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THE MECHANIC ARTS, AND EVERETT'S ADDRESS.*

In September last, the 'Massachusetts Charitable Mechanic Association' held, in Boston, an exhibition of machines, implements, and fabrics, recently produced by the mechanic arts; and at the same time held a fair, at which many articles made for the occasion, were sold: the profits of the exhibition and fair being applied to the charitable uses for which, mainly, the Association was formed. In variety, richness, and depth of interest, no exhibition of the kind, probably, ever surpassed, if any ever equalled, this one. 'More than fifteen thousand articles, in almost every department of art,' were displayed to the wonder-stricken eye. Specimens of manufacture the most rare, of machinery the most ingenious, courted attention on every hand. Agricultural implements, the tools proper to a hundred different trades, steam engines,—all presenting some useful or curious invention or improvement—filled the most knowing beholder with new admiration for a fertility of mind and cunningness of hand, which seemed here to have been well nigh superhumanly creative. Foremost of wonders, was the model of Davenport's electro-magnetic engine; applying the power of the loadstone to drive machinery. The model was of sufficient force to work a turner's lathe; and judicious observers, after examining its principles of action, deemed it easily susceptible of such increase in power, while it might remain so portable and cheap, as to be far superior to those hitherto matchless agents, water and steam.—The throng of spectators was proportioned to the attractiveness of the sight. Daily, for eight or ten days, thousands crowded the immense halls of the exhibition. The city, and the neighboring villages and towns, poured out almost their entire population. By the fifth or sixth day, sixty thousand people were supposed to have been admitted; and the sum received for admittances alone, was reckoned at twelve or fifteen thousand dollars.

The occasion was seized, to elicit the Address mentioned above. Its objects were, to swell the charity fund (for each auditor paid an admittance fee), and to impress mechanics and all others with a just sense of the dignity and importance of the mechanic arts. But there is one circumstance, especially worthy of notice. The author of the Address,—who, from the manner in which the title page mentions him ('Edward Everett, an Honorary member,' &c.) might be taken for merely some retired master mechanic,—is the distinguished Governor of Massachusetts; and even less distinguished by that title, than as an enlightened member of Congress, an eloquent orator, and an accomplished scholar: confessedly, one of the foremost men of that state, itself among the foremost in this confederacy.

We dwell with mingled pleasure and regret, upon this spectacle so frequent in the North, of genius, learning, and high official dignity, descending with cheerful frankness from their natural elevation, to a task of such humble usefulness: pleasure, to find that not everywhere in this our country, does greatness disdain to instruct common minds in lowly and homely truths; regret, to think how utterly, in their solitudes touching

* An Address delivered before the Massachusetts Charitable Mechanic Association, 20th September, 1837, on occasion of their first exhibition and fair. By Edward Everett, honorary member of the association. Boston: Dutton and Wentworth—1837.

the government, Southern great men have despised or forgotten that, without which, popular government can have no hope—the increase and diffusion of knowledge among the people. Vast, splendid, imposing objects, monopolize their regards. To thunder in the Senate, or electrify the multitude at some great national or party jubilee; to meditate exploits in war; or to propose some grand scheme of legislation for showering wealth upon millions at once; or to defend, with tongue and pen, the political rights of large masses of men;—these are the only quarries dignified enough for Southern ambition. It never deigns to bestow a thought upon the details of means, by which individual men and women may be made to covet, and to acquire, a knowledge of their various duties and rights—of Nature's wonders—and of Art's triumphs. Far less does it deign, like Bacon, or (may we add) like Brougham and Everett, to drudge personally (*operarius et bajulus ferri*) in so unshowy a work. What insatiation! to imagine that the edifice of state will withstand sapping and the storm, because its proportions are happy and the blocks which compose it are strong; when their joints are uneven and the cement which should unite them is a crumbling sand!—Men who will devote their powers to none but the vulgar aims of ambition— oratory, statesmanship, and arms—err as fatally as those do, (and in a manner not unlike) who reserve all their virtue for great occasions, when it may shine as heroism; slighting the 'lesser morals,' the daily and hourly courtesies, which make so nearly the sum of human happiness, and form so much the largest part of human duty. The would-be hero, unblest and unblest, diffuses no joy, and receives none, in his domestic or social circle. The would-be orator, statesman, or warrior, leaves undone almost all that he should have done for the peace, freedom, and happiness of his country. He speedily suffers the proper doom of all misguided seekers after Fame;

'In dark oblivion drown'd,
He sleeps forgot, with mighty tyrants gone;
His statues moulder'd, and his name unknown.'

