Role of Arts and Crafts Movement in Digital Era: A Descriptive Study

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Abstract: The present study has been undertaken the role of arts and crafts movements in digital era. The study of Arts and Crafts movement initially developed in England during the latter half of the 19th century. Subsequently this style was taken up by American designers, with somewhat different results. In the United States, the Arts and Crafts style was also known as Mission style. This movement, which challenged the tastes of the Victorian era, was inspired by the social reform concerns of thinkers such as Walter Crane and John Ruskin, together with the ideals of reformer and designer, William Morris. Their notions of good design were linked to their notions of a good society. This was a vision of a society in which the worker was not brutalized by the working conditions found in factories, but rather could take pride in his craftsmanship and skill. Ruskin, Morris, and others proposed that it would be better for all if individual craftsmanship could be revived- the worker could then produce beautiful objects that exhibited the result of fine craftsmanship, as opposed to the shoddy products of mass production. Workers could produce beautiful objects that would enhance the lives of ordinary people, and at the same time provide decent employment for the craftsman. It is my claim that today in the 21st century, new technologies such as 3D printing and revolutionary ideas like Open Source have created a new set of circumstances that might finally bring us closer to achieving the dreams of William Morris and the Movement he inspired.

I. INTRODUCTION

The Arts and Crafts movement initially developed in England during the latter half of the 19th century. Subsequently this style was taken up by American designers, with somewhat different results. In the United States, the Arts and Crafts style was also known as Mission style. This movement, which challenged the tastes of the Victorian era, was inspired by the social reform concerns of thinkers such as Walter Crane and John Ruskin, together with the ideals of reformer and designer, William Morris. Their notions of good design were linked to their notions of a good society. This was a vision of a society in which the worker was not brutalized by the working conditions found in factories, but rather could take pride in his craftsmanship and skill. The rise of a consumer class coincided with the rise of manufactured consumer goods. In this period, manufactured goods were often poor in design and quality. Ruskin, Morris, and others proposed that it would be better for all if individual craftsmanship could be revived- the worker could then produce beautiful objects that exhibited the result of fine craftsmanship, as opposed to the shoddy products of mass production. Workers could produce beautiful objects that would enhance the lives of ordinary people, and at the same time provide decent employment for the craftsman. It is my claim that today in the 21st century, new technologies such as 3D printing and revolutionary ideas like Open Source have created a new set of circumstances that might finally bring us closer to achieving the dreams of William Morris and the Movement he inspired.

II. HISTORICAL BACKGROUND

William Morris and John Ruskin were the two chief influences behind the subsequent generations of artists and architects in England. William Morris (1834–1896) was a powerful figure in the realm of art and politics in the late Victorian era. His work and teachings had an enormous impact on contemporary artists who felt that decorative art had fallen asunder in the industrialized Victorian England. Morris's thinking was deeply grounded in Romantic ideas. Nostalgia, nature and democracy are clearly visible in his lectures, widely disseminated to a larger audience. Morris's thinking is also deeply indebted to the renowned art critic of the time, John Ruskin, whom Morris admired greatly. Morris was a typical Renaissance man, who did not limit himself to poetry and painting but also practiced numerous different craft skills. Consequently, one of Morris's

most passionate aims was the restoration of the crafts, "the lesser arts," back into their rightful place alongside the higher arts which he believed had been separated from each other due to a change in social structure. In essence it means that painters and sculptors had become members of the upper class whereas the Fletcher and the mason had become members of the lower class (1882C).

Morris was unsatisfied with the decorative art of his time which had been transformed with the advent of the industrialization. Before the Industrial Revolution the production of everyday items was in the hands of craftsmen who did most if not all of the work by hand. These craftsmen were often incorporated in workshops or guilds, thus building on a long line of tradition that spanned from the middle ages to the present day. After the Industrial Revolution the manufacturing of wares had been relegated to factories, where a new industrial tradition of design had not yet been established. Industrial production was at this early stage mostly in the hands of manufacturers who were uneducated in the arts. The industrial revolution was a subversive change that affected the entire Western civilization. The most prominent discontent was voiced in the most industrially developed countries like England where new inventions such as the steam engine, the railway system and different labour saving machines were first put to use. An established example of this discontent is Ned Ludd, the weaver who in the early 19th century shattered two knitting machines, and consequently gave the name to so-called Luddism, which in today's usage refers to opposition to new technologies **(Pevsner, 1991).**

