THE

NEW YORK

COACH-MAKER'S MAGAZINE,

DEVOTED TO THE

LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

VOLUME TWELVE.

JUNE, 1870, TO ~~MARCH~~ February, 1871.

NEW YORK:
GEO. W. W. HOUGHTON, Editor,
88 CHAMBERS STREET.

MDCCCLXXI.

PREFACE.

It is without doubt generally known that ever since we undertook the editorship of the "New York Coachmakers' Magazine," we have been laboring in every way within our power to strengthen its good points, and to make as many additions to its interest and its practical nature as were possible. We have become convinced that the best way to accomplish this is to combine with it "The Hub," which contains some things that the magazine lacks; to add new departments; publish it in new form, and to enter with the thirteenth volume upon a *new series*. Having determined upon this course, we believe that the sooner the change is made the better, and as the next volume of "The Hub" will begin with April next, and will be prefaced by an introductory number in March, we have decided to join hands with it in its introductory number, and as that number will be in the improved form, this February Magazine will be most conveniently bound as the concluding number of the Twelfth Volume. We therefore give a brief preface, begging at the same time that our subscribers will remember that this does not denote the conclusion of the "New York Coachmaker," but only its last appearance under the old cover. This change will not interfere with unexpired subscriptions, as we explain on page 152.

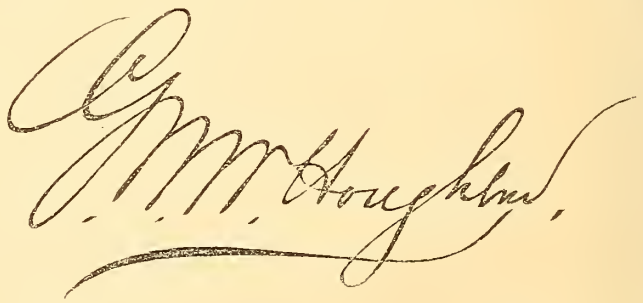
Although this volume of nine numbers is a shorter one than usual, we trust that in practical value it will compare favorably with those that have preceded it. Among the most interesting features which it has contained, we will mention the following:

Our article on the "Golden Rule of Proportion" proved even more acceptable than we looked for. The article contains many novelties, but we have no doubt that behind it lies an important principle which the carriage builders may apply. Not less valuable are the papers on "How to acquire Taste," and "Something about Trimming," and we spent much time and investigation in making up the article on the "Comparison of Iron and Steel." Mr. A. Muller has begun a series of articles for the "Wood-Shop," two of which have appeared already, and they give good promise.

The series of sixteen drafts, of the carriages and sleighs exhibited at the American Institute Fair of 1870, have not failed to excite the interest which we expected. The work of giving a continued supply of fine carriage designs is attended with many difficulties. Some are inclined to complain that the designs are not new, while others will perhaps say of the very same designs that they are too new and theoretical. But by taking accurate drawings of carriages actually exhibited at a prominent fair, and by leading carriage builders of one of the leading carriage centers, the former complaint is rendered less probable, and the latter complaint has been entirely avoided.

In the department of carriage drafts, the fine colored plate which appeared in the January Magazine is worthy of especial notice, being *the first colored draft of a carriage* that has been published by any journal in this country. The design was very carefully selected, and after being lithographed, each plate was colored by hand in seven colors, forming a very handsome picture. In the other departments the Magazine will speak for itself. Thanking our subscribers and correspondents for their interest and good wishes variously expressed, and begging a continuance of their favor to encourage and assist the Magazine in its new and improved form, under which it will hereafter be known as "The Hub and New York Coachmakers' Magazine," we remain,

Yours respectfully,



88 Chambers St., New York,
February 1st, 1871.

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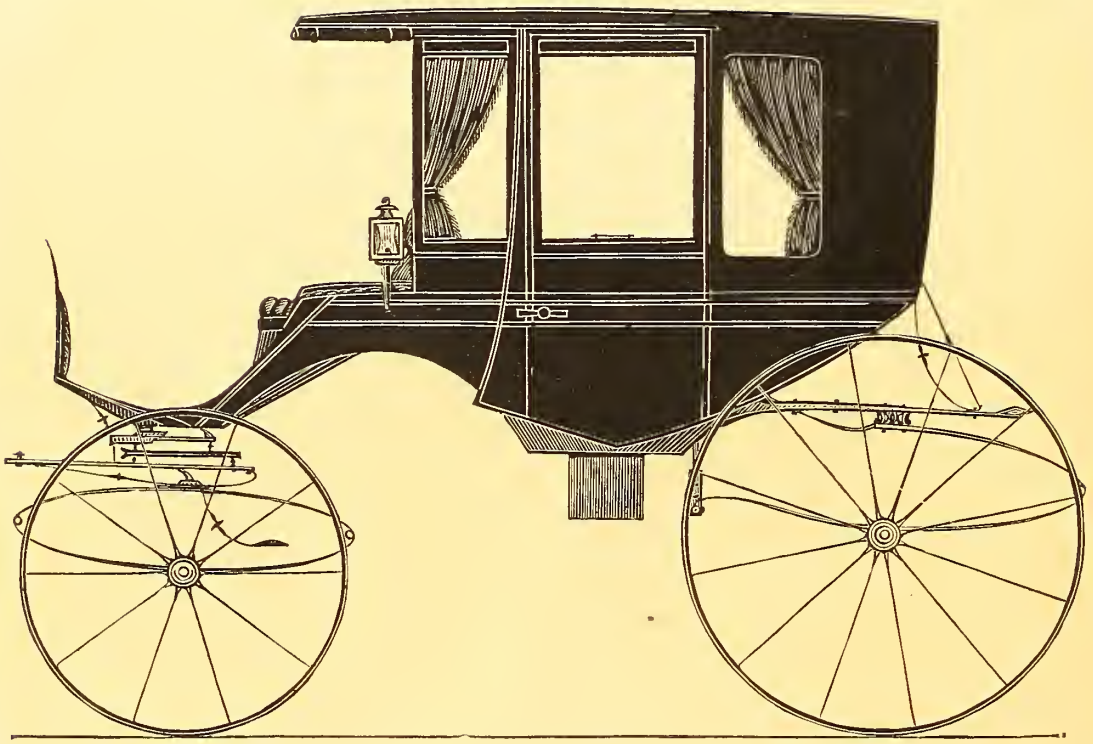

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Designed expressly for the New York Coach-maker's Magazine.

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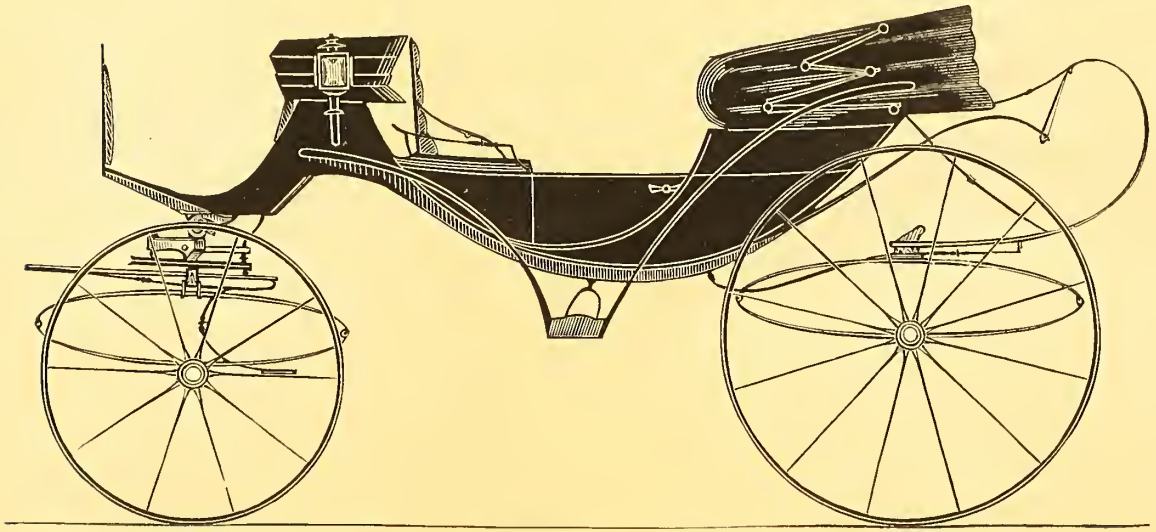

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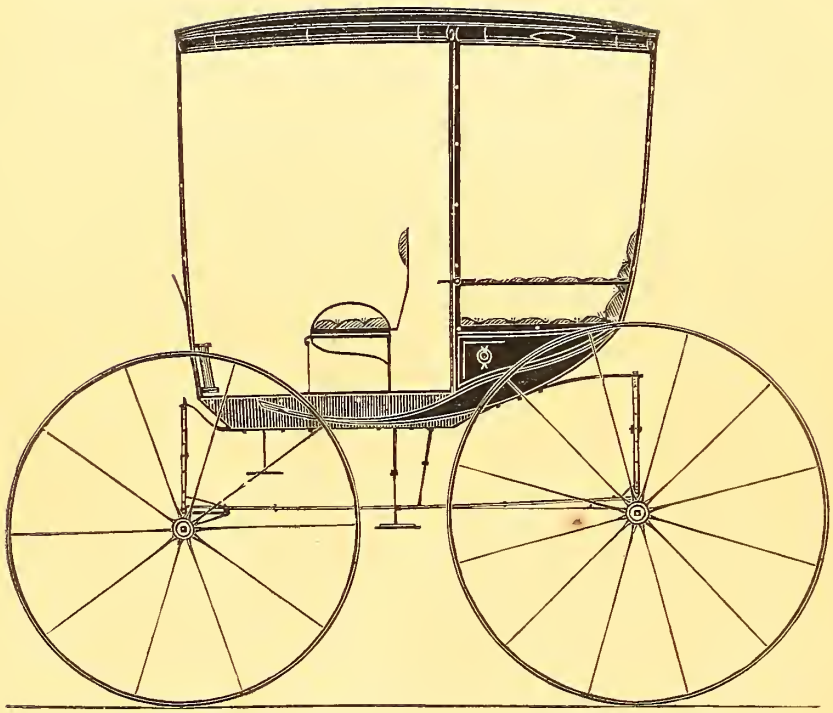

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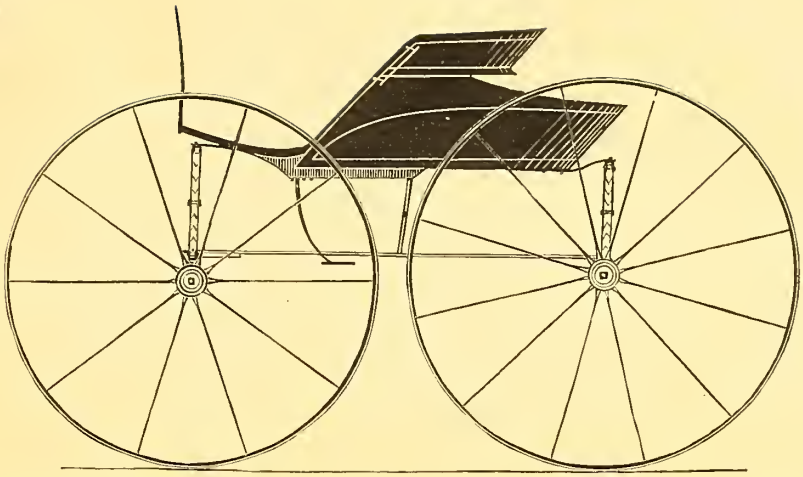

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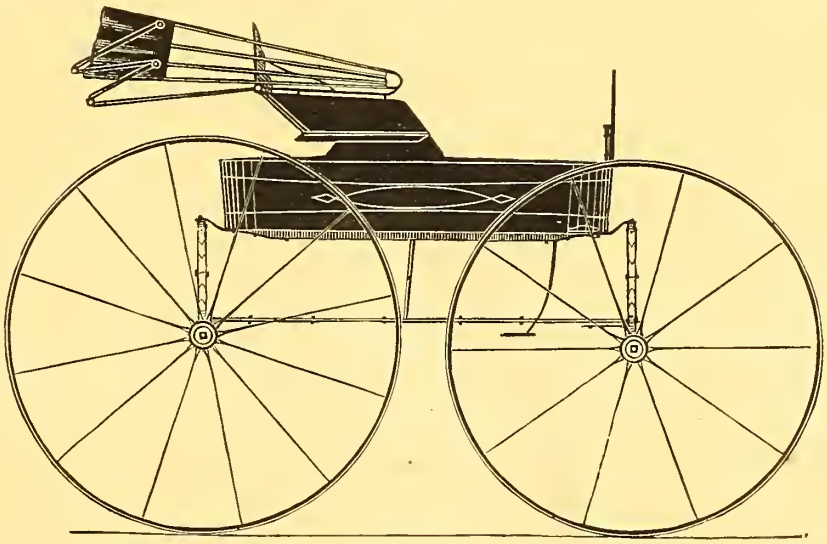

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THE NEW YORK
CARRIAGE-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, JUNE, 1870. No. 1.

Mechanical Literature.

TREATISE ON THE WOODWORK OF CARRIAGES.

(*Continued from page* 178, *Volume XI.*)

CHAPTER SECOND.

THE ART OF TRACING.—OPERATIONS ON UPRIGHTS AND PLANE SURFACES.—LXVIII.—The two chapters that contain the first part of this work, have each a distinct object. The first, treating of the representation of bodies in a general point of view, is addressed to the artist, who, having conceived the form of a body with all its dimensions, the mode of generation of all its sides or surfaces, these furnish him the means wherewith exactly to represent on the planes of projection, all the projections of intersections of those surfaces, or of their apparent form. The second aims at, also in a general point of view, the exact execution of the conceptions of the first; it gives the methods for the precise determination of the dimensions of all the pieces of which a body is composed, the size of the faces of all the frames, the plane angles that the lines of construction for all the intersections, and all the connections, form with each other. The intersections of curved surfaces, of which the mode of generation will be discussed in the second part, will not be treated in this chapter.

Suppose a body is wanted to be constructed, on a given plane, containing only the projection of the intersections of surfaces, as on figure 47. A commencement is made constructing all the plane surfaces in their sizes, as will be treated hereafter; then on each surface trace the respective position of each frame of which it is composed. After which execute each separate surface of the frames according to the dimensions and the forms designated on the plane.*

LXIX. The elements, the use of which is the most simple and easy, and at the same time offer the greatest precision for the exact transfer of the operations on to the planes, are plane surfaces and straight lines. This one observation suffices to indicate the order to be observed, and also to stretch or lay out the frames and to reproduce the operations made on the planes. If, therefore, a frame is composed of plane and curved surfaces, a commencement must be made by executing the plane surfaces. If the frame is composed of several plane surfaces, the largest must be taken in hand first, as they offer greater facility to be executed with precision. In the same manner, where the frame is composed of several curved surfaces, the simplest should be executed first. The most complicated should always be executed the last.

There are frames of bodies, that, when finished, are wholly composed of curved surfaces. But when these frames are mixed with others, in order to trace the direction of the connections with precision, a plane surface must first be formed on one of the faces. After all the operations are traced, the frame on that face is given the desired form; the supports of all swelled bodies are included in this theory. An exception is made only in cases of minor importance, such as bulges or curvings added when the woodwork is finished, and then plane surfaces can be dispensed with. Moreover, these frames, generally connected by jags at the extremities, are traced without any precision.

The operations made on the planes are necessarily brought over on to the frames in the order according to the connections. The lines traced for the joints are the intersections of the surfaces. The connections are not traced until the frames are joined at least on three faces.

The connections follow the order mentioned above: the operations referring to them are brought over on to the frames, first on the plane surfaces and then on the plainest curved surfaces; and as these are mostly created by horizontal uprights like those defined (art. 66); the direction of the connections on those surfaces, as regards the straight cross joints that connect the sides of the bodies, are the creators of the surface.

The above explanation will suffice to explain the importance of plane surfaces and plane lines employed in the art of tracing.

It must here be remarked, that a point taken on a frame always indicates the solid angle of several faces in

* The planes of projection, usually employed by carriage builders, are generally confounded one with the other. That is to say, the horizontal and lateral projections are made on a vertical plane. The tables used for the execution of the tracings rarely have more than the length and the height of the body. Firstly, in order to avoid encumbering the work shops; secondly, in order to be always at hand to trace lines of construction and to raise the structure without getting on the tables, which would have to be done, were the projections separated as we here present them. But this does not prevent the operations being exactly traced; there is only a confusion of lines, which we must necessarily avoid. However, in the second part, we will execute the projections on the same plane, like the carpenters, in order to explain the manner of applying our operations.

the same manner as the line generally indicates the intersection of two surfaces. If, therefore, a line is individually taken into consideration, in order to determine the length or the form, it is merely in order to determine the size or form of a surface to which that line belongs.

LXX. We have seen (art. 52, 53, and 55) that when a straight line, a curve, or a plane surface in space is parallel to one of the planes of projection, its projection on that plane is equal and parallel. In all other cases, when the lines or plane surfaces are inclined in any manner whatever in respect to the plans of projection, their projections on those plans are always less in size. In carriage carpentry there are many pieces that are inclined in respect to the plans of projection. If, therefore, those pieces were executed according to the size expressed by their projection on a single plan, serious errors would be committed; and the result would be, if the case were to occur, that all the pieces were equally inclined and of equal length, the body would be merely executed according to more reduced dimensions than those prescribed in the conception. Then, again, if some of the pieces composing a body were more inclined than others in the same length, then the execution on a single projection would be rendered impossible.

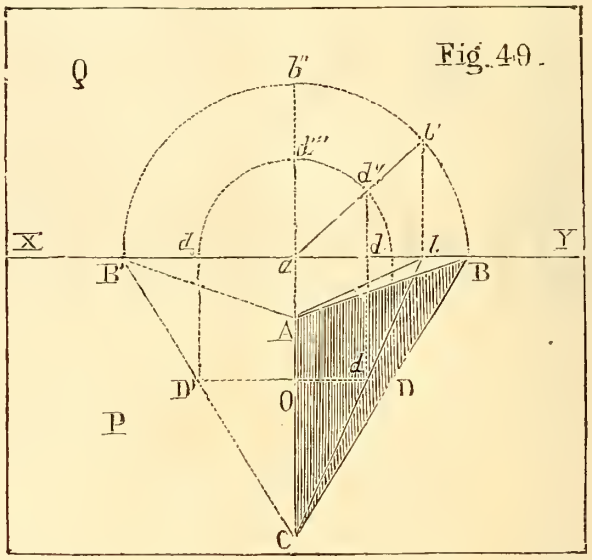
The methods explained in this chapter, with the foreknowledge of the projections of all the uprights, and all the plane surfaces, inclined in any manner whatever in respect to the plans of projection, purport to determine: 1st. The size of those uprights and those plane surfaces; 2d. The dihedral angle formed by two contiguous plane surfaces.

LXXI. In order to solve each of these questions, three different systems are employed, as follows: rotations, deploying, and varying the plans of projection. Although these three systems lead to the same result, their manner of being operated is not indifferent; each one, in certain cases, can present more simple and easy modes of construction, according to the position of the surface in question in respect to the plans of projection. The examples given of their operation, will, however, sufficiently indicate the method that is preferable to follow in each case.

Each of the methods above-mentioned are, for the purpose of reproducing the surface in question, either parallel to one of the plans of projection in order to carry out the projection in its full size; or in one of the plans of projection, then the surface and its new projection become incorporated upon that plan. In the two cases, the operation always consists in the transfer of the inclined surface into a position either horizontal or vertical, as it must coincide or be parallel to one of the plans of projection that has such direction.

It is not merely in order to determine the size of an inclined surface that it is brought either to a vertical or a horizontal position, but for the purpose of exactly representing all the lines of construction connected with it, on that surface and in the new position it occupies. It also determines all the intersections of surfaces, all the levels of component parts of the frame composing it, in fact all lines that only can rigorously be determined on the deployed surface or projected in full size.

In order to fix the mind on the use of rotation, deploying, and varying the plan of projections, we will first make the application on a triangle that we will suppose in all its possible positions.



LXXII. Suppose A B C (fig. 49) to be the triangle in question, formed in such a manner that one of its sides A C is directed in a perpendicular sense to the vertical plane Q. The triangle A B C, being actually given on the horizontal plane P, confuses itself on that plane with its projection, and the vertical projection is carried out along the ground line *a* B. Now suppose the triangle to be turned around its side A C, which is the same as the pivot of a hinge, and from whatever position it may occupy in space, determine its new projection on the planes P and Q.†

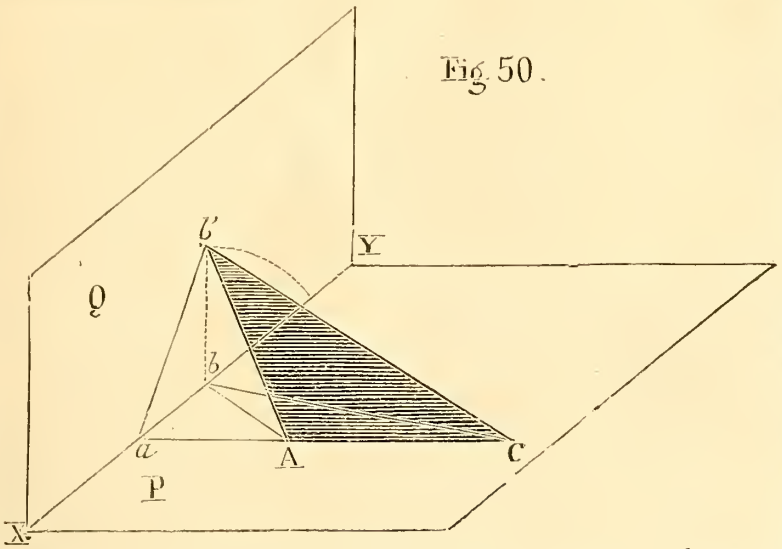
In its movement of rotation around the axis A C, which latter remains fixed, each point of the triangle, being always at the same distance from the axis, describes the circumference of a circle, the plane of which is perpendicular to the axis, the centre of which is found at point of intersection of that plane and the axis (art. 32.)

The circumference of the circle of each point is therefore projected on the horizontal plane where the axis is given by a line perpendicular to that axis, and in its full size on the vertical plane.

In order to demonstrate that proposition, suppose point D in any part of the triangle A B C. Lower from point D a perpendicular O D on to the axis A C, the line O D will be the radius of the circumference described by the point D in the rotary movement of the triangle around A C, and the point O will be the center of that circumference. It is quite evident that, during the movement of the triangle, the distance O D from the point D to the axis, will always be the same, and when the triangle will have made a half turn, the point D will be at D′, at a distance of O D′ from the axis, equal to O D, and on the prolongation of that line. Now as the radius O D remains constantly perpendicular to the axis, it will project itself on the horizontal plan, in all its positions, by the line D D′, which illustrates all the projections of the point D in its movement round A C.

The axis A C, being by construction perpendicular to

* It is well to remind the reader, that in order to read all the operations, the planes, P and Q, must be supposed to occupy their natural positions; the first horizontal and the second raised vertically on the common intersection, X Y, as represented by fig. 50, in perspective.



the vertical plane Q, the half circle described by the radius O D is parallel to that plane, and is projected in its full size (art. 55). Therefore, in order to construct that projection, it will be remarked that the center O of the circle is projected in *a* on the ground line, on the prolongation of the axis; from that point taken as center, with O D as radius, the half circumference $d' d'' d''' d_0$ will be described, which will contain the required projection.

The lines $a\,d'\,a\,d''\,a\,d'''\,a\,d_0$ are, on the vertical plane, the successive projections of the radius O D, and the half circumference $d'\,d''\,d'''\,d_0$ comprises on that plane, all the projections of the point D. From this it results, that in order to obtain the horizontal projection of the point D from any one of its positions in space, for instance, when it is projected in d'' on the vertical plane, it suffices to lower from that point a line perpendicular to the ground line until it meets the line D' D, in point *d*, which last point will be the desired projection.

(*To be continued.*)

ESSEDAS.

TRANSLATED FROM THE GERMAN OF GINZROT.

The description which Ossian gives of the battle wagons, called Essedas, is too interesting to be omitted. True, some modern *savants* have doubted the genuineness of Ossian's old Gaelic poems, because he not even mentions the common battle wagons, and only describes those of the chiefs. He says that the wagon of Cuchullin, together with the horses, were very plainly ornamented, and gives this description as applicable to all these vehicles. Adelung tells us that this kind of wagons look more like a Parisian phaeton, suspended on straps and springs, than a British battle wagon. This might, likewise, sarcastically be said of the chariot of Juno, described by Homer.

Ossian, in his Gaelic text, says nothing that leads us to suspect that his battle wagons were not Essedas, such as the natives of Britain employed. It is likewise indisputable, that not only the chiefs had wagons, but that their usage was general in accordance with the condition of the uneven and mountainous territory of Caledonia; for what would be the meaning of Ossian's mentioning "a number of wagons," if there had only been a few of them in use. The engraving here given was drawn by the author [Ginzrot] in accordance with the interesting descriptions which have come down to us of the Essedas, and which read as follows:—

The entire wagon consisted of the axle, the two wheels, the pole, and the body or chair, "which was curved behind," and attached to the axle, like the Greek Diphras, by means of iron loops or nails. The pole was made of the yew-tree wood, which was very common in Scotland, and is very tough and flexible. The outside of the body is covered with polished plates or squares of bone —this served both as an ornament, matching the glaring and shining stones of the edges, and as a protection against spears.

The seat in these wagons appears to have been superfluous; it only could impede the movements of the warrior, who certainly did not fight whilst sitting.

Ossian says further of the body: "Keeper, the spears, shields, and swords of the heroes." Egyptian battle wagons already were encircled with rows of spears, and in Homer's Iliad we find many similar passages of the Diphron; so in Statiu's Thebaid, "around him in the battle wagon shivered a forest of spears." Ossian's Esseda is drawn by two horses, called Sithfad and Dubhsrongheal, a custom with the most ancient nations, and among the excellent qualities which he praises in these war-horses he does not forget to mention the crashing sound and the strength of their hoofs.

