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James A. Clapp

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The City and the Machine: The Artist's View of Urbanism and Technology[1]

[1]***Editor's Note:*** *The online version of this article has live links to the paintings discussed by the author.*

James A. Clapp

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Most of the creative forces of our time have been canalized into the Machine, a systematic organization of scientific discovery and technical invention that, under the pressure of excessive pecuniary gains and exorbitant political power, has transformed the entire existence of the Western World. The insensitive dynamism of this mechanical organization with no goals but its own ceaseless expansion and inflation has broken down the continuum of history.

Mumford 1965

IN the aftermath of World War II there developed in some remote Neolithic villages on islands in the South Pacific one of those oddities in the human drama that illustrates the curious relationships between mankind and its machines. The "Cargo Cults," as they came to be called, were an expression of the powerful transformations which machines may exert upon the most fundamental of human impulses: religious beliefs. The shocking appearance of military cargo transport planes transmogrified the theology of these atavistic tribes, who have since watched the skies expectantly for the return of their peculiar *deus ex machina.*

It is easy to take as granted the pervasive role of the machine in human life except, perhaps, when it is introduced into primitive societies with the suddenness of a landing C-47 or, today, the

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anthropologist's global positioning system and digital camera. For nearly one-hundred and fifty years the machine was primarily a subject of art, but since the invention of the camera, chemical-based photography, the projector, and televised and digital images, technology has vastly expanded the means, range, and distribution of visual expression. A computer with Internet access can download a painting or photograph in seconds; with applications like Photoshop and Flash animation, images can be created, or modified and disseminated in moments; a novel about urban life can be printed on demand. These have become commonplace for us. But in the early decades of the machine age, the impact of technology was perhaps not as instantaneous, but more profound in its break with the non-industrial past. Hence, this article deals principally with paintings that depict how artists felt about this impact, and how they expressed it in the changing iconography and morphology of urbanism from the beginnings of Industrial Revolution to the middle of the twentieth century.

The machine, or technology, does not belong exclusively to the City; but the City, more than any other form of social organization, has developed and elevated it to almost divine, or demonic, levels. Controversy, as it has throughout the history of cities, yet rages as to whether the compact between mankind and machine is, or is not, a Faustian bond.

Yet it is perhaps not too outrageous a metaphor to regard the City itself as a machine. As machines transform energy and raw material, so has the City functioned as a set of institutions and processes that have transformed the social relations and physical environment of humankind. The essential attribute of the machine (or its simpler antecedent, the tool) is efficiency. Water is elevated for irrigation by fulcrum or screw; furrows are plowed by wedge; raw materials are fashioned or moved with the aid of the piston and the gear. It is sometimes argued that the machine, because it uses natural resources, is wasteful and destructive, but it is consumption and gratuitous want, human traits, which are wasteful and destructive, not the machine.

These characteristics of efficiency figure pivotally in the economic *raison d'etre* for cities, in two essential ways: they serve to free human energies for other pursuits, thereby leading to the diversification and specialization of social roles and forms of work, and they provide for the production of "surplus," the accumulation of goods and services beyond the needs and requirements of local urban consumption, engendering the city's economic base, and permitting the harvesting of wealth from beyond

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its locality. It is by this process that the City becomes secure, expansive, and prosperous. The effect is analogous to the more familiar dynamic in international economics, the favorable "balance of trade."

Our purpose here is not to treat the subject of urban economics, but to point out that the machine, or technology, is a tool in a greater social process, and that, far from being an aspect of cities that appeared with the Industrial Revolution, it has been a fundamental driving force in the growth and spread of cities from their very beginnings. Each successive addition to the fund of technological innovation has been derived from, and has expanded, the unique capacity in human consciousness to form experience into knowledge, applied to creatively amend our environment and existence.

In writing of the impact of the machine age in America, Karen Lucic emphasizes that:

> The characteristics of the machine age consisted not only of the technologically sophisticated phenomena that emerged—such as sixty-story skyscrapers, modern factories, and mass-produced consumer products–but also of a wide range of attitudes towards these things. It was a time when presidents, industrialists, artists, and intellectuals extravagantly idealized the machine for its supposed potential to create a perfectly functioning, efficient, and just society. Calvin Coolidge uttered a statement that exemplifies this machine idolatry: "The man who builds a factory builds a temple. The man who works there worships there."

The following discussion will attempt to investigate how urban artists, from the beginning of the industrial era to the mid-twentieth century, took into account in paintings of the City and urban life one of the most salient features of urban society: the machine. However, we shall employ this term with broad connotative range, as a summary term for industry, technology, invention, and in a still broader sense, the "manufactured" in contrast to the "natural."