The truest benefactors of mankind are those who, in their sphere, be it high or low, wide or narrow, do what they can to enlighten the minds and improve the morals of their fellow-men. Accordingly, especial honor is due to him, who adds this merit to the ordinary constituents of greatness.

Such is the honor due to Mr. Everett. Besides having figured, we need not say how conspicuously, in the great arena at Washington; besides having, in the ablest articles of the ablest American Review, signalized his pen in the cause not only of letters, but of human rights and human improvement; he has, by numerous instructive lectures and addresses, before associations and assemblies of different kinds, spread abroad a large amount of useful knowledge; and what is much better, created in many a mind, an ardent thirst for more of that knowledge; nay, what is best of all, has set an impressive and infectious example, which will multiply the effect of his own work a thousand fold.

The misdirected or slumbering geniuses of the South, whom we would fain arouse by pointing to that example, may possibly suppose that the field in which Mr. E. has thus labored, is barren of what is commonly deemed glory: that it yields no laurels: and that the only compensation to the plodding toiler, is the con-

sciousness of doing much good. So, before a trial, any one might have supposed. So, probably, Mr. Everett himself thought, when, inspired by patriotism and philanthropy (we do not like to employ the much abused word), he first girded himself for the work. But he has found it otherwise. He has found the field a full worthy one, for the best efforts of genius. It has furnished some of the most verdant and enduring chaplets that entwine his brow. His powers of reasoning and illustration, his treasures of diversified knowledge, eye, and his eloquence, have been signalized so, as the first talents in all the land might be proud of being signalized. The Address delivered at the late exhibition and fair, is an instance of this. We shall quote considerable portions of it, (as we have made the foregoing remarks) not to please the author, to whom we are unknown, and owe nothing save our quota of the whole country's gratitude; but to shew how entirely susceptible such themes and such occasions are, of being handled in the style of a master, and to strengthen our recommendation of his example to his countrymen. The passages quoted, at the same time, will enrich our pages, and amply reward the reader's trouble in perusing them.

The following paragraph displays the wonderful increase of man's power, from the use of machines, and other material agents:

"Man, with his unaided strength, can lift but one or two hundred weight, and that but for a moment; with his pulleys and windlasses, he sets an obelisk upon its base,---a shaft of solid granite a hundred feet high. The dome of St. Peter's is one hundred and twenty feet in diameter; its sides are twenty-two feet in thickness, and it is suspended in the air at an elevation of three hundred and twenty feet from the ground,---and it was raised by hands as feeble as these. The unaided force of the muscles of the human hand is insufficient to break a fragment of marble, of any size, in pieces; but, on a recent visit to the beautiful quarries in Sheffield, from which the columns of the Girard College at Philadelphia are taken, I saw masses of hundreds of tons, which had been cleft from the quarry by a very simple artificial process. Three miles an hour, for any considerable space of time, and with ample intervals for recreation, food, and sleep, are the extreme limit of the locomotive capacity of the strongest frame, and this confined to the land. The arts step in: by the application of one portion of them to the purposes of navigation, man is waked, night and day, alike waking and sleeping, at the rate of eight or ten miles an hour, over the unfathomed ocean; and, by the combination of another portion of the arts, he flies at the rate of fifteen or twenty miles an hour, and if need be with twice that rapidity, without moving a muscle, from city to city. The capacity of imparting thought, by intelligible signs, to the minds of other men,---the capacity which lies at the foundation of all our social improvements,---while unaided by art, was confined within the limits of oral communication and memory. The voice of wisdom perished, not merely with the sage by whom it was uttered, but with the very breath of air on which it was borne. Art came to the aid of the natural capacity; and, after a long series of successive improvements, passing through the stages of pictorial and symbolical representations of things,---the different steps of hieroglyphical writing, (each occupying, no doubt, long periods of time for its discovery and application),---it devised a method of imprinting on a material substance an intelligible sign, not of things, but of sounds forming the names of things; in other words, it invented the A B C. With this simple invention, and the mechanical contrivances with which it is carried into effect, the mind of man was, I had almost said, re-created. The day before it was invented, the voice of man, in its utmost stretch, could be heard but by a few thousands, intently listening for an hour or two, during which alone his strength would enable him to utter a succession of sounds. The day after the art of writing was invented, he stamps his thoughts on a roll of parchment, and they reach every city and hamlet of the largest empire. The day before this invention, and the mind of one country was estranged from the mind of all other countries. For almost all the purposes of intercourse, the families of man might as well not have belonged to one race. The day after it, and Wisdom was endowed with the gift of tongues, and spake by her interpreters to all the tribes of kindred men. The day before this invention, and nothing but a fading tradition, constantly becoming fainter, could be preserved by the memory, of all that was spoken or acted by the greatest and wisest of men. The day after it, Thought was imperishable; it sprung to an earthly immortality; it seized the new-found instruments of record and commemoration, and, deserting the body as it sunk with its vocal organs into the dust, it carved on the very grave-stone, "The mind of man shall live forever."

These illustrations of the important aid man derives from the mechanic arts, lead to the inference, that *they are the great instruments of human civilization.* Then come the subjoined striking views of the differences between civilized and savage life; closing with a graphic description of the work done by a weaving mill; and some wonderful results of the steam engine:

"It is a somewhat humiliating reflection, that, in many things dependent on the human organs and senses,---unaided by the arts,---the savage greatly excels the most improved civilized man. Thus man, with one set of glasses, penetrates the secret organization of the minutest insect or plant,---marks the rise of the sap in the capillaries of a blade of grass,---counts the pulsations of the heart in an animalcule a hundred times smaller than the head of a pin; while, with another set of glasses, he fills the heavens with a hundred millions of stars, invisible to the naked eye. To the savage, the wonders of the microscope and the telescope are unknown; but he can, by traces which elude our keenest vision, tell whether it is the foot of friend or enemy which has passed over the grass before his tent in the silence of night; and he can find his way through the pathless and tangled forest without a guide. Civilized man, with his wheels and his steam, runs a race with the winds, but, left to the natural force of his members, soon sinks from fatigue. The indefatigable savage, ignorant of artificial conveyance, outtires, on foot, the hound and the horse; and, while the famished child of civilized life salutes at the delay of his periodical meal, a three days' hunger makes no impression on the iron frame of the poor Indian. Civilized man, although surrounded by his arts, with enjoyments that seem to render life a hundred fold more precious, lies drenched in sleep one-third of his precious hours, and may well envy the physical training which enables his hardy brother of the forest, when occasion requires, to bid defiance, night after night, to the approach of weariness.