We have examples where women mounted the battle wagons as heroines. Dio Cassius narrates that at a battle when Suetonius led a Roman army against 230,000 Britons, the latter felt so sure of victory, that their wives followed in wagons to the battle field to witness the contest; the immense number of wagons inclosed the scene like a fortified wall, but ultimately the Romans were the victors, and eighty thousand dead covered the field, the crowd of wagons confusing the British ranks. During the battle, the queen Boadicea, with her two daughters, standing in an Esseda, incited her men to the fight. Tacitus says of this queen, that she soon after destroyed herself with poison.

Not all Essedas were used for war purposes only. In Brittannia, they were also the usual two-wheel *open* vehicle for traveling and promenading. Cicero writes to Trebatius (Lib. vii. Ep. 7): In Britain, I am told, there is neither gold nor silver. If this is the case, I would advise you to take the first Esseda and hasten to us. Propertius, Lib. iv., calls the Essedum the *painted* wagon. The Gauls were the first to ornament Essedas, which they used in town and for traveling, with all kinds of embossed brass work, which in many instances were so artistically finished and plated, that the mountings looked like pure silver. Pliny says this is a Gallic invention, and the town of Alesia (modern name, Alise or Bourgogne) was renowned for this branch of work. There also were made mountings for saddles, yokes and harness;

ESSEDAS, AFTER GINZROT.

the Biturigies (now Berry in France) also dealt largely in these articles, which they gilded in fire.

The Romans soon introduced this new luxury in Italy. Pliny descants thereupon: "It is to be regretted that such artistic work, worthy of admiration in the palaces of the great, is now put on Essedas and drawn through dust and mud." This luxury afterward grew to such an extent in Rome, that (Suetonius, chap. 16) when a new Essedum, of silver, was exposed for sale in Sigillaria street, in Rome, which was extremely showy and costly, Claudius, then public censor, had it seized, paid for, and cut to pieces, in order to arrest so corruptible a luxury. The most distinguished persons in Rome used this light and commodious vehicle for pleasure drives. Like the cisium it had room for several persons, and was the Roman cabriolet.

Emperors and other high dignitaries could use the Esseda while traveling, or in the country, but it was not so stately a vehicle that they could have used it, even when highly finished, without detriment to their exalted rank, on public occasions. Cicero, in the Second Phillipic, censures Antonius for using them, thus: "Has ever been heard any thing so shameful and mean? A Tribune of the people rides in an Essedum, preceded by Lictors with wreaths of laurels." Cicero don't censure Antonius for using the Esseda, but for doing so on a public occasion, and because he was preceded by the Lictors with wreathed heads.

CHINESE VEHICLES.

BY BISHOP KINGSLEY.

THE vehicles used for the journey are carts, one to each man; and each cart drawn by two mules. The hubs of the carts, although designed to carry but one man and the driver, are as large as those of our strongest drays in the United States, and the wheels as strong and full of rivets as the wheels in Ezekiel's vision were of eyes. Through these ponderous hubs the axles project for a distance of seven inches, being three inches in diameter where they come through. What good this projection of the axle does, except to hit against every thing in the way, belongs to Chinese civilization to determine. On to these axles, which are very heavy and strong, are attached heavy frames, made of two scantlings, running from the mules' heads across the axle, to which the frame is made fast by strong bands and bolts of iron. There is nothing in the shape of a spring, or thorough-brace, or any such thing. The Chinese have not got along to these things yet in their civilization. On to this frame is fastened the thing to which you are to be imprisoned during your trip to the capital of the Celestial Empire. It is only large enough for one person, who is expected to sit with crossed legs on the bottom of the machine.

This strange cage is a kind of a cross between a hen-coop and a dog-kennel. It is made of hard wood, and very strong, the sides being made to resemble the windows in a penitentiary, the checkered bars being of hard, strong wood instead of iron. There is no seat of any kind, nor any thing on which you can lay hold to steady yourself, as a protection against the terrible jerks you suddenly get from side to side as your cart drops into the ruts of ages, and is jerked out again by mule-power. Your prison somewhat resembles an old-fashioned Pennsylvania or Kentucky freight wagon, bating the size, only the ribs of your enclosure are much nearer together and stronger. Then over all is placed a covering of strong, blue cotton muslin, to prevent the rain or dust from coming in, or you from seeing out except in front. This cover is made to come down in front of you, so that you must crouch to see out even in front, like a dog looking out of his kennel, or a chicken looking out from under the old hen on a rainy day. You must first get on to the shaft, and then crawl backward through this hole to your quarters. Bed and bed-clothes, carpet-sacks and shawls are packed away in this little cramped concern, and you endeavor to adjust them so that your bones may escape being broken against the rough sides of your narrow cage. But the roof is so low that if you put in enough to make anything like a comfortable seat, your head will hit against the top, and if your head barely escapes the top of the roof in the middle, it will be sure to hit the sloping sides as soon as the lateral motion begins, and that is the moment the cart gets under way.

GEOMETRICAL EXERCISE.

BY P. B. J.

(*Continued from Page* 181, *Volume Eleven.*)

As before promised, I here give the method to bisect a given line, or divide it into two equal parts. Let this given line be A B, which it is required to bisect or divide into equal parts. From A, with any spread of the compasses greater than the half of A B, describe the portion of a circle as C F D, then by the same operation, making B the center, deseribe the arc C G D,—cutting the former are in C and D. Join the points C and D, by the line C E D; then is A E equal to E B, and the line A B bisected as required; for joining A C, C D, B D, and B A we shall have a parallelogram whose sides are all equal to

each other, thereby forming a complete square without the aid of that tool, as shown. The radius with which the arcs are described, and which are A B and C D, bisect each other, and therefore A E is equal to E B. Moreover C D is perpendicular or square to A B, for the triangles A C E are D C E are identical, or have their angles as well as their sides, equal to the other; that is, A E is equal to B E, and A C equal to B C, and C E, having a common side to both triangles; therefore the angle A E C is equal to B E C. The angle A E C, added to the angle B E C, is equal to 180 degrees, or two right angles. As these angles are proved equal to each other, they must be equal to ninety or the half of one hundred and eighty degrees, as C E is perpendicular to A B, and the line C E continued to D, D E is also perpendicular or square to A B. Hence, also, we have another method of drawing a square line from any given point, for if E is made the given point, we need only set off E A equal to E B, and draw two arcs, crossing each other as at C and D. Then joining C and D, we have the square line desired, and given through the given point E.

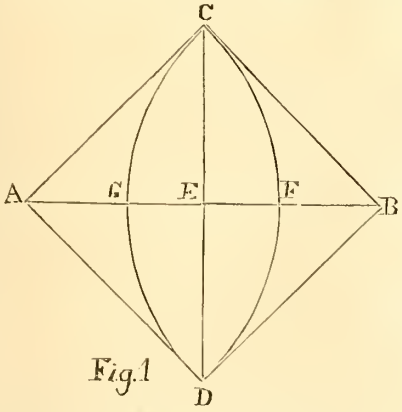


Fig. 1

Before closing this article we will illustrate another mode of obtaining a square line from a given point. If from the center of any circle a radius be drawn to the circumference, bisecting any chord, it will be square to the chord. Let A B be a cord to be bisected or divided into two equal parts, in the point E. Then, if from the centre C, we draw a line or radius to the circumference at D, passing through the centre of E, the radius C D will be square to the chord.

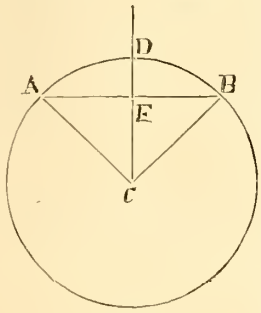


Fig. 2

THE KIMBALL CAR AND CARRIAGE MANUFACTURING COMPANY OF SAN FRANCISCO.

This company, whose works are located on the corner of Fourth and Bryant streets, is thus spoken of in the *Alta California*, of a recent date:

Peeping through the glass door separating the sample show-room down stairs, we saw a sight that gladdened our hearts, and we forthwith pushed our way into the

SMITH'S SHOP,

extending two hundred and fifty feet, with a line of eighteen forges in active operation; the sparks flying from the red hot iron as the hammers and heavy sledges came down upon it, swung by the lusty arms of the strikers or helpers, as they are called; the forges being supplied with air by one of Root's patent blowers, run by steam power, thus dispensing with the old fashioned bellows. Piled about the forges were wagon gears of all descriptions, from the eleven-passenger coach to the delicate trotter of 125 pounds weight, undergoing the process of ironing, which is done by piece work or job, at so much per wagon, by the lot of from 26 to 50 wagons of a kind, a system adopted almost entirely throughout the establishment in all other parts; thus the men working the wheels are paid so much a set, the wood makers so much per gear, the body makers, per body, the trimming and painting being also done by contract, thus simplifying and bringing the whole to a perfect system, and relieving the proprietors from dealing directly with so many employees, each department, having its head, who is held responsible for the quality of work done. At the extreme end of the smith's shop are turning lathes; an immense trip-hammer, that in a few minutes converts a piece of iron into a step, shaped, and, with a little more labor, ready to go on to the wagon. On the left of the shop is a 50-horse power engine, of Booth & Company's make, with Scott & Eckert's patent cut-off. Overhead, the long line of shafting and pullies, having been supplied by the Vulcan Foundry. This engine, running so smoothly that scarce a sound is heard, supplies the power for the various machines throughout the establishment. On the left of the smith's shop, as you enter from the street, is the foreman's office; the room for containing the stock of bolts, nuts, and small pieces used in the iron department; adjoining is the forge and bench of the silver plater, who was deftly and rapidly hand-plating dash rails, seat handles, etc., a large pile of which lay before him ready for plating. Continuing on, we entered the

WOOD MACHINERY SHOP,

where saws were hissing, and the vicious hum of the planer throwing its chips into the air, made us shudder at the thought of the speedy amputation of a finger, or if one of those hissing cylindrical saws should fly in pieces, how keenly the fragments would divide one's body. Here we encounter all the machinery necessary to the business, such as jig saws, circular saws in variety, heavy planers, serpentine planers, moulding machines, hub borers, turning lathes, and a huge machine for boring and mortising railroad car sills and frames; passing on we enter

THE REPOSITORY,

comprising the entire second floor, over the blacksmith shop, fifty feet wide and two hundred and seventy-five feet long, we find filled with vehicles of every description, from the elegant clarence and barouch to the tiniest little trotter of a feather weight, on the celebrated wood C-spring, which is a speciality with the Kimball Company, being their own invention, for which they have a patent, as well as three other patents on other parts of their wagon. The wood spring and perch combined, is too familiar to the California eye to need any description, comprising as they do the majority seemingly of the wagons used here; it is found to be the lightest, most durable wagon ever made, and the fact that this factory has turned out and sold over twelve hundred within the last eighteen months, and are still hard at work at them, selling three to one of any other description of wagon in their repository, speaks for itself; and the fame of the wagon having spread far and wide, they are getting orders from the east, west, north, and south; they have sent them on

orders to Chicago, New York, Poughkeepsie, Concord, N. H., Baltimore, New Orleans, Hong Kong, Yokohama, Calcutta, Liverpool, and Paris, and expect to scatter them over the entire globe. They are now establishing branch agencies in all the eastern cities, and a company is about organizing to build the wagons in New York, for the eastern demand. In Chicago, the Coane & Ten Brooke Manufactory have commenced to work on them, and they may be seen with fast nags before them, making the sand fly on the avenues out of that city. But now we step on a steam elevator and are whisked up to the upper story, or the

WOOD WORKERS' SHOP,

the part of which is devoted to making the bodies of light work; next to that the shop for double wagon bodies—six-seat wood springs, phaetons, etc.; then came an immense room filled with benches, where the work on the wood parts is done, and here we find the more delicate machinery for tenoning and mortising light work, polishing, etc., all very interesting to observe in operation; overhead is a maze of hubs, suspended to season, wheels, etc.; we proceed to the east wing again, where we find the leather.

THOROUGHBRACE SHOP,

where all the thoroughbraces for stage and wood spring wagons are made of leather manufactured in California, it being cheaper and better than eastern. Continuing on we come to a large room, fifty by one hundred and fifty, devoted to use as a

TRIMMERS' SHOP,

where the wagons are all trimmed by contract, under management of Mr. C. Crego, who employs about twenty men. In the course of our peregrinations we encountered a huge monster, which at first looked like a chariot for Gog and Magog, it being made to represent a monster dragon, with his high crest, breathing fire and destruction, and his scaly tail writhing in anticipation of a delicate feast on a few tender mortals; enough to scare the senses of the timid and nervous. This vehicle we learned is for the Great Overland Circus and Menageric, now organizing, and will contain the band. It will be hung on thoroughbraces and the wood spring, showing with what facility the principle can be adapted to any sized vehicle. It will be the lightest yet most substantial wagon ever built to carry the weight. It is intended to carry a band of sixteen and their instruments, and will weigh two thousand pounds—less than any band wagon of its capacity ever built. As the circus will go east eventually, the mechanics of the other States will have an opportunity of seeing what California can produce in the way of workmanship and originality.

WIND HARPS.

BY CARRIE M. WHITNEY.

O MOURNFULLY sad are the measures
That sweep o'er the wind-harps to-night,
Faintly trembling back echoes of pleasures
Which forever have taken their flight.

'Tis midnight—and through my lone dwelling
The ghosts of the past tread the floors;
While without that wild music is swelling
Like tones from invisible shores.

I am wakeful—for fancy is busy;
In vain do I try to win sleep;
Fond memories turn my brain dizzy,
And the winds their sad symphonies sweep.

The loved and the lost are returning—
Unreal—though real they seem,
And my soul in its passionate yearning
Sobs out for the "*what might have been.*"

Ah! to-night the sad winds harp a story
Of friendships forever gone by,
And whisper that earth-loves' bright glory
Is fading like tints from the sky.

O winds, mournful winds! cease your harping!
Your music is laden with tears;
Each chord is a minor, and waking
No hope in the slow-tolling years.

Pen Illustrations of the Drafts.

SIX-SEAT CHARIOTEE.

Illustrated on Plate I.

THIS design, with a few slight alterations, has been kindly sent us for publication in THE NEW YORK COACH-MAKER'S MAGAZINE, by Mr. Charles Hertzog, of West Philadelphia, Pa., who will please accept our thanks for the favor. As may be seen, the design has some original points in its composition, worth the attention of carriage-manufacturers. Width of body, fifty inches; axles, one and one-fourth inches; wheels, three feet four inches, and four feet one inch; hubs, four and one-fourth by seven inches; spokes, one and one-eighth inches; rims, one and one-fourth inches deep; tires, three-eighth by one and one-eighth inches.

Painting—English patent black for body and carriage part, striped with broad line blue, split with fine line white.

Trimming—Half and half morocco, with satin lining.

Price for building the body, $75; for making the under-carriage, $22; manufacturers' price, about $1,200.

C-SPRING CALECHE.

Illustrated on Plate II.

WE are indebted to the courtesy of Messrs. Miner & Stevens for this drawing, those gentlemen having kindly permitted our artist to take it from a carriage made by the firm. Width of body between the arm-rails, fifty inches; wheels, three feet and four feet high; hubs, four and one-fourth by seven inches; spokes, one and one-eighth inches; rims, one and one-fourth inches deep; steel tires, five-eighth by one inch.

Workman's price for making the body, $75; for under-carriage, $20; manufacturers' price for the caleche, nicely finished, $1,200.

New York Charges for Repairing.— *Wood-work:* new hub in wheel, $5; new spoke, $1; new rimming, the set, $20; half-rim only, $2.75; drafting wheels, $1; carved spring-bed, $10; bolster, $8; carved spring-bar back, $8; *Iron-work*, tire bolts, each, 25 cents; carriage bolts, each, 30 cents; new tires and bolts, $34; setting old tires, $8. *Trimming:* Head-lining, $55; leather top, $55. *Painting:* Burning off old paint, repainting body and carriage-part, $150 to $200; coloring, painting, striping, and varnishing old carriage, $100.

TURN-OVER SEAT ROCKAWAY.

Illustrated on Plate III.

Our Rockaway this month is from a design drawn expressly for this Magazine by one of our own artists, with the front seat contrived so as to turn forward to admit of ready entrance for the passengers occupying the back seat. The body is of a kind easily made. The tinted portion of the side may be formed of plank, and the gig-quarter worked out in the solid from white-wood, and screwed to the rocker from the inside. This avoids plugging over the screw-heads from the outside, which in that case are apt to show through the paint soon after being used. No amount of care when painting will effectually prevent it. The body should be about forty-six inches wide on the seat between the door pillars; wheels three feet eight inches and three feet eleven inches high; hubs, four by six and one-half inches; spokes, one and one-sixteenth inches; rims one and one-eighth inches; tires, one by three-sixteenths inches, steel.

Painting.—Body black, carriage-part brown, striped claret.

Trimming.—Blue-black broadcloth.

Workman's charges for building body, $50; manufacturer's price for Rockaway complete, $600.

TROTTING COAL-BOX BUGGY.

Illustrated on Plate IV.

We give on the above-named plate a very pretty design for a trotting Buggy, by an artist who has often contributed to the Magazine in its earlier days, and who now, shaving resumed his labors, we trust will favor us very often with the productions of his pencil. Height of wheels, 4 feet and 3 feet 10 inches; hubs, 3¼ by 6½ inches; spokes, ⅞ inches; rims, 1 inch; steel tires, ⅛ by ⅞ inches; manufacturer's charge for the buggy, $310.

Workman's charge for building the body, $18; carriage part, $8; wheels, $10; shafts, $3.50; spring-bars, $3.

New York Charges for Repairing.— *Wood-work:* New set of wheels, $75; hub, $5; spoke, 75 cents; new rims, $16; drafting wheels, $1; new shaft, $4; shaft-bar, $2; spring-bar, $2; axle-bed, $4; perch, $5; head-block, $3. *Iron-work:* New ties and bolts, $20; re-setting ties, $8; tire-bolts, 25 cents; carriage-bolts, 30 cents; fifth wheel, $5; resetting two axles, $6. *Painting:* Touching-up and varnishing, $35; re-painting, $75. *Trimming:* Recovering dash, $12; body-lining, $40; leathering shafts, $7; whip socket, including pat. fastenings, $3; check-straps, $1.50; oil-cloth carpet, $2; velvet carpet, $4.

PIANO-BOX ROAD BUGGY.

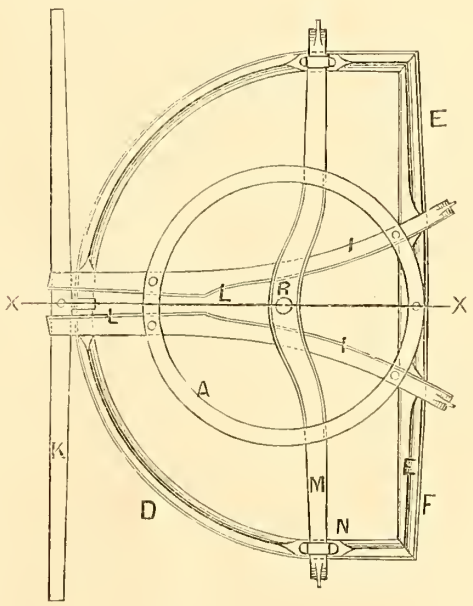
Illustrated on Plate IV.

Public favor makes this description of buggy always salable, and therefore a safe vehicle to have on hand in the repository for callers. Width of seat, 36 inches; wheels, 3 feet 11 inches and 4 feet 1 inch high, with other proportions; the costs of making the parts, and the prices for repairs, about the same as for the coal-box given on the same plate. Manufacturer's price for buggy, $465.

Sparks from the Anvil.

HEIDEN'S IMPROVEMENT IN THE FORE-CARRIAGES OF VEHICLES.

This improvement, for which a patent was obtained by John Heiden, of New York city, February 2d, 1869, has for its object, the construction of such fore-carriages as are used in vehicles running without a perch, whereby the same may be made much lighter, cheaper and stronger than heretofore done.



BIRD'S-EYE VIEW OF HEIDEN'S PATENT FORE-CARRIAGE.

In the diagram, A shows the fifth-wheel; M the furchell-bed, with the place for the king-bolt at B; I I the furchells; K the the draw-bar, and D the semicircular bow, which, with the traverse bar E, constitute the chief features of this improvement. It will thus be seen

that the platform D E constitutes the chief support of the superstructure A M I, and therefore these parts will be equally as strong when made much lighter than when made after the old plan, besides doing away entirely with the furchell stays of iron usually employed, essentially lessening the expense of building. The manner in which this platform is secured to the front springs may be seen at N. The platform joint at E is joined by a tenon and mortise, and the entire platform afterwards encircled with iron in the same way wheels are hooped, by heating and shrinking, thereby rendering the whole compact and solid. To make the work still stronger the furchells may be plated with iron as represented at L L, and applied angularly to the line *x x*.

For light carriages, the patentee proposes, in many cases, to dispense with the band F, as when the bow D and bar E are made of hard and tough wood, the platform will be of sufficient strength without it, and in that case, instead of connecting the ends of the bow and bar as previously described, the patentee prefers to have the bar E pass over the end of the bow, and be secured thereto by bolts and clips, allowing the ends of each to project sufficiently to admit of finishing them ornamentally, as by carvings, scrolls, or other designs thereon.

In some instances, especially for stages, when the body is supported on an arrangement of three springs, as well as in other cases, the position of the platform D E may be reversed, and the bar F placed in front, for the connection of the draw-bar K, two of the said springs being connected by shackles to the bar E, and a cross-spring connected to the centre of the rear part of the platform by clips.

The inventor, John Heiden, of 54 Marion street, New York city, is a practical carriage-maker, who has for some time used this improvement in building coaches with success. He is now disposed to grant the privilege to others wishing to purchase the right. Application should be made, by mail or otherwise, to the above address, when terms, which are liberal, will be made known.

CARRIAGE SPRINGS.

CARRIAGE springs should never be put into use without first thoroughly testing them; this may be done by a lever, or by standing on them. A spring that will not stand the test of being sprung together is not fit to be put under a wagon. Oil tempered springs are the most durable, besides being more quick and lively in their action. The 1 3-8 inch spring is the best size for light carriages, although they are not made by many spring manufacturers unless they are ordered. A well-made spring should not settle more than one-fourth of an inch by testing.

HEATING TIRES.

A GOOD place in which to heat tires is a fire-place; one four feet wide between the walls, and of sufficient height to allow room for the largest tire, and made to close at the front by an iron door. By placing the tires in this place, and building a good fire of shavings, the tires may be heated sufficiently in five to ten minutes. A still better method is by the "Gas Heater," one of which is employed in Brewster & Co.'s factory. This heater is supplied with fifty gas jets, arranged circularly around the tire, and by it a steel tire can be expanded and fixed to the rim in a very few minutes.

Paint Room.

BLACK PIGMENTS.

THE bones of animals when reduced to charcoal produce a good black color, but the best of all blacks is made from ivory shavings burned in a closed crucible and afterwards ground very fine. This is our *ivory-black*. It may be freed from all impurity by washing in muriatic acid, or a weak solution of ammonia, and it is then very rich and intense in color. Being costly, its use is generally confined to the best work, while for the commoner class of work, a vegetable black is used.

The soot collected by holding a plate over the flame of a candle is *lamp-black*, and it is obtained on a large scale from the burning of resinous woods. It is used more than any other black in common painting, and is cheap and plentiful. It serves to modify the brightness of the tints of other colors, and is very useful in the composition of such colors as result from mixtures. It is of so fine a body, that, if tempered with linseed oil, it will often be suitable to work without grinding. As this color contains a kind of greasy nature which makes it long in drying, it is well to add two parts of drying oil, or "gold size," with the linseed oil in mixing it.

The best *charcoal black* is made by subjecting wood, inclosed air-tight in an iron cylinder, to a strong fire until the cylinder becomes red-hot, and being cooled and the gases removed, the charcoal is ground ready for use. Birch wood and the grape vine furnish the best charcoal black, the former yielding a bluish, and the latter a grayish shade of black.

Peach black is manufactured from peach stones, burned in a closed vessel, and *Spanish black* from burnt ash. The latter has a brownish tinge.

CARE OF BRUSHES.

BRUSHES used for applying finishing varnishes should be cared for with the utmost pains, as good work depends much upon the good condition of the brushes. A good way to keep them is to suspend them by the handles in a covered can, keeping the points at least half an inch from the bottom, and apart from each other. The can should be filled with slow drying varnish up to a line about a sixteenth of an inch above the bristles or hair. The can should then be kept in a close cupboard, or in a box fitted for the purpose.

As wiping a brush on a sharp edge of tin will gradually split the bristles, cause them to curl backward and eventually ruin the brush, the top of the can should have a wire soldered along the edge, or the edge of the tin turned over, in order to prevent injury. Finishing brushes should not be cleansed in turpentine, except in extreme cases. When taken from the can, prepare them for use by working them out in varnish, and before replacing them cleanse the handles and binding with turpentine.

GOLD BRONZE.—For cheap work, a pretty good imitation of a gold stripe may be produced, without laying on a size, by mixing fine gold bronze with "gold size," and thinning with turpentine. While using, it should be stirred frequently to prevent its settling.

COLORS OBTAINED FROM COPPER.

BY PROF. H. DUSSAUCE, CHEMIST.

Copper gives the three simple colors, yellow, red, and blue. Besides, we have some white salts of copper, others are black, some are green, several are violet, and others orange. From all these colored compounds three only are employed in painting; as *greens*, the carbonate of copper, the sub-acetates, and the arsenites; as *blues*, the carbonate; as *red*, the protoxyd, especially for painting on china and glass.