English Romanticism, which can be seen as a reaction toward these changes in society, was one of the most visible movements that spoke out against the disruption created by the new world order. Advancements in rational thought and scientific practices, as embodied in the Enlightenment Movement, demystified natural phenomena and professed to substantiate human mastery over nature. Romanticism rebelled by drawing attention to the *sublime,* an inexplicable feeling often experienced in nature that is beyond rational thought, and *the picturesque* which was posited somewhere between beautiful and the sublime. Romanticism declared that sensibility was paramount to rationality. Romanticism held fast to the belief that there were things that were not subject to scientific scrutiny and were unattainable by rational thought. As noted above, William Morris's own thinking was deeply grounded in Romantic thought. The yearning nostalgia that marked so many of the Romantic poets' works, was also present in Morris's reverence for the Middle Ages that served him as a source of inspiration for his ideas of workmanship and artistic freedom (1882C). Morris was also trained as a painter in the Pre-Raphaelite Brotherhood which is noted for being inspired by the art of the middle ages, the art before Raphael, as the name suggests. The commercial atmosphere of the time also sparked vehement opposition. Capitalism, antagonized by Karl Marx and Friedrich Engels, had formed a symbiotic bond with industrialization, leading to many maladies in Victorian England. Critics like Carlyle (1843), Ruskin (2004) and Morris (1883) all spoke of the adverse effects of capitalism and industrialization. The commercial products that the industry created were of substandard quality to Morris and Ruskin, but they also criticized the factories and the machines inside them for degrading men into mere flesh-and-bone machines – the repetitive and arduous toil that men were subjected to in factories was not humane **(Morris, 1882D; Ruskin, 2004).**

The mechanization of work was not only destructive to decorative art but also to the human mind and the human body. These circumstances of the Victorian society sparked in Morris the flame for revolution. As Morris grew older he got more and more involved in politics, culminating in his joining the Socialist League when he was 50 years old **(Thompson, 1959).** Morris's aim in politics was not only the amelioration of the conditions of the working classes, but also the reformation of art by reforming society **(Stansky, 1996).** Morris believed that the only way to reform society was by a socialist revolution that he hoped to be imminent (Boos 1986, 491). In his novel, *News from Nowhere, an Epoch of Rest,* Morris envisages his utopian dream of a socialist society where men and women have redefined the concept of work; no one is forced to work, but most chooses to. In Morris's utopian England money is not used, people craft their own things and love is free. Furthermore, Morris's *News from Nowhere* depicts a society where art is part of society.

William Morris and Edward Burne-Jones occupy dual positions; they are both the "second generation" Pre-Raphaelites and guiding forces in the Arts and Crafts movement **(Jennifer, 2000).** And yet William Morris merited only a single entry-for an oil painting-in the catalogue for the Tate Gallery's groundbreaking exhibition The Pre-Raphaelites from 1984 **(Iseult, 1984).** On the other hand, the Pre-Raphaelites were a mere prologue to Morris's heroic work as a designer in the Victoria and Albert Museum's exhibition William Morris from 1996 **(Morris, 1996).** This divide between "fine" art and "decorative" art says more about ways in which museums classify objects than about the interconnectedness of the Pre-Raphaelites and the Arts and Crafts movement **(Arscott, 2008).**

Pre-Raphaelites: Victorian Avant-Garde (Tate Britain, 12 September 2012 to 13 January 2013) broke new ground by displaying a more expansive view, indeed, when the exhibition travelled to the National Gallery in Washington, DC, it was titled Pre-Raphaelites: Victorian Art and Design (17 February–19 May 2013). Victorian Avant-Garde explored the interplay of art and design from the establishment of the Pre-Raphaelite Brotherhood in 1848 into the 1890s. The dynamic interaction between painting and design has long been considered a hallmark of early twentieth-century avant-gardes such as Russian Constructivism and De Stijl. According to art historian Nancy Troy, these artists held "a common set of ethical and aesthetic principles" and explored "the possibility of merging the arts" through "collaborative relationships" over a period of some fifteen years 1917–32 **(Nancy, 1983).** The example presented by the "merging", to borrow Troy's formulation, of Pre-Raphaelitism and the Arts and Crafts movement is earlier and more complex, if equally utopian. Her terms could describe the creative dynamic between Ford Madox Brown's Works 1852–65, **Figure 1 (Brown's, 2011).**

Figure 1

"Ford Madox Brown, Work, 1852–65, oil on canvas, 137 x 197.3 cm. Manchester City Art Galleries, Digital image courtesy of Manchester City Art Galleries"

