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Abstract

The paper is concerned with the changing sensibility to spatial experience that I feel is a characteristic of modernity. I make three assumptions: that modernity finds spatial manipulation thrilling; that spatial experience has a history that relates to the history of perception; and that the study of a society's entertainments can offer insights into its underlying shifts and disturbances.

I draw on some 19th and 20th century theories as to the role of the corporeal and the visceral in perception to speculate as to how an audience might have seen and experienced three popular entertainments from the early 20th century.

The three entertainments, which all changed the perceived dimensions of the body, are the dance performances of Loie Fuller; a stage magic routine that involved instantaneous bodily expansion; and the living miniatures that were created by the Tanagra Theatre.

All three entertainments shifted and extended the boundaries of the body, not only in the apparent bodies of the performers but also, I suggest, in ways that resonated within the bodies of their audiences. I suggest that such internal resonances, engaging the senses both imaginatively and viscerally, have contributed to the perceptual vocabulary of modernity, and often form part of the practice and experience of today's spatial arts.

I examine the entertainments using the assumption that the audience was also part of the work, their modes of seeing contributing to the total experience. The theories of perception that I draw on are speculative rather than conclusive, and range from models such as 19th century theories of empathy to popular 'holistic' body/mind concepts from the 20th century.

Spatial Pleasures

Art for Bergson is a force ...through which one can grasp 'certain rhythms of life and breath' which compel the individual 'to fall in with it, like passers-by who join in a dance. Thus they compel us to set in motion, in the depth of our being, some secret chord which was only waiting to thrill.' (Fleming, 1980, p.403)

This paragraph brings up an extraordinary image. Where would one see passers-by joining in a dance? But the suggestion lingers with us: that to give attention to something aligns us physically and mentally with that thing, inciting sympathetic movements within us and unlocking deeper levels of perception. The syntactical inconsistency of the words hints at synaesthesia within the process. We are both agent and outcome, both singular and plural, our sight, breath, motion, resonance and insight interlocked.

The term 'synaesthesia' - the calling up of one sense through stimulation of another - was first coined in 1891¹. It carries us back to the last decades of the 19th century and a flood of neologisms to define new modes of perception which arose then in both art and science, and which have contributed to the concepts of spatial experience which underlie many of today's spatial disciplines. These disciplines include architecture and interior design, the design of immersive environments, design for stage and cinema, event design, and a wide range of contemporary art practices that involve the interplay of attention, body and spatial experience. In this essay, through speculating about sensations and insights possibly induced by such interplays, I hope to tease out some ideas about possible ways in which we *attend* to space, and ways in which such experience might explain some contemporary spatial fascinations.

Three threads run through my wider argument - firstly that modernity finds spatial manipulation pleasurable fascinating, secondly that spatial experience has a history which relates to the history of perception, thirdly that the study of a society's entertainments can offer insight into its underlying shifts and disturbances. The material that I am studying is that of magical and transformative performances and entertainments, and my larger project is to identify their continued resonance in the spatial disciplines of today. In this paper I want particularly to consider the ways in which internalised spatial experience has become the raw material of many sorts of entertainment. (My definition of entertainment is wide, ranging from the noise and physicality of sport to the silent reverie of a daydream.)

Is spatial experience fascinating? To 'fascinate' originally meant to bewitch or enchant; its connotations of delight and attraction are part of modern usage. In a previous paper (Pringle, 2002) I have argued that a new sense of pleasure in the manipulation of space contributed to the explosion in popularity of magic as a theatrical entertainment in the 19th century, and that this fascination with spatial transformation is still being worked through in the spatial disciplines that I have referred to. I suggested that if 'each epoch dreams the one that follows',² then the dream of the 19th century was characterised by a heightened spatiality. Evidence for this can be found not just in contemporary architectural theory³ but in peripheral locations such as magical entertainments, detective fiction, new ways of moving the body or non-academic descriptions of interior space, to give a very few examples. I concluded that at the turn of the 20/21st centuries, many artists and designers are still engaged in working formally through the spatial changes of the previous century.

To speak of 'space' as the basic material of architecture is a relatively modern concept, which opens a discussion beyond the scope of this paper.⁴ But beyond the manipulation of mere spatial volumes, we have come to a point where we are prepared to feel ourselves stretched, opened, compressed, relaxed, shocked or moved emotionally by spatial experience. Today for example, artists such as James Turrell deal explicitly with the 'sense of the presence of space' (Turrell, 1993, p.62) as a profound experience, one which is mediated by both subjective and physiological factors. Turrell says he is 'interested in a place where the

imaginative seeing and the seeing of the external world meet, where it is difficult to distinguish the seeing from within from the seeing from without.' (p.46)

Reflective and meditative work such as Turrell's is today often sited within art galleries, or commissioned as an integral part of architectural spaces dedicated to quiet contemplation, such as the Live Oak Friends Meeting House constructed for a Quaker community in Houston, completed in 2001. But spatial experience also has a history as a source of pleasure in secular contexts. Cultural historians such as Wolfgang Schivelbusch (1977), Stephen Kern (1983) and Siegfried Giedion (1963) have pointed to the changes in consciousness that result from the introduction of new technologies and new practices and demonstrated that the later 19th century produced new types of spatial awareness in parallel with technological and social changes. Some of these speak to profound changes in our image of ourselves as humans – the sense of interiority and the emergence of the subjective subject open the way for ideas of psychological discomfort and distress – but I would argue also that increased spatial awareness accompanied an expanded range of pleasures and voluptuous spatial sensations, felt within the body and demanding a new vocabulary to describe their subtleties and to permit us to attend to them.