Green of Copper.—The carbonate of copper, used as a green color, is the malachite, a natural compound which is met in the mountains of the Ural, in Siberia. It is artificially prepared by precipitating two parts of sulphate of copper by four of crystallized carbonate of soda. The temperature of the dissolution must be from 140° to 158°; the precipitate, well washed with warm water, is dried in the open air.

A bluish-green can be obtained by substituting the carbonate of soda, or its equivalent of caustic alkali. This peculiar green is called *Bremen green;* it is a bad color.

Arsenic and copper can form three different colors by their shade and composition: the Scheele green, the Schweinfurt green, and the Mittis green. The Scheele green has received the name of its illustrious inventor; it is obtained by precipitating the sulphate of copper by the arsenite of potash.

The *Schweinfurt green* has received its name from a Bavarian town, where it was manufactured for the first time by Rusz and Sattler. The analysis and preparation of that color have been given by MM. Liebig and Braunnot. The processes of the two chemists, while very different in appearance, arrive at the same end, and the products obtained are identical. The Schweinfurt green can be considered as a combination of acetate of copper with the above.

The yellow shades of those colors, made to suppose that their rational formula ought to admit at the same time the coppric arsenite and the copprous arseniate, the yellow being the color of the hydrate of protoxyd of copper. To prepare the Schweinfurt green, the arsenious acid is made to react directly on the acetate of copper, in presence of an excess of acetic acid. When the green is formed a yellowish tint can be given to it by addition of carbonate of potash.

There are many recipes to make it, and the following by M. Wiegans is one of the best:—Dissolve 20 lbs. of arsenious acid in 38 gallons of water, add 20 lbs. of acetate of copper, and precipitate by one pound of potash; stir well, let it settle, decant on a cloth, and dry.

The *Mittis green* (indicated by M. Mittis, of Vienna) is an arseniate of copper, which is obtained directly by precipitating the sulphate of copper by the arseniate of potash. Oftenest that precipitation is made in presence of sulphate of baryta, which then is dyed green, and furnishes a cheap product. The *Paul Veronese green* is also an aseniate of copper.

Whatever be the brightness of these colors of copper, they ought to be rejected, as they are very poisonous by their acid and their base. Numerous facts have shown that the use of green papers with arsenic was the cause of some diseases, the origin of which was unknown, and which often ended fatally.

Several combinations of acetic acid and oxyd of copper are employed in painting; the verdigris is a tri-basic acetate of copper. It is obtained by exposing copper to the simultaneous influence of the atmospheric oxygen and the acetic acid. At Montpellier they employ directly the residuum of grapes, which, after fermenting and the transformation of the alcohol into acetic acid, disengages acid vapors. At Grenoble they use vinegar, in which copper is immersed from time to time. In Sweden they wrap the metal with flannels impregnated with vinegar, and expose the whole to the air.

The operation is conducted as follows at Montpellier, which is the principal center of that fabrication:—The copper is in thin laminæ; it is rubbed with vinegar, or with a weak solution of acetate of copper, and it is placed in warm boxes. The residuum of grapes is deposited in barrels kept in a dry and aerated place. When the residuum is properly prepared—that is, when it has fermented and taken the odor of vinegar—dispose in brick ditches a layer of that residuum, then a layer of copper, then a layer of residuum, and thus alternately the residuum and the copper; the last layer is residuum, and the whole is closed with boards. Repeat that operation, the time of which is variable; it is achieved when the residuum has become white. Then take the laminæ, and while damp expose them to the air; then carry them to the oven, and dip them in cold water. Expose to the air, and repeat the immersion and exposure to the air as much as necessary (six or seven times and more), until the coating of verdigris is sufficiently thick; then scrape the plates and begin again the operation.

When the plate of copper has been rubbed with vinegar, or a dissolution of acetate of copper, the manufacturer is sure that by provoking a slight oxydation, uniform on all its parts, no part of the copper will escape the reaction. The first coating of oxyd has been rendered adherent by the desiccation under the influence of the air and of the acetic acid developed by the residuum of grapes; with the help of a favorable temperature the acetate of copper has been produced. The evaporation to the air has begun. The desiccation of that coating little adherent, that the evaporation to the oven has fixed more intimately. The immersion in water has placed the acetate of copper in condition of dampness necessary to permit the air to continue the oxydation, which, without that, would stop as soon as the coating is dried.

The verdigris dissolved in vinegar gives fine crystals of neutral acetate, *verdet*, or crystals of Venus. This product is used in dyeing, and properly speaking it is not a color.

Copper Blue.—To obtain the blue ashes prepare nitrate of copper, as little acid as possible; add to the dissolution of that salt milk of lime, keeping the nitrate of copper in excess; wash the precipitate and drain it; then treat the substance by a little powered quicklime. The mixture is done in a mortar.

The color corresponds to the mountain blue which constitutes the natural blue ashes. The product manufactured in England is the finest and most esteemed.

M. Peligot, in his interesting work on the action that atmospheric oxygen exercises when in contact with ammonia on copper shavings, has made known a new blue color that he obtains in different ways; principally by pouring a dissolution of potash or soda in a solution of a salt of copper mixed with an ammoniacal salt. The fine

blue substance formed in those conditions is an oxyd of copper, CuO, HO, insoluble in water, resisting a temperature of 212°, absorbing the carbonic acid from the air.

ENGLISH RUBBING-STONE.

ENGLISH rubbing-stone is preferred to pumice by many painters. As it furnishes its own grit and cuts very rapidly, it is well to do the main part of the rubbing with it and then to complete the work with pumice. Another advantage is its soft nature, whereby it adapts itself more easily to the shape of the moldings than pumice stone would, and on account of the greater rapidity with which it cuts, it is decidedly the most economical for cutting down old work. When not in use, it should be kept in a damp place.

TO STRAIGHTEN PENCILS.

To straighten a striping pencil which has been bent out of shape. Some painters recommend greasing the pencil and drawing it over a piece of warm iron. A better way is to dip a piece of brown paper in turpentine, place it on hot iron, and while held there draw the pencil through it a few times.

TO MIX LAMPBLACK so as to apply a coat per day, grind stiff in "gold size," and thin with turpentine to the necessary consisteney.

Trimming Room.

TRIMMING AND PAINTING.

To finish a fine coach in the most tasteful manner, great care should be taken in seeing that the colors employed in trimming and painting are not only pleasing in themselves, but that they are *harmonious*. For instance, if the inside linings of a coach are of brown satin, the painting should in a measure follow this color, or be of a color which harmonizes well with the shade of brown. In England the coach-builders generally observe this rule in reference to colors: *The base of the painting is determined by the color of the trimming, and the striping by the laces.*

THE STYLE OF TRIMMINGS.

FOR linings of open carriages, moroccos are now most popular, and the best of these are for the most part imported direct from French and German manufacturers. For coaches and close carriages, satins and terries are most in vogue, except in broughams, where moroceos are used almost exclusively.

HARNESS BLACKING.

IT is important that harness manufacturers should always keep on hand a good quality of harness blacking, not only for their own use, but to supply their customers, as their own reputation often suffers from using an inferior quality. There are several kinds in the market, but that known as the French blacking is considered the best, and is more used than any other by manufacturers of fine work. Harness blacking may be classed among the patent medicines, and the country is flooded with quack compounds that will sooner or later ruin the leather and destroy the reputation of any harness manufacturer that uses them. Two methods are adopted in order to dispose of these worse than useless compounds: one is to give it some high-sounding name and sell very cheap, "in order that all may be benefited by it;" the other is to put it up in small quantities, and charge a large price, under the plea that "the ingredients used are very costly and scarce." Both ways meet with success, and as the article is either inefficient or its injurious effects are not immediately apparent, years will pass before the public become aware of its worthlessness. The fact that circulars advertising these mixtures contain the names of many prominent men is not always a proof of their merit. It is best, therefore, that harness-makers purchase only of those kinds that have been long before the public and have earned a reputation, or that they manufacture their own blacking. The latter course is much the cheapest.

A good blacking is made of 4 ounces of hog's lard, 16 ounces of neat's-foot oil, 4 ounces of yellow wax, 20 ounces of ivory black, 16 ounces of brown sugar, and 16 ounces of water. Heat the whole to boiling, and stir it until it becomes cool enough to handle, then roll it into balls about two inches in diameter.

A cheap and good blacking can be made as follows: Soften two pounds of glue in one pint of water, dissolve two pounds of soap (castile is the best, but the most expensive) in one part of warm water; after the glue has become thoroughly soaked, cook it in a glue-kettle, and then turn it into a large pot; place the pot over a hot fire, and pour in the soap-water, slowly stirring until all is well mixed; then add a half pound of yellow wax cut in slices. Let the mass boil until the wax becomes melted, then add half a pint of neat's-foot oil and a sufficient quantity of lampblack to give it color; let it boil a few minutes, and it will be fit for use.

When a harness has become soiled, it can be restored by the use of the French polish. The ingredients are $4\frac{1}{2}$ pounds stearine, $6\frac{3}{4}$ pounds turpentine, and 3 ounces of coloring or ivory black. Beat the stearine out to thin sheets with a mallet, then mix it with the turpentine, and subject it to a water bath. While heating, it must be stirred continually; the coloring matter is thrown in after the mass has become thoroughly heated. It is thrown into another pot and stirred until it is eool and thick; if not stirred, the mass will crystallize and the parts become separated. When used, it must be warmed, and a small quantity rubbed on the leather with a cloth; use but a little at a time and put on very thin.

After it has partially dried, rub with a silk cloth, and a polish will be produced equal to that of newly varnished leather. This polish is also good for carriage-tops, straps, etc., and will in no case injure the leather.—*Manufacturer and Builder.*

STUFFING CUSHINGS, LININGS, ETC.

INSTEAD of hair or moss, prepared sponge cut up into small pieces are now used, to some extent, for stuffing cushions, etc. Some contend that it is preferable to hair, as it will retain its elasticity longer.

Editor's Work-bench.

TO THE FRIENDS OF THIS MAGAZINE.

There are periods in the lives of individuals when it is profitable to take a retrospective view of the past, in connection with a contemplative view of the future, which is our position to-day. This publication came into existence twelve years ago, at a time when all business was very much depressed, and times unusually dull with the craft, throughout the country. Notwithstanding that such was the fact, from the very start the Magazine has been on the whole a success. It is true that we took two years, during our late "unpleasantness," to produce a volume, but this "change of base" proved our security against loss, and accounts for our just entering upon the twelfth volume at the end of twelve years; but had we not done so, probably ours would not have been a *live institution* to-day. Many periodicals that began when the Magazine did, have long since been numbered with the things that were. We cannot but conclude that had it not been for our warm-hearted personal friends scattered all over the country, whose interest in the Magazine has never wavered, it, too, would have long since ceased to exist. In view of these facts, we feel called upon to return our hearty thanks for such unalloyed kindness in the past, trusting that in the future we shall continue to receive the patronage of all lovers of a free press, including all right-thinking minds. If at times we have proved somewhat radical on certain questions of the day; or expressed our ideas in language so positively earnest as to have given offense to a certain class of readers, we can only now regret it, since to have acted otherwise would have rendered us unfaithful to our honest convictions of what we deemed just, and placed us before the world in a false light. Thus much about the past.

For the future we have to say, that our efforts will not flag in the endeavor to make this Magazine, what it has always been, the most reliable and practical work devoted to coach-making that has yet appeared. With this end in view, we invite the co-operation of such literary mechanics as have a practical knowledge of the trade to which this work is devoted. Articles sent to us and not used will be returned, when requested; if accepted, will be paid for according to their value. We have long since discovered that there is much practical knowledge among the craft, that only requires a little effort to bring it to light, and is only now hidden because the mechanic is too modest or diffident to place his thoughts on paper. This should not be so. Editors are the most generous fellows in the world. They scarcely, if ever, lay an article under the table, where practical ideas abound, and will work a long time at correction rather than have their friends placed in a ridiculous light before the public, simply on account of a little imperfection in the language. We therefore hope *our* friends will not hesitate, but send along their favors, pledging ourselves to put their productions in proper shape, should such require revision.

Notwithstanding the hard times among the carriage-makers generally, we are satisfied that something may yet be done to increase our subscription lists. The club rates of this Magazine are extremely low in price, and a very little effort will render them available. As incentives to exertion, we offer as a premium to any club got up according to the rates named in the cover to this number, any chart we have published and have on hand when it is received at this office. This will give the manufacturer, in addition to a copy of the Magazine at a cheap rate, a fine chart designed expressly for his office, worth at least $1, free. Our friends will please be careful, and send all remittances in postal orders, or drafts on New York, to our order. We do not want individual checks on distant banks, the collection of such being too expensive for our purpose. It is much preferable to draw the money yourselves, and send it in registered letters by mail, should no other opportunity offer. Trusting to hear from our old friends at an early day, we close this article.

COACH-MAKERS' CONVENTION.

The matter of holding a convention of coach-makers has been under discussion by the trade journals during the past few months, and the plan appears to be warmly approved by the leading coach builders of this city. We have talked with many of them, and the general feeling seems to be that a convention of this sort is just what has been long needed, and that it cannot fail to be productive of great good to the trade, and that if it were organized and properly managed, a similar convention held once a year would soon become an institution which every carriage-builder would consider an indispensable auxiliary to the business. The carriage-making interest is a great one in the United States, and it has made great progress within the past twenty-five years, but the time is surely coming when it will be much vaster and better organized, and in

that growth which is sure to take place, there is need of co-operation. We know of no agency which will help to bring about this co-operation so effectually as a convention, and we heartily approve of the plan as a most important step in progress.

Our cotemporary, *The Hub*, opened the question by announcing in its January number that a movement was on foot among the leading carriage-builders of New York and vicinity, calling a trade convention to be held in February in that city, and offered its columns to the discussion of the subject and to practical suggestions. In the following issue it continued the subject, stating that the plans were developing, and that many letters of approval had been received from leading builders in all parts of the country. In its March number appeared the following announcement:

"The project of assembling a convention of coach-makers still progresses. It continues to meet with the unqualified approbation of all who hear of it, and many letters of approval and congratulation have been received from influential parties by the gentlemen who are interesting themselves in the matter. Notice has been forwarded us that the original plans have changed somewhat, in order to insure the more general accommodation of all concerned, and instead of calling the convention together in the spring, as was first intended, it has been decided to defer the conference until the autumn. This has been done at the earnest request of many carriage-builders in the West, who write that it would be very inconvenient for them to leave at present, while in the fall it would be a pleasant duty, as at that time many of them make their yearly visit to New York."

Thus the matter stands at present, and it seems probable that in the autumn we shall see the consummation. In the meantime, we stand ready to assist the undertaking in any way within our power. We believe that the first guarantee of success will be to have the matter thoroughly understood by all parties before the convention takes place. It is very likely that at first there may be some who will not favor the project, who will think it unnecessary, or who will fear that individual interests will run the risk of being sacrificed to the public good. But we feel certain that it is only necessary for such to consider the subject deeply and in all its bearings, and they cannot fail to conclude, as we have done, that the influence of such a convention would be valuable beyond all estimate, and that its good influence would extend to every individual in the United States connected with carriage-building.

In conclusion, we make a few extracts from a long and excellent article on this subject which appeared in the *Harness Journal:*

"Carriage-making has grown to its present capacity, in this country, not through any concerted action of those interested in the business, but because of the demand from consumers who have forced the trade up to its present standing. To the lack of mutual understanding among the different branches may be traced many of the errors that now exist. In England the carriage trade is looked upon as among the most elevated of manufactures, and it has not been without an organization for two hundred years. On May 31, 1669, Charles II. granted a charter to a company of coach and coach harness makers, and it still exists, and is known as the "Worshipful Company of Coach and Coach Harness Makers." The Society of Arts has also always taken great interest in these trades, and has awarded valuable prizes for meritorious designs, carriage drawings, models of carriages, and other improvements. It is through this means that coach-making has reached its present high standing in England and on the Continent, and however distasteful it may be to the American pride, the truth is that we have borrowed a great majority of our models for medium and heavy work from our fellow-craftsmen across the water.

"Aside from the general interests involved, there are many special considerations that should secure the united attention of the trade. Prominent among these is the present tariff and taxes now imposed on the manufacturer and importer of carriages. Nominally the tariff is heavy enough to satisfy the most zealous protectionist, it being 35 per cent.; but this fails to present the subject in its true light, for, while the duty on the manufactured article is 35 per cent., the duties on the raw material, together with the taxes paid to the Government by our manufacturers, aggregate at the lowest estimate 50 per cent.; some even place it as high as 80 per cent. on the cost of production. But assuming the lowest figure to be correct, the home manufacturer even then pays more than the importer, and the so-called protection is no protection at all. In its present form, it tends to cripple the trade, besides rendering it impossible to compete successfully in the foreign market. Another evil that is a growing one, is the present unjust discrimination in not charging any duty where a carriage is imported ostensibly for the owner's private use. Under the present working of the law, a carriage can be purchased in London or Paris, driven about for a few hours, and then shipped to this country, as personal property, and free of duty; if imported regularly, the charge would be, for a landau or other carriage of like value, from $400 to $500, thus not only injuring the importer, but almost barring competition by the manufacturer, besides defrauding the Government. The extent to which this mode of importing is carried on, may be inferred from the fact that the total of carriages that have passed through the Custom House of New York, during the last three months upon which duties have been paid, is five, valued at $3,082, while those who are conversant with the trade, assert that there has been no time in many years, if ever, when there was so great a number of foreign vehicles brought into the country as during the time we have mentioned. To correct this evil, and to adjust the tariff and taxes, that we may not only defy competition at home, but become formidable rivals for the trade of those countries that do not possess the requisite skill or material for the production of carriages, is one of the most important matters that should be acted upon in a convention such as is proposed.

"The question of carriage patents could be thoroughly dissected, and some means be devised whereby the real inventor and the manufacturer may be protected from the

charlatans who now flood the country with patents, many of which are useless.

"The trouble now arising from a multiplicity of 'tracks,' the causes, if any, why they should exist, could be thoroughly analyzed and steps be taken to secure a uniform 'track,' in all parts of the country, for light and family carriages. The question of broad tires on road and team wagons, the advantages that the different widths possess, both as to their effects on the roads and the power required to propel them, would be well worthy of attention.

"Innumerable other questions could be introduced. The experience of manufacturers with varnishes, American and English; the effects of them upon climate and temperature; the time required to produce a good serviceable coat of paint; the relative merits of steel and iron for the iron work of carriages; malleable iron and composition metals for mountings; with other important questions, would form fruitful themes for debate, and a fund of information be obtained that would tend to improve and elevate, not only the craft, but the individual members thereof.

"This, too, would be a good opportunity to arrange for the holding of a Journeymen's Industrial Exhibition, similar to that held in London in 1865. A fair of this kind, if properly conducted, could not fail to be of profit and interest to the trade and the community. No manufacturer need hesitate to expose his method of working, through fear of his neighbor taking advantage of it, for no new carriage or harness is out of the workshop one month before its improved points are all known and copied. It is not what has been made, but what is being made, that decides the reputation of the manufacturer, and he who has kept ahead one year may keep ahead the next if he will, and, just in proportion as he strives to excel, so will be his success, and the rivalry produced will be but an impetus to his further efforts."

REVIEW OF TRADE.

When we took a look at trade in February last, it had a gloomy aspect; but that was in the winter season, when good times are seldom expected by the coach-maker. Under such circumstances the manufacturer can only nurse his ambition with the hope that as the season advances times must necessarily improve; and supported by this hope, he toils on, knowing that should he relax his efforts, and times change, unless he has the stock he cannot reap the advantages better days present. Thus inspired, our capitalists in the trade—and some without much capital—kept on manufacturing carriages, until now there is a larger stock on hand than can be advantageously disposed of. A visit to the city manufactories shows that, with a few exceptions, trade continues unusually dull for the spring. A warm day or two may encourage visitors to call at the repositories, but such spasmodic customers seldom prove profitable. The scarcity of money and the general lack of confidence among business men seem to be the obstacles which stand in the way of healthy trade.

Although we consider judicious advertising a paying investment at all times, still, when we find every body at the business, we are forced to the conclusion that times must be deranged in some manner. In looking over the pages of a daily city paper, we find no less than three columns in small type devoted to "Horses, Carriages, etc.," among which appear some of our most popular carriage-builders—a thing never known before within our recollection. The prices, too, at which some of these vehicles are offered, are much less than the expense of producing will warrant, having very much the color of an attempt at forced sales.

Outside of this city, where trade finds employment from local surroundings, business is a little more active—in a few of the Eastern cities, for instance; but on the whole, it is unusually dull for this season of the year, generally supposed to be the coach-maker's harvest-time. Nor can it reasonably be expected to improve until our finances exhibit a more encouraging state, the stringency in the money market being such that it is next to impossible to make collections.

The Western trade, which during the war gave an impulse to business in the East, is now supplied nearer home by its own mechanics, who have since made great improvement in their designs, assisted by the monthly visits of a publication devoted to their special business. We trust that they will still further improve by continuing to patronize this Magazine; and, if they understand their own interest, we have no doubt they will.

VANDALISM.

On Sunday, the third day of April, some miscreants, "on evil bent," visited the carriage repository of the Collings Brothers, on Arch street, Philadelphia, and hacked and cut in a deplorable manner some forty or fifty new carriages, embracing barouches, phaetons, buggies, and no-top wagons. It would seem as though there was more than one person engaged in this despicable business, and that whilst one was using a sharp knife of some kind, another handled a keen hatchet, and both walking, first up one aisle, then down another, without passing by a single vehicle, cut into ribbons every cushion, curtain, top, and dash, making large holes in the side, front, and back panels, besides shivering to atoms the most elegant lamps on the carriages. Indeed it appears to have been the aim of the perpetrators of this vandalism to make thorough work of it, and put the firm to the greatest possible loss. It is said the proprietors have not the slightest clue to the perpetrators of the outrage, and can assign no motive for the transaction.

[This article would have appeared in the May number of the Magazine, but, although already in type, was crowded out. Although rather late, we publish it as an item in the history of events.]

PHOTOGRAPHS FROM CENTRAL PARK.

EVERYBODY at all familiar with the history of New York City, is aware that its Central Park is the life and soul of carriage making there. Since its organization, vehicles have not only more than doubled in number, but have likewise greatly improved in the design. In addition to many original points adopted from abroad, we have invented many improvements of our own, so that now, those who have been in Europe and seen for themselves, tell us that we are far ahead in every essential particular relating to good taste in carriage building. That ours excel them in lightness and grace can be seen by any one interested in the subject, who will take the trouble on any pleasant afternoon, between four and six o'clock, to visit the grand entrance to the carriage drive, on Fifth Avenue, as we have recently done. The moving "World on wheels," in that locality presents the looker-on with one of the finest panoramas of city life to be found anywhere outside of Longchamps in the gayest city of Europe. No picture yet drawn on canvas has exceeded it in interest. As fact is more strange than fiction, so is the *real* here, in interest, far in advance of the artist's *ideal*. But to our photographs.

The first idea the visitor gets of the moving picture is, that it is largely made up of the buggy class of vehicles. These are painted with almost every shade of coloring ever discovered, red generally prevailing. Some of these are of very rude design, built at least fifteen or twenty years ago, *rolling* witnesses of the fact that though we do build our carriages very light, yet after all, they wear so long that it would appear more creditable to art did time demolish them much sooner.

The square or piano-box form of buggy seems to be the most numerous as well as popular, although there is still a respectable sprinkling of the coal-box and canoe assortment still observable. Many of these are driven with two horses, but the greater number in true plebian style are hitched to a single horse, we suppose because the greater proportion of pleasure seekers in this country are found among the middle classes.

Some of the later designs for what is denominated heavy work, are beautiful. Among them we may make special mention of the Landaus and Clarences, which have lately taken the places exclusively of coaches in this country. Park phætons, contrary to our expectations, were not numerous on the day of our visit, but dog-carts—some of them driven tandem, with footmen in *bootee* array, were there in good profusion, occasionally being so *Englishly* high, that it would seem to require a ladder to mount them. We noticed that several of the Victoria and Poney Phaetons had the "rumble" attachment, with servants filling them in true European style, many evidently imported expressly for the purpose.

Among the coupés we saw many of French manufacture, all of which, guaged by an American standard, were faulty in design and clumsily constructed. These were so strikingly different in contrast with ours that they could without difficulty be distinguished at a great distance. Some of these foreign-made vehicles had a rattling about the axles which, to one familiar with the fame attached to the Collinge, seems almost increditable. Whether this has been engendered by age, or sprung from some other cause, we know not, but the fact remains, as any one may learn for himself who takes the trouble to observe.

It is becoming more and more fashionable every day for ladies to drive in what is known as the Poney Phæton, made extremely light and hung very low. This, too, is an European custom, which our American ladies are very loth to adopt. They take to any other recreation more readily than this, although we look upon it as one of the most healthy out-door exercises in which they can *properly* engage. The Rockaway, purely an "American institution," rarely shows itself in the Park, probably because it does not allow of unobstructed vision over the grounds. Many of the darker shaded carriages were striped gilt or with red.

WHO WANTS OFFICE CHARTS?

WE have still a few copies left of the charts, numbers 5, 6, and 7 (all of the earlier ones being sold), which we offer at the low rate of 50 cents each—$1.50 for three. To get them at the price named the money must be sent direct to us by mail. The three charts—which are all uniform in size, so that when framed they match—contain about seventy-five designs of Buggies, Rockaways, Phaetons, Dog-carts, Clarences, etc.—light work prevailing—and are superior in design to any published elsewhere, and will not fail to give general satisfaction to the manufacturer of carriages who wishes to produce a good variety for his repository. These charts are not only handsome ornaments for the office, but will prove useful auxiliaries in obtaining special orders from customers, who, being ignorant of technical terms, without the picture before them, would find it extremely difficult to make themselves fully understood. With these charts, the difficulty is overcome. Application is often made for charts entirely filled with designs for hearses. We take this opportunity to say to the public that we have no charts of this kind, and consequently cannot supply them. We have, however, at different times, published original and other designs of hearses in the MAGAZINE, most of which can be had at 50 cents each number.