The Arts and Crafts Movement

The British Arts & Crafts movement was more than an art movement or an artistic style. It sought a secular means of feeding the soul, combining individuality, romanticism, aestheticism, morality and social and political responsibility'. In the twentieth century, the concept of what craft meant changed significantly as traditional handicrafts were mechanized. Rather than be seen as a life-sustaining activity, it began to be associated with leisure, a middle-class activity without the pressures of profit. This process was lengthy, and in the 1880s-90s in England, there was a significant distinction between valued 'fine art' and 'craft', which was

often dismissed and described as 'decorative' or 'applied' art. Hence the composite term, Arts and Crafts, was born **(Ann, 2002).**

Maori Design and Geometrical Designs, Chrystabel Aitken, 1924. Oil on Canvas. UC/MBL/1675

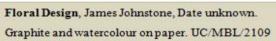**Floral Design**, Doris Tutill, c.1930. Watercolour on paper. UC/MBL/Uncat7

Design for decimal currency, one shilling/ten cent coin, James Johnston, c.1967. Pen, ink & watercolour on paper. UC/MBL/2097

At the heart of the movement were objects to enrich daily existence and make the home beautiful. There was some revulsion at the excesses that had arisen from the industrial revolution, and the medieval era was looked back on as an example of supposedly happier, more balanced existence: 'work enriched life, work and leisure were enriched by beauty, and the workplace and home were testaments to lifestyles that respected the individual supporting the community'. The South Kensington system was a rigorous teaching model intended to encourage artisanship and design, and drawing and painstaking attention to technical detail were its foundation stone. This became a distinctly British Character, and featured plant/organic forms on two-dimensional surfaces, representing the 'essence' of the plant rather than detailed descriptions. One of the leading proponents of the movement was William Morris & Co **(Calhoun, 2002).**

Many leading figures of the Canterbury Arts and Crafts movement, such as Charles Kidson, Leonard Booth, and Francis Shurrock, were recognized for their drawing skills at an early age. When schools of art and design opened in New Zealand, the easy access to both native and imported plants meant that organically influenced drawing continued. However, there were few schools with well-stocked libraries, and so students could not refer to British South Kensington images for inspiration. Calhoun writes that this actually worked in their favour, however, as 'restrictive and endless copying' occurred less.

Floral Design, James Johnstone, Date unknown. Graphite and watercolour on paper. UC/MBL/2109

Untitled, Table Cloth with Assisi Border, Ngarita Johnstone, Date unknown. Embroidery and cross-stitch on linen. UC/MBL/2274

Since the 1906-07 Christchurch exhibitions, items designed to adorn the person had been popular. This began to shift after WWII, as these fell out of favour and items for the home replaced them: clocks, fire screens, door-plates, trays, tea and coffee settings, etc. This was partially prompted by the New Zealand International Exhibition of Arts and Industries in Hagley Park, which attracted nearly 2 million visitors and included examples of the Arts and Crafts movement. At the centre of the exhibition were two works by Walter Cranc and the late William Morris **(Calhoun, 2002).**

The Press would write on 3 April 1909, that 'One of the most noticeable results of the International Exhibition, so far as art in Christchurch is concerned, has undoubtedly been the stimulation of work in the arts and crafts section. For the first time this department of art was brought prominently into view. It was, as it were, a display of the practical application of art to the domestic side of life. It had not then been recognized, or perhaps not fully understood, that to carry the refinements of art into the hands of the people by making the things of everyday use artistic was the surest way to cultivate an artistic taste generally. What developed in New Zealand, despite a depression, was an incomparably rich period in which individuals relearned the spiritual and social value of the handicrafts, while others, as modernism and European immigrants arrived, dismissed the movement as little more than an overly fussy historical decorative anomaly **(Calhoun, 2002).**

The Arts and Crafts movement became important to women, as they could use it for recognition of their talents, and possible financial gain. After graduating from art/design schools, however, women were barred from the majority of apprenticeships, leading many to become art craft teachers for technical, secondary, adult education and amateur classes. The development of the arts and crafts movement in New Zealand became unique in its use of Maori motifs and designs and both indigenous and introduced flora and fauna.

III. CONTEMPORARY DEVELOPMENTS
It may at first blush seem that the practical concerns and ideas within the Arts and Crafts Movement have little to do with 3D printing and the digital technologies of today's world. However, I argue that a good understanding of the events and ideas surrounding the clash between industrial forces and the Arts and Crafts in the late 19th and early 20th century may help us grasp the latest developments in technology and art.

