce a kind of theatricality: a conscious control of appearances intended to inflate scale, demand

attention and confront its public audience. It is typical of the complex composition of Botta's striped façades, and, I would argue, exemplary of the deceptive nature of stripes more generally.

Conclusion

Botta's works are a significant recent addition to the collection of striped façades which this paper has begun to piece together. Yet, rather than excavate the surface to see what is hidden behind these stripes, I have looked at that which is presented to us on the surface, seeking resemblances and continuities between striped façades over nine centuries of fragmented architectural history. While this survey is necessarily incomplete, it constitutes a significant overview to key moments in the often overlooked practice of striped façades. And, while it may be going too far to suggest that there exists a Western tradition of striped façades based on the evidence of works discussed here, connections between these buildings certainly exist, opening the way for further, more detailed research and historical analysis.

Importantly, the paper has also identified some of the more persistent themes and questions raised by striped architecture. In particular, I have produced an account of the implicit deception and marginality of various groups of striped façades that are otherwise isolated chronologically and historically. Arguably, this is the strongest and most consistent thread running through this tentative history of striped façades—from the earliest medieval Italian churches, to the recent stripes of Botta's polychrome façades— and offers a promising direction for further studies. Perhaps most interestingly, the paper has revealed that this deceptive quality of striped ornament is fundamental to the behaviour of stripes on the architectural façade, and what might be their greater purpose and function: to manipulate, exaggerate, clarify and confuse the appearance of architecture, thereby demanding greater attention and authority in the presence of a public audience.

Endnotes

[1] It should be noted that striped surfaces can of course be found outside of Western architecture and, for example, have been particularly associated with Islamic art and building traditions. While Western practices have certainly been touched by such influences, these lie largely outside of the limits of the current study.
[2] The unique visual phenomenology of horizontal stripes, compared to that of vertical or diagonal ones, is a familiar distinction. However, as a number of authors have noted, the actual illusion varies considerably (and can even be reversed) depending on numerous variables including the

number, scale and thickness of the bands and their spacing, the overall figure that is formed, as well as the viewing distance of the percipient. The related Oppel-Kundt illusion illustrates this point, revealing how a space or line that is divided in equal parts will often appear longer than the same space or line that is unarticulated by divisions. The illusion is often illustrated by a series of short parallel lines that, contrary to the Helmholtz effect, exaggerate the width of the overall figure perpendicular to the lines, rather than in the direction of the lines. In any case, the experience and operation of horizontal stripes as compared to vertical ones remains counterposed, whatever their perceptual effect. See: J. O. Robinson, *The Psychology of Visual Illusion,* (London: Hutchinson, 1972), 50-51.; and John Vredenburgh Van Pelt, *The Essentials of Composition as Applied to Art*, [2d ed. (New York,: The Macmillan Company, 1913), 118-51.

[3] Nevertheless, overlaps certainly exist between the banding produced by the opposition of coloured material, and the intentionally stripy arrangement of mouldings, rustication and fenestration. These offer possible directions for further study.

[4] It should be noted that, due to the huge range of examples encompassing such a large period of time and breadth of architectural styles, the process of collating a survey of striped façades entails as much chance and serendipity, as it does conventional research methods. Acknowledging this as a limitation, this paper can only ever be seen as an incomplete work-in-progress. The selection and grouping of these four bodies of work is an attempt to give some cohesion and focus to the various strands of striped practices observed over the 900 year span of the study.

[5] The description of polychromy in terms of "clarity" and "camouflage" in this paper is borrowed from Neil Jackson's discussion of the use of colour by the proponents of High Victorian Movement. See: Neil Jackson, "Clarity or Camouflage? The Development of Constructional Polychromy in the 1850s and Early 1860s," *Architectural History* 47 (2004).

[6] Michel Pastoureau, *The Devil's Cloth: A History of Stripes*, trans. Jody Gladding (New York: Washington Square press, 2003).

[7] Pastoureau, *The Devil's Cloth*, 54.

[8] Pastoureau, *The Devil's Cloth*.

[9] Pastoureau notes that the check pattern was regarded with equal suspicion. Pastoureau, *The Devil's Cloth*, 3.

[10] Pastoureau, *The Devil's Cloth*, 91.

[11] Arthur Kingsley Porter, *Lombard Architecture*, 4 vols. (New Haven: Yale University Press, 1915), 43-44.

[12] Porter, *Lombard Architecture*, 43-44.

[13] Notable Romanesque examples include the cathedrals of Pisa (11th-12th centuries) and Genoa (begun 12th century).

[14] David Watkin, *A History of Western Architecture*, 4th ed. (London: Laurence King, 2005). Similar sentiments are expressed in: Bruce Allsopp and Ursula Clark, *Architecture of Italy* (Newcastle upon Tyne: Oriel Press, 1964), 52.; and, Martin S. Briggs, *Architecture in Italy: A Handbook for Travellers and Students* (London: Dent, 1961), 75.