If we look at ways of pleurably using the body in the late 19th century, we find much that implies the development and enjoyment of altered sensibilities and abilities that have become part of the modern body. Consider the elaborate development of mechanical forms of kinetic entertainment such as steam-powered funfair rides;⁵ techniques for extending the possibilities of human movement such as bicycling and roller skating;⁶ the development of somatic body therapies such as the Alexander technique or systems for somatic and kinaesthetic education such as eurhythmics;⁷ apparatus for assisting vision as a part of entertainment, as evidenced by the flood of applications for patents of new types of visual aids such as opera-glasses (Rees, 1996); the increasing participation of both women and of the non -aristocratic classes in physical sports (Leder, 1966); increasing connoisseurship of passive forms of amusement involving spectatorship rather than active participation. These adult forms of play are indicative of changing priorities in the body-sense of the individual, and reflective of the 'rhetoric of embodiment'⁸ which influenced the perceptual codes of the 19th century.

Two propositions from the period (although not unique to modernity) continue to shape our thoughts today: firstly, that the body itself, with all its muscular sensations and neural activities, is both the source and the seat of our knowledge of the world and secondly, that our perception is not made by the passive processing of sensory information but by an active engagement between ourselves and the world, a reaching out to the world in a participatory process.

Hence, although we come to know space through our knowledge of our bodies, such knowledge is itself mutable. Therefore space too may be uncertain, subjective, and contingent on the attention that we may bring to it. The secret chords that are waiting to thrill in the depths of our being call on a more complex model of synaesthesia than the mere substitution of one sense for another. Such empathy with space that is both imaginative and visceral has become a characteristic of modernity.⁹

The processes are both complex and two-way. The description of the unconscious internal sensory flow that establishes and maintains our bodily and psychological presence and identity, and with it our ontological grounding, was named *proprioception* by C. S. Sherrington in the 1890s (Rylance, 2000, pp.11-12). Theories of a *physiological* relationship between the different sense organs and an *empathetic* relationship between the body and things beyond it underlie the development of, for example, 19th century German aesthetic theory.¹⁰ Similarly in painting, the calling-up of subjective *psychological* states, such as discomfort, in much late 19th century European painting of domestic or private life is achieved by organising the relationship between figure, object and space in ways which provoke in their viewer a *physical* response and bodily empathy (Sidlauskas, 2000). Similar developments in literature can be traced in the imaginative demands made on the reader of the 19th century novel, drawing psychological inferences through descriptions of the gestures, postures and surroundings of the protagonists.¹¹

The worldview of the urban westerner at the turn of the 19/20th centuries is often characterised in its contemporary literature by a dynamic sense of a silent inner dialogue, which is arising from a stream of experience flowing through a body/mind engaged in resisting constant threats of instability.¹² The period's exploration, in both art and science, of the relationship between the physical mechanisms of perception and the creation of subjective and relative perceptions of space was taking place at a time when the increasing perception of space as a flexible and ambiguous entity was paralleled by increasing flexibility and mobility of both the body and of its image. The perceived physical dimensions of the human body, although no doubt subject to more precise scientific measurement, became ever more elastic as new possibilities of movement changed visual reality and, equally importantly, changed the ways in which attention was given to both space and the body.

Simmel's frequently quoted words: 'Man does not end with the limits of his body or the area comprising his immediate activity. Rather is the range of the person constituted by the sum of effects emanating from him temporally and spatially' (Simmel, 1903/1957) serve to introduce the perceived lability of the boundaries of the body. Simmel's compassionate analysis of modern life, and the complex cultural critique of which his writings form part, focussed on the troubling impact of the speed and excess of the age on mental life. But others acknowledged that the increasing opportunities for enjoying the physical sensations generated within the moving body were expanding the kinaesthetic perceptual vocabulary of the age.¹³ Cultural histories of the early 20th century suggest that there was a belief that increased play and athleticism arising out of leisure could restore the layperson's kinaesthetic sensibility.¹⁴ Nor did one need to share the actual experience in person. The suggestion that the whole of society is vicariously enhanced by the kinaesthetic experiences of the few is implicit in Hannes Meyer's enthusiasm for the momentum of modern life (cited in Hays, 1992, p.68):

'The simultaneity of events enormously extends our concept of 'space and time,' it enriches our life. We live faster and therefore longer. We have a keener sense of speed than ever before, and speed records are a direct gain for all. *Gliding, parachute descents and music hall acrobatics refine our desire for balance* [my italics].'

In brief then, attention was being given to the kinaesthetic in a different way than previously and the range of sensation with which to empathise was expanded (although of course people's ability to imagine sensations does not ensure an authenticity of experience). Above all, movement was both seen and *felt* through the eye, but a shifting eye that was interdependent on a body whose boundaries had become more elastic.

I now turn to the third aspect of my argument; the location of spatial and perceptual experience in the context of 'entertainments' that evoke a sense of profound or magical engagement. The words 'play' and 'entertainment', while calling up cheerful ideas of physical movement, stimulating sensations, and the suspension of a fixed reality in exchange for temporary entrance into another state of mind, also carry (like so many important words) other, independent meanings that throw a curious light on the first; in this case ones of indeterminacy, inbetween-ness and lability. 'Entertainment' derives from words meaning 'holding between', while 'play' can imply a range of possible positions.¹⁵ These conditions, as well as being present in much that we find magical, seem characteristic of the spatial arts of today, with their renewed fascination with perceptual instability, the ephemeral and evanescent, the transformable, the multipurpose and the ambiguous.

I want now to discuss these ideas further by speculating on possible inward sensations induced by three acclaimed entertainments from the decades between the 1890s and the 1920s. I have selected this period as one that bridged the inarticulate spatial dreamings of the 19th century and the popular acceptance of 'space' as the explicit material of new art practices in the 20th century. It was, most importantly, a vital period in the emergence of the concept of 'interior design' as a spatial and experiential practice.