This distinction between the natural and technological orders is reflected in Fernand Leger's painting *Two Women.* Leger, of whom more will be said later, produced several paintings in which the supple, flowing, biomorphic figures of women are contrasted with images that are townscapes or hard-edged mechanmorphic forms. An alternative semiotic evocation of the contrast

http://www.nga.gov/cgi-bin/pimage?70960 + 0 + 0

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between the machine and natural orders may be read in J.M.W. Turner's *Return of the Fighting Timeraire.* In Turner's painting, a dark, sooty, paddle steamer tows the white swan-shaped fighting ship to her last berth. The painting symbolized the dramatic struggle between steam and sail on the seas, and in addition, prefigured the battle for sovereignty of the City's thoroughfares between traditional and mechanical forms of locomotion.

http://www.j-m-w-turner.co.uk/artist/turner-temeraire.htm

This theme of contrasts and tensions between the machine and nature was a persistent one in painting from the dawn of the industrial era. In 1896, Henri Rousseau painted *The Quarry*, in which an enigmatic mechanical structure arises in a verdant landscape. The figure of a man stands poised and pensive, perhaps in wonder. A later, more powerful and unambiguous reference to this theme is evident in Burchfield's *Black Iron*, a sober indictment of the power of machine technology over the natural landscape.

http://www.oceansbridge.com/art/customer/product.php?productid=36230&cat=3883&page=6&maincat=R

http://web.mac.com/yingloon/iWeb/Site/Blank.html

But this symbolism extends well beyond painting, and goes into philosophical perspectives related to questions about humanity's most "appropriate" environment. This question has been raised in many forms, but essentially revolves around the recognition that humans' development and use of technology to shape and reform nature to suit their ends focuses in deeper relief on their role in greater, more metaphysical realms. Leo Marx, in writing of the relationship of such matters to attitudes toward the City, claims that "...a vital element here is the residuum of teleological modes of thought—the tendency to identify the seeming orderliness of the natural landscape with the hypothetical design and purpose of the cosmos. Whether these ideas are objectively 'true' or not, they do in some measure control our response to the physical environment."

Marx

Humanity's implicit and explicit responses to such questions vary greatly. As early as 1685, a posthumously-published poem by Sir Jonas Moore enthused in its second verse:

> I sing of Floods Muzzl'ed, and the Ocean tam'd
> Luxurious Rivers govern'd, and reclaim'd
> Waters with Banks confin'd, as in Gaol,
> Till kinder Sluices let them go on Bail;
> Streams curb'd with Dammes like Bridles, taugh t'obey
> And run as strait, as if they saw their way.

In 1811 and 1812, the Luddite riots that alarmed manufacturers in the north of England offered a quite different view of

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the "glories" of technology. This issue remained very much alive through much of the twentieth century.

The relationship between the City and the Machine, as expressed in urban art, is multi-faceted. As technology and industry transformed cities and urban life (and rural ways of life as well), they generated new images and forms for the recording and interpretation of artists. The architecture and iconography of urban industrialism—unadorned, utilitarian, and frequently brutal—was often little more than an extension of the machines the City housed. The smoky spires of its profane temples often dominated the skylines of what Mumford labeled "the insensate industrial town."

In a variety of other ways, machine technology directly and indirectly greatly altered the elements of urban iconography. Artificial illumination literally cast the City in a new light. With it, the City took on a new aspect and glow, multi-colored, glaring, and blinking, though too-often diminished and diffused by an atmosphere laden with the effluvia of factories and vehicles. From an airplane, a giant metropolis, such as Los Angeles, glitters below at night like a vast sea of phosphorescent plankton, and by day it suggests the circuitry of a computer's "motherboard."

Perhaps even greater has been the impact of the machine upon motion. Automobiles and transit vehicles brought noisy and blurred images that exaggerated and segregated the animation of the street. The quickened pace of the street was also reflected in the proliferation and gaudiness of signs, billboards, and traffic directions, all enlarged and visually intrusive to compete for attention in the accelerated movement through the City's thoroughfares.

The machine also brought with it the mechanization of time. For millennia, human activity had been governed by circadian rhythms and the comings and goings of seasons; urban-industrial time was regimented by the clock. Industrialism and its concerns for efficiency and coordination of the factors and processes of production substituted the factory whistle for the crowing of roosters and tolling church bells in its regulation of the workday. This regimentation of time into urban chronicity altered the appearance of the City. The ebb and flow of activities in the industrial city's streets took on a distinctive tempo as the movements of workers, the openings and closings of shops, the swelling and thinning of traffic became regulated to a synchronous schedule (which once again became asynchronous with the machines of the late-twentieth and early-twenty-first centuries). The urbanite became acutely conscious of clock time—the time required to get to

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work, the rate of pay per hour, the arrival of the 5:05, the time it took to process information.