IV. 3D PRINTING AND ADDITIVE MANUFACTURING
In the mid-1980s, new technologies emerged that could create three-dimensional objects from computer models. These machines were called *selective laser sintering printers.*

Today these technologies have evolved to a point where, much like in the case of so many other technologies, they have become smaller in size and more affordable, inviting the first groups of consumers to adopt the technology. Now this technology is commonly called by the name 3D printing, which makes the technology sound somewhat understandable, but can be misleading, as we will soon see. 3D printing involves a design on a computer (that is, 3D design) and a device (printer) that brings the design to the real world so that unlike a "2D" printer, such as an inkjet or laser printer in your home or at your workplace, the end product of the printing is a three-dimensional object. 3D printing, in the end, does not exactly explain to us how it achieves its goal, and it is in fact only one of the technologies used. A more technical name that better describes how these technologies function is *additive manufacturing*.

Additive manufacturing technologies include at least seven different processes **(Huang, 2012)**, including the aforementioned selective laser sintering (SLA) and, perhaps a little misleadingly, three-dimensional printing (3DP). Because 3DP is also the name of a particular additive manufacturing process, the term 3D printing is not preferred as an umbrella term for these technologies, despite popular usage.

4.1 Open Source and Peer Production
Open source has become with ever-rising popularity a prominent development model in the world of software design. Currently its ideas are being applied into the sphere of physical production. The term *open source* originally referred to the source code of a computer program that is made free and available to the community at large. The open source development model has proved effective because it employs the community of the software users themselves to further develop the software. The open source method entails likeminded hobbyists working together in co-operation without being motivated by financial gains but rather by the betterment of the software itself. This leads to a level of quality and detail that is not attainable by a small team working with proprietary software **(De Bruijn, 2010).**

As a form of organizing collective action peer production differs greatly from conventional work in which workers are motivated by their salary rather than by their eagerness to produce good products or do good work. Their work is managed by the organization of which they are employees and, in turn, the organization is managed by market signals. The principles of peer production are in my opinion almost as revolutionary as the possibilities proposed by 3D printing. Peer production favors sharing instead of owning and attempts to achieve quality instead of profit – these ideas are subversive to the current capitalist system. Imagine the combination of 3D printing and peer production. 3D printing aspires to give the public the means of production and peer

production aims for decentralized, nonproprietary, and freely collaborative production. It will be interesting to see the result of these two combined in the near future.

4.2 Craftsmanship and the Machine in a Post-Industrial World

Metropolis, the German expressionist film of 1927, directed by Fritz Lang and written by Thea Von Harbou, features a dystopian society divided clearly into the ruling leisure class and the oppressed working class. The working class that keeps the city running works hard in its depths, executing what look like entirely absurd tasks, such as turning the arms of a clocklike device to point them at different flashing lights. The scene can be interpreted as a commentary on the absurdity of industrial labour, which implies completing tasks that are monotonous and repetitive. The problem is that these tasks are highly important, but at the same time they downgrade the function of the workers into mere mechanical units, essentially turning them into the cogwheels of a machine. One of the film's most memorable scenes is the one in which the "Heart-Machine" of the city explodes. When the dust and the steam settle, the machine is revealed again but now it appears in the guise of the enormous mouth of the Ammonite god Moloch.

Now the film portrays the workers concretely as slaves who shuffle as Dungeon keepers violently shove them, yoked together, into the Moloch's mouth. I read this particular scene as an early 20th-century representation or commentary of the working conditions in the factories of the time. The portrayal of workers as slaves to the machine is a relevant one when discussing the cultural atmosphere of the time. These two scenes in the movie Metropolis would also have been representative of the views of the Arts and Crafts movement in the 1800s, notably that of John Ruskin.

4.3 Handcrafts versus the Machine

Despite the varying attitudes toward machinery among different Arts and Crafts affiliates, it is safe to say that handcrafts were seen as the ideal. The use of machines was simply acknowledged as an inescapable element of production – inescapable but destructive to the crafts: Machinery, by making less immediate the contact of the artisan with the object of manufacture, and by its tendency to specialize the artizan's work, has rendered obsolete, so far as many industries are concerned, the old traditions of design, and these have not as yet been replaced by new. In the artist's hand the touch of the brush or the stroke of a chisel is never absolutely perfect and never fully reproducible. This imperfectness that to Ruskin was evident in all nature was that what gave handcrafts its beauty. Categorizing beauty in this manner effectively excludes machine work from the sphere of art. However, Morris defined art as the result of pleasurable work both to the maker and the user. At the same time Morris also claimed that machines were unable to create art. Does this imply that machines cannot create art because they cannot experience pleasure? This would definitely be a legitimate interpretation, as to Ruskin and Morris the worker that is subjected to non-pleasurable, machine-like repetitive work is reduced to the state of a machine, albeit one made of flesh and blood. It is obvious that in the Victorian period working with machines was very excruciating, and even though in modern times there has been notable progress bettering the working conditions, factory work is still considered tough. However, in the case of "machine work" with 3D printers we are looking at a completely different set of circumstances because toil, as it was known particularly in the 19th-century factory, would not enter into the equation.