Although the three entertainments would be seen today as belonging to separate categories of performance, they all contained enough 'magic' to warrant their inclusion in the literature of

stage magic at the time of their popularity. As I have suggested earlier, the appeal of magic shows around the turn of the 19/20th centuries has a parallel with the appeal of spatial illusion and ambiguity in the spatial disciplines of today. Both reveal the spatial fascinations of their period, and an underlying sense that body/space is shifty, elastic, and a suitably malleable material for play. In my reading of the three entertainments, which have in common that they presented impossible extensions and contractions of the body, I suggest that the shifts and extensions of the performing bodies called up sympathetic echoes within the bodies of their audiences that were part of the pleasurable and thrilling sensations that they evoked. Hence the audience was also part of the work, their own physical experience influencing their modes of seeing and contributing to the total experience. Although the routines might seem banal today, I contend that the shifts of perception that they called up in their audiences are at work today in many constructed spaces that are regarded as having qualities of spatial magic.

I will discuss the dance performances of Loie Fuller dating from the late 1890s; *A Match for Anyone*, a stage magician's routine from 1915 that involved magical expansion; and the brief popularity of the Tanagra Theatre before the 1920s (a popular sideshow that created living miniatures). I stress that I am bringing my modern eye to each and that the theories of perception that I draw on are speculative rather than conclusive, and range from the 19th century models discussed above to popular concepts from the late 20th century, such as the linking of the experiences of 'immersion' and 'flow' with the 'peak experiences' achieved through movement,¹⁶ each involving neurological processes and brain chemistry, or the theories of the 'sensuous intellect' which link modes of seeing to wider philosophical standpoints.¹⁷

Loie Fuller, the Fairy Electricity

Loie Fuller, a previously undistinguished American actress, noticed the effect of light on a gauzy silk skirt that she wore on stage. By watching herself in a mirror, she 'reached a point where each movement of the body was expressed in the folds of the silk, in a play of colours and draperies that could be mathematically and systematically calculated' (Fuller, 1913, pp. 3-4). From these observations, she evolved a series of dances in which her body and robe became the projection screen for a variety of optical effects of her own invention, drawn from her interest in stage techniques, electrical lighting and the properties of materials. Fuller's innovative role in the development of modern apparatus and techniques of stage lighting has been acknowledged more fully in recent years (eg West, 1996, pp. 88-92) but at the time of her early fame it was the unusual visual and emotional impact of her performances that was noted.

She arrived in Paris in 1892, secured an engagement at the Folies-Bergères, and became an immediate success; the usual audience at the Folies was 'lost amid a crowd composed of scholars, painters, sculptors, writers and ambassadors'.¹⁸ Within the year anything evocative of her act was named after her.¹⁹ Her success lasted: she led her own company until her death in 1923.

The performances fascinated and influenced figures from the cultural avant-garde of many disciplines: her audience found her performances chaste, hypnotic and thrilling.²⁰ But what did they see? Her outline flowed from one fluid form to another, its boundaries stretching and shrinking in ways which obliterated any sense of incongruity with her own less-than-slender fleshly form. An extended body emanated beyond her own, created by hundreds of metres of flowing silk, supported by wands attached to her arms and frames supported by her head-dresses:

'The draperies [for the dance *Lily*, see Figure 1] could be extended till they seemed to fill the space....the costume contained 500 yards of gossamer-thin silk and could radiate 10 feet from her body in every direction and be thrown up to the surprising height.... of 20 feet. It was close to 100 yards around the hem.' (Dance historian Sally Sommer quoted in Banes, 1998, p.73).



Figure 1 Loie Fuller performing the dance 'Lily' c. 1900. The photograph was taken out of doors rather than on stage

Source Loie Fuller, *Fifteen Years of a Dancer's Life*

The manipulation of the fabric was part of Fuller's choreography, and not a mere wafting and twirling as with the skirt dance which was popular at the same period. The rhythms of her silks, starting from her own movements, rippled and spiralled in patterns of internal harmonics whose generation she practised and perfected. Sometimes she and her dress became united as elemental spirits - water, fire, cloud, night, falling bits of sky - at other moments there would be a revelation of a human figure. The coloured lights projected onto her draperies were operated by an army of electricians who rehearsed like other members of her troupe. Her performances were conjured out of the darkness that was the backdrop and frame for her movements. I imagine the effects that she produced as having the two-and-a-half dimensionality of fireworks or flames. Interestingly, the poet Georges Rodenbach described her as a fresco (Part of the poem is given in Kermode, 1962, p.6) and the devices which she invented would reinforce this alteration of depth by removing her from any recognisable framework which could give a consistent scale to her image, such as the arrangement of underlighting which she patented for producing 'an illusion... of the person floating or dancing in air' (Rees & Wilmore, 1996, p. 102). She provided the resonance for a new sort of spatial pleasure - the extended body, the boundless body, the body-in-space, astral body; a weightless and powerful body, beyond gender, angelic. In later dances, the visible body had almost disappeared, with the development of dances in which her troupe of dancers moved below a vast ocean of silk, others in which the travelling spotlight picked out only her hands.

To speculate about a visual response to Loie Fuller's performance, I want first to compare it with an older routine which also involved shape changing, but in which attention, body and

space formed a different conjunction. The routine known as *Troublewit* can be traced back in Europe to at least the 17th century. The *Troublewit* is a long sheet of paper, specially folded and accordion pleated which the entertainer dexterously manipulates into an endless variety of shapes, origami-like, sometimes fitting it quickly to the body (eg hat, ruff, bonnet, cuff, wig, beard) and at other times forming a series of objects, all the while keeping up a patter filled with linking jokes and puns.

Photographs of Professor Hofzinsler (Figure 2), a celebrated performer of the 1850s, demonstrate the point of this routine; that the fun depended on the repeated alteration of the shape from one finished form to another, a series of perfect moments. The characteristic of Loie Fuller's performance, in contrast, was its ebb and flow, always in the process of forming and dissolving, existing at what Deleuze (1986, p. 4) in writing of Bergson's concept of the movement-image, has called 'any-instant-whatever'. The comparison of these two very different moments speaks through their photographs, (which themselves convey a history of the photographic process) for Professor Hofzinsler appears to hold himself still in order to allow the *Troublewit* to have its correct form, whereas Loie Fuller must be caught in movement to allow her extended garments to convey the image of the lily.