Industrial Landscape

In 1840, the great nineteenth-century gothic architect, August Welby Pugin, produced two contrasting drawings of a *Catholic Town*. The first, which represents the town in the year 1440 from a hilltop vantage, shows the skyline of a walled town pierced by numerous gothic steeples. The view from the same vantage four centuries later profiles a townscape vastly altered by industrialism. Several churches no longer appear; the city's riverside ramparts have been replaced by drab industrial loft buildings, and industry has penetrated the nearby countryside. Pugin was seeking to demonstrate that the destruction of the English city was due as much to Protestantism as to industrialism.

http://www.fulltable.com/VTS/c/contd/im/03.jpg

Although 1815 is often taken as the year to mark the beginning of the Industrial Revolution (especially in England), its intellectual and scientific steam had been building since the Enlightenment. It was in the late 1700s in the midlands and north of England that the intellectual and technical elements, along with the moral climate frequently expressed as the "Protestant Ethic," fused sufficiently in time and space to give the process of industrialism its most significant impetus. Klingender writes, in *Art and the Industrial Revolution*, that at this time:

> Scotland occupied a leading position in philosophy, aesthetics, medicine, and the natural sciences. But its outstanding contribution was a new approach to history and a new science of society. Distinguished both from the abstract of the social contract theory and from the conservative traditionalism of Edmund Burke (1729–97), the Scottish historical school, represented in Glasgow by Adam Smith (1723–90) and John Millar (1735–97), and by William Robertson (1721–93) and Adam Ferguson (1723–1816), based its theory of social development on a study of the changing forms of production. In this way it was able to give a scientific account of the origin and functioning of the new industrial civilization.

The technical dimension of the revolution was, however, often supplied by practical men of less "detached" calling than

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university professors. In fact, the first phases of industrialism did not require the elucidation of the principles of the division of labor, scientific knowledge, or large amounts of capital. Richard Arkwright, who invented the "water frame," applying waterpower to wool spinning, was a barber and wig maker. Carlyle later wrote of him to characterize the typical industrial exploiter, ". . .a plain, almost gross, bag-cheeked, pot-bellied Lancashire man. . .." Whatever his faults or virtues, Arkwright coupled his inventive abilities with merchandizing acumen to become the richest cotton spinner in England. In addition, his enterprise is responsible for one of the earliest paintings of the emergent industrial landscape. In a detail of a painting by Joseph Wright of Derby, glows Arkwright's cotton mill built at Cramford in 1771. The busy factory, still in production on a moon-lighted night, contrasts starkly with the countryside. In the foreground, a silhouetted farmer follows his cart homeward while the factory, heeling to the adage that "time is money," works on.

Klingender

http://www.umassd.edu/ir/bspillane/Wright__MS.html

Long hours, low wages, and difficult and tedious working conditions were commonplace characteristics of work in the early years of industrialization. And perhaps the most opprobrious of such conditions was the exploitation of child labor. In 1863, a small boy working in a pottery mill told a government commission on child labor: "I turn jigger, on run molds. I come in at 6. Sometimes I come in at 4. I worked all last night, till 6 o'clock this morning. I have not been in bed since the night before last. . .I get three shillings and sixpence. I do not get any more for working at night." Though industry earned a long-lasting stigma for its exploitation of child labor, some revisionists have placed a different historical interpretation on the practice. Paul Johnson claims that, ". . .the central problem of the age was how to feed, clothe, and employ generations of children outnumbering by far those of any other time in history. It was not capitalism that produced these children. What it did do was to enable England to avoid an Irish solution of mass starvation and emigration."

Burchell

Johnson

Some employers were mindful of the social problems generated by industrialization and sought to treat their workers more humanely. Robert Owen, whose model cotton-mill factory town was depicted in 1825 by I. Clark, introduced a ten-hour work day, did not employ very young children and offered a variety of amenities for workers and their families. But Owen and the few others like him were minor exceptions to the general rule of worker exploitation and mistreatment.

http://www.gtj.org.uk/en/blowup1/20649

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To a large extent, the exigencies of industry militated against the improvement of urban social and physical conditions. Industrialism generated increasing population densities and, by 1850, England was the only country in Europe with more than 20 percent of its people living in cities of 100,000 or more in population. The more typical housing situation is illustrated by Dore's engraving, *Over London by Rail*. After toiling at wearying, routine jobs that often exceeded twice the length of the present-day workday, workers may have found some relief in returning to even the cramped, mass-produced row houses that quartered the city's swelling industrial workforce.

http://www.scienceandsociety.co.uk/results.asp?image=10318114&wwwflag=2&imagepos=7

