THE ORIGIN OF THE MECHANIC ARTS.

When the first man was brought into being, for the ostensible purpose of *tilling the ground*, he was placed in a garden for the purpose of keeping and *dressing* it. We may suppose that the arrangement of the plants and shrubbery was perfect at first, but as many of the choice plants were merely annual, some attention and exercise—not to say labor—became necessary to nourish, accommodate and maintain them; and also to give to the most useful or desirable an advantage of growth over the more apparently useless, which are now usually termed weeds. He soon discovered the advantage to be derived from the process of planting, transplanting and pruning; also that of cooking or dressing with fire some of the various fruits. He no sooner discovered the various uses of his own teeth and finger-nails than he conceived the idea of using the sharp edge of a thin piece of stone for the purpose of cutting off weeds or small tranches of trees, and for furrowing and adjusting the surface of the earth. The breaking and shaping of stones for this purpose probably constituted the first mechanical operations, and that before anything was done in the line of agriculture. With these stone blades sticks of wood were cut, and we may imagine something of the course of experiments by which Adam succeeded in lashing one of these blades to the end of a stick, with strips of bark or long grass, for the purpose of a hoe; and his exultation of feeling at the final success of these experiments. A correct history of the life and adventures of the first man would undoubtedly abound with incidents of invention and discovery in the Mechanic Arts; and it was discovered and acknowledged in the immediately subsequent ages, that no improvement in any branch of agriculture could succeed unless it was preceded by applicable and corresponding improvements in this science. Wherefore Agriculture may be truly said to have been dependent on the Mechanic arts for its very existence: and in all ages and places its progress and perfection has been restricted to the advance and perfection of the common science of Mechanics. From these facts we may readily adopt the conclusion that Agriculture is neither more nor less than a combination of the ordinary works of nature with the mechanical arts.—*N. Y. Mechanic.*

PROPELLING WHEELS.—We have never known in any one season, so many attempts to improve the mode, or to introduce improved modes of propelling vessels, as within the present year. It is evident that there never has yet been very important improvements made on Fulton's original and rational method—the simple paddle wheel. It is well known and generally admitted that with this wheel there is some loss of power occasioned by vertical resistance, in the dipping or plunging the paddles into the water and lifting them out of it; and the grand desideratum with inventors seems to have been in general, to avoid this loss of power, which does not ordinarily exceed fifteen per cent.; although some have announced that by their favorite methods an advantage of fifty or one hundred per cent. was gained over the common paddle wheel. We cannot understand why inventors have so generally overlooked another disadvantage of much greater magnitude than the one complained of; that is, the receding or escaping of the water to the right and left, and vertically, from the pressure of the buckets or paddles, by which they are deprived of much of that aqueous resistance on which the paddle depends for its effect on the boat or vessel. The principal loss of power, when applied to a paddle wheel, consists in the motion of the paddles while in the water: for if the paddles [illegible] motion in one direction as the vessel has in the other, it is plain that three-fourths of the power is lost. There are but few mechanics who can comprehend or will admit this, however; but we shall make it plain by this demonstration: If the resistance of the water was so permanent that the paddles had no motion at all while in the water, the wheel would not be required to revolve only half as often to produce an equal velocity in the vessel; and it is an established law that double velocity under equal pressure requires quadruple power. Therefore, it is plain that four times as much power is required to propel a vessel with a specific velocity, when the paddle moves with an equal velocity in the water, as when the resistance is permanent. Therefore, the grand desideratum is, in reality, the increasing of this resistance. With this view, several different people at different times have made the experiment of arranging a series of paddles of float boards, on two endless chains which pass over two drums or pulleys. By this plan several paddle boards are equally immersed at the same time. Observation of the operation, however, readily developes the fact, that only one of the several paddles can be useful at the same time; for as soon as either one of them dips, it puts in motion a quantity of water, and then floats along with the water without any further effect until dipped again. Other plans have been tried in other cases, but none of them appears so rational as that of increasing the resistance, by preventing the escape of the water vertically and laterally. If a shovel or a spoon is used as a paddle it is found that there is a much greater resistance when placed with the concave side foremost, than when the reverse, or convex side is forward In fact, a hollow or dishing paddle will meet more resistance than an equal plain surface, which can be accounted for only on the principle of preventing the ready escape of the water from before it. There is, or might be, a much greater advantage derived from enlarging the area of the paddle boards, than can be from the popular custom of increasing the diameter of the wheel; and it is impossible that experiment should justify the policy of making the paddles so small in proportion to the diameter of the wheels, as those of the Atlantic steam ships.—*N. Y. Mechanic.*