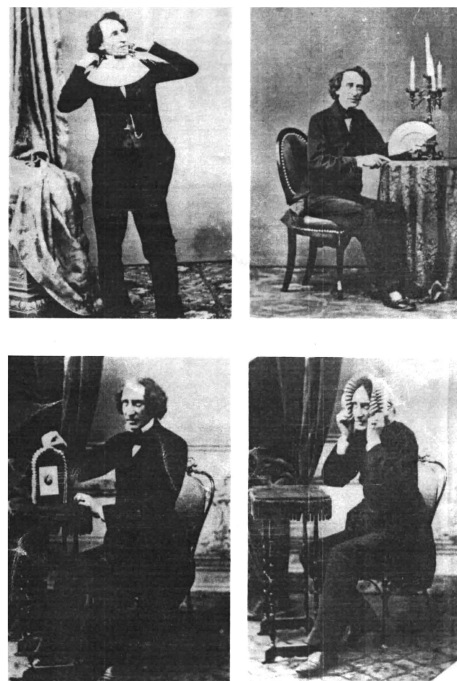


Figure 2 Professor Hofzinsler and the *Troublewit* c.1850
Source Ottokar Fischer, *The Magic of Johann Nepomuk Hofzinsler*

Photographs however are acknowledged to give an inadequate suggestion of Fuller's act. The underlighting that she frequently used gave her audiences the impression of great height although she was quite short. Mallarmé's observation that she 'ecstatically stretched to the extremity of each wing' (Kermode, p. 21) evokes the spatial disturbance we feel when a great bird unfolds its wings, a lateral expansion which far exceeds the empathetic reach of a human. Although the physical effort of controlling her vast draperies was exhausting for her, the impression made on her audience was not one of a human energy, rather the embodiment of raw powers such as wind, flame, storm, electricity. Reviewers and diarists, for whom an empathetic sense of bodily expansion and weightlessness had conjured up an ethereal being, frequently recounted the shock of seeing the 'real' Loie after a performance - short, plump, damp, groaning with exhaustion (Current & Current, 1997, p. 177).

Kermode's comment (p.21) that the imagination of the spectator fed on her independently of what she intended is astute. She herself had no interest in the representative accuracy of the forms, whose names were given to the dances by the audience; her own interests were in

light and the 'truth' of motion (Fuller, 1913, pp.66-72). Nonetheless, her moving forms left traces embedded in the memory for later expression into the numerous images which her work inspired, the imagination of the audience reading private emotional profundities into the play of form and light which she created. My own speculations continue the tradition.

The eye watching Loie Fuller would have had many opportunities spontaneously to experience something like the practice that Arthur Zajonc (cited in Sewall, 1999, p.227) describes as a 'yoga of the senses'. Through a process of engagement and disengagement with an object of visual contemplation, the afterimage, a 'mood or gesture' begins to surface within one's inner attention. The experience also involves finding the right rhythm or cadence for vision. The exercise, which Zajonc refers to Goethe's methods and to the Buddhist practice of *kasina*, reminds me of the description of Rodin's belief in working only from memory, for only when conjured up in memory did the works 'acquire the necessary subjective coloration' (Fleming, 1980, p. 399). Rodin wrote in tribute to Loie Fuller that his 'artistic heart was grateful to her' (Fuller, 1913, p.127). This way of seeing is of its age and suggests the wider and deeper context which created Art Nouveau.

Felicia McCarren (1995, pp 750-751) refers to Mallarmé's observation that such performances 'rather than provoking the usual mania for looking, instead offer occasions for reflection - for insight, that is, rather than sight. He remarks that the opera glasses that provided ballet aficionados with private consumption of a dancer's images in fact blind the spectator to the dance's greater revelations. Despite the spectacular effect of Loie Fuller's dance... they invite what Mallarmé calls a 'transparent prolongation' of the gaze through, rather than at, its subject.'

'Looking through' suggests a visionary gaze, clairvoyant, seeing other possibilities, an expansive and extending gaze uniting eye and mind. Loie Fuller's performances seem to have been able to stimulate the sort of seeing which is the 'clear vision' of today's proponents of the gaze 'into' rather than 'at' the world, such as environmental philosopher David Abram or visual ecologist Laura Sewall.²¹ The architect Antonio Gaudí too linked his spatial abilities to his ability to 'see clearly', and attributed his personal modes of vision in part to the physical experience of seeing the rural landscape in which he spent his youth (Martinell, 1975).

For some this may form part of larger beliefs that link to their ethical and spiritual relationship to the world. None of these observations need force the unwilling into mystical territory, however, as they can all be seen as examples of reconciliations between older scientific models and newer disciplines such as kinesiology, chiropractic, etc. To change the way of seeing is to change the posture and use of the body, for visual function is linked to the elasticity of the eye. It is a commonplace that vision is blurred after prolonged use of the eyes in a close focal plane. People report clearer vision after spending time in situations where their eyes rest on distant horizons. By a similar mechanism, others report clearer vision (in both senses) after meditation, massage and other body therapies that induce relaxation in the eye.²²

Such relaxation of the ciliary eye muscles, which occurs naturally when looking into the distance, is frequently associated with interior design devices which support a meditative, insightful and disembodied gaze by suppressing cues for reading depth, such as by erasing the lines where wall meets ceiling or making surfaces ambiguous by treating them in ways which render them luminous, refulgent, waxy or chalky. Such devices, characteristic of Fuller's stage inventions, can be seen in the work of architects Tadao Ando or Luis Barragán, whose works are often cited as examples of 20th century 'sacred' spaces.²³

Fuller's use of darkness as a container for light would also activate other physiological aspects of vision. Darkness flattens space and at the same time stirs the desire to reach out with other senses than sight. James Turrell's explanation of those of his works which start from darkness (cited in Lynn, 2001, p. 53) - 'Low light opens the pupil and then feeling comes out of the eye as touch, a sensuous act' - is one which might raise the hackles of an ophthalmologist but which again acknowledges the sensory act of the viewer as a part of the work and is in sympathy with the ideas of a host of others stretching back over the centuries

who have espoused theories of a reciprocal engagement with the world in an explanation of the visual process.