Industrialization had sufficiently altered the face and skyline of many cities during the nineteenth century to attract the notice of increasing numbers of painters. Industrialism's architecture brought to the cityscape, particularly of industrial and company towns, a brutal homogenization of form that became the signature of the industrialized city. Probably the most salient feature in the evolving industrial iconography was the smokestack. William Ibbit's sepia-toned hill-top view of Sheffield from the southeast, in the early part of the nineteenth century, illustrates that industry was not confined by land-use regulations to any specific areas of the city. The sulphurous overcast on buildings, landscape, and atmosphere evokes a sense of the domination of industry that characterized a number of cities in the English midlands.

http://www.spartacus.schoolnet.co.uk/ITsheffield.htm

The impact of industrialism upon the nature of work has be the subject of enduring debate. The overwhelmingly predominant form of work since the agricultural revolution of the Neolithic Age had been personal, independent, and an extension of the family unit. The impact of the industrial revolution, beginning in the eighteenth century, upon the domestic unit, and virtually every other social institution, left vestiges that are still apparent. But, though the debates over the blessings and evils of the factory system are well worn, they have been continuously renewed and reshaped by the social changes that they induced.

The social drawbacks and abuses of the early factory system now seem to those in developed countries to be quaint historical data. Yet conditions, such as abuse of child labor, unsafe and unsanitary working conditions, and other forms of exploitations of workers continue to exist in sweatshops, mines, and factories throughout the world in developing economies. Many of the workers of early factories labored under the almost complete autocracy of their employers. An early nineteenth-century potter or mill worker might be forced to sign a

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year's contract and live in a "tied" cottage and be paid, under the "truck" system, in "kind" rather than cash. Though workers were often accustomed to long work hours in agriculture and home industry, factory machines needed constant tending, and fines were often imposed to command punctuality and strict attention to work. Life expectancy was often cut short in the factories and mines by the characteristic pathologies and physical deformities produced by various work tasks: potters and painters suffered from lead poisoning, grinders from asthma, and miners from consumption and spinal afflictions[2].

[2]There remain great disparities among nations with respect to work safety. When thirteen miners were trapped in the West Virginia Sago Mine in January of 2006 (12 eventually died) it was a matter of national news for several days. The deaths of 12 miners in America is less that one day's loss of miners in China, where an average of 6000 miners die in mine accidents each year.

Although these evils and excesses were widely recognized, the times did not lack for spokesmen who hailed the new order as a sign of social progress. Writing in 1882, Carrol D. Wright could confidently claim that:

> I am well aware that I speak against popular impression, and largely against popular sentiment when I assert that the factory system in every respect is vastly superior as an element in civilization to the domestic system which preceded it; that the social and moral influences of the present outshine the social and moral influences of the old. The hue and cry against the prevailing system has not been entirely genuine on either side of the Atlantic. Abuses have existed, great and abominable enough, but not equal to those which have existed in the imagination of men who would have us believe that virtue is something of the past.

Diamond

Moreover, as Mumford put it: "Perhaps the greatest contribution made by the industrial town was the reaction it produced against its own misdemeanors." The crude conditions of early industrialism have since been greatly ameliorated by workers' protests, the efforts of humanitarian reformers, the formation and growth of labor unions, and a host of legislative reforms.

Mumford 1961

Work and workplace conditions in the post-industrial era have not yet found iconic representation in painting. Technology, particularly, the computer and its extensions in communication may well play a part. High-tech workers "laboring" in office cubicles, or cyber-commuting home offices from ergonomic chairs, and risking carpel-tunnel syndrome, contrast greatly with their industrial predecessors. Nevertheless, contemporary workers may have their own stresses, born of intense competition, technical obsolescence, and other stressful features that are less dramatic, as

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well as visually apprehensible than a sweat-glistened steel worker illuminated by a blazing forge[3].

[3]*In the United States, contemporary office conditions are more likely to be addressed in Dilbert cartoons and television sit-coms.*

The Industrial Landscape

The dichotomy of comment and sentiment revolving around the blessings and evils of industrialism is reflected in the ambiguity of industrial landscape art. Needless to say, the complexities of the argument over the virtues and vices of the machine age do not permit facile visual representation, and the remoteness and comprehensiveness of the landscape form place limitations on social interpretation. Moreover, it may be that some of the purely pictorial objectives of painters receive the greater emphasis, particularly as these relate to the production of visually appealing results.

In the case of one of the most prolific visual chroniclers of the industrial landscape, these concerns and other factors may have influenced his interpretation of the industrialized city. L. S. Lowry is an appropriate artist to consider in this regard. Born in 1887 in Manchester, perhaps the Mecca of industrial cities, Lowry produced numerous views of the cities of England's heavily industrialized midlands, where the location of coal and iron ore deposits, which were necessary for Henry Bessemer's revolutionary process for steel production, were juxtaposed to urban centers. A self-defined lonely man, Lowry spent nearly all his life in the region of his birth, which still bears the marks of the early industrial age.