When working with 3D printers there are no workers in the conventional sense. The 3D printer autonomously executes the work that was previously relayed to the worker. Ultimately the only task that is then left to the user of the machine is design. If we reach back a few sections and bring to mind Triggs's quotation about Ruskin's antagonism toward the machine where he writes that if the machine always served mankind, did for him what he wanted and freed him of useless work, there would be hardly any opposition against it. Now, in my opinion, if there ever were a technology that could achieve this kind of scenario, it would have to be 3D printing. This new technology could ideally transcend debasing industrial working conditions. Then again, 3D printing technically scores high on the amount of division of labour, as the lion's share of the work, the actual fabrication of the object, is left to the 3D printer and only the design is delegated to humans.

4.3 Digital Handcrafts as Art

Digital handcrafts or digital craftsmanship are terms that have not caught on yet–at least in this specific context. I think these terms depict accurately what the future may hold for us if 3D printing becomes commonplace technology: artist-craftsmen designing and creating items and objects digitally and either selling them online or giving them out for free in accordance to the open source principle. I first heard about this term when reading a New York Times article where the reporter had interviewed Charles Overy, the founder of a company that creates 3D models of buildings. Overy said: "We are moving from handcraft to digital craft" **(Vance, 2010).**

The term digital craft is very interesting as it retains the idea of artisan work, yet proposes that instead of doing the work by hand it is done with the *finger:* the word *digital* derives from *digitus,* the Latin word for finger. Designing 3D printed items would not be handcrafting in the conventional sense because the items are completely reproducible. However, is there another obstacle why shaping immaterial, "digital clay". If we take Morris's pleasurable work argument and propose that digital crafting and its result are pleasurable to both the maker and the user, there is no contradiction. But if we take Morris's definition of art as anything made by man, we encounter a problem. The digital model could be considered art as man created it in direct contact with the tool (the computer) – in spite of the fact that the end product is immaterial. However, the reproduction of the model into physical form by the 3D printer would not be considered art because it would not be man's own work.

The idea of organic design is related to the discussion about handwork and machine work for beneath this discussion looms another: that of the relationship between nature and machines. Therefore, organic design provides an important addition to the conversation of the possibilities of 3D printing, namely that of how this new technological development could allow us to bridge the gap between the organic and the inorganic. Organic design also returns us to consider Romanticism and its concepts of nature from a fresh perspective.

V. CONCLUSION

William Morris was an artist, craftsman and socialist who rebelled against capitalism and the ensuing culture of inequality. Morris held that art was not the preserve of geniuses but belonged to everyone. Because Morris defined art as everything man-made, including fine art and crafting, his concept of art is translatable to production or manufacture as well as to the contemporary sense of word art. The Arts and Crafts Movement followed Morris's and Ruskin's teachings of art and society, but was slightly more lenient in their attitude toward the machine. Later in the 20th century Lewis Mumford formulated the concepts of the monotechnics and polytechnics which separate technology into oppressive forms of technology and forms of technology that support natural human development, respectively. Mumford's view highlights the fact that technology is not inherently good or bad but is instead dependent on its user's philosophy. Ruskin found the value and beauty of handwork in its imperfection. Morris believed artisans could communicate something salient through their work. This would seem to suggest that a handmade object is valuable because it can convey humanity (Morris would perhaps call it 'the human spirit') and tell something about its maker. The matter gets even more complicated when computerized design and mathematical algorithms appear on stage. Computerized design and certain algorithms can simulate imperfections created by handwork or organic forms and patterns that can be found in nature and which can only be recreated with 3D printers. It is evident that the concepts of art, craftsmanship, reproduction, and authenticity have transformed through the centuries. During this time technological developments have pushed the boundaries of these concepts.

In the 21st century post-industrial world 3D printing will move these boundaries again. Further inquiries into the subject of democratization of art, and into the relationship between man, the machine, and nature, ought to be made. The Deutscher Werkbund and the German Bauhaus School of the 1920s−1930s and their role in the development of the concept of the democratization of art would be a fitting continuation for the work done in this thesis. Finally, I think William Morris and Lewis Mumford warrant more academic attention as they continue to offer valuable perspectives into the societal and cultural issues of the post-industrial world.

ACKNOWLEDGEMENTS

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