A Match for Anyone.

Enough of this dream state! My second entertainment for visual speculation is very different. It is a short conjuring routine (*A Match for Anyone*, Figure 3), constructed around the use of an 'expanding box', a staple of stage magic. This English routine dates from 1915, a date whose significance will become clear:

'The performer [places] an ordinary, unprepared matchbox in the centre of a large table, which preferably has been used for some other effect. Producing, magically or otherwise, a flag 2 feet square, he momentarily covers the matchbox, after which it is seen to have increased to about 18 inches high. The flag then in his hands also increases to 7 or 8 feet, and wide in proportion, mounted on a flagstaff. Jumping on the table, he holds the flag up for a moment so as to once more cover the matchbox, which when the flag is lowered is found to have increased in size to something like 6 feet high. Dropping the flag on the table for moment he walks round the box and sounds it, indicating that it is a solid box, not a mere frame covered with fabric or anything of that nature. Jumping down from the table and again picking up the flag, he announces that he will now produce a 'Match for Anyone.' The match box opens and a fine specimen of British fighting man comes forth...' (Sharpe, 1992, p. 38)

(ie a soldier in smart military uniform who marches off to a burst of stirring martial music and the cheers and applause of the audience.)

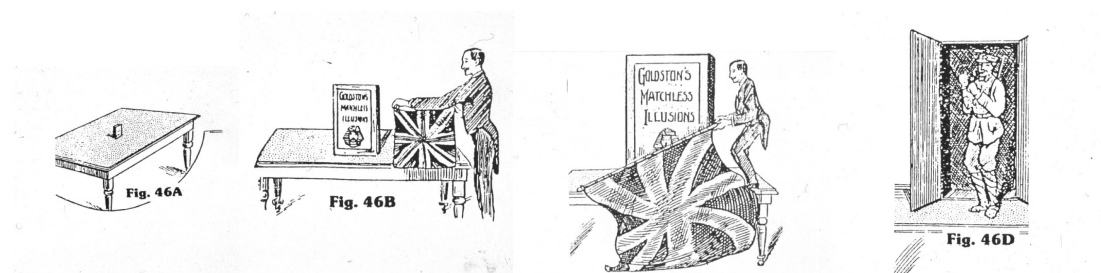


Figure 3 'A Match for Anyone'

Designed by A.S.Cubitt, 1915

Source Sam Sharpe, *Conjurors Mechanical Secrets*, p38

The apparatus is built into the tabletop. The final box unfolds itself and springs up when the performer jumps on the table, brandishing the giant flag to conceal the action. The magic methods for producing and expanding the flag, introducing a living soldier into a box in mid-air etc, are worked in 'the usual ways'. (And no, the soldier does not start in the tabletop as well.)

Naturally the trick, well done, would not reveal its mechanisms. The audience would see and hear a rhythmic sequence of repeated events reinforced by repetitions of gesture. Sensations would be produced through the visual surprise, anticipation and delight of the successive jumps in scale, and through the brisk gestures of the performer and the apparatus, accompanied by sharp sounds – double knocks, rat-a-tats and finally the military march. Heart and eye leap simultaneously, there is no introspection here. The routine and apparatus are in the tradition of the cheerful communal spectacle of pantomime with its instantaneous transformation scenes like the 'either/or' changes of *Troublewit*, in contrast to the subjective, insight-provoking 'neither/nor' of Fuller's work.

The historian William McNeill (1995. pp.2-3) has speculated on the effects of the human emotional response to rhythmic movement. Curious about the unexpected sense of personal well-being that military drill induced in him ('a strange sense of personal enlargement; a sort of swelling out, becoming bigger than life....[an] odd, surprising, and apparently visceral

response'), he set out to find whether scientific investigations had been undertaken of such responses. The scholarly studies that McNeill researched seemed merely to sketch a possibility of paths of emotional excitement in the sympathetic and para-sympathetic nervous systems involving the production of endorphins. Recent popular science has been readier to speculate about the processes: the sense of wellbeing and enhanced personal potential which he describes is often described in the literature suggesting links between mental health and exercise (eg Clarke & Humberstone, 1997, pp. 88-9). McNeill's particular interest is in the sense of collectivity which he feels is inspired in a group who are simultaneously experiencing the pleasurable effects of rhythmic movement and he goes on to build his argument around this.²⁴ However, McNeill notes (p.6) that the seat of bodily response to rhythmic movement is situated far away from our verbal capacities, centring instead in 'those parts of the nervous system that function subconsciously, maintaining rhythmic heartbeat, digestive peristalsis, and breathing, as well as all the other chemical and physiological balances required for the maintenance of ordinary bodily functions.'

The interplay of physical movement, rhythmic spatial experience and mental life is of course at play in such meditative spaces as cloisters, which work to calm the mind through quieting the body's motions. The inverse also happens, a different sort of rhythm induced by shock and movement being used to excite the physical senses and heighten a sense of unity and conviviality.

I wonder if some of the laughter and delight of *A Match for Anyone* lay in its enforcement of participation in a shared visual rhythm? As our eyes urge us to leap, quantum-like, through states of small, medium and large in sympathy with the matchbox, do we share in the exhilaration of performing our own collective mini-drill? The mismatch between the physical rhythm and the verbal jolt of the pun could also force the hypnotising 're-orientation response' which is ascribed to sudden shifts and disruptions in the modes of attention.

But as Bergson, and later Adolphe Appia attested, certain rhythms force us to join in, telling us 'You are the work of art.' Appia was convinced that to incorporate sound and rhythm into the organism was the first step towards the living work of art (Bablet, 1982, p.55).