AN extensive carriage and buggy factory is in process of erection in Raleigh, N. C.

LITERARY NOTICES.

The attention of our readers is particularly directed to an advertisement of *The Hub*, published in Boston by Messrs. Valentine & Co., the celebrated varnish manufacturers, and proprietors of the Permanent Wood-filling which is now attracting considerable attention in this country. This monthly, furnished at 50 cents a year, contains many things profitable for the carriage and car-shop.

Every Saturday, published by Messrs. Fields, Osgood & Co., Boston, continues to furnish the public with entertaining reading matter, as well as some of the best illustrations published in this country, all for the small sum of $5 a year.

The contents of *The Atlantic* for May, published by the same house, are—Joseph and his Friend; Lost Art; Signs and Show Cases in New York; The Channel Islands; My Secretaryship; May Grown A-cold; The English Governess at the Siamese Court; The Lauson Tragedy; A May-time Pastoral; Among the Isles of Shoals; The Legend of Jubal; A Week at Duluth; Aspromonte; Our Money Problem; The Duel of the Spanish Bourbons, and Reviews and Literary Notices.

Just as we go to press we are put in possession of the *Trans-Continental*, a daily paper, printed by a party of Bostonians in the Pullman palace cars, bound for San Francisco, over the Union Pacific Railway, the motto of which is, "Let every step be in advance." It consists of four pages, each about 8 by 12 inches. The first copy is dated from Niagara Falls, May 24th, which we received the day following. Thanks to the sender.

EDITORIAL CHIPS AND SHAVINGS.

Hubs.—Hubs should never be turned out of the green log, but they should first be blocked out and bored, and then allowed to season. Soon after turning they should be mortised and stored away to dry. The mortise should never be made the full size required, as the seasoning of the hub, or the springing of the chisel, will render it necessary for the mortise to be trued before the spoke is driven into it.

M. Corbett, of the firm of Corbett & Scharch, of 25th Street, New York, has recently returned from Florida, where he spent several months.

The Carriage of the Period.—A leading carriage-maker of New York has given this title to the pony phaeton, the popularity of which continues to increase.

M'Lear & Kendall, of Wilmington, Delaware, have recently added a new Corlies engine of twenty-horse power to their factory.

In Rahway the carriage trade is generally dull.

Wm. M'Cann, of Baltimore, has given up carriage-building, and has opened a repository for the sale of work.

Wm. Bowers, of Philadelphia, has been in the carriage business for twenty years.

In 1550, there were only three carriages in Paris.

Callow & Son are the great London whip-makers.

Coach Lamps.—Silver-lined lamps are taking the place of the gold-lined, for the finest coaches. The former are less showy, and are therefore considered neater and more tasteful.

Clean Paint Previous to Varnishing.—Provide a plate, with some of the best whiting to be found in the market, and have some clean, warm water and a piece of flannel, which dip into the water and squeeze nearly dry; then take as much whiting as will adhere to it, apply it to the painted surface, when a little rubbing will instantly remove any dirt or grease; after which wash the part well with clean water, rubbing it dry with a soft cloth or chamois. Paint thus cleaned looks as well as when first laid on, without any injury to the most delicate colors. It is far better than cleaning it with soap, and does not require more than half the time usually employed in cleaning with that article.

Carriage Items.—B. Hickley & Co., carriage-makers in Lee, Mass., have dissolved partnership, and A. J. Miller has now succeeded them in the business.

Joseph Beckhaus, of Philadelphia, has been in the carriage business in this country for seventeen years. He employs 60 men, and turns out in the course of the year about 150 carriages, mostly heavy, and builds some of the most elegant and costly hearses used in this country. Before the retiring of his partner, the firm name was Beckhaus & Allgaier.

The Piotoowski Method of painting carriages seems to be steadily gaining in favor, as is evident in New York, where it is seen in practical use in *nearly all, if not every*, leading carriage factory. It certainly possesses many advantages over the old method of lead painting.

Nature Transformed.—Bishop Kingsley, writing from Singapore, says: "It is perfectly marvelous how, in this moist climate, certain kinds of trees can be made to take all forms of things animate and inanimate. In a rich Chinaman's garden are trees the exact resemblance of lions, dogs panting for breath, with mouths widely extended; *horses attached to carts, in which every thing, including wheels and shafts and cover, are perfect;* pitchers and urns; deer, with wide-spreading antlers; storks, with long, slim legs and beaks; peacocks, strutting with expanding tails, with many other things which cannot here be enumerated, are imitated in a manner surpassing belief until seen."

Hitching Three Horses Abreast to a Wagon.—J. F. Pond, of Ohio, recently asked the N. Y. Farmer's Club to tell him the best way to hitch three horses abreast to a wagon, so that they will work well. Finds that he cannot do it in the same way he does it to a plow. He says: "The best way I know of to attach three horses abreast to a wagon, is to hitch two in the ordinary way of driving two horses, then place the third horse on the off side, attach a chain to his whiffletree, pass it back outside of the fore wheel, and hitch to the center of the third axletree. A cross-bar should be fastened across the under side of the box, just back of where the wheel strikes, to hold up the chain. This should project out about sixteen inches, and have a ring near the end for the chain to pass through; the end of the cross-bar should crook down six or eight inches, to give low draft. Hitch the tie-rein of No. 3 to hame ring of off-wheel horse, or, if a Dutchman, use a jockey stick. This plan works very well, but has its objections. Can the wise ones of the Club give me a better plan?" Dr. Trimble asked why it would not be best to put the center horse in shafts. Mr. Curtis recommended that he carry lighter loads and use two horses.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, MAY 30, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅝ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.
☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.
Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Bolts, Philadelphia, list. 45 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy-top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $1.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No. 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $6 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1¼ and 1½ in. 9c. each; 1½ in. 10c. each. 10 off cash.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.00; nonpareil, $5.25.
Do. English, $6.25 to $7.50 in gold, or equivalent in currency.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

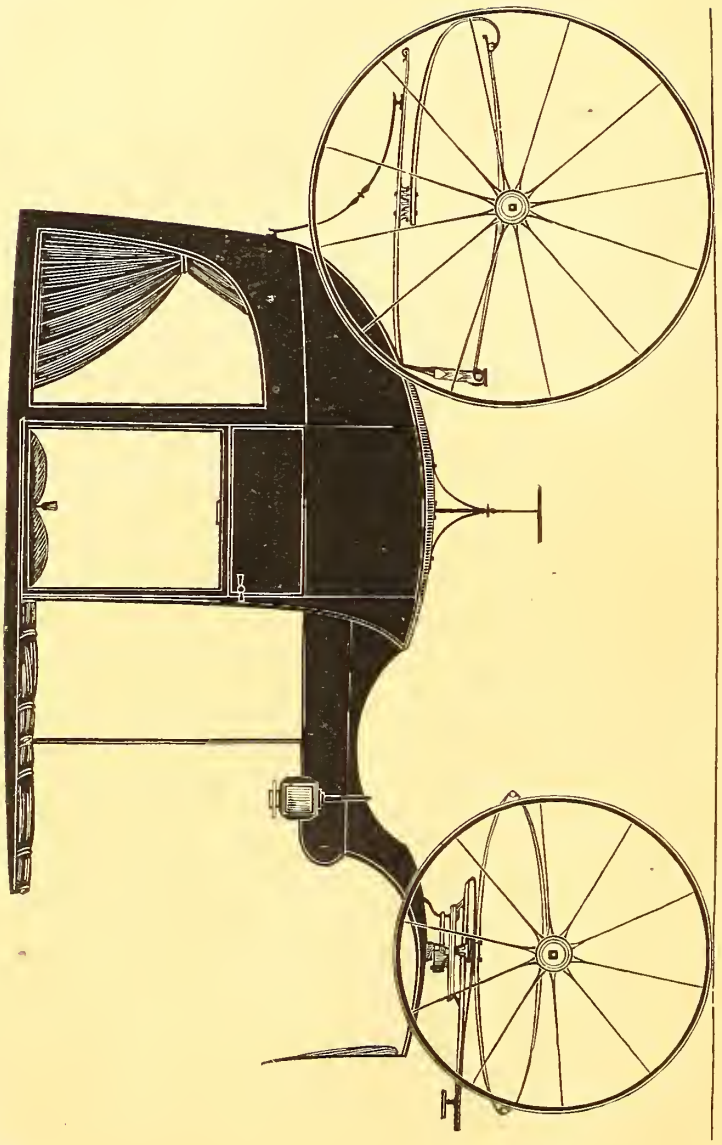
TO CORRESPONDENTS.

A. T. of C.—You will see from our present number, that we publish three charts, all uniform in price, at 50 cents a copy—send money in letter and order.

R. S. of S. C.—Our Southern friends—among which we include our correspondent—will see from this number that the rumor is not true. We have never faltered during the late war, and are still alive.

T. A. of Pa.—Read the catalogue of back volumes, to which prices are affixed, in this issue.

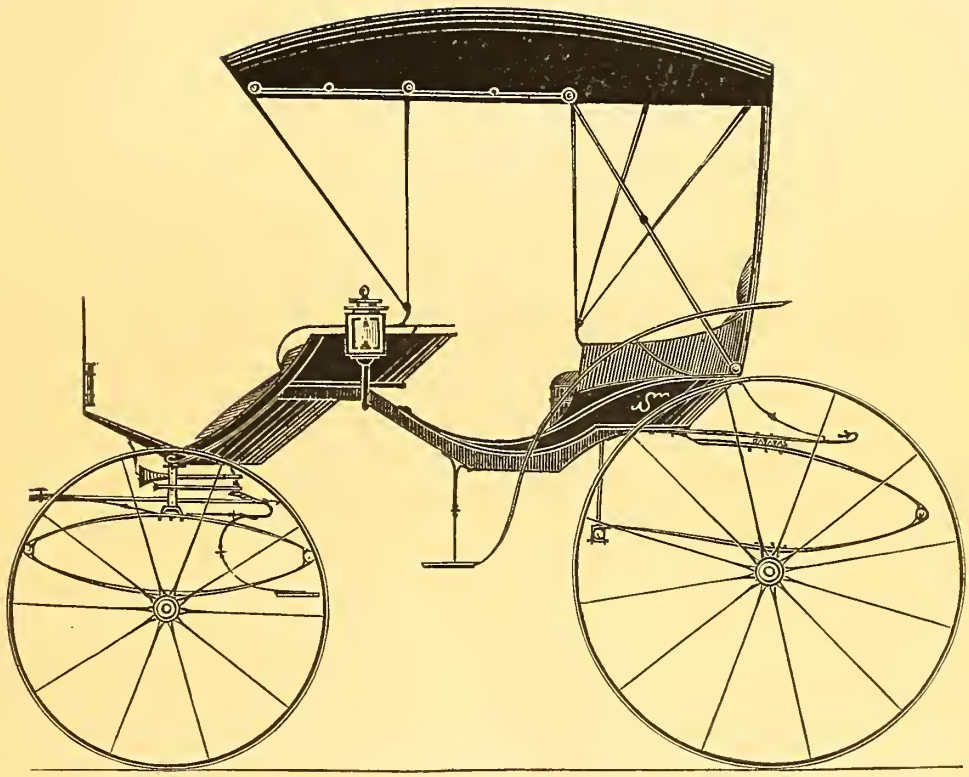
O. B. of N. Y.—You will find your suggestions carried out in this number.



SIX-SEAT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 25.



EXTENSION TOP CABRIOLET.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

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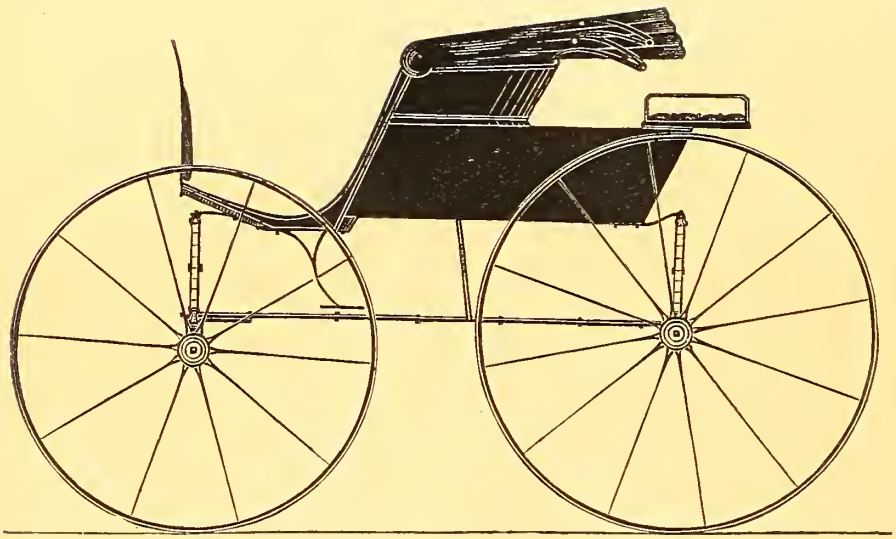

TURN-OVER SEAT PHAETON.—½ IN. SCALE.

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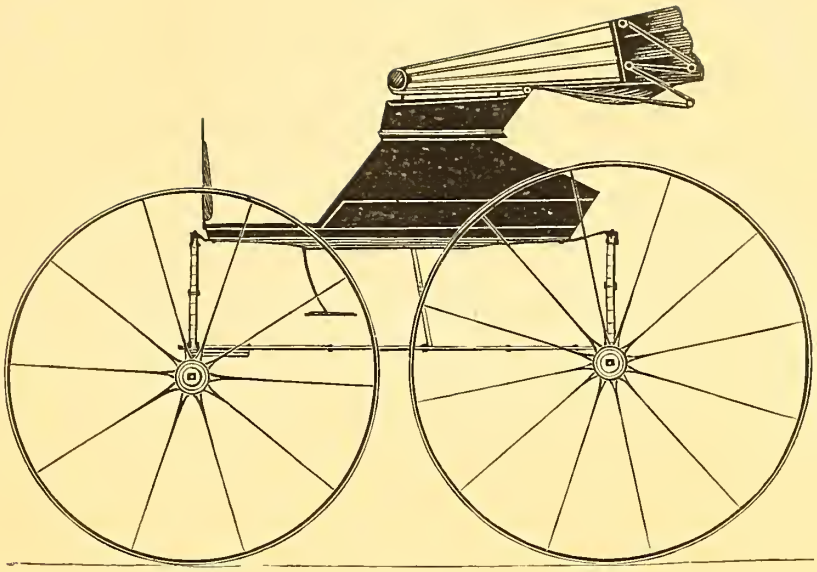

ROAD BUGGY.—½ IN. SCALE.

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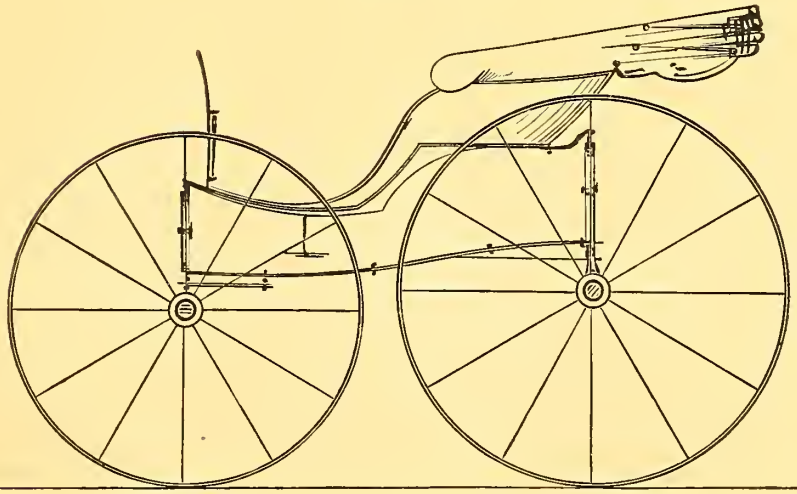

GIG PHAETON.—½ IN. SCALE.

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Explained on page 25.

THE NEW YORK
Engineer's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, JULY, 1870. No. 2

Mechanical Literature.

STAGE-COACH TRAVELING FORTY-SIX YEARS AGO.

FROM MR. THURLOW WEED'S AUTOBIOGRAPHY.

Very few of our citizens possess information, other than traditional, of the mode of travel between Albany and the western part of New York, even as late as 1824. Those who step in a railway car at Albany at seven o'clock in the morning, and step out to get their dinner in Rochester at two o'clock P. M., will find it difficult to believe that within the memory of by no means the "oldest inhabitant" it required, in muddy seasons of the year, seven nights' and six days' constant traveling in stages to accomplish the same journey.

And yet that was my own experience in April, 1824. We left Albany at eight o'clock in the evening, and traveled diligently for seven nights and six days. The road from Albany to Schenectady, with the exception of two or three miles, was in a horrible condition; and that west of Schenectady, until we reached "Tribes Hill," still worse. For a few miles, there was a gravely road over which the driver could raise a trot; but this was a luxury experienced in but few localities. Passengers walked, to ease the coach, several miles each day and each night; although they did not literally carry rails on their shoulders, to pry the coach out of ruts, they were frequently called upon to use rails for that purpose. Such snail-paced movement and such discomforts in travel would be regarded as unendurable now. And yet passengers were patient, and some of them even cheerful, under all those delays and annoyances.

But stage-coach traveling had its bright as well as its dark aspects. Take, for illustration, an early September day. The coach leaves Rochester after breakfast in the morning, if with a full complement, nine passengers inside and two on the box with the driver. At Pittsford and Mendon and Victor, where the stage stops to change the mail and water the horses, a lady or boy, but usually a lady, comes with a basket of delicious peaches, of which the passengers are invited to partake, but for which they are not permitted to pay, except in thanks. At Canandaigua, a beautiful village, then rejoicing in a greater number of distinguished men than are now to be found in any interior city of our Sate, we get dinner; and the dinners at "Blossom's," as all who ate them will remember, were dinners indeed.

Leaving Canandaigua, we are driven through a charming series of agricultural landscapes to Geneva, sixteen miles, where we have a view of its beautiful lake, a lake not unlike or unworthy of its equally beautiful namesake in Switzerland. From Geneva to Waterloo, four miles, seems but a turn of the kaleidoscope, and the distance from Waterloo to Seneca Falls is gotten over in no time.

The drive over Cayuga Bridge, more than a mile in length, was always pleasurable and interesting. Some one would remark how much it was to be regretted that a lake so large should be of so little practical value, not being used for purposes of navigation or inhabited by fish of any value.

I remember one of the passengers once amused the coach by relating an incident that occurred to Mr. John C. Spencer. It was a dark, rainy, cold evening. The stage was full inside and out. A lady, closely veiled, came to the steps, who was, as the keeper of the hotel said, very anxious, on account of sickness in the family where she resided, to get to "Goodwin's" that evening. The passengers said it was impossible, as there were already nine of them inside. But Mr. Spencer, prompted by his sympathies or his politeness, as it was but four miles, thought a lady ought not to be refused a passage, and offered a seat on his lap. The offer was accepted, and the stage dashed off. At "Goodwin's Tavern," a light was brought to enable her to find her luggage, and when she removed her veil, a very ebony-colored individual of the female gender was revealed, to the consternation of Mr. Spencer and the amusement of the other passengers!

At Auburn we rest for the night, having made sixty-four miles. In the evening, the magnates of the village drop into the hotel bar-room, to gossip with the stage passengers. There was no sitting or drawing-rooms at hotels in those days; nor could a single lodging-room, or even single beds, be obtained. In country inns, a traveler who objected to a stranger as a bedfellow was regarded as unreasonably fastidious. Nothing was more common after a passenger had retired, than to be awakened by the landlord, who appeared with a tallow candle, showing a stranger into your bed!

In the morning, the stage was off between daylight and sunrise. The passengers, refreshed themselves, en-

joyed a view of refreshed and invigorated nature, to which the rising sun soon began to impart light and life. The canal was attracting business and population; the stage had just begun to run over the New Turnpike, leaving the villages, on the line of the old turnpike, to a process of decay which has rendered them almost obsolete. I ought to have remarked that at Auburn passengers always dreaded an acquisition to their number, in the person of Mr. Wood, who, weighing some four hundred pounds, and inconveniently broad across the shoulders and transom, made the coach every way uncomfortable. For ten or fifteen miles there was little of outside interest to talk about. Our approach to stage houses and post-offices was announced by the blowing of a tin horn or trumpet, with more or less skill, by the driver. This drew together a crowd of idlers, with this difference between New York and many parts of Europe—that instead of beleaguering the coach with imploring appeals for charity, our visitors would generally present us with some choice fruit.

At Syracuse, twenty-five miles from Auburn, we breakfasted. Syracuse then, as now, was a marvel in the suddenness and rapidity of its growth. And here, *my* story came in. I had worked in the Onondaga furnace in 1811 and 1812, and remembered having gone through what was now the flourishing village of Syracuse, with six or seven thousand inhabitants, when it was a tangled and almost impenetrable swamp, thickly inhabited by frogs and water-snakes. Indeed, the swamp foliage was so thick, and darkened the atmosphere to such an extent, that the owls, mistaking day for night, could be heard hooting. Upon the locality over which the now large and beautiful city of Syracuse has extended, there was, in 1811, but one human habitation; that was "Cossett's Tavern," near the site of the present Syracuse House. At the western boundary of the swamp, on the creek which empties into the lake, there was a small grist-mill and two log cabins.

After breakfast, we leave Syracuse and drive rapidly on to Manlius Square, and still on to Westmoreland, and through New Hartford into Utica, seventy-two miles from Auburn. This is the end of our second day's journey. But, for the accommodation of those who preferred a night ride, a stage left Utica at nine P. M. Those to whom time was important took the night line. We, however, will remain over.

Before reaching the ancient village of Herkimer, we were driven over the fertile and celebrated German Flats, nearly a thousand acres of which were owned by Judge Jacob Weaver and Colonel Christopher Bellinger. Many amusing anecdotes were told of Judge Weaver's early life, when he was a merchant and trading with the Indians. In purchasing furs, as the story goes, his hand, placed on the scale opposite the fur, weighed half a pound, and his foot a pound. His accounts were kept on boards, in chalk. One of his neighbors, Mr. Harter, in settling an account, found himself charged with a cheese. Being a farmer, and making it, not only for his own table, but being in the habit of selling it at this store, he asked an explanation. Judge Weaver, priding himself upon his accuracy, was impatient with all who disputed his accounts. But Mr. Harter, appealed to his reason and common sense to show him how improbable, if not impossible, it was that he who made cheese for sale should have been a purchaser. This perplexed the Judge, who, after thinking and talking for a long time, was unwilling under the circumstances to press his neighbor to pay for a cheese, and equally unwilling to admit an inaccuracy in his book-keeping. The question was finally laid over till the next day, in the hope that the Judge might be able to verify the integrity of his books, or boards! On the following day, when Mr. Harter appeared, the Judge met him in jubilant spirits, exclaiming, "It is all right; I remember all about it now." "But," said his neighbor, "you don't mean to say that I bought the cheese!" "No, no," said the merchant; "it was not a cheese, but a grindstone, and I forgot to put the hole in it!" In Judge Weaver's mode of book-keeping, a circular chalk mark represented a cheese, while the same mark, with a dot in the center, converted it into a grindstone.

From Herkimer to Little Falls, seven miles, there were no particular attractions, but we come, after an hour's ride, to a hill, by the bank of the river, which, several years before, General Scott was descending in a stage, when the driver discovered, at a sharp turn near the bottom of the hill, a Pennsylvania wagon winding its way up diagonally. The driver saw but one escape from a disastrous collision, and that, to most persons, would have appeared even more dangerous than the collision. The driver, however, having no time for reflection, instantly guided his team over the precipice and into the river, from which the horses, passengers, coach, and driver were safely extricated. The passengers, following General Scott's example, made the driver a handsome present as a reward for his courage and sagacity. We dine at East Canada creek, where the stage-house, kept by Mr. Couch, was always to be relied on for excellent ham and eggs, and fresh brook trout. Still further east, we stop at Failing's tavern to water. Though but an ordinary tavern in the summer season, all travelers cherish a pleasant remembrance of its winter fare; for, leaving a cold stage with chilled limbs, if not frozen ears, you were sure to find in Failing's bar and dining-rooms "rousing fires;" and the remembrance of the light, lively, "hot and hot" buckwheat cakes, and the unimpeachable sausages, would renew the appetite, even if you had just risen from a hearty meal.

From Schenectady to Albany the drive through dwarf pines and a barren soil, the turnpike road ornamented with poplar trees at uniform distances on either side, was tame and, unless enlivened by conversation, dull. But it was an unusual circumstance to find a stage-coach, with fair weather and good roads, between Rochester and Albany, that was not enlivened by conversation, for there were almost always two or three intellectual passengers. And there was an unfailing source of fun at every stopping place in the "gibes and jokes" of the stage-drivers, who, as a class, were as peculiar, quaint, and racy as those represented by the senior and junior Weller in "Pickwick," as "Samivel" described them—a class of highly-social individuals, who have been driven off the roads and compelled to earn a precarious living by tending pikes and switches, or marrying "vidders," and whose unintellectual successors are engine-drivers and stokers.

