

### *Frank Lloyd Wright*

#### "THE ART AND CRAFT OF THE MACHINE," 1901

As we work along our various ways, there takes shape within us, in some sort, an ideal – something we are to become – some work to be done. This, I think, is, denied to very few, and we begin really to live only when the thrill of this ideality moves us in what we will to accomplish! In the years which have been devoted in my own life to working out in stubborn materials a feeling for the beautiful, in the vortex of distorted complex conditions, a hope has grown stronger with the experience of each year, amounting now to a gradually deepening conviction that in the Machine lies the only future of art and craft – as I believe, a glorious future; that the Machine is, in fact, the metamorphosis of ancient art and craft; that we are at last face to face with the machine—the modern Sphinx—whose riddle the artist must solve if he would that art live – for his nature holds the key. For one, I promise "whatever gods may be" to lend such energy and purpose as I may possess to help make that meaning plain; to return again and again to the task whenever and wherever need be; for this plain duty is thus relentlessly marked out for the artist in this, the Machine Age, although there is involved an adjustment to cherished gods, perplexing and painful in the extreme; the fire of many long-honored ideals shall go down to ashes to reappear, phoenix like, with new purposes.

The great ethics of the Machine are as yet, in the main, beyond the ken of the artist or student of sociology; but the artist mind may now approach the nature of this thing from experience, which has become the commonplace of his field, to suggest, in time, I hope, to prove, that the machine is capable of carrying to fruition high ideals in art – higher than the world has yet seen!

Disciples of William Morris cling to an opposite view. Yet William Morris himself deeply sensed the danger to art of the transforming force whose sign and symbol is the machine, and though of the new art we eagerly seek he sometimes despaired, he quickly renewed his hope.

He plainly foresaw that a blank in the fine arts would follow the inevitable abuse of new-found power, and threw himself body and soul into the work of bridging it over by bringing into our lives afresh the beauty of art as she had been, that the new art to come might not have dropped too many stitches nor have unraveled what would still be useful to her.

That he had abundant faith in the new art his every essay will testify.

That he miscalculated the machine does not matter. He did sublime work for it when he pleaded so well for the process of elimination its abuse had made necessary; when he fought the innate vulgarity of theocratic impulse in art as opposed to democratic; and when he preached the gospel of simplicity.

All artists love and honor William Morris.

He did the best in his time for art and will live in history as the great socialist, together with Ruskin, the great moralist: a significant fact worth thinking about, that the two great reformers of modern times professed the artist.

The machine these reformers protested, because the sort of luxury which is born of greed had usurped it and made of it a terrible engine of enslavement, deluging the civilized world with a murderous ubiquity, which plainly enough was the damnation of their art and craft.

It had not then advanced to the point which now so plainly indicates that it will surely and swiftly, by its own momentum, undo the mischief it has made, and the usurping vulgarities as well.

Nor was it so grown as to become apparent to William Morris, the grand democrat, that the machine was the great forerunner of democracy.

The ground plan of this thing is now grown to the point where the artist must take it up no longer as a protest: genius must progressively dominate the work of the contrivance it has created; to lend a useful hand in building afresh the "Fairness of the Earth."

That the Machine has dealt Art in the grand old sense a death-blow, none will deny.

The evidence is too substantial.

Art in the grand old sense – meaning Art in the sense of structural tradition, whose craft is fashioned upon the handicraft ideal, ancient or modern; an art wherein this form and that form as structural parts were laboriously joined in such a way as to beautifully emphasize the manner of the joining: the million and one ways of beautifully satisfying bare structural necessities, which have come down to us chiefly through the books as "Art."

For the purpose of suggesting hastily and therefore crudely wherein the machine has sapped the vitality of this art, let us assume Architecture in the old sense as a fitting representative of Traditional-art, and Printing as a fitting representation of the Machine.

What printing – the machine – has done for architecture – the fine art – will have been done in measure of

time for all art immediately fashioned upon the early handicraft ideal.

With a masterful hand Victor Hugo, a noble lover and a great student of architecture, traces her fall in "Notre Dame."

The prophecy of Frolo, that "The book will kill the edifice," I remember was to me as a boy one of the grandest sad things of the world.