Industrial Landscape, perhaps Lowry's best-known work, is actually an imaginary composite view of the iconography of the industrial city. It illustrates well Lowry's professed preference for a palette dominated by white. This scene belongs almost entirely to the icons of industry, but many of his views, such as *Returning From Work*, though more realistic, are ambiguous in their depiction of the social effects of the industrialized town. Lowry's workers frequently appear weary and drone-like in their postures and groupings (sometimes devolving into little more than stick-figure forms), but his avoidance of more intimate treatment prohibits interpretation of the social effects of industrialism.

http://www.tate.org.uk/britain/exhibitions/apictureofbritain/works_north/lowry_industrial.shtm

http://www.tigtail.org/TIG/M_View/TVM/B/European/b.between wars/English/lowry/lowry.html

From its beginnings in England, the industrialized landscape quickly developed into a culturally-transcendent and characteristic form of urban development. On the Continent, Van Gogh, whose landscapes typically dealt with rural scenes, produced a colored drawing of an industrial suburb of unknown identification

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http://homepage.mac.com/yingloon/image/CityMachinePhotos.htm

showing a landscape ravaged by the requirements of industry. Industrialization came later, but rapidly, to Germany, where Kirchner employed his characteristic fauvist coloration to *Factories at Chemnitz* to contrast the thick, dark smoke of the industrial town of Chemnitz"[4] with the brilliant sky and snow-covered town. However, these industrial landscapes, owing to interests of their artists in light and color, are neither as drab nor sober as those of England's industrial painters.

http://homepage.mac.com/yingloon/image/CityMachinePhotos.htm

[4]*Chemnitz was sometimes referred to as the "Saxon Manchester." In 1953 it was renamed to Karl-Marx-Stadt. It returned to the original name of Chemnitz in June 1990.*

At closer quarters, artists have provided more detailed views of the elements of the industrial city. Evergood's *Through the Mill* is reminiscent of Lowry's factoryscapes. The scene, which documents the red-brick, loft-type industrial buildings characteristic of many of the industrial towns of New England, offers a tantalizing glimpse into the factory as one work shift replaces another in the early evening.

http://www.tfaoi.com/am/6am/6am8.jpg

In his *Dress Shop*, Ralf Fasanella applied his characteristic technique of showing the interior aspects and activities of buildings to a New York garment district sweat shop. The artist's experience as a child of having accompanied his mother "...down to Chatham Square in the Bowery, to sit quietly in the big, dark room full of Italian women bending over their machines and peering at their needles..." adds a personal dimension to his naive style. The "sweat system" of the garment industry is one of the few forms of manufacture that have changed little over the years. The contrast of this enterprise, which typically takes place in loft buildings in or near commercial districts, is, beyond treatments such as Fasanella's, typically less influential upon the iconography of the cityscape than other forms of industry.

http://www.ajph.org/content/vol93/issue9/cover.shtml

Watson

Strong contrasts, both in terms of the type of industry and the style of representation employed, are provided by Charles Sheeler's *City Interior* (1936). Sheeler, more of whose work is examined below, shows in a highly realistic style a form of industry whose large-scale and mechanomorphic structure not only significantly alters urban iconography itself, but can form, as its title implies, "industrial cities" within cities.

http://www.worcesterart.org/Collection/American/1937.3.html

These days, in the most developed nations, the "factory" often appears a vestigial and anachronistic element in the urban landscape. Loft-style industrial buildings that were found in inner cities have been largely replaced by more efficient horizontal-production "plants" in the suburbs. Those that remain in the city proper may have been converted to "loft" apartments, or themed commercial centers such as Ghiraldelli Square in San Francisco, South Street in New York, or the Docklands in East London.

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The urban landscape has also been re-shaped by the predominance of service industries in the centers of cities. Three-piece-suited, white-collar workers and casually dressed new-economy have replaced lunch-bucket workers in coveralls hauling themselves to gritty factories and have themselves been replaced by international-style high-rise office buildings and suburban office "campuses." Moreover, in several respects these towers of offices and cubicles are being replaced by the evolution of communication technology that allows, even requires, service and information-based work to be "outsourced" to the home by telecommuting, and beyond by high-labor and low-information transfer costs.

As technology has evolved to influence the location and productivity of all of the classical factors of production—land, labor, capital, and entrepreneurship—these changes have made their morphological mark on the profile of the City.

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The Romantic Machine

The steam engine, perhaps more than any other technological development, symbolized the application of intellectual power to the harnessing of the forces of nature. It expressed in the fusion of the four classical elements of nature—earth, air, fire, and water—a controlled release of natural forces to produce unprecedented mechanical power. The principles of steam power had been demonstrated as early as Archimedes and, in England, as early as 1712, steam-driven pumps were in operation. By the late 1700s Watt's improvements on the steam engine were applied to transport, particularly, as we have seen in the *Temeraire* painting, in shipping.