The stage-drivers of that day lived merry but short lives. The exceptions were in favor of those who, after a few years' experience, married some reputable farmer's daughter on their route, and changed their occupation from stage-driving to farming. This must, I think, have been the case with one of my earliest stage-driving acquaint-

ances. It is but a few weeks since I saw in the papers an announcement of the death, somewhere in Tompkins county, of "Phineas Mapes," aged 80 years. "Phin. Mapes," a rollicking stage-driver at Catskill, is one of my very earliest remembrances. In 1803 or 1804, a stage with four live horses was an institution, at least in the admiring eyes of the boys. I remember with what a flourish "Mapes" used to dash up to the post-office door, and, while Dr. Croswell was assorting the mail, how gracefully and gently he would throw his long whip-lash over the backs of the leaders, and how, by the responsive action of their fore-feet, nostrils, and ears, they would show how well they understood that he meant it playfully. How well, too, I remember when, in 1810 or 1811, I renewed my acquaintance with this driver at Skaneateles, between which place and Onondaga Hollow he was blowing his horn and cracking his whip and his jokes, quite as popular here as he had been at Catskill. The oldest inhabitants of Catskill and Skaneateles, as well as the few survivors who rode in stages upon the great Genesee turnpike sixty years ago, will remember "Phin. Mapes" pleasantly, from whom, in his best days, Dickens might have found a "jolly" original for Mark Tapley.

TREATISE ON THE WOOD-WORK OF CARRIAGES.

(*Continued from page* 4.)

LXXIII. Now in order to project the triangle A B C in any of its positions in space, when revolving round A C, it will be remarked that the vertical plane Q being perpendicular to A C, the triangle will be projected in all of its positions, on that plane, by a line which will be the radius from the point B. Moreover, the angles A and C of the triangle, being adjacent to the side A C which remains fixed, will but revolve around those points. In order, therefore, to construct the projection of the triangle on the horizontal plane, it will suffice to determine that of the angle B.

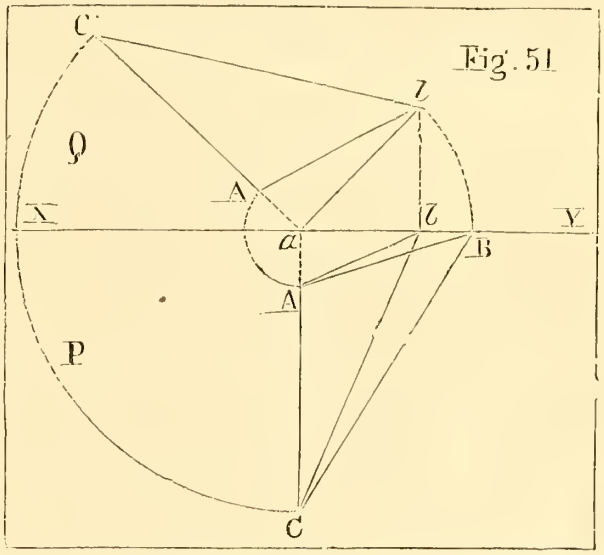
As a preliminary, the vertical projection of that point is fixed by transporting the radius a B in the position in space that is desired to be taken by the triangle; for instance, in $a\ b'$. Having the vertical projection b' of the angle B, the horizontal projection of that point is found in b, and on a perpendicular lowered from the point b' to the ground line, and also on b B, the horizontal projection of the segment of the circle described by the point B. On joining, by straight lines, the points b A and b C, the two projections A b C and $a\ b'$ will be obtained, which are those desired.

The radius $a\ b'$ transposed on to any plane, say P, passing by the axis a C, is the hypothenuse of a rectangular triangle, the right angle of which is composed of the projection $a\ b$ of the radius on the plane P, and the distance $b\ b'$ from the other extremity to that plane.

The figure 50 in perspective shows the triangle in space, and its projections on the planes P and Q, with all the points marked by the same letters and in an analagous position to that which we have considered on figure 49 (*see page* 2).

When the radius a B (fig. 49) is in a vertical position $a\ b''$, the triangle is perpendicular to the horizontal plane, and is projected on that plane according to a straight line a C.

LXXIV. In lieu of elevating a surface in space for the subsequent determination of its projections, it is most frequently the inverse operation that has to be followed; because, in graphical construction, when a surface is entirely comprised within one of the two planes of projection, it will be found to be in the most favorable position possible for the purpose of solving the operation that it involves, inasmuch as all the lines of construction are shown in their sizes and relative positions (Art. 71). If we have made a commencement by considering the surface on one of the planes of projection, it was merely for the purpose of conveying a clearer idea of the inverse operation that we now shall proceed to execute.



Suppose A b C and $a\ b'$ (fig. 51) the horizontal and vertical projections of a triangle: it is proposed to deploy this triangle on to the horizontal plane by making it turn around its side A C, in the horizontal plane.

The triangle (A b C, $a\ b'$) being projected following a line $a\ b'$ on the vertical plane, is perpendicular to that plane. The same refers to the side A C, given on the horizontal plane, and which projects itself on the other in a point a, on the ground line. Now, in the rotary movement around the axis A C, which remains fixed, each point of the triangle describes a segment of a circle, which is projected by a straight line perpendicular to the axis in the horizontal plane P, where the axis is given (Art. 72), and in its full size on the vertical plane Q, perpendicular to the axis A C. The two angles A and C, being adjacent to the axis, will merely turn around those points. Now, in order to deploy the triangle on to the horizontal plane, it suffices to construct the point where the angle ($b\ b'$) pierces that plane. But the angle ($b\ b'$) is on the vertical plane; the segment of the circle that it will describe must also be upon that plane. Its radius is the line $a\ b'$ that joins the prolongation of the axis A C and the point b'. Taking point a as the center, with $a\ b'$ as a radius, draw the arc b'B. When the triangle is deployed upon the horizontal plane, the arc b' B will pierce that plane in a point B of the ground line, which is the top of the angle ($b\ b'$). Then join the points A, B and C by the lines A B and B C. The triangle A B C thus formed will be the one desired.

LXXV. If it were desired to deploy the triangle

upon the vertical plane, the line $a\ b'$ could be taken for the axis around which to turn it. Now a C being perpendicular to $a\ b'$, the points A and C would then fall on a line a C, drawn from point a perpendicular to $a\ b$, and in such a manner that the result would be a A$'$ equal to a A, and a C$'$ equal to a C. On joining the points A$'$, b' and C$'$ by the lines A$'$ b' and b' C, the triangle A$'$ b' C$'$ would be the desired triangle.

LXXVI. In the cases of deploying that we have effected, the triangle had one of its sides upon the horizontal plane. Now let us consider the case where the triangle is in space, beyond the planes of projection, and following a position perpendicular to one of those planes; for instance, to the horizontal plane. Then the projection of the triangle on that plane will be a straight line.

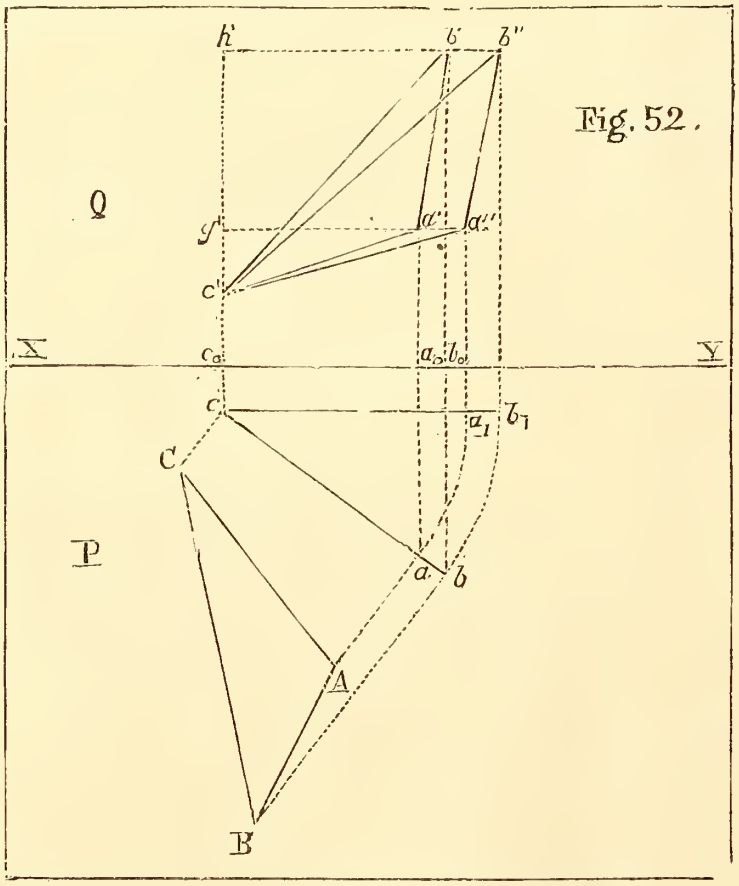


Fig. 52.

Let $c\ a\ b$, $c'\ a'\ b'$ (fig. 52) be the horizontal and vertical projections of the triangle that we intend to deploy first on to the horizontal plane. The plane of the triangle must be supposed to be extended until its projectants meet the horizontal plane. The figure of that plane will be projected on the vertical plane by the rectangular trapeze $c'\ c_0\ b_0\ b'$, and on the horizontal plane it will be traced by the line $c\ b$, which is but the horizontal projection of the triangle. On taking the line $c\ b$ as the axis, each point of the triangle, in the movement around $c\ b$, which remains fixed, will describe the arc of a circle the plane of which is perpendicular to that line (art. 72). It therefore now remains to be known where each point under consideration will pierce the horizontal plane.

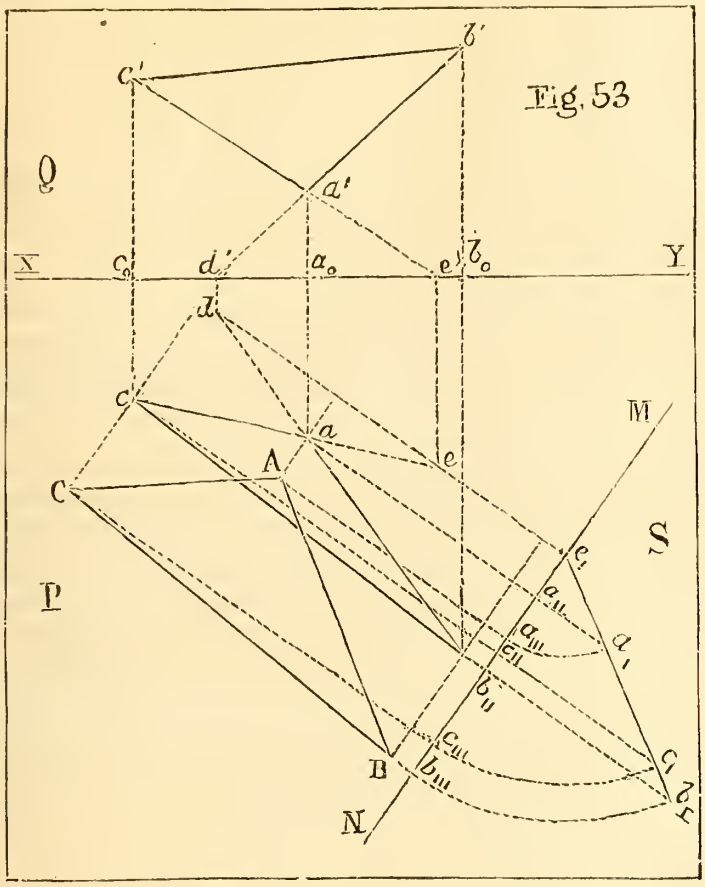
The points in question are the angles (c, c'), (a, a'), (b, b') of the triangle. The arcs of circles described by these points have for radius the vertical lines perpendicular to the axis. Those lines are projected on the horizontal plane, each one in a separate single point, c, a and b, and in their whole length on the vertical plane, by the lines $c'\ c_0$, $a'\ a_0$, $b'\ b_0$, drawn from the projections $c'\ a'$ and b', perpendicular to X Y. Therefore, by the rotary movement of the triangle, those radii will not cease to be perpendicular to the axis $c\ b$, and when the triangle is deployed upon the horizontal plane they will still remain so. In order to construct them in this new position, perpendiculars c C, a A, b B to the axis $c\ b$ must be drawn from their horizontal projections c, a and b. Then place the length of each radius upon these lines, as $c'\ c_0$ from c to C; $a'\ a_0$ from a to A; $b'\ b_0$ from b to B. The points C, A and B, thus obtained, are the points where the segments of a circle described by the angles (c, c'), (a, a'), (b, b'), pierce the horizontal plane where the triangle is deployed upon it. On joining the points C, A and B by the lines C A, C B and B A, the triangle A B C, which they form, is the triangle desired.

LXXVII. In lieu of deploying the triangle $(c\ a\ b,\ c'\ a'\ b')$ on to the horizontal plane, it can be brought by a rotary movement in a position parallel to the vertical plane, and the new projection that will follow can be constructed on that plane.

The triangle $(c\ a\ b,\ c'\ a'\ b')$ being vertical, take as the axis of rotation in the plane of that triangle, a vertical line that is made to pass by one of the extremities of the triangle; for instance, by the angle (c, c'). The axis of rotation will thus be projected in a single point c on the horizontal plane, and by $h'\ c_0$ on the vertical plane. The points of the triangle to be considered in its rotary movement are the two other angles $(a\ a')$, $(b\ b')$, which will each describe an arc of a circle, the plane of which will be perpendicular to the axis (art. 72). Now, the axis of rotation being vertical, the arcs $(a\ a_1, a'\ a'')$, $(b\ b_1, b'\ b'')$ described by each angle will be horizontal. They will therefore be projected in their size $a\ a_1$, $b\ b_1$ on the horizontal plane, and by the horizontal lines $a'\ a''$, $b'\ b''$ on the vertical plane. Therefore the arcs described by these points (a, a'), (b, b') will respectively have for radii the horizontal lines $(c\ a,\ g'\ a')$, $(c\ b,\ h'\ b')$, and because these radii are horizontal, they are represented in their whole length by their horizontal projection $c\ a$ and $c\ b$.

Now, in order to bring over the triangle $(a\ b\ c,\ a'\ b'\ c')$ in a position parallel to the vertical plane Q, a line $c\ b_1$ is drawn through the point c, parallel to the ground line X Y, and from the point c as a center, with $c\ a$ and $c\ b$ as radii, the arcs $a\ a_1$, $b\ b_1$, are drawn. The points a_1 and b_1, where the arcs meet the line $c\ b_1$, are the new horizontal projections of the points (a, a'), (b, b'). Vertical corresponding projections will be obtained to the same points, by drawing perpendiculars to X Y by a_1 and b_1, till they meet the horizontal lines $g'\ a''$, $h'\ b''$ in a'' and b''; these last two points are the new vertical projections desired. By joining the points c', a'', b'' by the lines $c'\ a''$, $c'\ b''$, $a''\ b''$, the triangle $c'\ a''\ b''$ will be the one sought for.

LXXVIII. We will now consider the case that most generally occurs, where the triangle is found to be placed



in any manner in space, and in an inclined position in respect to the planes of projection.

Suppose $a\ b\ c$ and $a'\ b'\ c'$ (fig. 53) to be the horizontal and vertical projections of the triangle. The triangle is so disposed, that all its sides are inclined in respect to the planes of projection; in order to effect the possibility of bringing it into a vertical or horizontal position, one or both of its sides must be prolonged until they strike a horizontal line, or one of the planes of projection. These two conditions can, however, be reduced to one only, because, after having prolonged the sides of the triangle until they strike a horizontal line, that line can be taken for a horizontal plane. Now, as it is always possible to carry the horizontal plane of projection in such a manner that it passes by the proposed line, the question reduces itself to the prolongation of the sides of the triangle, until they meet one of the planes of projection. The points where these sides pierce the plane appertain to the axis around which the deployment of the triangle is affected. In the proposed question, we prolong the sides $(a\ b,\ a\ b')$, $(a\ c,\ a'c')$ of the triangle until they strike the horizontal plane.

The side $(a\ b,\ a'\ b')$ being prolonged or extended, pierces the horizontal plane in a point, whose vertical projection is the point d', which is found in the vertical plane on the line X Y, and on the extension of $a'\ b'$. In the same manner, the side $(a\ c,\ a'\ c')$ being extended, pierces the horizontal plane in a point whose vertical projection is the point e', which is found on the line X Y, and on the extension of $a'c'$. It now remains to construct the two horizontal projections, the vertical projections of which we have in d' and e'. But these two projections from a point in space (art. 59) are on the same line, perpendicular to the common intersection X Y of the two planes of projection. By drawing the perpendicular lines $d'\ d$, $e'\ e$, through the known projections d' and e' to X Y, those lines will give the desired projections. Each one of these two projections must, moreover, be found on the extension of each of the horizontal projections $a\ b$ and $a\ c$, therefore they are found in d and e; the former, d, at the intersection of the extension of $a\ b$ and of the line $d'\ d$ perpendicular to X Y; the second, e, at the intersection of the extension of $a\ c$ and of the line $e'\ e$, perpendicular to X Y. The points d and e being known, where the sides of the triangle $(a\ b,\ a'\ b')$, $(a\ c,\ a'c')$ pierce the horizontal plane, the line $d\ e$, which joins those points, is taken for the axis.

The axis being determined upon the horizontal plane, a line M N is drawn perpendicular to that axis, which is considered as the common intersection of a vertical plane S and of the horizontal plane P. The vertical projections of the first plane Q are then transferred to the new vertical plane.

By preserving the horizontal plane in the same place, as also the triangle in space, it is very evident, firstly, that the various points of the triangle will retain their same projection on that plane; secondly, that the elevation of each point, taken in respect to the horizontal plane, will always be the same. But the two projections of a point on two planes of projection, P and S, taken at will, will be found (art. 59) on a same line perpendicular to the common intersection of the two planes. Now, in order to project a point whatever $(b\ b')$ of the triangle $(a\ b\ c,\ a'\ b'\ c')$ n the plane S, a line $b\ b'$, perpendicular to M N is drawn through the horizontal projection b; the distance $b_0\ b'$, of the first vertical plane Q, is then transferred to that line from $b_{/}$ to b. The point $b_{/}$ is the new vertical projection of the angle $(b\ b')$ on the plane S, projected on the two other planes. By the same method, the projections of the two other angles $(a\ a')$ and $(c\ c')$ of the triangle are obtained in $a_{/}$ and in $c_{/}$, on the plane S, by bringing over respectively the distances $a'a_0$, $c'c_0$ of the plane Q, from $a_{//}$ on $a_{/}$, and from $c_{//}$ on $c_{/}$. But the plane of the extended triangle is traced on the horizontal plane P, by the line $d\ e$, perpendicular to the common intersection M N, of the planes P and S; therefore the plane of the triangle is perpendicular to the plane S (art. 57), and is projected on the latter by a line (art. 55). Having determined the projection $b_{/}$ of the apex of the triangle, then join that point and the intersection $e_{/}$, of the axis $d\ e$, by a line $b_{/}\ e_{/}$; that line indicates the vertical projection of the triangle on the plane S. The angles that are projected on the horizontal plane by the points a and $c_{/}$, will have their vertical projection S, in $a_{/}$ and in $c_{/}$, which are the intersections of the perpendiculars drawn from the projections a and c to M N, and of the line $b\ e_{/}$.

(*To be continued.*)

Successful Carriage-making.—A leading firm in this city, made its return to the Revenue Department as $116,135 for the month of May, 1870. Who says that carriage-making is unprofitable, and that the business pays a smaller profit on the capital invested than any other.

STORING OF CARRIAGES.

In compliance with the request given in the last *Hub*, we make the following suggestions on storing carriages. That the matter is one of direct importance to the carriage-maker is illustrated by the following letter just received:

"It is a common and very vexatious complaint, from customers who store their carriages near the stable or otherwise improperly, that the varnish turns dim or flakes off. I have often seen this happen in such cases, even after the very best varnish has been used. Then the customer comes and blames the carriage-maker for using poor varnish, and he may be perfectly innocent, for *no varnish ever was made, or ever can be made*, that will stand the steam arising in a stable where horses stand."

There are six rules which should be observed by those who store carriages, and it would be well if every carriage-maker posted them in a prominent place in his office, and called the attention of customers to them. They might help to prevent the complaints which we have mentioned, and if they did not prevent such, they would help to answer them.

"To Carriage Owners.—In storing carriages, these six rules should be observed:

1. The carriage-house should be apart from the stable.
2. It should be well ventilated.
3. It should be light.
4. It should be free from dust.
5. The carriages should be washed frequently.
6. They should be run out into the sun and air frequently."

We will now speak of these points more in detail, and show the "why and wherefore." In regard to the first, which is the most important consideration, we give a letter received by us from a distinguished chemist, which will show why carriages should not be kept near where horses are kept, and will also illustrate several of the other points:

"Oils, by contract with alkalies, are more or less readily converted into soaps soluble in water. Among the most easily saponified oils is linseed, which, when shaken up with a solution of potash, soda, or ammonia, unites with the alkali, forming a thick emulsion of soft soap. Ammonia is a gas, and occurs in the air wherever organic fermentation is in progress. When a varnished carriage is exposed to an atmosphere of ammonia, arising from manure heaps or decaying vegetable matter, the alkali unites with the oil of the varnish, forming an almost imperceptible filament of soap, which, when the carriage is washed, dissolves in the water and is removed, leaving a fresh surface to be again acted on by the ammonia, so that the oil is gradually removed from the varnish, leaving it brittle and more liable to crack. The phenomenon may perhaps be utilized by the carriage-painter in removing old coats of varnish by substituting, for the tedious process of 'burning off,' washing over with a solution of caustic soda, or, better, applying the soda, mixed into a paste with some inert substance, as pipe-clay or ground pumice stone, to keep it in place for half an hour, when the varnish will be softened and may be scraped off."

This letter explains why the carriage-house should be apart from the stable, and why it should be well ventilated. It also explains the phenomenon mentioned by William Gaskin in our last issue, in which the varnish on the hind end of a wagon was destroyed by having a barrel of potatoes stored under it. We see that it was caused by the ammonia which arose from the decay of the potatoes.

In the third place, the carriage-room must be light. For some reason, not yet apparent to us, a carriage painted black will invariable turn green when stored in the dark for any length of time. For example: a carriage owner, living in New York, went to Europe a year ago, and during his absence his coach was kept in a dark repository. On his return, it was sent to be painted a dark green, but on examination it was found that the original black had so changed in color that it was only necessary to revarnish and bring out the dark, rich green which was already present.

It is obvious that a carriage should be kept clean. Hence, the carriage-room should be kept as free from dust as possible, and if this is carefully observed, there is no need to cover the carriages. In some of the finest repositories of carriage-dealers they use no covers. But if exposed to dust, protect the carriage thus by all means. Some use heavy ticking for this purpose, but close sheeting is better. As a further aid to the cleanliness of a carriage and the preservation of its varnish, it should be washed frequently with cold water. When a new vehicle is received, covered perhaps with cinders and the dust of travel, it is often left unwashed for several days from the idea that the varnish is still tender and should not be meddled with. This is a mistake. A new vehicle should always be washed soon after its receipt. The varnish may be tender, but for that very reason is it the more essential that the dust should be removed from, it, and the cold water will aid greatly in hardening the varnish. A carriage ought always be washed, also, after use in muddy weather; otherwise, if the mud spots be allowed to remain overnight, they will generally leave their mark. Always wash with a sponge, avoiding the use of a hose, which has the effect of forcing the water into the crevices, and after washing always dry off with a chamois skin. Then wheel the carriage out into the sun and air, and this will help to preserve its beauty of finish. The idea is held by some that if a carriage be kept closely housed, its preservation is thereby warranted, but such is not the case; the opposite is true, and a vehicle long housed will generally be found to be losing its luster. In such a case, exposure to the sun and fresh air and frequent washing will help to renew it.

We have now touched upon the main points connected with the storing of carriages, and our remarks apply as well to the show-room and repository of the dealer as to the gentleman's carriage-house. If our readers think of points which we have not mentioned, we shall be glad to hear further on this subject.—*The Hub.*

THE MANUFACTURE OF CARRIAGES.

Within a few years the manufacture of carriages has taken up with the progress of the age, and called to its assistance all the advantages of modern improvement and science.

Few persons will dispute that articles made by the aid

of machinery are better constructed than they were in olden times by main strength and awkwardness.

At the head among the best adapted and appointed factories in this country, or the world we might say, is that of McLear & Kendall, corner of Ninth and King streets, Wilmington, Del. Its dimensions are: 90 feet front on King street, 220 feet along Ninth to French, three stories high. On the first floor we find the blacksmith shop; finishing, polishing, engine, and boxing rooms; saw-mill and fitting department. The forges are placed around the sides of the room, the draft being supplied by a Dimpfel fan.

The finishers and polishers occupy one-half of the space between the forges. In the middle of all is a 20-horse Corliss engine. (The boiler is outside the building, and the fuel used is the chips, blocks, and sawdust from the saw-mill and wood-shop).

It is on this floor that the iron and steel for the different parts of the carriage are fashioned, polished, and put together. All the holes are drilled by power drills. Bolts and nuts are threaded by a cutting machine. Passing out into the lumber yard, we here find stored about 150,000 feet of ash, hickory, poplar, and walnut, under cover. This immense stock is carried to insure the wood to be beyond shrinkage—that is, perfectly dry.

Going up to the third story, we find the carriage-body and wheel making combined in one large, well-ventilated room, with an ample skylight on hinges, making all parts of the room as light as out-of-doors. All parts of wheel-making is done by machinery, except the putting together. No one can say that a hub can be mortised by hand as true and exact as by the mortising machine. Instead of filing by hand, a revolving sanded belt does the smoothing of rims and spokes. All parts of this most particular branch are done with exactness. Every spoke, hub, and rim is examined by a foreman, who rejects every thing defective. To the assistance of the body-maker is brought a planer, circular and endless saws, &c. On this same floor is the paint-shop for the bodies, where *sixteen coats of paint are put on all.* The paints are ground to the required fineness by mills driven by power.

Adjoining is the trimming-room, where all the upholstery is done. This department uses annually over 3,000 hides of leather, bales upon bales of cloth, and thousands of pounds of curled hair.

We now come down to the second story, and find the paint-room for the running parts. Next adjoining it is the room where the bodies are put on the running parts, the finishing touches given; and then we bring our finished carriage into the show-room, on the same floor. The ground from King street to French street being a hill, the second story of the building on French street is the first floor on King; so that the show-room is not altogether upstairs, but is level with the pavement on one front, making the finest show-room in the United States, being the whole length of the building and half its width.