After seeking the origin and tracing the growth of architecture in superb fashion, showing how in the middle ages all the intellectual forces of the people converged to one point – architecture – he shows how, in the life of that time, whoever was born poet became an architect. All other arts simply obeyed and placed themselves under the discipline of architecture. They were the workmen of the great work. The architect, the poet, the master, summed up in his person the sculpture that carved his facades, painting which illuminated his walls and windows, music which set his bells to pealing and breathed into his organs there was nothing when was not forced in order to make something of itself in that time, to come and frame itself in the edifice.

Thus down to the time of Gutenberg architecture is the principal writing the universal writing of humanity.

In the great granite books begun by the Orient, continued by Greek and Roman antiquity, the middle ages wrote the last page.

So to enunciate here only summarily a process, it would require volumes to develop; down to the fifteenth century the chief register of humanity is architecture.

In the fifteenth century everything changes.

Human thought discovers a mode of perpetuating itself, not only more resisting than architecture, but still more simple and easy.

Architecture is dethroned.

Gutenberg's letters of lead are about to supersede Orpheus' letters of stone.

The book is about to kill the edifice.

The invention of printing was the greatest event in history.

It was the first great machine, after the great city.

It is human thought stripping off one form and donning another.

Printed, thought is more imperishable than ever – it is volatile, indestructible.

As architecture it was solid; it is now alive; it passes from duration in point of time to immortality.

Cut the primitive bed of a river abruptly, with a canal hollowed out beneath its level, and the river will desert its bed.

See how architecture now withers away, how little by little it becomes lifeless and bare. How one feels the water sinking, the sap departing, the thought of the times and people withdrawing from it. The chill is almost imperceptible in the fifteenth century, the press is yet weak, and at most draws from architecture a superabundance of life, but with the beginning of the sixteenth century, the malady of architecture is visible. It becomes classic art in a miserable manner; from being indigenous, it becomes Greek and Roman; from being true and modern, it becomes pseudo-classic.

It is this decadence which we call the Renaissance.

It is the setting sun which we mistake for dawn.

It has now no power to hold the other arts; So they emancipate themselves, break the yoke of the architect, and take themselves off, each in its own direction.

One would liken it to an empire dismembered at the death of its Alexander, and whose provinces become kingdoms.

Sculpture becomes statuary, the image trade becomes painting, the canon becomes music. Hence Raphael, Angelo, and those splendors of the dazzling sixteenth century.

Nevertheless, when the sun of the middle ages is completely set, architecture grows dim, becomes more and more effaced. The printed book, the gnawing worm of the edifice, sucks and devours it. It is petty, it is poor, it is nothing.

Reduced to itself, abandoned by other arts because human thought is abandoning it, it summons bunglers in place of artists. It is miserably perishing.

Meanwhile, what becomes of printing?

All the life, leaving architecture, comes to it. In proportion as architecture ebbs and flows, printing swells and grows. That capital of forces which human thought had been expending in building is hereafter to be expended in books; and architecture, as it was, is dead, irretrievably slain by the printed book; slain because it endures for a shorter time; slain because human thought has found a more simple medium of expression, which costs less in human effort; because human thought has been rendered volatile and indestructible, reaching uniformly and irresistibly the four corners of the earth and for all.

Thenceforth, if architecture rise again, reconstruct, as Hugo prophesies she may begin to do in the latter days of the nineteenth century, she will no longer be mistress, she will be one of the arts, never again the art; and printing – the Machine – remains the second Tower of Babel of the human race.

So the organic process, of which the majestic decline of Architecture is only one case in point, has steadily gone on down to the present time, and still goes on, weakening the hold of the artist upon the people, drawing off from his rank poets and scientists until architecture is but a little, poor knowledge of archeology, and the average of art is reduced to the gasping poverty of imitative realism; until the whole letter of Tradition, the vast fabric of precedent, in the flesh, which has increasingly confused the art ideal while the machine has been growing to power, is a beautiful corpse from which the spirit has flown. The spirit that has flown is the spirit of the new art, but has failed the modern artist, for he has lost it for hundreds of years in his lust for the letter, the beautiful body of art made too available by the machine.

So the artist craft wanes.

Craft that will not see that human thought is stripping off one form and donning another, and artists are everywhere, whether catering to the leisure class of old England or ground beneath the heel of commercial abuse here in the great West, the unwilling symptoms of the inevitable, organic nature of the machine, they combat, the hell-smoke of the factories they scorn to understand.

And, invincible, triumphant, the machine goes on, gathering force and knitting the material necessities of mankind ever closer into a universal automatic fabric; the engine, the motor, and the battle-ship, the works of art of the century!