But the steam engine had one of its most significant impacts upon urbanization in its application to the steam locomotive. Not only did it make possible the more rapid and efficient movement of goods and bulk materials, but it also offered, in the rapid development of the railroads, a major advance in the conquest of the fundamental characteristics of the natural world—time and space. In another of Turner's works, *Rain, Steam and Speed*, the sensation of rapid movement through space is transferred to the viewer. This painting, one his biographers notes, "...brings out clearly the way in which [Turner] expressed Time as a necessary aspect of his grasp of a changing universe. The forward rush of the engine is expressed by making the engine darker in tone and sharper in edge than any other object, so that it shoots out in aerial perspective ahead of its place in linear

http://www.victorianweb.org/painting/turner/paintings/speed.html

perspective. Thus, oppositions in tone and line are used to express succession in time."

Lindsay

In addition to linking its factories with distant sources of raw materials—a factor which permitted greater concentrations of industries closer to their markets in the urban centers—the railroad brought nearby villages and towns within the orbit of commutation of major cities. More prosperous workers were able to enjoy the advantages of industrial concentration while living in the cleaner, more commodious countryside, thereby contributing to a physical separation between the social classes.

By the mid-nineteenth century, railroads had spread to the whole of Europe, making possible the emergence of cosmopolitan travelers far exceeding in numbers those of the Grand Tour. The romantic adventure of reaching new people and places with unprecedented ease at the breathless speed of fifty-five miles per hour was open not only to the wealthy riders of luxurious coaches and dining cars, but also to those who could afford a third-class passenger ticket.

The origins and destinations of the rail network—the great stations and train sheds—added a new architectural element to urban imagery. In John O'Connor's *Pentonville Road, Evening Looking West*, the Gothic spires of London's magnificent St. Pancras Station and Hotel rise like a vast medieval cathedral into the evening atmosphere. To the right of the spires of Sir Gilbert Scott's terminal hotel extends the great train shed designed by William Barlow. The less elegant King's Cross Station is barely visible at the end of Pentonville Road.

http://en.easyart.com/art-prints/prints/John-O-Connor/Sunset-Saint-Pancras-Hotel-And-Station-From-Pentonville-Road-102187.html

The bustle of activity, hissing steam and lacey steel and glass architecture of the great train sheds inspired several artists. Monet found the play of light amidst these elements worthy of a series of paintings at *Gare St. Lazare* in Paris. This painting, reminiscent with its prominent dark locomotive at the center of Turner's *Rain, Steam and Speed*, views out to the city through a steam-thickened atmosphere. Hermann Pleuer's more representational view of the arched steel and glass *Main Hall Old Stuttgart's Railroad Station*, in 1905, shows well-attired patrons awaiting an arrival or departure.

http://www.nationalgallery.org.uk/cgi-bin/WebObjects.dll/CollectionPublisher.woa/wa/work?workNumber=NG6479

http://homepage.mac.com/yingloon/image/CityMachinePhotos.htm

The great stations inspired literary artists as well. For E. M. Forster's heroine in *Howard's End*, each station seemed endowed with a special mystique:

> Like many others who have lived long in a great capital, she had strong feelings about the various railway termini. They are our gates to the glorious and the unknown. . ..In Paddington

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> all Cornwall is latent and the remoter west; down the inclines of Liverpool Street lie fenlands and the illimitable Broads; Scotland is through the pylons of Euston; Wessex behind the poised chaos of Waterloo. Italians realize this, as is natural; those of them who are so unfortunate as to serve as waiters in Berlin call the Anhalt Bahnhof the Stazione d'Italia because by it they must return to their homes. And he is a chilly Londoner who does not endow his stations with some personality, and extend to them, however shyly, the emotions of fear and love.

Forster

Other stations have been immortalized by literature and history: St. Petersburg's Nikolaevsky Station, the setting for the first parting of Anna Karenina from the swashbuckling Vronsky; the dramatic return of Lenin to the Bolsheviks at Finland Station in 1917; and the countless partings of wives, lovers, and soldiers caught in the vortex of the great wars. But, as railroad networks expanded to bring within the orbit of major metropolitan centers erstwhile remote and smaller towns, the train occasioned more commonplace drama. Camile Pissaro's view of the arrival of a tourist-loaded train at *Dieppe* illustrates the emergence of "pleasure trains" that brought Parisians refreshing weekends by the sea. Although some of the romance of travel by train has been eclipsed by the airliner, the latter mode, while it has provided a new vantage that has influenced urban art, has had less direct impact upon urban form.

http://homepage.mac.com/yingloon/image/CityMachinePhotos.htm

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Icons of the Machine

Perhaps the work of no single painter has drawn as extensively upon the imagery of the machine age as that of Fernand Leger. Born in a rural area in 1881, Leger was raised on a farm in Normandy, yet he is one of the most positive interpreters of mechanomorphic forms and the influence of the machine upon the image of the City and the industrial worker. He fought in the First World War and was a refugee (to the United States) during the Second, and though he joined the French Communist Party on his return to France, his art never reflected the sentimentality of "soviet-style" painting.