SHELTER FOR HORSES.—This invention consists of an awning made of light materials, and supported at the height of about a foot above the back of a horse, by a light frame work of wires and whalebone standing out from the harness. The awning conforms in shape to that of the horse; but being thus elevated, it allows a free circulation of air under it, while it keeps the horse thoroughly sheltered from the rays of the sun. The apparatus may be attached to any harness—is very light and no wise inconvenient. A horse will be able to perform much more service in extremely hot weather by means of them.—*Ib.*

SIGN PAINTER'S GUIDE.—This apparatus consists in part of the principle of the *Magic Lantern* and will aid a painter in readily adjusting the spacing and proportioning of letter-work. Having a set of small stensil letters, he selects the required number, and arranges them on a plate of glass, which he places in front of the lantern, and then places his board at such a distance therefrom, that the spectrum of the letters will fill the space intended for them, when he can readily trace the outlines without danger of error.—*Ib.*

THE MECHANIC.—"The mechanic, sir, is one of God's noblemen. What have mechanics not done? Have they not opened extracted its treasures, and made the raging billows their highway, on which they ride as on a tame steed? Are not the elements of fire and water chained to the crank, and at the mechanic's bidding, compelled to turn it? Have not mechanics opened the bowels of the earth, and made its products contribute to their wants? The forked lightning is their plaything; and they ride triumphant on the wings of the mighty winds. To the wise they are the flood-gates of knowledge, and kings and queens are decorated with their handiwork. He who made the universe was a great mechanic."—*From the Carpenter of Rouen.*

AN UNOXYDIZABLE METAL FOR CASTING.—This alloy has the fracture and aspect of ordinary zinc, but possesses remarkable properties which will render it valuable in the arts. It is as hard as copper or iron; it possesses more tenacity than soft brass castings; it may be turned, filed or bored, as well as those metals; it does not adhere to the metalic moulds in which it run, and may be kept in moist air without rusting, or in the least losing its metallic lustre. Such alloy will be of great utility in the manufacture of machinery; and as, moreover, it takes with great facility any of the bronze colors which it may be desired to give it, either by covering it with metallic precipitates, or by developing the copper which it contains, it will be eminently suitable to be employed in casting statues, vases, and other objects designed to ornament public monuments exposed in the open air. It will have, moreover, the advantage over bronze of costing less.

It is prepared by casting together with proper precautions, zinc, copper, and cast iron. It contains ten per cent. of copper, and ten per cent. of iron.

TEMPERING STEEL.—Mr. Oldham, printing engineer of the Bank of England, who has had great experience in the treatment of steel for dies and mills, says that for hardening it, the fire should never be heated above the redness of sealing wax, and kept at that pitch for a sufficient time. On taking it out, he hardens it by plunging it, not in water, but in olive oil, or rather naphtha, previously heated to 200 degrees F. It is kept immersed only till the ebullition ceases, and then instantly transferred into cold spring water, and kept there till quite cold. By this treatment the tools come out perfectly clean, and as hard as it is possible to make cast steel; while they are perfectly free from cracks, flaws or twist. Large tools are readily brought down in temper, by being suspended in the red hot muffle till they show a straw color; but for small tools he prefers plunging them in oil heated to 400 degrees, and leaves them in till they become cold. Mr. Oldham softens his dies by exposing them to ignition for the requisite time, imbedded in a mixture of chalk and charcoal.—*Dr. Ure.*

NEW SPLENDID KEYED INSTRUMENT.—Mr. H. Breun g has just arrived from Vienna on his way to London, with an instrument called the *Phys-harmonica Piano.* It consists of a powerful and brilliant grand pianoforte, combined with a set of reed stops of extraordinary power and sweetness, which may be either played separately, or combined with the piano. Many of our readers, have, no doubt, seen and heard the organized piano fortes, as they were called, which consists of a piano and a set of organ pipes, worked by the foot of the performer. The great and unremediable defect of these instruments was their liability to be out of tune, as every change in the temperature of the atmosphere has a diametrically opposite effect upon the pipes and strings—heat raising the pitch of [illegible]