The Machine is Intellect mastering the drudgery of earth that the plastic art may live; that the margin of leisure and strength by which man's life upon the earth can be made beautiful, may immeasurably widen; its function ultimately to emancipate human expression!

It is a universal educator, surely raising the level of human intelligence, so carrying within itself the power to destroy, by its own momentum, the greed which in Morris' time and still in our own time turns it to a deadly engine of enslavement. The only comfort left the poor artist, side-tracked as he is, seemingly is a mean one; the thought that the very selfishness which man's early art idealized, now reduced to its lowest terms, is swiftly and surely destroying itself through the medium of the Machine.

The artist's present plight is a sad one, but may he truthfully say that society is less well off because Architecture, or even Art, as it was, is dead, and printing, or the Machine, lives?

Every age has done its work, produced its art with the best tools or contrivances it knew, the tools most successful in saving the most precious thing in the world – human effort. Greece used the chattel slave as the essential tool of its art and civilization. This tool we have discarded, and we would refuse the return of Greek art upon the terms of its restoration, because we insist now upon a basis of Democracy.

Is it not more likely that the medium of artistic expression itself has broadened and changed until a new definition and new direction must be given the art activity of the future, and that the Machine has finally made for the artist, whether he will yet own it or not, a splendid distinction between the Art of old and the Art to come? A distinction made by the tool which frees human labor, lengthens and broadens the life of the simplest man, thereby the basis of the Democracy upon which we insist.

To shed some light upon this distinction, let us take an instance in the field naturally ripened first by the machine-commercial field.

The tall modern office building is the machine pure and simple.

We may here sense an advanced stage of a condition surely entering all art for all time; its already triumphant glare in the deadly struggle taking place here between the machine and the art of structural tradition reveals "art" torn and hung upon the steel frame of commerce, a forlorn head upon a pike, a solemn warning to architects and artists the world over.

We must walk blindfolded not to see that all that this magnificent resource of machine and material has brought us so far is a complete, broadcast degradation of every type and form sacred to the art of old; a pandemonium of tin masks, huddled deformities, and decayed methods; quarreling, lying, and cheating, with hands at each other's throats – or in each other's pockets; and none of the people who do these things, who pay for them or use them, know what they mean, feeling only – when they feel at all – that what is most truly like the past is the safest and therefore the best; as typical Marshall Field, speaking of his new building, has frankly said: "A good copy is the best we can do."

A pitiful insult, art and craft!

With this mine of industrial wealth at our feet we have no power to use it except to the perversion of our natural resources? A confession of shame which the merciful ignorance of the yet material frame of things mistakes for glorious achievement.

We half believe in our artistic greatness ourselves when we toss up a pantheon to the god of money in a night or two, or pile up a mammoth aggregation of Roman monuments, sarcophagi and Greek temples for a post office in a year or two – the patient retinue of the machine pitching in with terrible effectiveness to consummate this unhallowed ambition – this insult to ancient gods. The delicate, impressionable facilities of terra cotta becoming imitative blocks and voussoirs of tool-marked stone, badgered into all manner of structural gymnastics, or else ignored in vain endeavor to be honest; and granite blocks, cut in the fashion of the followers of Phidias, cunningly

arranged about the steel beams and shafts, to look "real" leaning heavily upon an inner skeleton of steel for support from floor to floor, which strains beneath the "reality" and would fain, I think, lie down to die of shame.

The "masters" – ergo, the fashionable followers of Phidias – have been trying to make this wily skeleton of steel seem seventeen sorts of "architecture" at once, when all the world knows except the "masters" – that it is not one of them.

See now, how an element – the vanguard of the new art-has entered here, which the structural – art equation cannot satisfy without downright lying and ignoble cheating.

This element is the structural necessity reduced to a skeleton, complete in itself without the craftsman's touch. At once the million and one little ways of satisfying this necessity beautifully, coming to us chiefly through the books as the traditional art of building, vanish away become history.

The artist is emancipated to work his will with a rational freedom unknown to the laborious art of structural tradition – no longer tied to the meager unit of brick arch and stone lintel, nor hampered by the grammatical phrase of their making – but he cannot use his freedom.

His tradition cannot think.

He will not think.