[15] Briggs, *Architecture in Italy*, 76-77.; and, Cecil Stewart, *Early Christian, Byzantine and Romanesque Architecture*, New ed., vol. II, Simpson's History of Architectural Development (London: Longmans, Green, 1954), 53-54.

[16] Briggs notes the remains of the Roman wall around London as exhibiting this type of banded construction. Briggs, *Architecture in Italy*, 77.

[17] The discussion on the origins of the medieval Italian striped façades has been established from the following sources: William Kinnard, "Annotations to Stuart and Revett's *Antiquities of Athens*, Second Edition (1825)," in *Architectural Theory: Volume 1: An Anthology from Vitruvius to 1870*, ed. Harry Francis Mallgrave (Malden, Mass.; Oxford: Blackwell, 2005).; "Polychromy," in *The Oxford Encyclopedia of Classical Art and Architecture*, ed. John B. Hattendorf. (Oxford University Press, 2007).; and, "Polychromy - 1. Architecture., 2. Sculpture., (i) Before c. 1800," http://arts.jrank.org/pages/9820/Polychromy.html.

[18] George Edmund Street, *Brick and Marble in the Middle Ages: Notes of a Tour in the North of Italy* (London: J. Murray, 1855), 282.

[19] Street, *Brick and Marble in the Middle Ages*, 279.

[20] According to Jackson, both Street and Butterfield also drew upon English precedents in their work. In particular, Street is noted as having referred explicitly to the horizontal banding of two thirteenth century churches in Northamptonshire. George Edmund Street, "The True Principles of

Architecture, and the Possibility of Development," *The Ecclesiologist*, no. August (1852). Cited in Jackson, "Clarity or Camouflage?"

[21] Carroll L. V. Meeks, *Italian Architecture 1750-1914* (New Haven and London: Yale University Press, 1966).

[22] A summary of the emergence, development and subsequent disappearance of polychromy has been outlined by Neil Jackson in: Jackson, "Clarity or Camouflage?"

[23] However, in Neil Jackson's overview of the rise of polychromy in Victorian Britain, he notes that John Summerson has questioned Butterfield and Ruskin's eminence as the progenitors of English polychromy. Instead, he cites James Wild's Christ Church, Streatham, London (1840-42) as the first built example. Neil Jackson, "Christ Church, Streatham, and the Rise of Constructional Polychromy," *Architectural History* 43 (2000).

[24] A second church in Rome was designed by Street: All Saints' (1880-1937). However, it was not completed to his original design, and appears to be considerably less stripy than his design for St Paul's. Meeks, *Italian Architecture 1750-1914*, 272-84.

[25] This reluctant acceptance, and later enthusiasm for the striped Italian façades has been documented in, Jackson, "Christ Church, Streatham, and the Rise of Constructional Polychromy."

[26] Willis cited in John Ruskin, "The Stones of Venice," in *Works*, ed. Edward Cook and Alexander Dundas Ogilvy Wedderburn (London: Allen, 1903), 348.

[27] Harry Francis Mallgrave, ed. *Architectural Theory: Volume 1: An Anthology from Vitruvius to 1870* (Malden, Mass.; Oxford: Blackwell, 2005).

[28] Street, *Brick and Marble in the Middle Ages*, 285. Also see 278, 284-285.

[29] Street, *Brick and Marble in the Middle Ages*, 283.

[30] William White, "On Some of the Principles of Design of Design in Churches," *Transactions of the Exeter Diocesan Architectural Society* II, no. first series (1853). Quoted in: Jackson, "Clarity or Camouflage?" 215.

[31] Jackson points to this complex combination of justifications in: Jackson, "Clarity or Camouflage?" 212-13.

[32] Ruskin, "The Stones of Venice."

[33] See Chapter VI: Marble Couchant in: John Ruskin, "Val d'Arno," in *Works*, ed. Edward Cook and Alexander Dundas Ogilvy Wedderburn (London: Allen, 1903), 84.

[34] Ruskin, "The Stones of Venice," 87-88.

[35] Ruskin, "The Stones of Venice," 347-48.

[36] This part of the discussion owes much to Neil Jackson's recent essay that details the divide generated by Ruskin between proponents of polychromy on the correct use of colour to "clarify" or "camouflage" architectural form and surface. Jackson, "Clarity or Camouflage?"

[37] This closely followed Pugin's earlier stated views on architectural polychromy.