The literature of the development of theatrical design between the 1890s and 1930s frequently refers to ideas about rhythm, the feeling for space, theories of empathy, and parallels between the relation of body to architecture and psyche to gesture.²⁵ They develop the links between imaginative and physical experience which had been postulated in the aesthetic theories of previous decades. Whereas Vischer in 1876 had proposed that an empathetic reaction to form took place in the imagination, a projection of the human self into the thing attended to, Wölfflin in 1886 in addition brought into play the idea of an actual muscular sensation being evoked. 'Instead of an inexplicable "self-projection," we might perhaps imagine that the optic nerve impulse directly stimulates the motor nerves, which cause specific muscles to contract' (Mallgrave & Ikononou, p.155).

Similar ideas were developing in the various forms of body-work that date from the turn of the century. The link between mind and muscle (that to think of an action is to cause a slight contraction in the muscles which would actually produce the contraction in reality) has gradually moved from the realm of speculation to mainstream studies of the science of behaviour, once it became possible to demonstrate it with medical apparatus (Barlow, 1975, Chapter 7). Rhythmic visual and bodily movements are today linked in educational kinesiology, whereby eye-movements, energy flows and neural patterns are considered to be beneficially re-aligned.

Ideas of empathetic embodiment and joyful unity with the world through rhythmic vision underlie the methods of 'active seeing' which continue traditions from the 19th century and earlier. One such technique is described in *The Active Eye in Architecture* (Trevelyan, 1977), a 1970s manifestation of such an approach to giving attention to the world. This is intended to teach a layperson to perceive through the body those forces and rhythms that are expressed in great architectural compositions.

Seeking to explain in popular terms the role of sight in locking the senses together and influencing both touch and hearing, an optician Aristide Fournet wrote in 1889 (p.143):

'The senses love to be together. The extra nerve required to walk along a road in the dark is the dragging of [the] senses that are not used. If you were to throw light, colour, music, and a glass of sherry on the scene, our subject would be much comforted no doubt.'

The pleasurable excitement felt when submitting to an almost choreographed vision that engages both visual and bodily senses is demonstrated by the popularity of retail projects that utilise it. One example (Gould, 1998) is the recent use of lenticular film in the windows of a New York store, which forces the passer-by into a mini-dance. 'People can't resist another pass to observe the mutation.' (p.124)

The Tanagra Theatre

My final entertainment worked on the senses in yet another way. It shocked the senses by miniaturising the body. It introduces two sets of thoughts, one concerning visceral responses to the miniature in itself and the other concerning responses to the prospect of other simultaneous realities, with the oscillation of 'both/and' in contrast to 'either/or' and 'neither/nor'.

Tanagra Theatres existed in many European cities in the years 1910-1920.²⁶ The name comes from the figures excavated at Tanagra in the 1890s whose name became synonymous with perfect living miniatures, particularly female. The sideshow illusion consisted of a miniature stage where living actors appeared as real but tiny figures, through an arrangement of plain and concave mirrors. Its development as a sideshow attraction came about as a by-product of research into optical instruments which could better sustain the perception of depth (von Rohr, 1920). The use of concave mirrors has a long history in magic but for the Tanagra the stronger light of electricity was essential.²⁷

The wistful attraction of a view into a living miniature world can be felt elsewhere in the period. The English particularly clung to it. J.M. Barrie's Tinker Bell, with her perfect tiny home set into Peter's wall, seems to have satisfied an adult fancy as much as a childlike one in its day. (*Peter Pan* was first staged in 1904.)²⁸ Angela Carter (1982, p. ix) notes that Walter de la Mare's *Memoirs of a Midget*, published in 1921, whose tiny heroine lived estranged from a world that could not connect with her emotionally, elicited a 'cabinet full' of teeny-tiny gifts from his readers.

Ralph Rugoff (1997) 15) links attention to the miniature to bodily experience :

'Tiny artworks force us to draw closer...and this forward movement parallels a mental process; the more closely we examine minute details, the less we notice the gulf in size that separates us. The act of paying attention is in itself a kind of magnifying glass...this charges our experience of the object, *imbuing it with an almost hallucinatory acuity* [my italics] '(p.14)...'Despite the negligible physicality of tiny work, its effect on us may be surprisingly visceral '(p.15).

Indeed, the physical sensation of a sharpening of vision can be evoked merely by visualizing a miniature object with the mind's eye.

We can know the miniature only in relation to ourselves. Susan Stewart (1997, p.2) comments (noting that there are no miniatures in nature):

'The miniature assumes an anthropomorphic context from the outset...The miniature historically has emphasised a particular configuration of subjectivity: first-person experience; single-point perspective; spatial extension from the individual perceiving viewer; interiority or domesticity in opposition to the public or social sphere of the monumental; the diminutive, the child-like, the pastoral, and the picturesque as 'alternative' or 'alienated' views.'

The alternative view that the miniature suggests for Stewart leads me to the final viscerality of seeing that I will consider here: the bodily and mental excitement inspired by the vision of the (im)possible. It involves an anecdote:

The architect and designer Frederick Kiesler incorporated a tanagra device in a stage setting for Karel Capek's utopian drama, *R.U.R.*, staged first in Vienna and then in Berlin (1922/23).

'This *R.U.R.* play was my occasion to use for the first time in a theatre a motion picture [a small cinema projection was also incorporated in the set] instead of a painted backdrop, and also television²⁹ in the sense that I had a big, square panel window in the middle of the stage drop which could be opened by remote control. When the director of the human factory in the play pushed a button at his desk, the panel opened and the audience saw two human beings ...a foot-and-a-half tall, casually moving and talking, heard through a hidden loudspeaker. It was quite an illusion, because a minute later you saw the same actors appear on stage full size. There was, inevitably, a burst of applause at this moment....I mention it because these new devices to present the interplay of reality and illusion brought many artists to the theatre.