His scientific brother has put it to him before he is ready

The modern tall office building problem is one representative problem of the machine. The only rational solutions it has received in the world may be counted upon the fingers of one hand. The fact that a great portion of our "architects" and "artists" are shocked by them to the point of offense is as valid an objection as that of a child refusing wholesome food because his stomach becomes dyspeptic from over – much unwholesome pastry – albeit he be the cook himself.

We may object to the mannerism of these buildings, but we can take no exception to their manner nor hide from their evident truth.

The steel frame has been recognized as a legitimate basis for a simple, sincere clothing of plastic material that idealizes its purpose without structural pretense.

This principle has at last been recognized in architecture, and though the masters refuse to accept it as architecture at all, it is a glimmer in a darkened field-the first sane word that has been said in Art for the Machine.

The Art of old idealized a Structural Necessity-now rendered obsolete and unnatural by the Machine and accomplished it through man's joy in the labor of his hands.

The new will weave for the necessities of mankind, which his Machine will have mastered, a robe of ideality no less truthful, but more poetical, with a rational freedom made possible by the machine, beside which the art of old will be as the sweet, plaintive wail of the pipe to the outpouring of full orchestra.

It will clothe Necessity with the living flesh of virile imagination, as the living flesh lends living grace to the hard and bony human skeleton.

The new will pass from the possession of kings and classes to the every-day lives of all-from duration in point of time to immortality.

This distinction is one to be felt now rather than clearly defined.

The definition is the poetry of this Machine Age, and will be written large in time; but the more we, as artists, examine into this premonition, the more we will find the utter helplessness of old forms to satisfy new conditions, and the crying need of the machine for plastic treatment-a pliant, sympathetic treatment of its needs that the body of structural precedent cannot yield.

To gain further suggestive evidence of this, let us turn to the Decorative Arts-the immense middle-ground of all art now mortally sickened by the Machine-sickened that it may slough the art ideal of the constructural art for the plasticity of the new art-the Art of Democracy

Here we find the most deadly perversion of all-the magnificent prowess of the machine bombarding the civilized world with the mangled corpses of strenuous horrors that once stood for cultivated luxury-standing now for a species of fatty degeneration simply vulgar.

Without regard to first principles or common decency, the whole letter of tradition – that is, ways of doing things rendered wholly obsolete and unnatural by the machine-is recklessly fed into its rapacious maw until you may buy reproductions for ninety-nine cents at "The Fair" that originally cost ages of toil and cultivation, worth now intrinsically nothing-that are harmful parasites befogging the sensibilities of our natures, belittling and falsifying any true perception of normal beauty the Creator may have seen fit to implant in us.

The idea of fitness to purpose, harmony between form and use with regard to any of these things, is possessed by very few, and utilized by them as a protest chiefly-a protest against the machine!

As well blame Richard Croker for the political iniquity of America.

As "Croker is the creature and not the creator" of political evil, so the machine is the creature and not the creator of this iniquity; and with this difference-that the machine has noble possibilities unwillingly forced to degradation in the name of the artistic; the machine, as far as its artistic capacity is concerned, is itself the crazed victim of the artist who works while he waits, and the artist who waits while he works.

There is a nice distinction between the two.

Neither class will unlock the secrets of the beauty of this time.

They are clinging sadly to the old order, and would wheedle the giant frame of things back to its childhood or forward to its second childhood, while this Machine Age is suffering for the artist who accepts, works, and sings as he works, with the joy of the here and now!

We want the man who eagerly seeks and finds, or blames himself if he fails to find, the beauty of this time; who distinctly accepts as a singer and a prophet; for no man may work while he waits or wait as he works in the sense that William Morris' great work was legitimately done-in the sense that most art and craft of to-day is an echo; the time when such work was useful has gone.

Echoes are by nature decadent.

Artists who feel toward Modernity and the Machine now as William Morris and Ruskin were justified in feeling then, had best distinctly wait and work sociologically where great work may still be done by them. In the field of art activity they will do distinct harm. Already they have wrought much miserable mischief.

If the artist will only open his eyes he will see that the machine he dreads has made it possible to wipe out the mass of meaningless torture to which mankind, in the name of the artistic, has been more or less subjected since time began; for that matter, has made possible a cleanly strength, an ideality and a poetic fire that the art of the world has not yet seen; for the machine, the process now smoothes away the necessity for petty structural deceptions, soothes this wearisome struggle to make things seem what they are not, and can never be; satisfies the simple term of the modern art equation as the ball of clay in the sculptor's hand yields to his desire – comforting forever this realistic, brain-sick masquerade we are wont to suppose art.