Leger's art derives from the confluence of several experiential and attitudinal facets of his life. Though from a rural background, he felt that rural areas had little to fear from the

machine age and its commercial influences on the landscape, once exclaiming that: "The peasant is made of stronger stuff. Look how he likes a strong contrast of color in his clothes! A man like that isn't going to be scared by a billboard meadow." His painterly interests were with color and form; much of his subject matter was drawn from his enchantment by machine images and his lifelong love of the French working class.

Russell

http://www.soho-art.com/cgi-bin/shop/shop.pl?fid=1023249482&cgifunction=form

The Mechanic brings these influences into conjunction. The painting was composed in 1920, shortly after the reopening of the Louvre's Egyptian and Assryian Rooms, which Leger had visited. The modeling clear separation and the profiled head show the influence of the characteristic of the ancient reliefs (although the influence of Rousseau is also detected). But the Gallic features, nautical tattoo, mustache, and sleeveless blouse are unmistakable signatures of the French industrial workingman. Behind the worker, in flat planes of angular forms and primary colors, are the abstracted elements of factory components.

The dignity which Leger imparts to his mechanic reflects the artist's attitudes toward the workingman and his relationship to the machine. He was convinced the relationship was beneficial to man, that it promised a better life. As Russell put it: "It was a matter of faith with him that the mechanic was the New Man, the man for whom the machine was not a tyrant, but the instrument of social liberation."

Russell

Thirty years later, with considerable urban and industrial change behind him, Leger's enthusiasm for the worker was unabated. *The Builders* bears many of the features which characterized large segments of his work: the dignified faces and postures of his workers, the employment of bright, flat primary colors filling the surface of the painting, and as he himself put it, the attempt "...to achieve the most violent contrasts by opposing minutely realistic human figures with clouds and metallic structures."

http://artyzm.com/e_obraz.php?id=971

Kuh

But perhaps Leger's most well-known work, a synthesis of urban and mechanical forms that grew out of a series of sketches, watercolors, and oil paintings composed around 1919, is *The City*, one of the landmarks of twentieth-century art. By overlaying, kaleidoscopically, the fragmented objects and images of the modern metropolis, Leger evokes its brilliance and dynamism. "There was no reason why," in his opinion, "not only the shop windows and billboards, but the entire architecture of the city street should not be a carnival for the eye."

http://orage.mjp.brown.edu/mjp/images//leger/TheCity.19.jpg

Russell

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Though influenced by the modern areas of Paris, the painting creates a generalized vision or idea of the City. Employing and assigning spatial values to flat planes of areas of color and white spaces, Leger proved that it was possible to avoid chiaroscuro and tonal modulation and still impart depth to the picture. Thus, while it owes much to Synthetic Cubism, *The City* combines color and form in a dynamically new way.

Delevoy

In America, too, machine-industrial imagery was being interpreted through variations of Cubism and Cubist-inspired styles in painting. Mechanical forms seemed particularly well-suited to these styles, which were often expressed in angular forms and planes. Cubism reflected an interest in the exploration of the structure of objects. The machine, as a re-composition of natural elements in which the structure and relationship of each part to the total operation of the composition requires a functional appreciation of structural elements, perhaps affected a kinship between analytic interests of cubism and technology.

One of the offshoots of cubism was a group of artists who came to be known as "Precisionists," a term very much associated with machine and industrial imagery. One of the foremost painters of this group was Charles Sheeler, whose *City Interior* we have already observed. Sheeler's *Classic Landscape* of 1931 illustrates well his fascination with the crisp, angular forms of industrial iconography. Sheeler's statements, like those of other precisionists, are much more artistic than social commentary upon the characteristics of industrialism. Like the titles he selected for many of his works, such as *Stacks in Celebration* (which reveales in its atmospheric rays of light some of the influence of the Futurists), and in their soft, muted colors, Sheeler's works display an interest in the poetry of industrial forms. As he expressed his primary concern with formal categories: "My paintings have nothing to do with history or the record—it's purely my response to intrinsic realities of forms and environment. I'd rather see the bones of something that was original. . .."