Attached to this story is the drying-room, which is heated with the exhaust steam from the engine. The temperature is never allowed to get beyond the heat of the sun, so that no wood is baked or killed. Here is stored, until it gets dry beyond a doubt, every piece of wood used in a carriage. The planks are bought dry, or kept until they are well seasoned, then sawed into the shapes required, then put in this room to insure their being all right. We also find here over 500 sets of hubs and rims, and 1,000 sets of spokes. This firm makes a specialty of their wheels, using nothing but the best material, and that dry beyond a doubt. *The wheels, when made, are kept on hand for months before they are hooped.*

In each department there is a foreman, who examines every part of the carriage before it is put together, and every workman knows that any faulty workmanship, or bad material put in, has to be removed, and made as it should have been, at his own expense of time and labor. Over these is the general superintendent, and over all is the constant personal supervision of the proprietors, making it almost impossible for any thing improper to escape.

This firm started business in 1864, in a much smaller way, but constantly applying all the aids of improvement and science to their business, has enabled them to give *an excellent article, at such prices as have increased their trade,* until it amounted, in 1869, to 1,158 carriages, or nearly a half million dollars. Each of these carriages was accompanied with a year's guarantee to make good, and to the perfect satisfaction of the purchaser, every part of the carriage, even if it should be necessary to replace the defective carriage with a new one, which also has its guarantee. Should there be such a thing as an unsatisfactory carriage of their manufacture, it is the fault of the purchaser in not reporting it to the makers.

The trade done by them in the city of Philadelphia was increasing so fast, and want of room at the factory, together compelled them to open a repository at Nos. 710 and 712 Sansom street, where they are represented by Mr. W. S. Hare. A stock of nearly fifty carriages is on hand almost constantly, embracing almost every variety of vehicle. Photographs and engravings are furnished, and full descriptions given in reply to inquiries by mail or in person.

The increased demand from the South has also compelled them to be *at home* among their customers, at 45 Wentworth street, Charleston, S. C., with a large stock suited to the tastes of that section.

Their carriages are being sold in every State and Territory, and over 6,000 are now in use, showing the result of improvement, science, advertising, business energy, and careful watchfulness on the part of the proprietors.—*Forney's Weekly Press.*

GEOMETRICAL EXERCISE.

Having given the cord of any circle and its versed sine, to describe the arc without knowing the center of the circle; or, in the language of the Body-maker, having given the opening or length of any circle, and the width to which it springs; to describe the circle without knowing its center.

Let A B be the opening or length of any circle, and C D its spring; it is required to describe the circle A C B, without knowing its center. Let C D be square to A B, and A D equal to D B. Take two strips of panel board, E A C and F

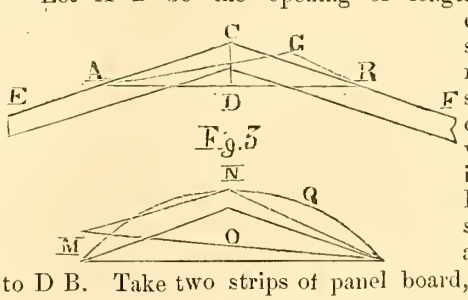


Fig. 3

then the angle A C B, which they form at C, is the angle in the segment A C B, which may form the same. Let the point be anywhere situated, suppose at G, then the angle A G B is equal to the angle A C B, or the angle the strips are fixed at. Nothing, therefore, is necessary to describe the circle A C B, but to fix at A and B two brad-awls or nails, fixing a pencil or tracer at C. Let the angular point C of the strips C E and C F be moved from A to B, keeping the strips always pressed close to the awls or nails at A and B, and the point C will describe the circle required.

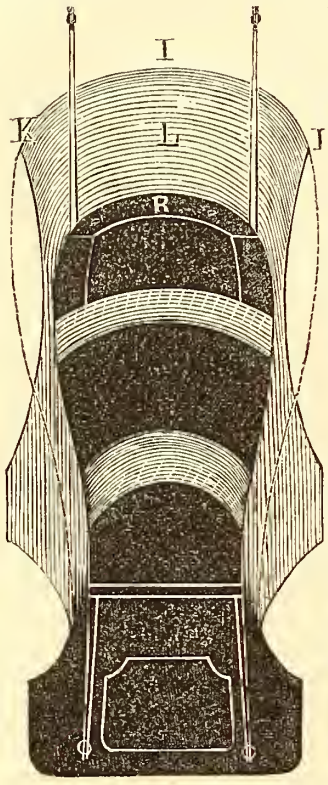


Fig. 4.

Perhaps it is necessary for me to state that there is also another mode of striking a circle similar to the the first figure, when it is required to give more spring to the circle, as in round-back bodies, for the purpose of showing which we have adopted Plate No. 29, Vol. 11. of this Magazine, giving a bottom view. The instrument to obtain the circle at I will be seen in the diagram made out of a piece of panel of the length of line J K, three-fourths the width of the circle or sweep at I and L. Stick an awl in at J and I, placing the trammel with the point M at I, and the angular point N at J, placing the pencil at point J, and move from that point to I; then remove the awl from J to K, and draw from I to K, and the sweep is finished, except small sharp points at J and K, which can be caught in the sweep or cant-board of the side. The dotted lines O and P show the movements of the trammel in striking line Q. Sweep R may be obtained in the same manner as at L. These instruments it is very necessary for the body-maker to understand.

When we take into consideration the extreme round given bodies in these modern days, it becomes us to adopt some practical mode, in order to reduce every thing to a systematical conclusion, doing away with the old plan of "*try and fit*" or guess-work. In view of these facts, each body-maker owes it to himself to consider well all matters connected with coach-making. It is, and always has been, the error of our judgments, to turn away from certain studies, as impracticable for the grasp or texture of our minds, because they are, or seem to be, foreign to our tastes. The difficulty lies not in the divergence of our minds from the general direction of a peculiar study, such as mechanical geometry, but for the want of a steady and controlling power to keep our minds in their normal and proper direction, and withstand the warping and distorting of arbitrary taste and fancy. What is this taste? No man lives without a principle of refinement in his mind, and nowhere can he go that he may safely say, B C, each full as long as A B, and join them firmly at C; "Here is no food for me." Let us send such benighted men home "with all their gettings to get understanding," and let us treasure up ourselves this all-important lesson, that hitherto there has been a shamefully prevalent neglect of things *mechanical*. There is, in this world, a beauty of meaning as well as a beauty of appearance—a beauty for the mind as well as a beauty for the eye.

P. B. J.

SUMMER MORNING.

BY CARRIE M. WHITNEY.

The summer morn rose mild and fair,
Bright in its very shadows;
And perfume laden was the air,
From clover-scented meadows.
The wild rose clambered o'er the wall,
And trailed along the ledges;
And honeysuckles, growing tall,
Drooped o'er the briar hedges.

The little brook babbled along,
In pensive murmurs dreaming,
Content to waste its gush of song
Through its own valley gleaming;
The birds were up, and filled the trees
With melody and motion,
Singing to every rustling breeze
Glad anthems of devotion.

The bees were early at their toils
Among the waking flowers,
Bearing away the honeyed spoils
With all their busy powers.
The patient cows, down by the gate
Where the young corn was silking,
Seemed to remember they must wait
For Minnie and their milking.

She tripp'd along with dancing feet,
And hair all tangled-curling,
Just out of bed, the cows to greet,
Her milk-pails briskly whirling.
"Good morrow, Minnie! Aren't you late?
The cows are tired of waiting.
And I—well—I—have kept the gate!
For the cows the corn were eating."

"Fie! what a story, Tom! you know
The gate is stout and heavy;
The cows will wait—the corn will grow—
Without your care or labor."
And then a silence fell between
Fair Minnie and her lover,
There in the lane so cool and green,
While th' cows clipped of the clover.

But redder grew the maiden's cheek,
And Tom a tune was humming,
Thinking that quickly he *must* speak,
For her last pail was foaming.
"Miss Minnie, I have twenty cows"
(Her foolish heart *would* flutter),
"But, lack-a-day, I have no sponse
To make the cheese or butter."

No answer came to this bold speech,
So Tom drew nearer, shying;
And as he strove her hand to reach,
She kept the white spray flying.
"Dear Minnie, will you be my wife,
And mistress of my dairy?
I'll try to make a pleasant life,
Through all its labors weary."

Oh! over went the milking-pail!
Far sped the brindle heifer;
But Tom exacted, without fail,
Her promise, ere he left her.
The summer mornings come and go,
With ever-glowing beauty;
But Minnie's home-life goes to show
That Tom is up to duty.

South Adams, Mass.

Pen Illustrations of the Drafts.

SIX-SEAT ROCKAWAY.

Illustrated on Plate V.

For this elegant design for a six-passenger rockaway, we are under obligations to Messrs. Brewster & Co., of Broome street, New York city. Itis plain and neat—two of the most important points to be gained in the construction of a carriage, aside from easy riding. Width of body on the seat, 50 inches; axles, $1\frac{1}{8}$ inches; wheels, 3 feet 3 inches and 4 feet; hubs, 4 by 7 inches; spokes, $1\frac{1}{4}$ inches; rims, $1\frac{3}{8}$ inches deep; tires, $\frac{3}{8}$ by $1\frac{1}{8}$ inches. Price of rockaway, nicely finished, $1,350.

New York Charges for Repairing.—*Wood-work:* Hub, $5; new spoke, $1; rimming wheels, $20; half-rim, $3; drafting wheels, $1; back spring-bar with carved center-figure, $15. *Iron-work:* new tires and bolts, $35; resetting tires, $8; tire-bolts, each, 25 cents; washers and oiling axles, $2; resetting axles, $10; carriage-bolts, each, 30 cents. *Painting:* burning off old paint and repainting, $160; coloring and varnishing body, painting and striping rims and varnishing carriage-part, $110.

EXTENSION TOP CABRIOLET.

Illustrated on Plate VI.

We take much satisfaction in introducing this fine design for a cabriolet, from the pencil of one of our own artists, to our appreciative readers. The first impression made on the mind of the observer in glancing at it, is its extreme lightness. The second is the gracefulness of the lines throughout the entire design. When the curtains are put on the top, very little of the side quarter, back, will be visible to outsiders, and consequently the carriage will appear much lighter than it really is. We need scarcely remind our readers that this vehicle will require a very stout rocker-plate to make it strong enough to stand the wear and tear of practical use, since every carriage-maker is supposed to understand this for himself. Width of the body at the front of back seat, inside, 48 inches; axles, $1\frac{1}{8}$ inches; wheels, 3 feet 4 inches and 4 feet high; hubs, 4 inches by $6\frac{1}{2}$ inches long; spokes, 1 inch; rims, $1\frac{1}{8}$ inches; tires (steel), $\frac{1}{4}$ by 1 inch.

Painting.—Carriage-part, cream; body, carmine; carriage-part relieved by two fine lines blue, on a broad one black.

Trimming.—Broadcloth, indigo blue.

Workman's charge for making body, $45; manufacturer's charge for the carriage, $850.

Charges for Repairs.—*Wood-work:* New hub, $8; spoke, $1; back-spring bar (carved), $15; bolster, $8; furchells, each, $3; pole, $9; yoke, $7.50; fifth wheel bed, $2.50. *Iron-work:* New tires and bolts, $35; tire bolts, each, 25 cents; resetting tires, $8; new wheels, $85; resetting axles, each, $5; carriage bolts, 30 cents; washers and oiling axles, $2. *Trimming:* New cloth head lining and covering top with enameled leather, $165; head lining, alone, $80; top, alone, $85; covering dash, $12; rubber apron, $9; whip-socket and fixtures, $3. *Painting:* Burning off old paint and repainting body, carriage part and varnishing, $90; touching up body, painting carriage, striping, etc., $45.

TURN-OVER SEAT PHAETON.

Illustrated on Plate VII.

This is another pretty phaeton for afternoon exercise in the open air. By sinking the body at the foot of the front pillar, two objects are accomplished—lightness in the side quarter, and leg-room for the passengers on the front seat. With the back turned in, it makes a very respectable-looking buggy. For a gentleman wishing to occasionally accommodate two only, or, at other times, to take his children for a ride, this is a very desirable carriage. Width on front seat, 46 inches; wheels, 3 feet 10 inches and 4 feet 1 inch high. Other proportions of the wheels, and the prices for repairing the different parts, about the same as given for the road phaeton on Plate VI. Price for the phaeton, $675.

ROAD BUGGY.

Illustrated on Plate VIII.

It gives us special pleasure to present so fine a design for a buggy to our friends, as we deem this to be. The modest correspondent who sends, but does not care to have his name appear in connection with it, will please accept our best thanks for the favor. We hope to hear from him often. Wheels, 3 feet 11 inches and 4 feet 1 inch high. Other proportions of the wheels, workman's charges for making body, &c., and for repairing, about the same as given on page 7, for the trotting coal-box buggy. Price for the buggy when built, $450.

GIG PHAETON.

Illustrated on Plate VIII.

This vehicle is well calculated for the use of physicians, among whom the greater number of customers are found, as they make a very strong carriage, and, besides, hang extremely low in front, making them convenient in getting in and out. Wheels, 3 feet 8 inches and 4 feet high. Price, $400.

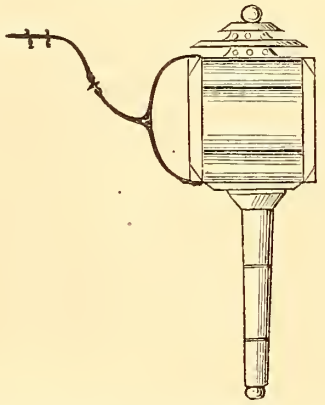
Sparks from the Anvil.

CARRIAGE STEPS.

One great defect in carriage steps is, that they are frequently forged so very small at the intersection of the shaft and pad, to make them appear light and graceful, that their practical usefulness is, in many instances (if not entirely gone), very much impaired. How many of our readers have been made sensible of this by complaints from incensed customers, when, perhaps, no amount of reasoning over the broken steps will induce them to continue their patronage.

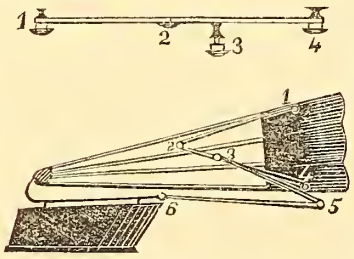
HANGING CARRIAGE LAMPS.

A novel way of hanging carriage lamps has lately been adopted in Paris, by using a bracket which, encircling the lamp, as in the cut, is screwed or riveted to the box of the lamp at the top and bottom.



TOP JOINTS ON A NEW PLAN.

Our friend J. B. Peck is the inventor of a new mode of constructing top-joints, the plan of which is seen in the diagram.



The back joint is arranged as in ordinary cases. The forward joint (in place of the short one) at 3, has a short prop forged thereon, so as to prevent the outside portion coming in contact with the prop at 4, in falling—this joint being continued from 4 to 2 and 1, after the French manner. In lowering the top, it is only necessary to strike the back joint; this back joint regulating the opening and shutting of the other at the same time; in fact, the top is let down or raised up to its place by merely handling the back joint. The form these joints assume, when down, is not only novel, but looks much better than in the old way, with the joint sticking out behind, and shaking about. In making them, there is the same number of prop-irons, and very little more labor required, the small extra work consisting in forging the short prop solid.

IMPROVED ANVILS.

The face or table of anvils, as at present made, is often defective, having frequently hard and soft places after hardening, while the face should be equally hard all over its surface; and the steel in some instances not being properly welded to the iron part or butt which forms the lower part, the anvil is thereby rendered unsound and not fit for use. Some improvements recently patented by an inventor of Sheffield, England, have for their object the removal of such defects, and consist in so making anvils that the face may be equally hard all over when finished, and in so casting or welding the butt to the head or upper table, that the parts may be thoroughly amalgamated, and the anvil made more durable at a less expense than hitherto.

He first prepares a model of the size and shape of the anvil to be produced. He then places it in a box, covers it with composition, and fills up the box with sand in the ordinary manner. After the model is removed, and the sand perfectly dry (this being done in the usual way), he first pours in the molten steel to form the face or table, then, through the same aperture (after the steel on the table is sufficiently cool), he pours in a very mild molten steel, which flows over the table and gives the requisite toughness and solidity to the steel back. After a proper time has elapsed, he pours in through another opening the iron or metal, which also runs upon the steel, and a perfect amalgamation takes place between the iron and steel. The casting being complete, it is then finished in the ordinary manner.

To harden the work, a large metal box or trough, 6 or 8 inches deep, is formed, in which is inserted a number of perforated sharp-edge bars of metal, on which the anvil is allowed to rest on its face or upper surface, either flat or slanting. A sluice communicating with a reservoir of water is then opened, and a force of cold water is allowed to flow upon the face by an upward cast, and to pass under the anvil and over the bars to any depth required. By these means a much harder and more regular surface is obtained than by the present mode of manufacture. After this, the surface is ground in the ordinary way.—*Mechanics' Magazine.*

Paint Room.

VERMILION.

Vermilion is a French word which signifies *worm-dye*, and was originally so called from the fact that the color was first produced from the dried bodies of a species of small insects, called kermes, who feed upon the oaks in the vicinity of the Mediterranean Sea. Hence, *vermilion* has come to be the name of all red colors of its class, even those which are produced from minerals.

The vermilion of antimony was invented in 1833 by Lampodias, and consists of a red sulphuret of antimony, in the form of a very fine, inodorous and insipid powder, insoluble in water, alcohol and spirits, and subject to but little change by contact with the weak acids, or by the strong mineral acids. It is, moreover, but little affected by ammonia and alkaline carbonates, but the strong alkalies, potash and caustic soda, affect it more or less, by combining. The vermilion of antimony cannot therefore be mixed with colors which have an alkaline reaction, nor

will it withstand a high degree of heat, but will blacken under such influence.

Vermilion is an opaque color. When moistened with water, or mixed with gum or gelatine, it has no luster, but when combined with oil or varnish it becomes exceedingly brilliant and intense in color. It covers well, and surpasses in this respect all other mineral colors. If well prepared and employed as an oil color, it presents perhaps *the very purest hue of red*, a hue which never turns orange or crimson, though it generally retains a slight tint of brown. Vermilion is not favorable to the drying of oil, although it does not retard its drying to any great degree. Its beautiful color, together with its unusual covering properties, make it a very valuable color for use by the coach-painter. At present, and for many months past, it has been the popular color in New York for carriage-parts, both light and heavy. The fashion is a tasteful one, as it gives lightness and beauty to a vehicle.

SUNSHINE AND PURE AIR.

In this busy life of ours we are often sadly negligent of these two essentials to physical comfort and long life—sunshine and pure air. They are the two great agencies by which to secure health, and without health, business can no longer be that pleasurable exercise that insures success. In locating and constructing workshops, manufacturers should give careful attention to securing ample sunlight and ventilation, and the result will redound greatly to their advantage by adding to the physical stamina of their workmen.

Much has been said of the importance of well-ventilated paint and varnish rooms, but much more needs to be said and written before carriage-makers will awaken fully to a consciousness of the true value of pure air in this connection. Every varnish-room should have a ventilator, and by means of this the temperature of the room should be kept at a uniform degree, and it should be comfortable for the workmen. It is not necessary for producing good varnishing that the room should be made oppressive for the painter. Some painters think extreme heat is necessary, but it is not. It is of much greater moment that the heat be uniform, and that the air be pure and moderately dry. Moreover, we have often traced a bad job to a close and muggy atmosphere in the varnish-room, induced by wetting down the floor and allowing the excessive heat to evaporate the water, thus filling the room with dampness. A damp, muggy day is a poor time for varnishing. Every painter understands this. But oftentimes he produces in his varnish-room a miniature muggy day, and the effect is just as injurious to the work.

Ventilate the varnish-room.

ENGLISH VARNISH.

We have made further investigation with reference to ascertaining the time when this article was first introduced into this country, and it appears that John R. Lawrence, of New York, was the *first carriage-maker in America who used English varnish.* Mr. Lawrence has been in the carriage business for forty-three years, and it was about the year 1835, when the firm was Lawrence & Collins, that he made his first importation of varnish from Great Britain.

At that time, all carriages made in this country were polished in a manner very similar to the present mode of polishing pianos. English carriages were then frequently imported into this country, and Mr. Lawrence had often studied the appearance of their finish, and wondered how it was produced. The great trouble with the polished carriages was the readiness with which they spotted and discolored when exposed to moisture. A wealthy citizen of New York, and a good customer of Mr. Lawrence, had ordered of him a fine coach, but complained that it changed color badly. Mr. Lawrence went to his coach-room, and, finding it very damp, assured the gentleman that any varnish would perish when exposed to so damp an atmosphere. "Not so quickly, however," replied the customer, and he showed an English coach which he had owned for many months, and whose appearance was decidedly better than the new coach.

This incident led Mr. Lawrence to look still more deeply into the subject, and he decided he would obtain and try some of that English varnish, if possible. He wrote to a business acquaintance in London, and through him he received ten gallons in 1835. At the time of receiving it, he had a hand in his employ who once worked in a London carriage-shop, and this man was called upon to give suggestions about using the new varnish. He represented that it was polished in the same manner as in America, so a heavy coat was applied, and the men waited patiently for it to dry. At the end of a week it had scarcely begun to do this. A month passed by, and then an attempt was made to rub it, but the painters found this perfectly impracticable. At the end of three months the attempt was again made, but again failed most signally; and the painters were disposed to curse it as a miserable humbug. During these three months it had been run out into the sun every day when pleasant, and every night it had been carefully housed; every pains had been taken, and if not ready to be polished yet, when would it be? It was impossible to answer this question, so the job was laid aside as a failure. Three months more passed away, and the painters again tried polishing it, but with no better result.

A few days after this last failure, Mr. Lawrence was examining an English carriage very closely, and trying to solve the mystery as to how the finish was produced, and as he was scrutinizing the arch panel, which was just opposite the window and exposed to a strong light, he noticed what he thought were brush-marks in the surface. He called his painter, and between them and the brush-marks, it was decided that this coach must have been finished without polishing. Here was an important fact brought to light, and they hastened to submit this new knowledge to practice. The coach was given another coat of English varnish, which worked without much trouble, as the first coat had been rubbed so often, and, although not so easily accomplished nor so satisfactory as later jobs, this first experiment with imported varnish was decided to be a success, and Mr. Lawrence continued its use. Mr. Wm. B. Crosby, a prominent gentleman of New York at that time, became the possessor of this *first American carriage finished with English varnish.*

For several years, the firm kept their method of finishing a secret, importing privately from London, and paying a round price of $15 to $18 per gallon. Within a few years after this time other carriage-makers began to try the English, generally through the recommendation of

painters who had used it in the old country. It had much opposition at first, but one by one became interested, until, about 1852, an agency was established in New York, and this year is generally mentioned as the date of its introduction.

Such is the history of the introduction of English varnish into America. For twenty years it stood unrivaled in this country, and although no explanation could be offered *why* American manufacturers of varnish should not equal the imported, they failed signally to do so, and painters had, in many cases, become confirmed in the opinion that England alone *could make* coach varnish. A rival has now appeared, however, in the well-known "Valentine Varnish," which, after thorough and repeated tests, is fast making good its claim of "Equality with English." The competition between this and the imported continues earnest and incessant, and the American is gaining daily, as may be seen by visiting the leading carriage-factories of New York, Boston, Philadelphia, and our other principal cities.—*The Hub.*

LINSEED OIL AND PREPARATION FOR PAINTERS' USE.

LINSEED oil is extensively employed as a vehicle for the harder resins, to which it imparts softness and toughness, but causes the varnish to dry slowly; and unless the oil is of the purest and palest quality, well clarified, and carefully combined with the resin, without excess of heat, it materially darkens the color of the varnish when first made, and it is also liable to become darker by age after it is applied. Linseed oil intended for the best varnishes, is clarified by gradually heating it in a copper pot, so as to bring it nearly to the boiling point in about two hours; it is then skimmed and simmered for about three hours longer, when dried magnesia, in the proportion of about one-quarter of an ounce to every gallon of oil, is gradually introduced by stirring; the oil is then boiled for about another hour, and afterward suffered to cool very gradually. It is then removed into leaden or tin cisterns and allowed to stand for at least three months, during which the magnesia combines with the impurities of the oil and carries them to the bottom, and the clarified oil is taken from the top of the cistern as it is required, without disturbing the lower portion, and the settlings are reserved for black paint. A pale drying oil may also be made as above, by substituting for the magnesia white copperas and sugar of lead, in the proportion of two ounces of each to every gallon of oil.

Linseed oil when rendered drying, by boiling and the addition of litharge and red lead, is sometimes used alone as a cheap extempore varnish. In boiling linseed oil, it is heated gradually, to bring it to the boiling point in about two hours; it is then skimmed, and well-dried litharge and red lead, in the proportion of about three ounces of each to every gallon of oil, are slowly sprinkled in, and the whole is boiled and gently stirred for about three hours, or until it ceases to throw up any scum, or emit much smoke. It is then frequently tested by dipping the end of a feather into it, and when the end of the feather is burned off, or curls up briskly, the oil is considered to be sufficiently boiled, and is allowed to cool very slowly, during which the principal portion of the dryers settle to the bottom. The oil is afterward deposited in leaden cisterns screened from the sun and air. When the oil is required to be as pale as possible, dried white lead, sugar of lead, and white copperas are employed instead of the litharge and red lead.—*Byrne's Handbook for the Artisan.*

COACH-PAINTING IN LONDON.

THE London coach-builder paints the body of a fine coach in this way:

4 coats of lead.
7 " " rough-stuff.
1 " " lead.
Putty and face.
1 coat of lead, and sand paper.
1 coat of lead, and sand paper.

14 coats before coloring.