William Morris pleaded well for simplicity as the basis of all true art. Let us understand the significance to art of that word – SIMPLICITY – for it is vital to the Art of the Machine.

We may find, in place of the genuine thing we have striven for, an affectation of the naive, which we should detest as we detest a full-grown woman with baby mannerisms.

English art is saturated with it, from the brand-new imitation of the old house that grew and rambled from period to period to the rain-tub standing beneath the eaves.

In fact, most simplicity following the doctrines of William Morris is a protest; as a protest, well enough; but the highest form of simplicity is not simple in the sense that the infant intelligence is simple-nor, for that matter, the side of a barn.

A natural revulsion of feeling leads us from the meaningless elaboration of to-day to lay too great stress on mere platitudes, quite as a clean sheet of paper is a relief after looking at a series of bad drawings – but simplicity is not merely a neutral or a negative quality.

Simplicity in art, rightly understood, is a synthetic, positive quality, in which we may see evidence of mind, breadth of scheme, wealth of detail, and withal a sense of completeness found in a tree or a flower. A work may have the delicacies of a rare orchid or the stanch fortitude of the oak, and still be simple. A thing to be simple needs only to be true to itself in organic sense.

With this ideal of simplicity, let us glance hastily at a few instances of the machine and see how it has been forced by false ideals to do violence to this simplicity; how it has made possible the highest simplicity, rightly understood and so used. As perhaps wood is most available of all homely materials and therefore, naturally, the most abused-let us glance at wood.

Machinery has been invented for no other purpose than to imitate, as closely as possible, the wood-carving of the early ideal-with the immediate result that no ninety-nine cent piece of furniture is salable without some horrible botchwork meaning nothing unless it means that art and craft have combined to fix in the mind of the masses the old hand-carved chair as the ne plus ultra of the ideal.

The miserable, lumpy tribute to this perversion which Grand Rapids alone yields would mar the face of Art beyond repair; to say nothing of the elaborate and fussy joinery of posts, spindles, jig sawed beams and braces, butted and strutted, to outdo the sentimentality of the already over-wrought antique product.

Thus is the wood-working industry glutted, except in rarest instances. The whole sentiment of early craft degenerated to a sentimentality having no longer decent significance nor commercial integrity; in fact all that is fussy, maudlin, and animal, basing its existence chiefly on vanity and ignorance.

Now let us learn from the Machine.

It teaches us that the beauty of wood lies first in its qualities as wood; no treatment that did not bring out these qualities all the time could be plastic, and therefore not appropriate-so not beautiful, the machine teaches us, if we have left it to the machine that certain simple forms and handling are suitable to bring out the beauty of wood and certain forms are not; that all woodcarving is apt to be a forcing of the material, an insult to its finer possibilities as a material having in itself intrinsically artistic properties, of which its beautiful markings is one, its texture another, its color a third.

The machine, by its wonderful cutting, shaping, smoothing, and repetitive capacity, has made it possible to so use it without waste that the poor as well as the rich may enjoy to-day beautiful surface treatments of clean,

strong forms that the branch veneers of Sheraton and Chippendale only hinted at, with dire extravagance, and which the middle ages utterly ignored.

The machine has emancipated these beauties of nature in wood; made it possible to wipe out the mass of meaningless torture to which wood has been subjected since the world began, for it has been universally abused and maltreated by all peoples but the Japanese.

Rightly appreciated, is not this the very process of elimination for which Morris pleaded?

Not alone a protest, moreover, for the machine considered only technically, if you please has placed in artist hands the means of idealizing the true nature of wood harmoniously with man's spiritual and material needs, without waste, within reach of all.

And how fares the troop of old materials galvanized into new life by the Machine?

Our modern materials are these old materials in more plastic guise, rendered so by the Machine, itself creating the very quality needed in material to satisfy its own art equation.

We have seen in glancing at modern architecture how they fare at the hands of Art and Craft; divided and still-divided in orderly sentence with rank and file of obedient retainers awaiting the master's behest.

Steel and iron, plastic cement and terra-cotta.

Who can sound the possibilities of this old material, burned clay, which the modern machine has rendered as sensitive to the creative brain as a dry plate to the lens—a marvelous simplifier? And this plastic covering material, cement, another simplifier, enabling the artist to clothe the structural frame with a simple, modestly beautiful robe where before he dragged in, as he does still drag, five different kinds of material to compose one little cottage, pettily arranging it in an aggregation supposed to be picturesque—as a matter of fact, millinery, to be warped and beaten by sun, wind, and rain into a variegated heap of trash.