"But this superiority which the savage possesses over civilized man, in the discipline of some of the natural capacities of our frame, is turned to little account of human improvement and happiness, for want of those arts which create, combine, and perpetuate the powers and agents by which our wants are supplied. Even the few comforts of which his forlorn condition is susceptible, are mostly derived, not from this superior training of his natural faculties and senses, but from his possession of some few imperfect arts. The savage, needy at best, without his moccasins, his snow-shoes, his dressed buffalo skin, his hollowed tree or bark canoe, his bow and arrow, his tent and his fishing gear, would be a much more abject being. And these simple inventions, and the tools and skill required by them, no doubt occupied a considerable period in the early history of our race. But the great difference between savage and civilized life consists in the want of those more improved arts,---the products of which we have been contemplating,---by which no inconsiderable quantity of human power and skill can be transferred to inanimate tools and machinery, and perpetuated in them; the arts whereby the grasp of the hand, which soon wears, can be transferred to the iron gripe of the vice, the clamp, the bolt, that never tire; the arts by which stone, and metal, and leather, and wood, may be made to perform the offices of poor flesh and bone. The savage, when he has parched his corn, puts it in a rude mortar, which with infinite toil he has scooped out of a rock, and laboriously pounds it into meal. It is much, if, in this way, he can prepare food enough to keep him alive while he is preparing it. The civilized man, when he has raised his corn, builds a mill with a water-wheel, and sets the indefatigable stream to grinding his grain. There are now two or three laborers at work; one, it is true, with forces which soon weary, and which can only be kept up by consuming a part of the corn as fast as it can be made into food, but endowed with an untiring and inexhaustible invention;---the other patient fellow-laborers of wood and iron, the stream, the wheel, and the mill-stone, without capacity for head-work, are willing to grind corn all day, and not ask a mouthful back by way of sustenance.---Civilization is kept up by storing the products of the labor thus economized, and imparting a share of it to those engaged in some other pursuit, who give a portion of its products in exchange for food.

"Take another illustration in the arts employed in furnishing the clothing of man. The savage, when he has killed a buffalo and dried his skin, prepares it with the manual labor of several weeks for a garment;---a substantial and slightly garment; but it has taken him a long time, and he has made but one. The civilized man, having a world of business on his hands, has contrived a variety of machines, which perform almost all the work required for his clothing. He cuts a mass of curled wool from the sheep's back,---a confused, irregular heap of fibrous threads, which would seem to defy the skill and industry of the artificer. How long will it not take the busiest pair of fingers to piece those fibres together, end to end, to lay them side by side, so as to give them substance, coherence, dimensions,---to convert them into a covering and defence, excluding cold and wet! The savage, in taking the skin, seems to have made the wiser choice. Nature has done the spinning and weaving to his hand. But wait a moment:---there is a group of iron-fingered artificers in yonder mill will show you a wonder. They will, with a rapidity scarcely conceivable, convert this uncouth fibrous heap into a uniform mass; they will draw out its short, curly fibres into long even threads,---lay them side by side, and curiously

cross them over and under with magical dexterity, till they form a compact tissue, covered with a soft down and a glossy lustre, smooth, impervious, flexible,--in quantity sufficient to clothe a family for a year, with less expense of human labor, than would be required to dress a single skin.

"Consider the steam engine. It is computed that the steam power of Great Britain, not including the labor economized by the enginery it puts in motion, performs annually the work of a million of men. In other words, the steam engine adds to the human population of Great Britain another population, one million strong. Strong it may well be called. What a population! so curiously organized, that they need neither luxuries nor comforts,--that they have neither vices nor sorrows,--subject to an absolute control without despotism,--laboring night and day for their owners, without the crimes and woes of slavery; a frugal population, that wastes nothing and consumes nothing unproductively; an orderly population, to which mobs and riots are unknown; among which the peace is kept without police, courts, prisons, or bayonets; and annually lavishing the product of one million pairs of hands, to increase the comforts of the fifteen or twenty millions of the human population. And yet the steam engine, which makes this mighty addition to the resources of civilization, is but a piece of machinery. You have all seen it, both in miniature and on a working scale, at the halls. In the miniature model, (constructed by Mr. Newcomb of Salem,) it can be moved by the breath of the most delicate pair of lips in this assembly; and it could easily be constructed of a size and power, which would rend these walls from their foundation, and pile the roof in ruins upon us. And yet it is but a machine. There is a cylinder and a piston; there are tubes, valves, and pumps,--water, and a vessel to boil it in. This is the whole of that enginery, with which the skill and industry of the present age are working their wonders. This is the whole of the agency which has endowed modern art with its superhuman capacities, and sent it out to traverse the continent and the ocean, with those capacities which Romance has attributed to her unearthly beings:

Tramp, tramp, along the land they ride,
Splash, splash, across the sea.