From this point, the upper and lower panels of the body are finished differently, namely:

Lower panels	3	coats of color.
	1	" glazing.
	4	" hard-drying varnish.
	1	" wearing body.
	9	coats, or 23 from the beginning.
Upper parts	1	coat ivory black.
	2	" black japan.
	2	" hard-drying varnish.
	1	" wearing body.
	6	coats, or 29 from the first.

The flatting is left to the judgment of the painter and to suit the purchaser. Sometimes every coat is flatted, and sometimes every other coat. To obtain perfect smoothness, a great deal of time is used in rubbing.

When the body is not to be black, two or three coats of the required color take the place of the two coats of black japan, and an additional coat of flatting varnish is used. All the color coats and rough-stuffs are mixed with japan gold size.

GOLD-LEAF.—A convenient way of applying gold-leaf to sizing is to previously rub the tissue paper gently with wax. The gold will then adhere to the paper, and may be readily cut into any size required.

Editor's Work-bench.

IMPORTANT TO SUBSCRIBERS.

ACCORDING to request, we have forwarded the Magazine to a number of subscribers, who have intimated their wishes to have it continued from year to year. The price is $5, but we intend to mail it, free of postage, to *all* who pay their bills promptly *in advance.* We hope our friends will avail themselves of this offer, which must prove mutually agreeable to both parties. Send postal orders where such are available.

CINCINNATI INDUSTRIAL EXHIBITION.

A COMMITTEE of managers, appointed for the purpose, propose holding a grand Industrial Exhibition of Manufactures, Products and Arts, at Cincinnatti, in September of the present year, which will be open for the reception of goods from the first to the twenty-fifth of the month, at which latter date the Exhibition will be opened to the public, and continue open until the 15th of October. Ample preparation has been made for the exhibition of machinery in operation, for the prominent display of manufactures, works of art and products, and, likewise, for the general convenience of exhibitors. Articles may be entered solely for exhibition, or may be put in competition with other articles for premiums, but in the latter list only products of the United States will be admitted, and every exhibitor will be required to pay an entrance fee of two dollars, which will entitle him to a badge, which will at all hours admit him to the building.

The managers contemplate making this exposition of art and industry superior, in point of attraction and practical benefit to those concerned, to any similar one ever held in this country, and therefore earnestly solicit the co-operation of the industrial classes in sending forward their productions. Arrangements have been made for the cheap transportation of articles from different parts of the country, and for their removal from the depots and wharves in Cincinnati to the place of exhibition.

Applications for space must be made by the use of blank forms, which will be furnished by the committee on application. Space allotted to applicants and not occupied by them, may be assigned to other exhibitors; but the right to exclude from the exhibition all explosive, inflammable, dangerous and offensive articles will be exercised, as well as to shut out goods presented the day after the opening, should it prove injurious to other exhibitors or inconvenient to visitors. When necessary, articles must be shown in glass cases. No article must be taken away during the days of exhibition, after being once entered; but sales then made may be delivered at the close, or afterward sold for the exhibitor's benefit at auction, under the direction of the general committee.

Judges will be provided, eminent for skill in the arts, one by the general committee, another by the exhibitor, and a third by the two thus selected. Premiums will consist of gold and silver medals, diplomas, with special medals for the best displays in prominent departments, and "honorable mentions" made in reference to articles which, not being awarded a premium, are yet not devoid of merit. All communications and articles for exhibition should be directed, "Cincinnati Industrial Exposition, Cincinnati," with the name and residence of the sender plainly marked thereon, accompanied by a statement of the contents of the boxes or packages, or else sent by mail.

PAYING FOR NEGLIGENCE.

ON the 3d day of July, 1869, Messrs. Durham, Booth & Wooster, carriage-builders, shipped by the New Haven Steamboat Company a new four-seat coupé, worth $600, to Gabriel Chevalier, for John C. Ham, a carriage-dealer in this city. The carriage, it was proved, was, by special agreement, to be forwarded by the morning boat, but was not sent until the evening. Had it come on in the morning it would have been received here on the same day and properly taken care of, but coming here on the Fourth of July, when every body is supposed to have enough to do to join in the celebration, it was not delivered, although duly demanded. Meanwhile, the carriage was destroyed by fire in the company's store-house on the pier, they refusing to pay for it, claiming that the owner did not take it away, as he should have done, and that they did not agree to deliver it from the morning boat. The case was tried in June last, before Judge Spencer and a jury, when a verdict in favor of the plaintiff was, in five minutes, rendered for $470 and the costs, in addition to which the Court allowed five per cent. for counsel fees.

CARRIAGE ADVERTISING EXTRAORDINARY.

A CARRIAGE-DEALER "on Broadway 'street,'" one day in June, startled the public by the following notice in the public prints: "I do not sell any pony wagons for $150, because at that price they cannot be good. I do not sell carriages at the cost of production, because it would burst me if I did. I do not sell the 'Period Carriage,' because there is no such thing. I do not sell carriages at 'factory rates,' because factory rates are too high. I do not sell any 'patent circular fronts.' I do not think I keep any 'Pagnals.' I do not advertise five hundred carriages, when my entire building would not hold half that number. I have no connection whatever with a firm of 'similar,' etc., etc., etc., 'country-made carriages,' etc., etc., etc. I do not offer my stock at a great reduction in prices for thirty days. But I do offer," etc. Having had a hearty laugh over this unique advertisement, we naturally concluded some body had been making just such announcements as are here negatived. Who are they?

LOOK OUT FOR SWINDLERS.

A CORRESPONDENT in the West writes us: "There is a fellow from New York out here, who is selling counterfeit India-rubber anti-shaft-rattlers. Please give notice of it in your MAGAZINE, as the rubbers are of no more use than so much dirt, and about as cheap." If, then, they are "dirt cheap," the vendor ought to suspect that the rubbers, when offered, cannot be of much value; but the great trouble is, some people will buy an article simply because it is sold low, and it would seem, in many in-

stances, as though the purchaser *courted* humbugging for the fun of the thing, else why do they purchase these cheap wares? We would no more expect to get a good article in such cases than we expect to fly. We advise our readers, now the patent has expired, to buy rubber of the proper size in the bar, of reliable dealers, and cut off pieces, of the length required, as needed. In this way anti-rattlers can be had "dirt cheap," from dealers in carriage materials, without the risk of being cheated by itinerant Jews and other swindlers, who find their chief success "out West."

NEW PROJECT.

We believe it would be of great practical value to both employers and employees, if a library were established in each large carriage-shop. A well-selected library would be a great educator. Can any one doubt this?

Now, in order to illustrate how good a library can be found, and to render more available the suggestion we have made, we intend opening a new department in our next number, namely, a list of books and publications, which relate directly and indirectly to the art of coach-building in all its branches. In the first number, we cannot hope to make the list complete, by any means; but we ask the co-operation of all our friends, in suggesting to us others which they are acquainted with, and, by adding monthly, we hope, in a few months, to present a full list of valuable coach-making books, and we trust they will make so good an appearance, that some leading coach-maker will be induced to carry out our suggestion and establish a shop library. It is our aim to put the "coming man" (now an apprentice) in the way of books which will help him to put *American carriage-making on a par with that of any part of the world.*

REVIEW OF TRADE.

Since our last report, trade has much improved, a number of carriages having been sold, generally at very moderate prices. This trade, we judge, has not much improved the finances of the dealer, which could scarcely be expected when selling in a falling market, with gold depreciating all the time. It is very evident that every thing has a downward tendency, and that the days of speculation are about ended for the present. The sooner all hands come to this conclusion and accept the situation, the better. The voice of the people is strongly adverse to the continued Internal Revenue scheme, and there is little doubt that this year will end that matter, when all business will soon sink to its former status previous to the war, which, with our ideas of what constitutes good times, were preferable to any we have experienced for the past ten years. A reduction of say $25 in the prices of buggies has been made by the manufacturers in this city, and in some of the country localities still larger amounts. This in some degree is the natural result of having on hand a large stock when money is scarce. Those who have heeded our advice given some months back, will now have cause for self-congratulation, and perhaps thank us for the result.

CARRIAGE PATENTS.

Hereafter we intend publishing monthly a list of the new patents taken out, which are of interest to carriage-makers. By many inquiries which have reached us, we are led to think that this will be a valuable department.

EDITORIAL CHIPS AND SHAVINGS.

A Notable Auction Sale.—In May the carriages of the late Col. Clement March were sold at public auction, in Portsmouth, N. H., and among the number was the private carriage formerly owned by Daniel Webster, to whom it was presented by friends in New York in 1850. This brought $86, and is now in the possession of Mr. H. H. Smith, of New Market. Among the others were a French-built coupé, which sold for $85, and a dog-cart, built by Wood Brothers, which brought $72.

The Lightest Wagon on Record.—Messrs. Brewster, of Broome street, have just finished a wagon, weighing, with shafts ready for driving, only 85 pounds and 14 ounces. It was made to order.

Trade in the State of New York is at present quite satisfactory. We have visited a number of places along the Hudson River and New York Central Railroads, and found the greater part of the carriage-makers doing very well.

Paying a Newpaper Bill.—A subscriber to a newspaper, was repeatedly dunned for his subscription, long due, and at last promised that the bill *should* be paid by a certain day, if he were *then alive!*

The day passed, but no money reached the office. In the next number of the paper appeared, among the deaths, a notice of the subscriber's departure from this life. Soon after this announcement, the subject of it appeared to the editor, and, without waiting to be addressed, as is ascribed to apparitions, he cried, "What did you mean, sir, by publishing my death?"

"As when I publish the death of any other person," was the answer—"to let the world know that you are dead."

"But I am not dead!"

"Not dead! Then it is your own fault, for you told me you would positively pay your bill by such a day if then alive."

The bill was settled immediately.

Paying the Driver.—A reverend doctor of Boston was once called upon to supply the pulpit of Rev. Orville Dewey, of New York, but in consequence of delays on the way, he did not arrive in New York on Sunday morning until after the bells had ceased to call the people to church. He immediately jumped into a cab and drove with all haste to the church, jumped out, whispered to the sexton to pay the driver, and walked with ministerial dignity up the aisle. When about to ascend the steps of the pulpit, a hand was laid upon his shoulder, and judge of his surprise, on turning, to behold cabby with hand outstretched for his fare. This story was related by the victim himself.

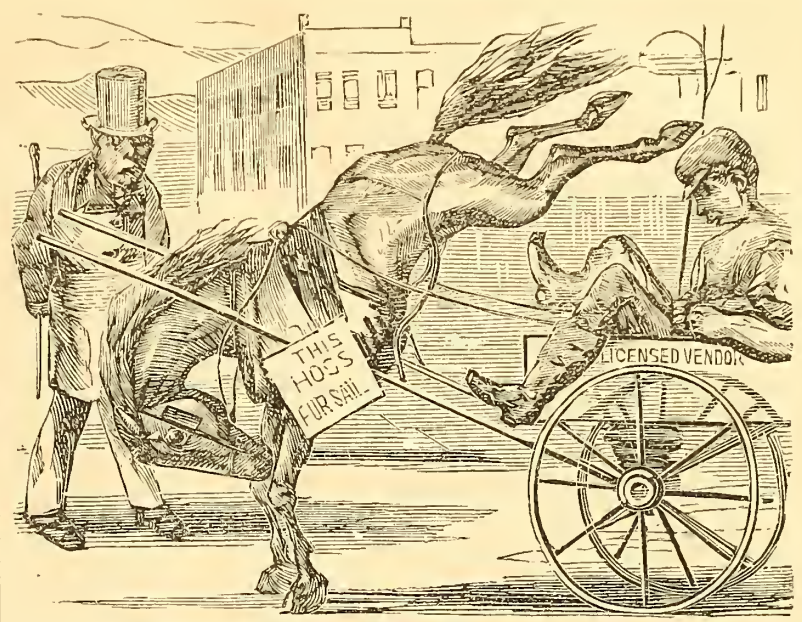
Kansas Wages.—Out in Kansas they pay blacksmiths per day from $3 to $4; wagon-makers from $3 to $3.50.

Too Accommodating.—A Boston undertaker, having established himself next door to a popular livery stable, was accosted one day by an individual, apparently in a great hurry, who asked: "Can I get an open buggy here?" "No, sir," said the interrogated, "we haven't got a buggy, but"—pointing to a hearse, which stood at the door—"we can accommodate you with a *skeleton wagon!*"

J. F. Goodrich, of New Haven, makes a specialty of basket phaetons, which he builds with astonishing rapidity, and finds a constant demand.

The Shoo Fly is the name of a new style of vehicle which hails from Newark.

Buck Wagons.—C. W. Horn, of Wilmington, is building a number of novel-looking vehicles, which he calls "buck wagons." They are light and inexpensive, and intended for the South.



Vendor.—*I guess, now, he would suit you tip-top. Just the critter for a doctor. Wouldn't sell him, only his ideas are too elevated for me, and he gets above his business.*

Circular-Front Carriages.—Circular-front carriages are considered an old invention, and they were made many years ago, but we have never been able to find out the exact time or the name of their inventor. We are now enlightened on this point to some extent. A Philadelphia cotemporary, having published a draft of a circular-front six-seat rockaway, was promptly notified by a New York carriage-dealer (J. C. Ham) that circular-fronts were his patent, and he had the satisfaction of seeing his claim published in the same organ, showing, we think, an evident want of knowledge in the matter. Circular-front six-seat rockaways were made and sold in Boston and Portland years ago, and in 1867 circular-front coupé rockaways made their appearance, at least *on paper*, in New York. Hardly any body will think, nowadays of building circular-front carriages, with low front seats, for obvious reasons. But for justice's sake, will not some interested carriage-maker come forward and help clear up this question.

Whip-sockets.—So small an article as a whip-socket hardly suggests how extensive is its manufacture. On a recent visit to Troy, N. Y., we had occasion to call on Messrs. Merriam & Chamberlin, inventors and patentees of several improvements in whip-sockets, and fastenings. There this indispensable article is manufactured from the raw material to the last finish, and in quantities quite astonishing to one who has not a correct idea of the great extent of the carriage trade in this country.

Carriage Prison Labor.—A firm of lumber-dealers in Columbus, Ohio, have bodies of light carriages made on an extensive scale in the Ohio State Prison at that place. It is said that the average wages they pay by contract to the convicts is about fifty cents per diem, and in consequence thereof they can afford to sell at prices ruinous to every body who has not the benefit of a contract with or the unenvious privilege of serving the State of Ohio.

Amesbury Ahead.—The united carriage-makers of Amesbury, Mass., claim, through a joint circular, that they can furnish, for less money, the best finished carriage in the United States. Go ahead, gentlemen, but look after your styles.

A Bridal Trip in an Ox-cart.—Taking a bridal trip in an ox-cart is not the most fashionable method of doing it hereabouts, but we don't know why there shouldn't be just as much fun in it as in riding behind the screeching locomotive, or in the rocking steamer. A happy man out in Arkansas, who had been fitting up a homestead, lately met the coming woman for him at the railroad station. She had taken the journey alone from the city of Boston, and if Boston girls in general are "up to this sort of thing," we should be glad to know it. Of course he married her on the spot, and the next day the couple started for their home, a considerable distance off, in an ox-cart. They have probably reached it ere this. If fashionable society turns up its aristocratic nose at the idea of a bridal trip in an ox-cart, we have only to suggest, that it would be in better taste to try it first. "The proof of the pudding," etc.

Derivation of Names of Trades.—The names that designate the various orders of tradesmen are, in some cases, derived very curiously.

Tinkers, for instance, or *tinklers*, as the Scotch call them, were originally so called because the itinerant members of that trade used to give notice of their approach to the villages and farm-houses by making a tinkling noise on a brass kettle.

Milliner is a word corrupted from "Milaner," which signified a person from Milan, in Italy. Certain fashions in female dress that first prevailed in that city, were introduced into England, and the name milliner accompanied the introduction of the fashion.

The word *landlord* was first applied to the keeper of an inn. Formerly wayfaring guests were generally entertained by the proprietors of the *land*, the *lords* of the manor through which they journeyed.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, JUNE 20, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅞ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Benzine, per gall., 35c.
Bolts, Philadelphia, list. 45 off.
Do. T. per 100, $3 *a* $3.50.
Borax, English, refined, per lb., 33c.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Buggy bodies, finished, $15 to $20.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

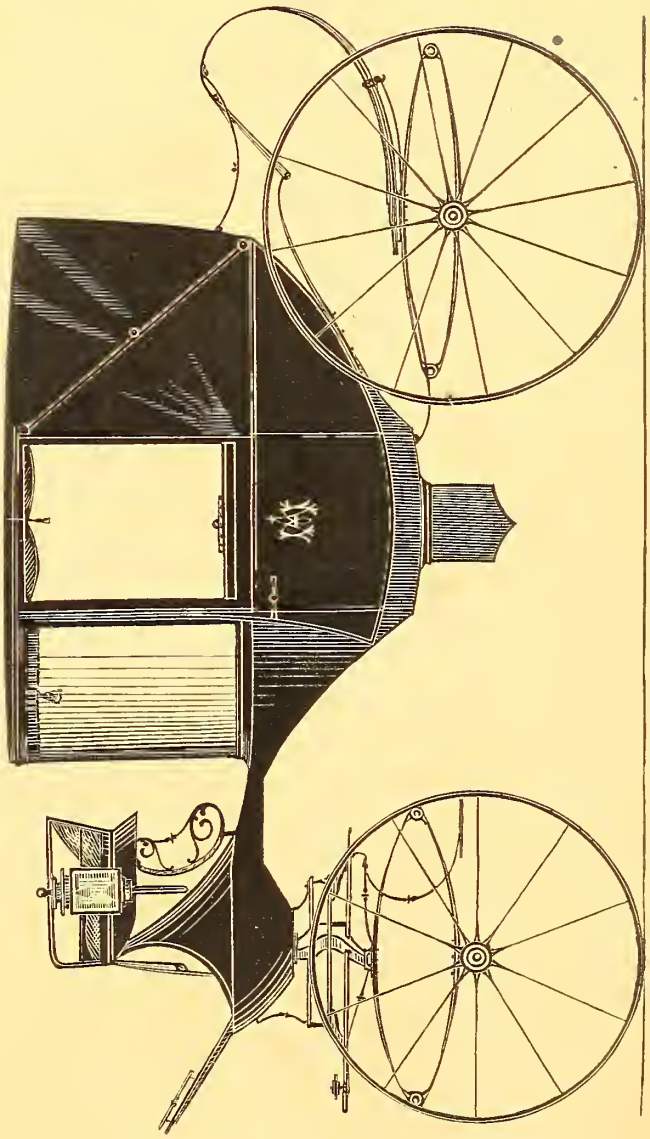
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $2.00.
Japan gold size, $4.00.
Knobs, English. $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No. 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $5.00 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Pumice-stone, selected, per lb., 7 to 8c.
Putty, in bbls. and tubs, per lb., 5 to 7c.
Putty, in bladders, per lb., 6 to 8c.
Rubbing-stone, English, per lb., 9 to 10c.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Serims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shafts, finished, per pair, $3 to $4.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2 25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2 50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

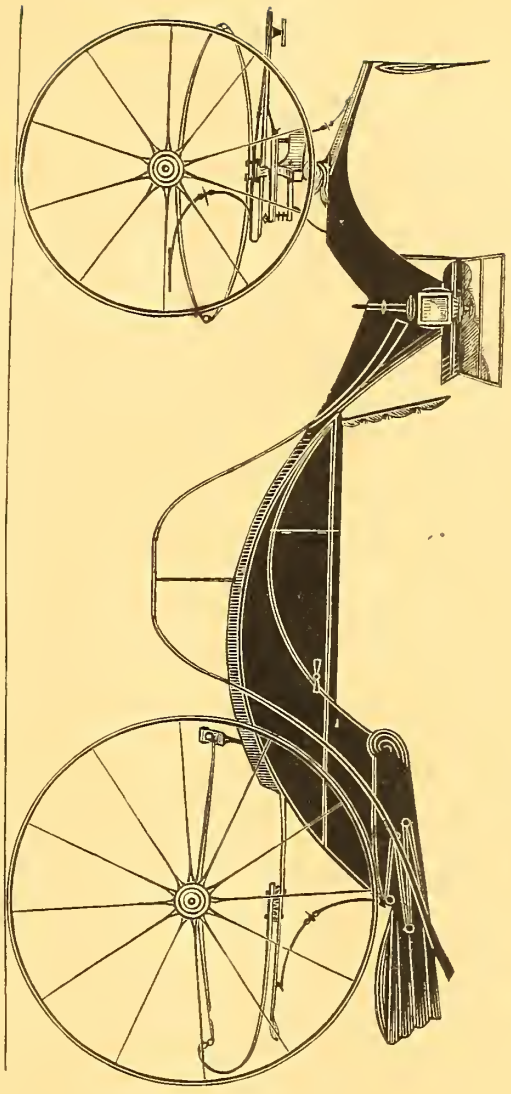
Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c,; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12: acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes, American, wearing body, $6.50; elastic gear, $5.50; hard-drying body, $5; Quick leveling, $4.50; black body, $5; enameled leather, $4.00.
Varnishes, English. Harland & Sons', wearing body, $10; Noble & Hoar's, $9.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Wheels, coach, $20 to $40 per set; buggy, $12 to $18.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.



FULL-SIZE LANDAULET.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

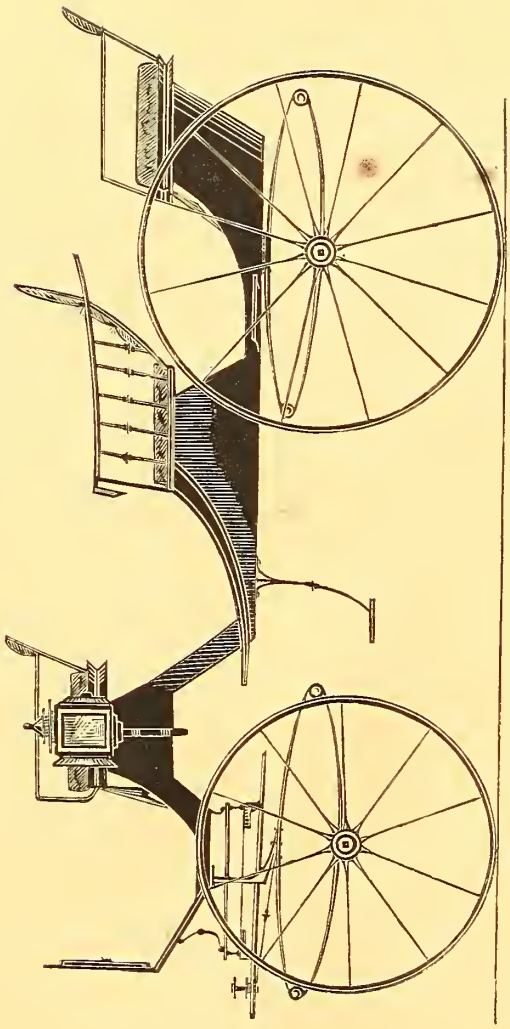
Explained on page 40.



CABRIOLET CALECHE.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

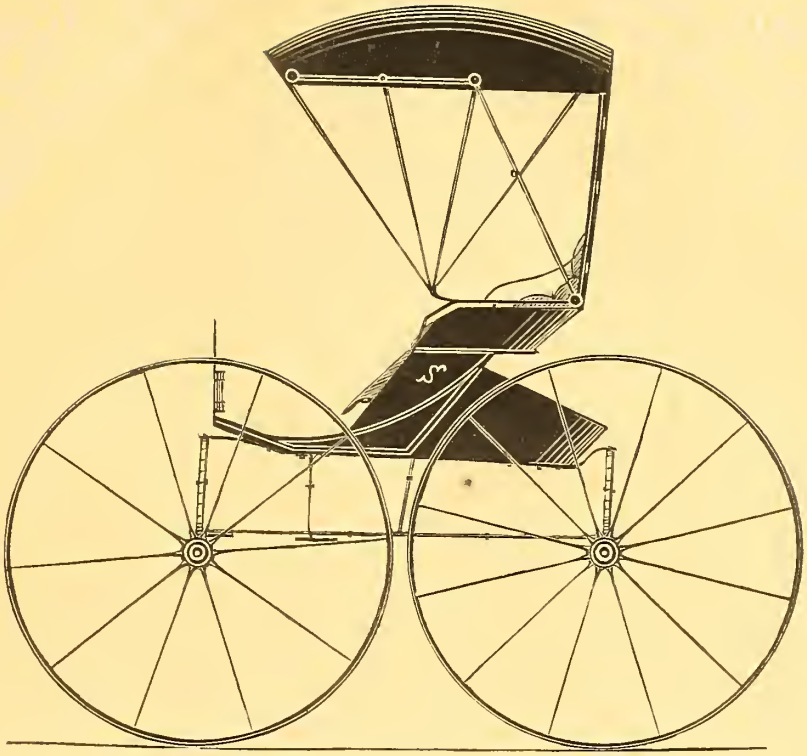
Explained on page 41.



EXCELSIOR PARK PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

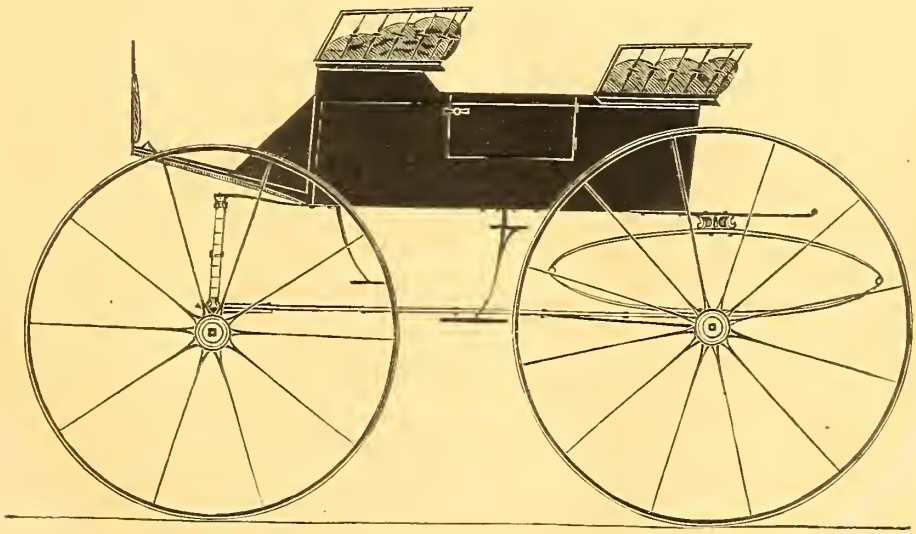
Explained on page 41.