There is the process of modern casting in metal—one of the perfected modern machines, capable of any form to which fluid will flow, to perpetuate the imagery of the most delicately poetic mind without let or hindrance within reach of everyone, therefore insulted and outraged by the bungler forcing it to a degraded seat at his degenerate festival.

Multitudes of processes are expectantly awaiting the sympathetic interpretation of the master mind; the galvano-plastic and its electrical brethren, a prolific horde, now cheap fakirs imitating real bronzes and all manner of the antique, secretly damning it in their vitals.

Electro-glazing, a machine shunned because too cleanly and delicate for the clumsy hand of the traditional designer, who depends upon the mass and blur of leading to conceal his lack of touch.

That delicate thing, the lithograph—the prince of a whole reproductive province of processes—see what this processes becomes in the hands of a master like Whistler. He has sounded but one note in the gamut of its possibilities, but that product is intrinsically true to the process, and as delicate as the butterfly's wing. Yet the most this particular machine did for us, until then in the hands of Art and Craft, was to give us a cheap, imitative effect of painting.

So spins beyond our ability to follow to-night, a rough, feeble thread of the evidence at large to the effect that the machine has weakened the artist; all but destroyed his hand-made art, if not its ideals, although he has made enough miserable mischief meanwhile.

These evident instances should serve to hint, at least to the thinking mind, that the Machine is a marvelous simplifier; the emancipator of the creative mind, and in time the regenerator of the creative conscience. We may see that this destructive process has begun and is taking place that Art might awaken to the power of fully developed senses promised by dreams of its childhood, even though that power may not come the way it was pictured in those dreams.

Now, let us ask ourselves whether the fear of the higher artistic expression demanded by the Machine, so thoroughly grounded in the arts and craft, is founded upon a finely guarded reticence, a recognition of inherent weakness or plain ignorance?

Let us, to be just, assume that it is equal parts of all three, and try to imagine an Arts and Crafts Society that may educate itself to prepare to make some good impression upon the Machine, the destroyer of their present ideals and tendencies, their salvation in disguise.

Such a society will, of course, be a society for mutual education.

Exhibitions will not be a feature of its programme for years, for there will be nothing to exhibit except the short-comings of the society, and they will hardly prove either instructive or amusing at this stage of proceedings. This society must, from the very nature of the proposition, be made up of people who are in the work—that is, the manufacturers—coming into touch with such of those who assume the practice of the fine arts as profess a fair sense of the obligation to the public such assumption carries with it, and sociological workers whose interests are ever closely allied with art, as their prophets Morris, Ruskin, and Tolstoy evince, and all those who have as personal graces and accomplishment perfected handicraft, whether fashion old or fashion new.

Without the interest and co-operation of the manufacturers, the society cannot begin to do its work, for this is the cornerstone of its organization.

All these elements should be brought together on a common ground of confessed ignorance, with a desire to be instructed, freely encouraging talk and opinion, and reaching out desperately for any one who has special experience in any way connected, to address them.

I suppose, first of all, the thing would resemble a debating society, or something even less dignified, until some one should suggest that it was time to quit talking and proceed to do something, which in this case would not mean giving an exhibition, but rather excursions to factories and a study of processes in place—that is, the machine in processes too numerous to mention, at the factories with the men who organize and direct them, but not in the spirit of the idea that these things are all gone wrong, looking for that in them which would most nearly approximate the handicraft ideal; not looking into them with even the thought of handicraft, and not particularly looking for craftsmen, but getting a scientific ground-plan of the process in mind, if possible, with a view to its natural bent and possibilities.

Some processes and machines would naturally appeal to some, and some to others; there would undoubtedly be among us those who would find little joy in any of them.

This is, naturally, not child's play, but neither is the work expected of the modern artist.

I will venture to say, from personal observation and some experience, that not one artist in one hundred has taken pains to thus educate himself. I will go further and say what I believe to be true, that not one educational institution in America has as yet attempted to forge the connecting link between Science and Art by training the artist to his actual tools, or, by a process of nature-study that develops in him the power of independent thought, fitting him to use them properly.

Let us call these preliminaries then a process by which artists receive information nine-tenths of them lack concerning the tools they have to work with to-day — for tools to-day are processes and machines where they were once a hammer and a gouge.