"It is wholly impossible to calculate the quantity of labor economized by all the machinery which the steam engine puts in motion. Mr. Baines* states, that the spinning machinery of Great Britain, tended by one hundred and fifty thousand workmen, "produces as much yarn as could have been produced by forty millions of men with the one-thread wheel!" Dr. Buckland remarks, that it has been supposed that "the amount of work now done by machinery in England is equivalent to that of between three and four hundred millions of men by direct labor."†

We dare say most of our readers will find something new to them in the passage we are now going to quote, touching the progress of certain improvements in one familiar art.

"It is not yet, I believe, more than two or three centuries, since the only mode of spinning known was by the rock and spindle. The simple spinning-wheel, moved by the hand, and which was thought, in the times of our grand-parents, to show a graceful form and a well-turned arm to nearly as much advantage as a harp at the present day, and to make a music almost as cheerful, is at once an obsolete and a modern invention. The Greeks and Romans are said to have been unacquainted with the spinning-wheel. The monarch's heavy purple and the nymph's airy tissue were alike manufactured by twirling the distaff, and drawing out a thread with the fingers; and no improvement was made on this tedious process, in Great Britain, before the fifteenth century. It is evident that much more labor must have been requisite, with this rude machinery, to supply the indispensable article of clothing, than with the modern improvements. The introduction of the spinning-wheel produced a great economy of this labor; but the introduction of the spinning and weaving machinery of the last century, has pushed this economy to an extent, at which it is in vain to attempt to calculate it. This economy operates, first, to multiply the comforts of the existing population, and then, by necessary consequence, to increase the population capable of subsisting in a given circuit. Yes, the man who, in the infancy of the arts, invented the saw or the plane, the grindstone, the vice, or the hand-mill; and those who, in later periods, have contributed to the wonderful system of modern machinery, are entitled to rank high among the benefactors of mankind,--the fathers of civilization,--the creators, I had almost said, of nations. No, it is not the fabulous wand of the enchanter, it is the weaver's beam, and instruments like it, which call thousands and tens of thousands into being. Mind, acting through the useful arts, is the vital principle of modern civilized society. The mechanician, not the magician, is now the master of life. He kindles the fires of his steam engine,--the rivers, the lakes, the ocean, are covered with flying vessels; mighty chain-pumps descend, clanking and groaning, to the deepest abysses of the coal mine, and rid them of their deluging waters; and spindles and looms ply their task as if instinct with life. It is the acromancy of the creative machinist. In a moment a happy thought crosses his imagination,--an improvement is conceived. Some tedious process can be superseded by a chemical application, as in the

modern art of bleaching. Some necessary result can be attained, in half the time, by a new mechanical contrivance;--another wheel--a ratchet--a screw will effect the object; he tries a few experiments; it will succeed; it is done. He stamps his foot, and a hundred thousand men start into being; not, like those which sprang from the fabled dragon's teeth, armed with the weapons of destruction, but furnished with every implement for the service and comfort of man. It is stated by James Watt, (before whose time the steam engine was an imperfect and inefficient machine,) that the moment the notion of "separate condensation" struck him, all the other details of his improved engine followed in rapid and immediate succession, so that, in the course of a day, his invention was so complete that he proceeded to submit it to experiment.* Could that day be identified, it would well deserve an anniversary celebration by the universal tribes of civilized man."

Sentimentalists have complained of "the mechanical tendency" of the present age, as having an unfavorable influence upon morals and intellect. Mr. Everett vindicates the mechanic arts from this imputation; regarding their intellectual and moral influences as among their happiest results. We cannot abridge his observations without greater injustice to them and to our readers, than we are willing to burthen our conscience with. The manner in which, at the close of the following extract, he is 'warned back from his digression' by his watch, equals those happy transitions adduced by Dugald Stewart† from Thomson, Goldsmith, and Virgil.