Rose

http://www.artchive.com/artchive/S/sheeler/sheeler_classic_landscape.jpg.html

http://tours.daytonartinstitute.org/accessart/object.cfm?TT=gt&TN=mh&ID=41&COM=dd

Friedman

At about the same time, another precisionist, Charles Demuth, was exploring the prospects for blending Cubist-inspired abstraction with the identifiable features of objects. Like Sheeler, he was taken with the geometry of industrial forms but, as in the case of *My Egypt*, a title which suggests comparison of the monumentality of modern industrial forms with the pyramids, and *Buildings in Abstraction, Lancaster*, he employed to a greater extent the radiant projections of the futurists. These lines

http://www.artchive.com/artchive/D/demuth/my_egypt.jpg.html
http://www.posterversand.de/oxid.php/sid/b53e2d1ef7dc9cfdb84006736efb60bc/cl/det-Demuth---Buildings.-Lancaster.-1930/

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provide some sense of motion and dynamism in contrast to the static geometry of the industrial structures.

http://homepage.mac.com/yingloon/image/CityMachinePhotos.htm

The static coolness and subdued tones of Sheeler and Demuth contrast sharply with Richard Florsheim's *Earth Fire*. The igneous hues might at first suggest the atmospheric effects of a vivid sunset, but the cloud-thick sky and derrick structures evoke a cityscape of refineries or chemical processing. Here Florsheim transfers the combusted energy of the machine from its hidden interiors to the total atmosphere of the city.

Our consideration of the City and Machine has been primarily from the perspective of its impact upon urban iconography. As seen through the works of a variety of artists, that impact has been considerable. The image of the City was vastly and rapidly changed by industrialism, and painting recorded this re-vision of urban imagery, and uncovered the structures, both biomorphic and mechanomorphic, of industrial-age objects. Moreover, the impulse to examine life through art, as can be seen even in the earliest cave paintings, may also be an expression of the need to understand, to analyze, and to control over the subject matter of that art.

But many questions remain. We increasingly hear the term "post-industrial" and, while it is true the factory is no longer prominent in (at least) the center of the metropolis, it remains central to its economy, and while manufacture figures less in the employment structure than do "services," its productivity is higher than ever before. This is in part because the machine has continually produced its own servo-machines and, as the number of workers have figured less in the equation of production, the computer and cybernetics have more than taken up their place. This is perhaps in the tradition of human relationships to the machine. We have gone from harnessing the power of animals and rivers to assist us in our work, to combusting elements of nature to produce even greater power, to unleashing Nature's fundamental atomic forces. Space itself has taken on a new dimension, as literally tons of printed and visual information can be stored now on small computer hard drives.

At the end of 2005, manufacturing employment in the United States declined to under 10 percent of employment. The familiar image, sixty years ago, of the typical American entering a factory in his coveralls, lunch bucket in hand, is fast becoming a distant memory. Most developed nations, particularly in Europe, Britain, and Japan, are following suit. The age of steel is not disappearing, but manufacture is increasingly done by robots

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that keep productivity on the rise. But today's worker is more likely to work with plastic and silicon, to bend information to modern needs rather than shape metals. Since art is influenced by environment, artists now express the relationship of urbanism to the silicon chip rather than to the engine, to megahertz rather than to horsepower.

What expressions contemporary artists have been finding for these are, however, beyond the scope of this paper. It is well to remember that in the nineteenth century when the machine age had its most profound effect on the urban landscape, artistic imagery was far less pervasive and ubiquitous than it is today. Painting and sculpture were the principal plastic-visual arts until the emergence of photography near the end of the century, and then available largely in museums and private collections. Today, not only urbanites are bombarded with visual images, but so are all who have access to a variety of media. Most of the images are banal, but a substantial part in motion pictures, television, and still photography, even in advertising, is of some artistic and interpretive worthiness. Moreover, there is much in popular availability that in various ways comments upon technology, urbanism, or their interrelationships. Indeed, today's urbanite may have a framed Turner or Leger reproduction on her wall, but she may also possess a digital camera with which she can exercise her own artistic-interpretive impulses.

But it will probably remain that we will wonder what we surrender of our humanity by our compact with technology, while it seems that it is also itself an expression of our humanity. Modern man's theological justification for the enlarged scope of human action and possibility, once expressed in the fatalism that "the Lord works his wonder in mysterious ways," has been overthrown by the adage that "the Lord helps those who help themselves." But though the latter may provide justification, it fails to provide normative guidance: the conquest of space, the harnessing of the atom, and the miracles of medicine, the computer, and the most sophisticated expressions of man's technological capabilities have only placed the riddle of the human purpose in greater relief.

Mumford is far more eloquent on the point:

> There is no extraneous way of humanizing the machine, or of turning it to the advantage of that part of the human personality which has heretofore expressed itself in what we may call the humane arts. . ..

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> The point is that the machine is not a substitute for the person; it is, when properly conceived, an extension of the rational and operative parts of the personality, and it must not wantonly trespass on areas that do not belong to it. If you fall in love with a machine there is something wrong with your love-life. If you worship a machine there is something wrong with your religion.

Mumford 1952

The last point is something the Cargo Cults might ponder as they await the return of the C-47.

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