After the second performance...a man pushed his way in [through the stage door]...It was van Doesberg. He ... asked, "Where is Kiesler?"....He made a sign, as you do when you call your gang, you know. The gang came in and the gang was Kurt Schwitters, Hans Richter, Moholy-Nagy, El Lissitzky, Werner Graeff and Theo van Doesberg. They...grabbed me without saying a word, lifted me up and took me 6 or 7 blocks to a club where we met Mies van der Rohe and spent the whole night talking about architecture and the future theatre...it seemed to each of us as though we were individuals who had known each other for a long, long time. And this is how I joined the group known as "De Stijl"....'(Kiesler, 1961, p.109).

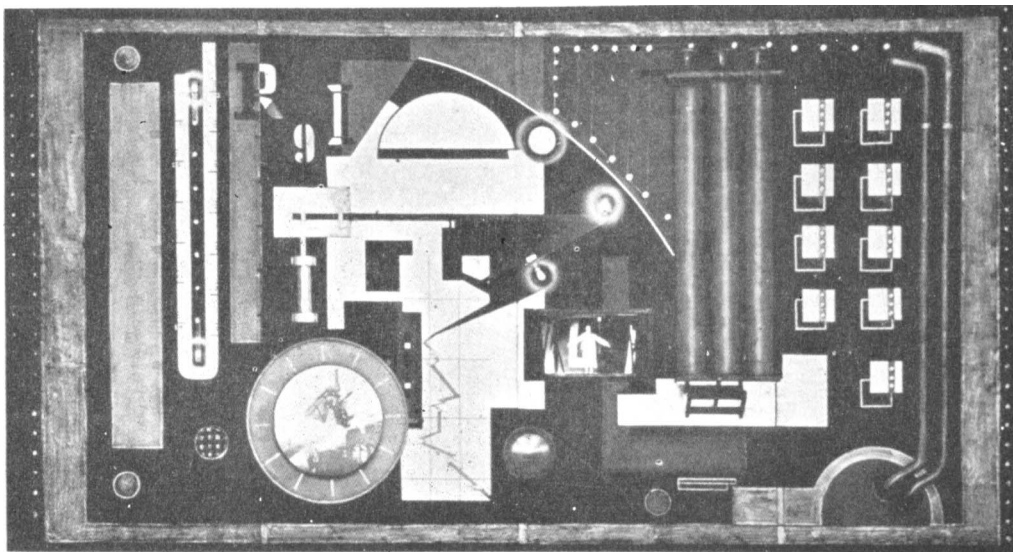


Figure 4 Stage set by Frederick Kiesler incorporating a tanagra device, 1923
Source *20th Century Stage Decoration*

The tanagra image is visible in the rectangular box just right of centre

The story is delightful, but it has one flaw. The Tanagra set-up permits only a very controlled angle of viewing, hence its restriction to a sideshow context. In a theatre it would surely have been impossible for much of the audience to see the tiny figures. Could the burst of applause have been excited by the desire for the visualisation of 'modern' space/time by eyes which, as Kierkegaard wishes, 'forever young and ardent, see the possible'?

The examples that this suggests in the history of 20th century design are countless – consider the 1930's giving of streamlined forms to static domestic objects, or today's incorporation of

'information technology' of limited functionality into just about any context. The purpose they served when they were originally felt as thrilling was surely a psychic one, of connecting us to an imagined and more vital world.

Conclusion

In his study of the body and spatiality in modern drama, Stanton B. Garner remarks that the audience watching the late plays of Samuel Beckett are disturbed to find themselves simultaneously embodied and disembodied at peak moments, "'clawed" by the perceptual dissonances of Beckett's stage.... tangentialized, situated between the places they cannot occupy and those they must' (Garner, 1994, p. 84). The unstable embodiment of the audience (worked on by their physiological responses to stimuli such as after-image or half-light, and by their fluctuating grasp of their own positions) forms a 'third body' (p.81) to set against the body of the character and the body of the actor.

At the beginning of this paper I suggested that many of today's emerging spatial disciplines involve a synaesthetic interplay of attention, body and spatial experience. Beckett works upon the fluidity of perception and fluxing sense of embodiment with mastery, 'consciously manipulating the experiential orientation of audience to stage' (Garner, p.81). I have tried to imagine the resonances and dissonances that may have been unconscious factors in the experience between performer and audience in three more trivial contexts half a century earlier. I have speculated as to how visceral and imaginative sensations might have interwoven at particular moments to form the sort of disturbance that we call 'entertainment'. I suggest that the refinement of such disturbances, and the awareness that the audience/inhabitant/perceiver is part of the work, is becoming part of modern spatiality. Moments when we perceive ourselves perceiving, with all the complexity that entails, can be moments of 'in-sight' in several senses, involving both looking inwards and looking from within ourselves.

Attention, vision and spatial perceptions have their own history. We are linked to our times not only by the ability, but also the desire, to see in particular ways. "Theory' and 'speculation', 'theatre' and 'show' (all rooted in seeing) link performance, experience and the possibility of choosing how we will see.

Notes

¹ 'synaesthesia - 1891, from Mod.L., from Gk. *syn-* "together" + stem *aisthe-* "to feel, perceive." Sensation in one part of the body produced by stimulus in another. Also of the senses.' (<http://www.etymonline.com>)

² A concept of the French historian Jules Michelet 1798-1894: 'Chaque epoch rêve la suivante', a remark quoted as an epigram by Walter Benjamin.

³ Kenneth Frampton (1995, p.1) points out that the term 'space' in its modern sense is never used in Viollet-le-Duc's great work of architectural theory *Entretiens sur l'Architecture* (1872) whereas 20 years later the primacy given to space itself was seen as the 'driving principle behind all architectural form' by late 19th century aesthetic theorists such as Schmarsow.

⁴ The evolution of the priority that architecture has given to space since the mid-19th century is traced in Cornelius van de Ven's 1974 doctoral thesis.