"The immediate result of every improvement in these arts, as has been already stated, often is, and always might and should be, by making less labor and time necessary for the supply of human wants, to raise the standard of comfortable living,--increase the quantity of leisure time applicable to the culture of the mind,--and thus promote the intellectual and moral progress of the mass of the community. That this is the general tendency of a progress in the useful arts, no one can doubt, who compares the present condition of the world with its condition in the middle ages; and the fact is confirmed by the history of single inventions. I have already spoken of alphabetical writing. Pliny remarks of the Egyptian reed, (the first material of which paper was made,) that *or this reed rested the immortality of man*. The thought, though savoring of heathenism in the expression, is just. This single art of alphabetical writing was a step absolutely essential in the moral and intellectual progress of our race. To speak of the art of printing, in its connection with morals and mind, would be as superfluous as it would be difficult to do justice to the topic. Its history is not so much an incident as the summary of modern civilization. Vast as the influence of this art of arts has been, it may well be doubted whether improvements will not yet be made in the mechanism connected with it, which will incalculably increase its efficiency. If I mistake not, the trumpet-voice of Truth from this machine is yet destined to reach to distances and depths of society, which have hitherto remained unexplored and neglected.

"Again, in reference to the intimate connection of the useful and mechanic arts with intellectual progress, let us but advert for a moment to the mariner's compass, the telescope, the quadrant. For myself, I never reflect upon their influence on the affairs of man, and remember that they are, after all, merely mechanical contrivances, without emotions of admiration bordering upon awe. This sentiment, I know, is so worn away by habit, that it seems almost to run into sentimentality. But let us not be ashamed to reproduce the emotions that spring from the freshness of truth and nature. What must not have been Galileo's feelings, when he pointed the first telescope to the heavens, and discovered the phases of Venus and the moons of Jupiter! When I behold the touched nettle trembling to the pole,--when I know that, beneath the utter blackness of the midnight storm, when every star in heaven is quenched, and the laboring vessel, in mid-ocean, reels, like a drunken man, on the crested top of the mighty waves, that little bar of steel will guide the worn and staggering helmsman on his way,--I feel that there is a holy philosophy in the arts of life, which, if I cannot comprehend, I can reverence.

"Consider the influence on the affairs of men, in all their relations, of the invention of the little machine which I hold in my hands; and the other modern instruments for the measurement of time, various specimens of which are on exhibition in the halls. To say nothing of the importance of an accurate measurement of time in astronomical observations,--nothing of the application of time-keepers to the purposes of navigation,--how vast must be the aggregate effect on the affairs of life, throughout the civilized world, and in the progress of ages, of a convenient and portable apparatus for measuring the lapse of time!

*Lardner's Popular Lectures on the Steam Engine, p. 61. Dr. Lardner, in the context of the passage above quoted, speaks of the notion of "separate condensation" as the "happy conception which formed the first step of that brilliant career which has immortalized the name of Watt, and which has spread his fame to the very skirts of civilization."

†In the first volume of his Philosophy of the Human Mind.

* Baines' History of the Cotton Manufacture, p. 362.

† Buckland's Geology and Mineralogy, Vol. I. p. 400.