[38] As Hersey points out, the medieval Italian stripes are typically used with strict regularity, disregarding internal floors or window and door openings. Street's stripes, on the other hand: "may be irregular but would have unequivocally expressed inner divisions of the building." He also notes that Butterfield's stripes typically corresponded to neither floor levels nor a regular pattern, revealing a more eclectic approach. George L. Hersey, *High Victorian Gothic: A Study in Associationism* (Ann Arbor, Mich.: Bks Demand UMI, 1972), 108. Also see: Street, *Brick and Marble in the Middle Ages*.

[39] Ruskin, "Val d'Arno," 86.

[40] Jackson, "Clarity or Camouflage?"

[41] Examples of Hoffman's striped façades include: the Primavesi Country house (1913-1914. Destroyed by fire in 1922) with its alternating dark and light stained courses of timber; the extensive use of decorative horizontal mouldings on the Ast Summer house (1923-1924) and the Austrian Pavilion at the International Exhibition of Decorative Art, Paris (1924-1925); As well as the horizontal grooves of the Austrian Pavilion at the Venice Biennale (1934). Eduard Franz Sekler and Josef Hoffmann, *Josef Hoffmann: The Architectural Work: Monograph and Catalogue of Works* (Princeton, N.J.: Princeton University Press, 1985).

[42] Adolf Loos, "Ornament and Crime (1929)," in *Adolf Loos: Ornament and Crime: Selected Essays*, ed. Adolf Opel (Riverside, California: Ariadne Press, 1998).

[43] Farès el-Dahdah and Stephen Atkinson, "The Josephine Baker House: For Loos's Pleasure," *Assemblage*, no. 26 (1995).

[44] A. Cheng, "Skins, Tattoos, and Susceptibility," *Representations*, no. 108 (2009): 112.

[45] Gravagnuolo, Benedetto. *Adolf Loos: Theory and Works*. London: Art Data, 1995, 139. The Café Museum interior in Vienna (1899) also exhibits extensive vertically striped walls in two tones of green.

[46] Regarding the reference to the Hapsburg Empire, see: Gravagnuolo, Benedetto. *Adolf Loos*, 122.The Hapsburg Empire's heraldic yellow and black are symbolic representations of golden fields and the black double-headed eagle.

[47] For example, John Jacobus notes James Stirling's range of architectural sources, including Butterfield and Street. John Jacobus, "Introduction," in *James Stirling: Buildings & Projects, 1950-1974* (London: Thames & Hudson, 1975), 14. Similarly, Jencks connects Stirling's striped stone cladding on the Centre for the Performing Arts at Cornell, to Italian hill towns and the "rusticated bands of Siennese buildings." Charles Jencks, *The New Paradigm in Architecture: The Language of Post-Modern Architecture*, [7th ed. (New Haven ; London: Yale University Press, 2002), 168-69.

[48] In an interview with Venturi and Scott Brown, Mary McLeod has also suggested this connection to Ruskin, based in the use of materials. Although Venturi quickly denies taking pleasure in materials, and goes no further to defining a position in relation to Ruskin, there appears to still be a strong connection between Ruskin's concept of ornament as independent from structure, and VSBA's approach to ornament. See: Robert Venturi et al., "On Artful Artlessness," in *Venturi, Scott Brown & Associates: Buildings and Projects, 1986-1998*, ed. Stanislaus von Moos (New York: Monacelli Press, 1999).

[49] Stanislaus von Moos, *Venturi, Scott Brown & Associates: Buildings and Projects, 1986-1998* (New York: Monacelli Press, 1999), 234-37.

[50] Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, Mass.: MIT Press, 1972), 92.; and Robert Venturi, *Complexity and Contradiction in Architecture* (New York: Museum of Modern Art, New York, in association with the Graham Foundation for Advanced Studies in the Fine Arts, Chicago, 1977), 116.

[51] "Church of St John the Baptist, Mogno, Maggia Valley, Switzerland," http://www.botta.ch/Page/Sa%201998_113_Mogno_en.php.

[52] Regarding a number of Botta's Ticino houses, Jencks writes that: "[T]hese houses look like heavy rusticated bases awaiting a *piano nobile* and roof. Conceptually they are all foundation or bottom floor." Jencks, *The New Paradigm in Architecture*, 120.

[53] Mirko Zardini, *GA Architect: Mario Botta*, vol. 3 (Tokyo: A.D.A. EDITA, 1984), 68.

[54] However, no definitive connection has yet been established.

[55] As Zardini suggests of the single-family house in Ligornetto, Ticino, that the "horizontal stripes derive from the local tradition which consists of the decorative use of simple and poor material." Zardini, *GA Architect: Mario Botta*, 68.

[56] Botta himself presents his architecture in these terms, arguing that it establishes: "a rapport between man and the elements of nature, of the countryside, of the different seasons, the values of the cosmos, the values of the sky." Quoted in Christian Norberg-Schultz, "Introduction," in *GA Architect: Mario Botta* (Tokyo: A.D.A EDITA, 1984), 8.