⁵ The proliferation of new forms of amusement rides can be traced through a study of patent applications. A useful simplified access to the United States Patent Office online database has been constructed by Victor Canfield at <http://www.personal.psu.edu/faculty/v/a/vac3/rcpathome.html>

⁶ Modern roller skates which allowed the wearer to turn freely and to skate backwards were patented by Joseph Plimpton in 1863. As with the bicycle, the introduction of the ball-bearing in the 1880s allowed freer, easier movement, greater speed and subtlety of motion.

⁷ F.M. Alexander started teaching his technique of body-usage in Australia in the 1890s, at around the same period that Emile Jaques-Dalcroze, originator of eurhythmics, was developing his method of training music students in Geneva to involve the whole body in the experience of music.

⁸ Susan Sidlauskas (2000, p.10) coins this term to discuss the range of discourses which were concerned with the expressive signification of space in the mid-19th century, the foundations for a new, interactive mode of spatial perception.

⁹ By 'modernity' I am referring to a Western cultural framework dating from the 19th century. The argument can be made that the spatial sensibility that I am describing - an awareness of the 'poetics of space' - has been part of non-Western culture for thousands of years. The perceptual models that link body and mind, to which I refer in the second part of the paper, clearly have affinities with non-Western cultural traditions.

¹⁰ The genesis of the concept of empathy is discussed by Mallgrave & Ikononou (2000).

¹¹ Among the huge number of scholarly writers on this topic, one who specifically refers to the physicality of vision in 19th century narrative is James Krasner (1992)

¹² One summary of literary references to the shattering and disintegration of previous certainties is given by Stephen Kern (1983, Chapter 7).

¹³ Contemporary discussions of the pleasures and displeasures of the developing mobility of vision in response to new forms of transport are cited by Wolfgang Schivelbusch (1977, pp. 52 - 69).

¹⁴ eg Doris Humphrey, cited in Brown, Mindlin & Woodford 1998.

¹⁵ Entertain - 1475, "to keep up, maintain," from M.Fr. *entretenir*, from O.Fr. *entretenir* "hold together, support," from *entre-* "among" (from L. *inter*) + *tenir* "to hold" (<http://www.etymonline.com>)

I have been reassured to find that my feelings about the ambiguous nature of entertainment are supported by John O'Brien's statement:

'Considering [the] indeterminacy at the center of the concept, it is perhaps no surprise that entertainments - theatrical, athletic, literary, filmic, and televisual - have often functioned as loci of cultural conflict and confrontation; they are activities in which cultural values are contested, negotiated, and legitimated, and through which those values may become both intelligible to contemporaries and perspicuous to later historians who want to identify and understand them.' (O'Brien, 1998, p.489)

¹⁶ Here I am consciously blurring concepts such as Csikszentmihalyi's various definitions of flow (1980,1991) and Abraham Maslow's studies of peak experiences (Maslow,1970). Ideas from such works have been appropriated and linked in numerous articles in the popular press linking exercise, brain-chemistry and feelings of intense well-being. See for example the discussion of 'flow' and 'rhythm' by Clarke & Humberstone (1997, pp.88-89)

¹⁷ Here I refer to ideas that link clarity of vision and similar 'awakened' perceptions to a sense of joyful unity with the world. Such thinking underlies, for example, the writings of Laura Sewall (1999).

¹⁸ Her own words. Among those who acknowledge the effect of seeing her performance on their own work were Auguste Rodin, William Butler Yeats, Stephan Mallarmé, Jules Massenet, Camille Flammarion, Anatole France

¹⁹ For example, fashionable fabrics of 1893 included 'the Loie Fullers, the striking changeables named after the lights and shades thrown by electricity, and the agile American dancer now in Paris (extracts from Ladies Home Journal) 'These fabrics are variously known as iridescent, glacé, luminous, electric, rainbow, Loie Fuller, changeable, incandescent, etc., but all mean the same.' www.costumegallery.com/LHJ/Sept_1893

²⁰ For a fuller discussion of references and responses to Fuller's performances by contemporary writers, artists and critics see Frank Kermode (1962).

²¹ Hypothetical connections between focussed attention and profound experience are elaborated in Sewall, p.39.

²² See for example, the work of Janet Goodrich (1966) for examples of visual exercises, developed out of the Bates Method, which promise to sustain the flexibility of the eye and develop visual acuity. They incorporate many ideas from 'holistic' theories of the body, which have a resonance with some of the theories of empathy within physiological processes which are touched on in this essay. Mainstream opticians reject the Bates/Goodrich model of vision but agree that the physical, if not the mental, exercises are healthy for the eyes.

²³ Unfortunately the restoration of many Barragán buildings using modern plastic paints has emphasised their colours at the expense of the optical qualities given by traditional paint recipes which used calcium and a cactus extract as medium, yielding a surface which does not stop the eye in the way that modern paints do.

²⁴ McNeill postulates that the euphoric effects of keeping together in time are a factor in human evolution.

²⁵ See for example Fuerst & Hume (1929). Interestingly, the authors were still using the German word (Einfühlung) in place of empathy, defining it as an 'untranslatable term of Lipp's Aesthetics'.

²⁶ Some history of the Tanagra Theatre is given by Mariane Viefhaus-Mildenberger (1961, pp. 27-30). Some notes on the optical arrangement are given by Sam Sharpe (1985).

²⁷ I have been tantalised to discover that Loie Fuller's papers refer to her involvement with the 'Tanagra Electric Company', an unsuccessful venture with a new piece of stage apparatus of which I have not yet managed to find details. Whether or not it was related to the optical devices of the Tanagra Theatres is unclear.

²⁸ The Art Nouveau imagery and genesis of *Peter Pan* is discussed by stage designer Richard Finkelstein, <http://www.rfdesigns.org/pan.htm>.

²⁹ It was only television in the sense of suggesting control over remote spaces. No screen is involved in a Tanagra, the images are viewed in a concave mirror.

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