Who can calculate in how many of those critical junctures when affairs of weightiest import hang upon the issue of an hour, Prudence and Forecast have triumphed over blind Casualty, by being enabled to measure with precision the flight of time, in its smallest subdivisions! Is it not something more than mere mechanism, which watches with us by the sick-bed of some dear friend, through the livelong solitude of night, enables us to count, in the slackening pulse, nature's trembling steps toward recovery, and to administer the prescribed remedy at the precise, perhaps the critical, moment of its application? By means of a watch, punctuality in all his duties,—which, in its perfection, is one of the incommunicable attributes of Deity,—is brought, in no mean measure, within the reach of man. He is enabled, if he will be guided by this half-rational machine, creature of a day as he is, to imitate that sublime precision which leads the earth, after a circuit of five hundred millions of miles, back to the solstice at the appointed moment, without the loss of one second, no, not the millionth part of a second, for the ages on ages during which it has travelled that empyreal road.* What a miracle of art, that a man can teach a few brass wheels, and a little piece of elastic steel, to out-calculate himself; to give him a rational answer to one of the most important questions which a being travelling toward eternity can ask! What a miracle, that a man can put within this little machine a spirit that measures the flight of time with greater accuracy than the unassisted intellect of the profoundest philosopher; which watches and moves when sleep palsies alike the hand of the maker and the mind of the contriver, nay, when the last sleep has come over them both! I saw the other day, at Stockbridge, the watch which was worn on the 8th of September, 1753, by the unfortunate Baron Dieskau, who received his mortal wound on that day, near Lake George, at the head of his army of French and Indians, on the breaking out of the seven years' war. This watch, which marked the fierce, feverish moments of the battle as calmly as it has done the fourscore years which have since elapsed, is still going; but the watch-maker and baron have now for more than three-fourths of a century been gone where time is no longer counted. Frederic the Great was another and a vastly more important personage of the same war. His watch was carried away from Potsdam by Napoleon, who, on his rock in mid-ocean, was wont to ponder on the hours of alternate disaster and triumph, which filled up the life of his great fellow-destroyer, and had been equally counted on its dial-plate. The courtiers used to say, that this watch stopped of its own accord, when Frederic died. Short-sighted adulation! for if it stopped at his death, as if time was no longer worth measuring, it was soon put in motion, and went on, as if nothing had happened. Portable watches were probably introduced into England in the time of Shakspeare; and he puts one into the hand of his fantastic jester, as the text of his morality. In truth, if we wished to borrow from the arts a solemn monition of the vanity of human things, the clock might well give it to us. How often does it not occur to the traveller in Europe, as he hears the hour tolled from some ancient steeple,—that iron tongue in the tower of yonder old cathedral, unchanged itself, has had a voice for every change in the fortune of nations! It has chimed monarchs to their thrones, and knelled them to their tombs; and, from its watch-tower in the clouds, has, with the same sonorous and impartial stoicism, measured out their little hour of sorrow and gladness to coronation and funeral, abdication and accession, revolution and restoration; victory, tumult, and fire;† and, with like faithfulness, while I speak, the little monitor by my side warns me back from my digression, and bids me bow me lest I devote too much of my brief hour, even to its own commendation. Let me follow the silent monition, sustained, perhaps, by the impatience of the audience, and hasten to the last topic of my address.‡

Our last extract closes the address. Bright and grand as are its anticipations of future improvement, none can deny them to be rational. And it is difficult to perceive how any mechanic can hear, or read, the concluding paragraph, without a conscious increase of that self-respect, and that real elevation of character, with which the whole address tends to inspire him.

“So numerous are the inventions and discoveries that have been made in every department, and to such perfection have many arts been carried, that we may, perhaps, be inclined to think that, in the arts, as on the surface of the globe, after all the brilliant discoveries in navigation in the last three centuries, there is nothing left to find out. Though it is probable that, in particular things, no further progress can be made, (and even this I would not affirm, with any confidence,) yet, so far from considering invention as exhausted, or art at a stand, I believe

* It is not, of course, intended that the sidereal year is always of precisely the same length, but that its variations are subject to a fixed law. See *Sir Jno. Herschel's Treatise on Astronomy*, §503.

† *Inclusus varis famulatus spiritus astris Et vivum certis motibus urget opus.*

Claudian. in Sphar. Archimides.

‡ The associations here alluded to have lately been rendered familiar to the public by the Mayor's spirited translation and adaptation to music of Schiller's splendid poem of *The Bell*. The idea was originally glanced at in one of Mrs. Elizabeth Montagu's Letters.