The artist to-day is the leader of an orchestra, where he once was a star performer.

Once the manufacturers are convinced of the respect and appreciation on the part of the artist, they will welcome him and his counsel gladly and make any experiments having a grain of apparent sense in them.

They have little patience with a bothering about in endeavor to see what might be done to make their particular machine endeavor and restore man's joy in the mere work of his hands—for this once lovely attribute is far behind.

This proceeding doubtless would be of far more educational value to the artist than to the manufacturer, at least for some time to come, for there would be a difficult adjustment to make on the part of the artist and an attitude to change. So many artists are chiefly "attitude" that some would undoubtedly disappear with the attitude.

But if out of twenty determined students a ray of light should come to one, to light up a single operation, it would have been worth while, for that would be fairly something; while joy in mere handicraft is like that of the man who played the piano for his own amusement — a pleasurable personal accomplishment without real relation to the grim condition confronting us.

Granting that a determined, dauntless body of artist material could be brought together with sufficient persistent enthusiasm to grapple with the Machine, would not some one be found who would provide the suitable experimental station (which is what the modern Arts and Crafts shop should be) — an experimental station that would represent in miniature the elements of this great pulsating web of the machine, where each pregnant process or significant tool in printing, lithography, galvano-electro processes, wood and steel working machinery, muffles and kilns would have its place and where the best young scientific blood could mingle with the best and truest artistic inspiration, to sound the depths of these things, to accord them the patient, sympathetic treatment that is their due?

Surely a thing like this would be worth while — to alleviate the insensate numbness of the poor fellows out in the cold, hard shops, who know not why nor understand, whose dutiful obedience is chained to botch work and bungler's ambition; surely this would be a practical means to make their dutiful obedience give us something we can all understand, and that will be as normal to the best of this machine age as a ray of light to the healthy eye; a real help in adjusting the Man to a true sense of his importance as a factor in society, though he does tend a machine.

Teach him that machine is his best friend — will have widened the margin of his leisure until enlightenment shall bring him a further sense of the magnificent ground plan of progress in which he too justly plays his significant part.

If the art of the Greek, produced at such cost of human life, was so noble and enduring, what limit dare we now imagine to an Art based upon an adequate life for the individual?

The machine is his!

In due time it will come to him!

Meanwhile, who shall count the slain?

From where are the trained nurses in this industrial hospital to come if not from the modern arts and crafts?

Shelley says a man cannot say – "I will compose poetry." "The greatest poet even cannot say it, for the mind in creation is as a fading coal which some invisible influence, like an inconstant wind awakens to transitory brightness; this power arises from within like the color of a flower which fades and changes as it is developed, and the conscious portions of our nature are unprophetic either of its approach or its departure"; and yet in the arts and crafts the problem is presented as a more or less fixed quantity, highly involved, requiring a surer touch, a more highly disciplined artistic nature to organize it as a work of art.

The original impulses may reach as far inward as those of Shelley's poet, be quite as wayward a matter of pure sentiment, and yet after the thing is done, allowing its rational qualities, is limited in completeness only by the capacity of whoever would show them or by the imperfection of the thing itself.

This does not mean that Art may be shown to be an exact Science.

"It is not pure reason, but it is always reasonable."

It is a matter of perceiving and portraying the harmony of organic tendencies; is originally intuitive because the artist nature is a prophetic gift that may sense their qualities afar.

To me, the artist is he who can truthfully idealize the common sense of these tendencies in his chosen way.

So I feel conception and composition to be simply the essence of refinement in organization, the original impulse of which may be registered by the artistic nature as unconsciously as the magnetic needle vibrates to the magnetic law, but which is, in synthesis or analysis, organically consistent, given the power to see it or not.

And I have come to believe that the world of Art, which we are so fond of calling the world outside of Science, is not so much outside as it is the very heart quality of this great material growth-as religion is its conscience.

A foolish heart and a small conscience.

A foolish heart, palpitating in alarm, mistaking the growing pains of its giant frame for approaching dissolution, whose sentimentality the lusty body of modern things has outgrown.

Upon this faith in Art as the organic heart quality of the scientific frame of things, I base a belief that we must look to the artist brain, of all brains, to grasp the significance to society of this thing we call the Machine, if that brain be not blinded, gagged, and bound by false tradition, the letter of precedent. For this thing we call Art is it not as prophetic as a primrose or an oak? Therefore, of the essence of this thing we call the Machine, which is no more or less than the principle of organic growth working irresistibly the Will of Life through the medium of Man.