there never was a moment when greater improvements were to be expected: and this for the very reason that so much has already been done,—that truth, in its nature, is at once boundless and creative,—and that every existing art, invention, and discovery, is but an instrument of further improvement. Even when any particular art or machine seems to have reached the highest attainable point of excellence, nothing is more likely than that it will, by some wholly unexpected discovery or improvement, be greatly advanced; or that, by accidental or natural association, it will lead to some other very important improvement in a branch of art wholly dissimilar; or, finally, that it will be superseded by something quite different, but producing the same result. Take, as an example, the art of printing. The simple process of printing with moveable types, and a press moved by hand, does not seem, in the lapse of four hundred years, to have undergone any very material improvement; but the introduction of solid plates, and the application of artificial power to the press, are improvements wholly disconnected, in their nature, from the art of printing, and yet adding incalculably to its efficacy and operative power. In a word, the products of art are the creations of rational mind, working with intelligent and diversified energy, in a thousand directions;—bounding from the material to the moral world, and back from speculation to life; producing the most wonderful effects on moral and social relations by material means, and again, in an improved political and moral condition, finding instruments and encouragement for new improvements in mechanical art. In this mighty action and reaction, we are continually borne on to results the most surprising. Physical and moral causes and effects produce moral and physical effects and causes, and every thing discovered tends to the discovery of something yet unknown. It rarely, perhaps never, happens that any discovery or invention is wholly original; as rarely, that it is final. As some portion of its elements lay in previously existing ideas, so it will awaken new conceptions in the inventive mind. The most novel mechanical contrivance contains within itself much that was known before; and the most seemingly perfect invention—if we may judge the future by the past—admits of further improvements. For this reason, the more that is known, discovered and contrived, the ampler the materials out of which new discoveries, inventions, and improvements, may be expected.

“Perfect as the steam engine seems, it is a general persuasion that we are in the rudiments of its economical uses. The prodigious advances made in the arts of locomotion, teach nothing more clearly, than the probability that they will be rendered vastly more efficient. The circulation of ideas by means of the press is probably destined to undergo great enlargement. Analytical chemistry has, within the last thirty years, acquired instruments which enable the philosopher to unlock mysteries of nature before unconceived of. Machinery of all kinds, and for every purpose, is daily simplified and rendered more efficient. Improved manipulations are introduced into all the arts, and each and all of these changes operate as efficient creative causes of further invention and discovery. Besides all that may be hoped for by the diligent and ingenious use of the materials for improvement afforded by the present state of the arts, the progress of science teaches us to believe that principles, elements and powers are in existence and operation around us, of which we have a very imperfect knowledge, perhaps no knowledge whatever. Commencing with the mariner's compass in the middle ages, a series of discoveries has been made connected with magnetism, electricity, galvanism, the polarity of light, and the electro-magnetic phenomena which are occupying so much attention at the present day, all of which are more or less applicable to the useful arts, and which may well produce the conviction that, if in some respects we are at the meridian, we are in other respects in the dawn of science. In short, all art, as I have said, is a creation of the mind of man—an essence of infinite capacity for improvement. And it is of the nature of every intelligence endowed with such a capacity, however mature in respect to the past, to be at all times, in respect to the future, in a state of hopeful infancy. However vast the space measured behind, the space before is immeasurable; and though the mind may estimate the progress it has made, the boldest stretch of its powers is inadequate to measure the progress of which it is capable.

Let me say, then, Mr. President, and Gentlemen of the Mechanic Association,—PERSEVERE. Do any ask what you have done, and what you are doing for the public good? Send them to your exhibition rooms, and let them see the walls of the temple of American Liberty,* fitly covered with the products of American art. And while they gaze with admiration on these creations of the mechanical arts of the country, bid them remember that they are the productions of a people whose fathers were told by the British ministry they should not manufacture a hob-nail! Does any one ask in disdain for the great names which have illustrated the Mechanic Arts! Tell him of Arkwright, and Watt, of Franklin, of Whitney, and Fulton, whose memory will dwell in the grateful recollections of posterity, when the titled and laurelled destroyers of mankind shall be remembered only with detestation. Mechanics of America, respect your calling, respect yourselves. The cause of human improvement has no firmer or more powerful friends. In the great Temple of Nature, whose foundation is the earth,—whose pillars are the eternal hills,—whose roof is the star-lit sky,—whose organ-tones are the whispering breeze and the sounding storm,—whose architect is God,—there is no ministry more sacred than that of the intelligent mechanic!†

* The exhibition was held in Faneuil Hall.—*Ed. Messenger.*