Be gently lifted at nightfall to the top of a great down-town office building, and you may see how in the image of material man, at once his glory and menace, is this thing we call a city.

There beneath, grown up in a night, is the monster leviathan, stretching acre upon acre into the far distance. High overhead hangs the stagnant pall of its fetid breath, reddened with the light from its myriad eyes endlessly everywhere blinking. Ten thousand acres of cellular tissue, layer upon layer, the city's flesh, outspreads enmeshed by intricate network of veins and arteries, radiating into the gloom, and there with muffled, persistent roar, pulses and circulated as the blood in your veins, the ceaseless beat of the activity to whose necessities it all conforms.

Like to the sanitation of the human body is the drawing off of poisonous waste from the system of this enormous creature; absorbed first by the infinitely ramifying, thread-like ducts gathering at their sensitive terminals matter destructive to its life, hurrying it to millions of small intestines, to be collected in turn by larger, flowing to the great sewer, on to the drainage canal, and finally to the ocean.

This ten thousand acres of flesh-like tissue is again knit and inter-knit with a nervous system marvelously complete, delicate filaments for hearing, knowing, almost feeling the pulse of its organism, acting upon the ligaments and tendons for motive impulse, in all flowing the impelling fluid of man's own life.

Its nerve ganglia! – The peerless Corliss tandems whirling their hundred ton fly-wheels, fed by gigantic rows of water tube boilers burning oil, a solitary man slowly pacing backward and forward, regulating here and there the little feed valves controlling the deafening roar of the flaming gas, while beyond, the incessant clicking, dropping, waiting – lifting, waiting, shifting of the governor gear controlling these modern Goliaths seems a visible brain in intelligent action, registered infallibly in the enormous magnets, purring in the giant embrace of great induction coils, generating the vital current meeting with instant response in the rolling cars on elevated tracks ten miles away, where the glare of the Bessemer steel converter makes a conflagration of the clouds.

More quietly still, whispering down the long, low rooms of factory buildings buried in the gloom beyond, range on range of stanch, beautifully perfected automatons, murmur contentedly with occasional click-clack, that would have the American manufacturing industry of five years ago by the throat to-day; manipulating steel as delicately as a mystical shuttle of the modern loom manipulates a silk thread in the shimmering pattern of a dainty gown.

And the heavy breathing, the murmuring, the clangor, and the roar!-how the voice of this monstrous thing, this greatest of machines, a great city, rises to proclaim the marvel of the units of its structure, the ghastly warning

boom from the deep throats of vessels heavily seeking inlet to the waterway below, answered by the echoing clangor of the bridge bells growing nearer and more ominous as the vessel cuts momentarily the flow of the nearer artery, warning the current from the swinging bridge now closing on its stately passage, just in time to receive in a rush of steam, as a streak of light, the avalanche of blood and metal hurled across it and gone, roaring into the night on its glittering bands of steel, ever faithfully encircled by the slender magic lines tick-tapping its invincible protection.

Nearer, in the building ablaze with midnight activity, the wide white band streams into the marvel of the multiple press, receiving unerringly the indelible impression of the human hopes, joys, and fears throbbing in the pulse of this great activity, as infallibly as the gray matter of the human brain receives the impression of the senses, to come forth millions of neatly folded, perfected news sheets, teeming with vivid appeals to passions, good or evil; weaving a web of intercommunication so far reaching that distance becomes as nothing, the thought of one man in one corner of the earth one day visible to the naked eye of all men the next; the doings of all the world reflected as in a glass, so marvelously sensitive this wide white band streaming endlessly from day to day becomes in the grasp of the multiple press.

If the pulse of activity in this great city, to which the tremor of the mammoth skeleton beneath our feet is but an awe-inspiring response, is thrilling, what of this prolific, silent obedience?

And the texture of the tissue of this great thing, this Forerunner of Democracy, the Machine, has been deposited particle by particle, in blind obedience to organic law, the law to which the great solar universe is but an obedient machine.

Thus is the thing into which the forces of Art are to breathe ill of identity! A SOUL!

An address by Frank Lloyd Wright to the Chicago Arts and Crafts Society, at Hull House, March 6, and to the Western Society of Engineers, March 20, 1901.