COMPOUND BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 41.



ROAD PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 41.

THE NEW YORK
CARRIAGE & MACHINE MONTHLY

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, AUGUST, 1870. No. 3

Mechanical Literature.

TREATISE ON THE WOOD-WORK OF CARRIAGES.

(*Continued from page* 21.)

Having the projections of the triangle on a plane S, perpendicular to the axis of deployment, the question is therefore reduced that we have solved (art. 74). When the triangle is turned down upon the horizontal plane, the arcs described by each of the angles ($a\ a_{/}$), ($c\ c_{/}$), $b\ b_{/}$), pierce that place in points, whose vertical projections on the plane S are $a_{///}$, $c_{///}$, $d_{///}$, where the arcs described with point $e_{/}$ as center, and $e_{/}\ a_{/}$, $e_{/}\ c_{/}$, $e_{/}\ b_{/}$, as radii, meet M N. The horizontal projections of the same points are, for the angle ($a\ a_{/}$), the point A, the intersection of the lines a A and $a_{///}$ $A_{/}$, the first being perpendicular to the axis $d\ e$, and the second perpendicular to the intersection M N. The same refers to the other angles, the arcs of which pierce the horizontal plane in B and C. On joining the points A, B, and C by the lines A B, A C, and B C, the triangle A B C formed by them is the triangle sought for.

LXXIX. Instead of turning over the triangle ($a\ b\ c$, $a'\ b'\ c'$) on to the horizontal plane, it can be brought into a parallel position to the first vertical plane Q, by two rotary movements, and the new projections that will result on that plane can be constructed. The first rotary movement, for instance, could be executed around a vertical axis of the point d, until the line $d\ e$ be brought parallel to X Y. In this movement, all the horizontal projections would preserve their relative positions. The second movement would take place around $d\ e$, until the triangle be brought into a vertical position. Then, in order to construct the length of the radii of the arcs from each point taken, it would require a plane perpendicular to the axis, or deduct the lengths of the two projections of each radius in like manner as that adopted hereafter in reference to a line. This second method, by which to construct the triangle in its full size, would be longer than the first, because there would be an additional rotary motion. Therefore there would be two projections on the horizontal plane, the projection $a\ b\ c$, and another after having brought the line $d\ e$ to bear parallel to X Y; there would likewise be an auxiliary plane S, and two projections on the vertical plane Q; firstly, $a'\ b'\ c'$, which already exists, and secondly, that which must be constructed when the triangle is brought to bear parallel to that plane: in all, five projections; whereas, by deploying the triangle on to the horizontal plane, there would be but four.

The constructions requiring the fewer projections must in all cases be preferred, because, however great may be the precision and attention exercised, in practice there are at all times causes for error, either arising from the imperfection of the instruments or the physical means that are employed. It therefore naturally follows that the causes of error are multiplied in proportion to the number of projections.

LXXX. Observations.—The table of all the graphical constructions that will be presented by the operations being for the purpose of determining in their size, the lines, surfaces, and dihedral angles, will only offer a repetition of the constructions that we have just executed in reference to a triangle (art. 72 to 79).

According to the position of the triangle, or of any other plane surface under consideration, in respect to the planes of projection, the operation being for the purpose of bringing that surface either parallel to one of the two planes of projection, or on one of those planes, it can be carried out: firstly, by turning over or deploying (art. 74, 75, and 76); secondly, by a rotary movement (art. 77); thirdly, by a change of the plane of projection, and turning down (art. 78); fourthly and lastly, by two rotary movements and a change of the plane of projection (art. 79).

LXXXI. Deploying indicates the operation that consists in moving the surface considered in space, in order to bring it to bear upon one of the two planes of projection. Then the axis of deployment is the common intersection of the plane of projection and the surface in space, extended if necessary.

According to the position of the surface in space, the axis of rotation can occupy four different positions on one of the two planes of projection, in reference to their common intersection: it can be confused with that line, parallel, perpendicular, or oblique to it.

LXXXII. Under the name of axis of rotation, it is more particularly designated a line perpendicular to one of the two planes of projection, and passing through one of the extreme points of the surface in question. Hence it follows, that if the axis is perpendicular to the horizontal

plane, for instance, each point of the surface, in turning around that axis, describes a horizontal arc, which is projected with its radius in full size on the horizontal plane, and on a line parallel to the ground line, on the vertical plane, and reciprocally. Then it is not at all necessary to construct the two projections of the axis of rotation. It suffices to indicate on the plane of projection perpendicular to the axis the projection of the point through which it passes. Therefore, in the article 79, it would have sufficed to state that the triangle is turned around a vertical axis of point *c*.

The axis of rotation furthermore infers a line parallel to the intersection of the two planes of projection, and taken on one of those planes, around which a surface in space is moved, in order to bring in a position parallel to the other plane of projection.

LXXXIII. In reference to the operation having for its object the bringing over of a surface on to a plane of projection, or in a position parallel to one of those planes, which is effected by deploying, by a rotary motion, or by both, it is necessary to remark:

Firstly. That every point of the surface in question, in turning around a fixed axis, describes a circumference or an arc, the plane of which is perpendicular to the line taken for the axis of rotation.

Secondly. That the circumference or the arc described by each point is projected with its radius in their full size, on a plane perpendicular to the axis, and by a line perpendicular to the axis, on any plane passing through that axis.

Thirdly. That the center of the circumference, or of the arc described by each point, is included in the axis, or in its extension, at the intersection of that axis and the plane of the circumference or the arc.

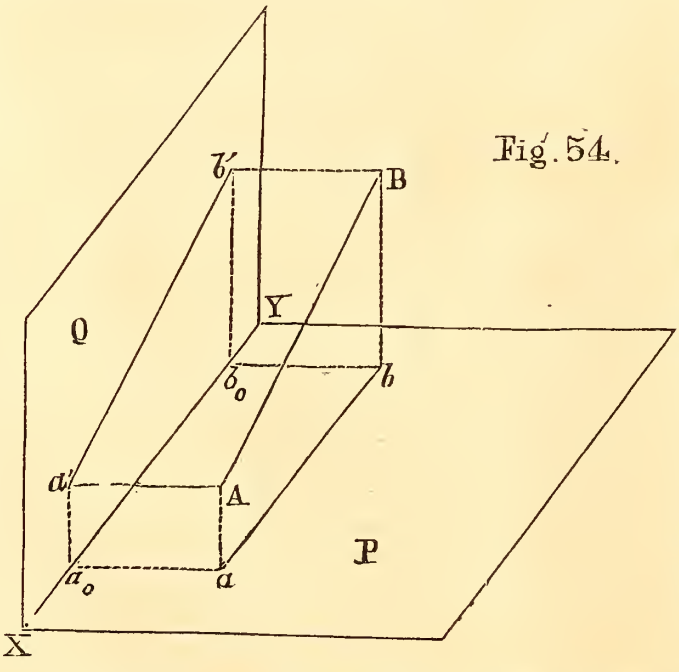


Fig. 54.

LXXXIV. Operations on Straight Lines.—Operations on straight lines in space are for the purpose of fixing their length. Frequently the determination of the length of a line suffices to secure the size of the plane surface to which that line belongs.

To find the Length of a Line, the two Projections of which are given.—If the proposed line is parallel to one of the two planes of projection, its length is determined by its projection on that plane (art. 52). Let A B (fig. 54) be the proposed line, and parallel to the vertical plane Q. Its projection $a'b'$ on that plane will be equal and parallel to it. It is acknowledged that a line

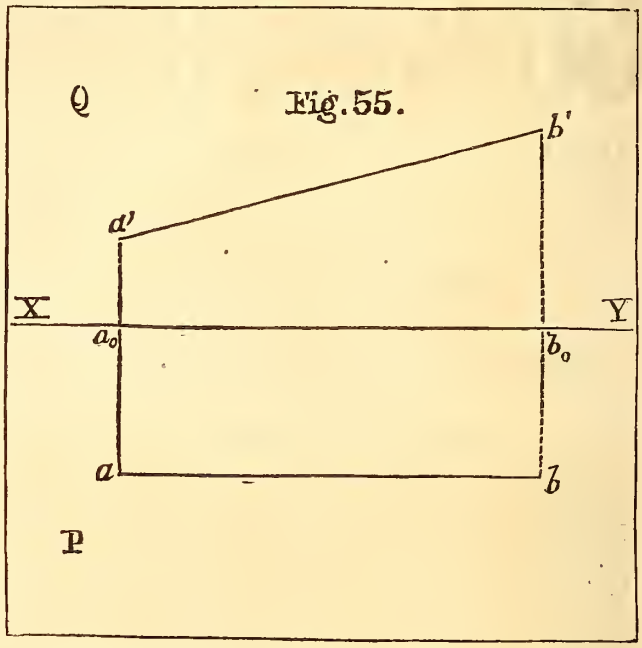


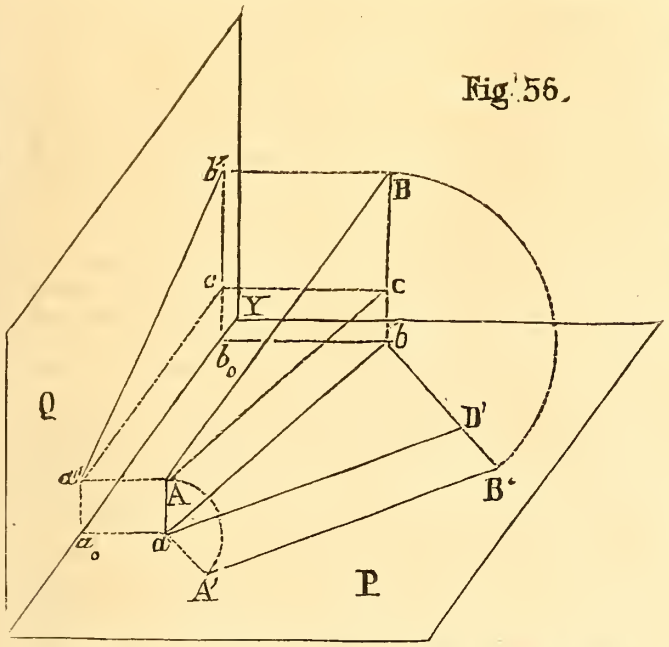
Fig. 55.

A B is parallel to one of the two planes of projection Q when its projection *a b*, in the other plane P, is parallel to the ground line X Y, so as to have $a\,a_0$ equal to $b\,b_0$. The figure 54 is in perspective, but in that respect we give figure 55, that presents the same given points, with the points marked with the same letters, on geometrical planes. The line A B is represented on those two planes by its two projections ($a\,b$, $a'\,b'$).

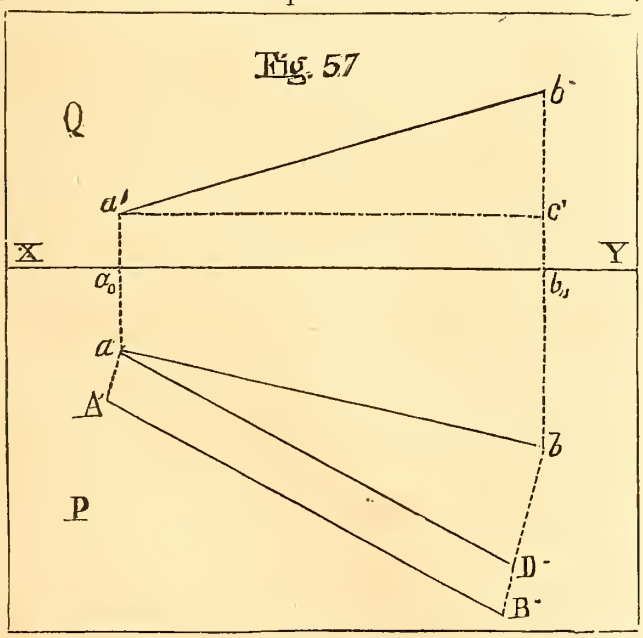
If the line is inclined in any manner whatever, in respect to the planes of projection, its length is greater than that of each of its projections, which in that case are oblique to the ground line. The length of the line is reduced by the aid of its projections, by one of the constructions effected later, the solution of which we give below.

Solution.—The proposed line, with its two projections on either of the two planes of projection, and its projection on that plane, form a rectangular trapeze determined by the two planes of projection. One of those planes contains the projection that forms the basis of the trapeze, and the other the length of the two adjacent sides that, together with the basis, form the two right angles of the trapeze; the fourth side expresses the length of the proposed line. It therefore remains but to construct that trapeze on either of the planes of projection.

Suppose A B (fig. 56) to be the proposed line projected in perspective on two planes, one of which P is supposed horizontal, and the other Q vertical. Let us first consider the vertical trapeze formed by the line A B, by its two projectants A *a*, B *b*, and by its projection *a b*



on the horizontal plane. The trapeze is now figured in space, while it is only represented on the planes of projection by three of its sides: the horizontal projection $a\ b$, which forms its basis, and the two adjacent sides to that basis, the lengths of which are expressed by the lines $a'\,a_0$, $b'\,b_0$, lowered from the extremities a' and b' of the other projection perpendicular to X Y, which (art. 46) are respectively equal to the projectants A a and B b, each one measuring the distance from the extremities of the line A B to the horizontal plane.

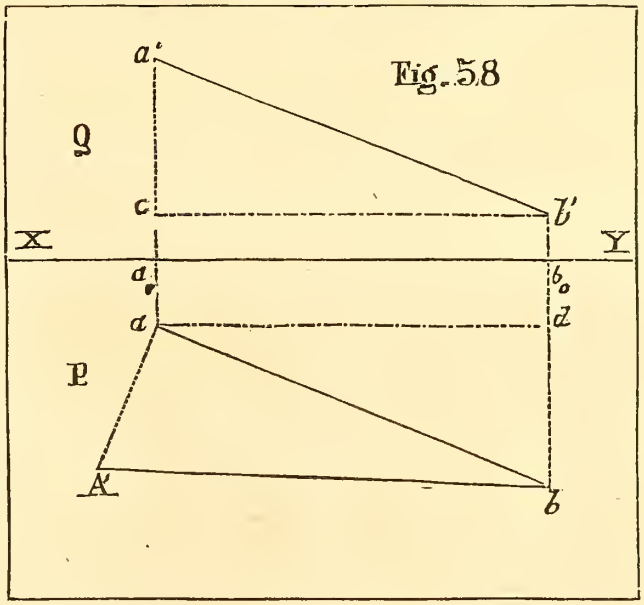


In order to construct the trapeze on that plane, indefinite perpendiculars a A′ and b B′ are drawn to the projection $a\ b$, by its extremities a and b, on which the distances $a'\,a_0$, $b'\,b_0$ of the plane Q are measured off from a to A′, and from b to B′. The line A′ B′ drawn by the points A′ and B′ expresses the length desired. In reality, the trapeze A′ a b B′, constructed on the horizontal plane, is equal to the trapeze A a b B in space, having a common basis $a\ b$, the two sides A′ a, B′ b respectively equal to the two sides A a, B b, and perpendicular to the basis, the fourth side of which A′ B′ is equal to A B.

The figure 57, on geometrical planes of projection, expresses the construction indicated on the figure 56 in perspective, with the same points marked with the same letters. Here the line in space is represented by its two projections ($a\ b$, $a'\ b'$), and the sides of the right angles of the vertical trapeze that passes that line, and by its horizontal projection $a\ b$, are represented by the vertical lines $a'\,a_0$, $b'\,b_0$, which are respectively carried from a to A′ and from b to B′.

LXXXV. If the horizontal plane P (fig. 56) be elevated until it touches the line A B at its lower end A, the new horizontal projection of the line will be found transferred to A c parallel to $a\ b$, and the ground line in $a'\,c'$ parallel to X Y. Then the line A B is equal to the hypothenuse of a rectangular triangle A c B, the sides of the right angle being the horizontal projection A c and the elevation B c or $b'\,c'$ of the other extremity of the line above the horizontal plane.

To construct this triangle on the horizontal plane, it will be observed that the projection $a\ b$ being equal to A c, one of the sides of the right angle, it suffices to draw



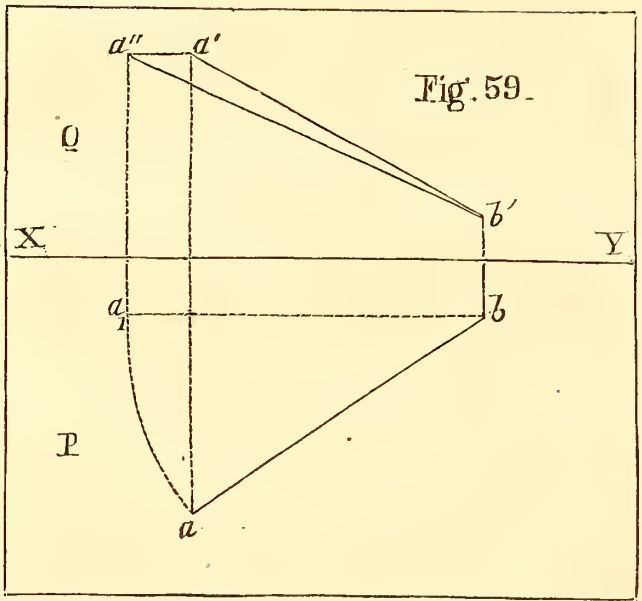
a perpendicular b D′ to that line by one of the extremities b, and to carry over on to that perpendicular the other side of the right angle B c or $b'\,c'$ from b to D. The line a D′ that joins the points a and D′ is the hypothenuse of the triangle $a\ b$ D′, equal to the triangle A c B. The same construction is made on the geometrical planes of figure 57.

The two planes of projection being rectangular, the operations that have been effected on one (figs. 56 and 57) could have been carried out upon the other, and would have yielded the same result. In general, whatever may be the plane of projection considered, the length of a line in space ($a\ b$, $a'\ b'$) (fig. 58), when oblique to two planes of projection, is equal to the hypothenuse A′ b of a rectan-

gular triangle A $a\ b$, of which the sides of the right angle are: 1°. The projection $a\ b$ from the line on to one of the two planes of projection; 2°. The difference $a'\ c'$ of the distances of its extremities $a'\ a_0$, $b'\ b_0$, to that plane.

If the vertical projection $a'\ b'$ of the line is taken for one of the sides of the right angle, the other side will be the difference $d\ b$ of the distances of its extremities $b\ b_0$, $a\ a_0$, to that plane.

Or, if one of the extremities of the line touches a plane of projection, its length is equal to the hypothenuse of a rectangular triangle, of which the sides of the right angle are: 1°. The projection of the line on the plane that it touches; 2°. The distance of the other extremity of the line to that plane.



LXXXVI. Suppose $(a\ b, a'\ b')$ (fig. 59) to be the horizontal and vertical projections of a line. In order to find the length of that line by one of the simplest constructions, it is brought to bear parallel on to one of the planes of projection—for instance, to the vertical plane—by turning it around a vertical axis of the point b, until its horizontal projection $a\ b$, be brought to $a_1\ b$, parallel to X Y. In the movement, the point $(a\ a')$ describes a horizontal arc, which will be projected in its full length on to the horizontal plane according to the arc $a\ a_1$, described from the point b as center, and by a horizontal line $a''\ a'$ on to the vertical plane. Now when the line is parallel to the vertical plane, the point $(a\ a')$ stands at $a_1\ a''$, and the line $a''\ b'$, which joins the two points a'' and b' is the line required.

LXXXVII. OPERATIONS ON THE PLANE FACES OF FRAMES.—The operations on the plane faces of frames are for the purpose of deducting the size of those faces by the aid of given projections.

When the size of a face is determined on a plane, as well as all the lines of construction that belong to it, it is then only necessary to transfer the results on to the face of the piece of wood for which they are intended. But the manner of proceeding in transferring the operations effected on to the face of pieces of wood requires a special article, which will be treated in the second part. In this chapter, we only explain the methods to be employed in construction on planes of projection, plane faces and dihedral angles, in their full size, as they must be carried over on to the pieces of wood.

When a plane face of a frame is parallel to one of the planes of projection, its projection on that plane being equal and parallel to it (art. 55), represents all the lines of construction in their size and respective positions, in the same manner as they have to be carried over on to the face of the piece of wood to which they belong.

When a plane face meets a plane of projection, the intersection of that face and plane is a line, which is called the trace of the face on the plane. The trace of a face of a frame on a plane of projection, or of the plane on the face of the frame, is the common intersection of the face of the frame and of the plane.

It is acknowledged that the plane face of a frame is perpendicular to a plane of projection, when its projection on that plane is a straight line. In that case, if the plane face of the frame meets the other plane of projection, its trace on that plane is perpendicular to the common intersection of the two planes of projection.

It is acknowledged that the plane face of a frame is parallel to one of the planes of projection, when its projection in the other plane is a line parallel to the common intersection of the two planes of projection.

The operations now about to be solved on different faces will convey a more general idea.

(*To be continued.*)

THE COACH FACTORY OF WM. D. ROGERS.

THE following description of the coach factory of Mr. Rogers, in Philadelphia, appeared in a late newspaper of that city. We give it in full:

There is one kind of success which affords the very largest amount of satisfaction to him who achieves it. We mean success in business, especially a productive business, such as some branch of manufacture. The artist, poet or philosopher may succeed in acquiring fame, and yet not live long enough to enjoy the tardy fruits. Wealth, with its concomitant comforts, conveniences and luxuries, may, indeed, never flow in upon him, and pinching poverty not unfrequently is his lot through life. In brief, he may be successful and yet miserable. Not so with the successful manufacturer. He has not only the gratifying consciousness of having organized victory over competitors at home and abroad, of having built up by untiring, persevering labor and the exercise of much administrative talent and important industry, which is of benefit to the State, and which affords occupation and sustenance to many mechanics and laborers, but also the more material attraction which comes only from the possession of a comfortable bank account.

Prominent among the Philadelphians who now enjoy such a twofold satisfaction is

WILLIAM D. ROGERS,

whose name is indissolubly associated with the construction of fine carriages. Like almost every other manufacturer who has attained eminence in his business, he was the architect of his own fortune. In his earlier days he was a journeyman coach-builder, noted even then for his industry and skill as a workman. In this capacity he traveled all over the United States, the Canadas, and the

West Indies, working at his trade in various places, and at the same time thoroughly acquainting himself with the peculiar wants of all these different localities, thus laying the foundations of his subsequent success as the founder of a great manufacturing establishment which now sends large numbers of carriages and light vehicles of all kinds, not only to the countries mentioned, but to Europe.

HISTORY OF THE ESTABLISHMENT.

In 1846 Mr Rogers, still a young man, laid the basis of what is now his great establishment. He commenced the manufacture of coaches in a small building at the corner of Sixth and Brown streets, employing at first only a very few hands, but supplementing their work with his own experienced labor. The business increased so rapidly that by 1853 it was necessary to have much larger accommodations, and new shops, 172 by 137 feet, were built at Sixth and Master streets. These were four stories high, and fitted with every convenience and appliance for carrying on the business in the most extensive manner.

But the fame of his carriages spread abroad; orders came in from all quarters, and for the convenience of city customers, as well as those from abroad who desired to select from a large stock, the present

WAREROOMS,

at 1009 and 1011 Chestnut street, were opened in 1857. Three years later, in 1860, the rear portion of this building was fitted up as a workshop. It having been found necessary now to concentrate the business, in order that the indefatigable proprietor might have the whole under constant surveillance, the shops at Sixth and Master were discontinued, and in 1865 a large four-story brick building on Filbert street, directly in rear of the one occupied on Chestnut street, was converted into workshops.

DESCRIPTION OF THE PRESENT WORKS.

A full account of the various shops and departments comprising Mr. Rogers' present works, with some explanation of how his coaches are made, would contain much of general interest. Persons passing the capacious establishment on Chestnut street have generally no idea that a large portion of the same building is full of busy workmen, engaged in fabricating and finishing the beautiful and stylish vehicles which are afterwards placed there on exhibition, and which fairly dazzle by their brilliant varnish the eyes of all beholders. Yet so it is. Customers, after looking through the warerooms and selecting the style of carriage which suits them, can, if they desire one made to order, step up stairs and see the tough hickory which is to be fashioned into the wheels, and the rich satins and cloths to be used for trimming.

On our trip through the establishment recently, we entered first the building at 1016 and 1018 Filbert street, which is fifty-four by seventy-five feet, and four stories high. In order to follow the natural order of the work we began with the third story, where is located the

BODY-ROOM.

This is a large apartment, occupying the whole of the third floor, in which the carriage bodies are made from drawings furnished by competent draughtsmen employed in the establishment. The lumber used is hickory, ash, poplar, and some little cherry. This is all seasoned from two to five years, and large quantities of lumber are always kept carefully housed under sheds in the yard and in the rear portion of the second story. The work is generally done by hand, very little machinery being employed. The foreman of the room and many of the mechanics "served their time" here, and it is needless to add that they are thorough workmen.

The fourth story above is used as a general storeroom for bodies, wheels, &c., which, after being "primed," or given one coat of paint, are raised to this room by means of an ordinary hoisting apparatus. After remaining here till thoroughly dry, they go to the smith-shop to be "ironed."

THE CARRIAGE-PARTS SHOP

is situated on the second floor. Here a number of the most skillful and experienced mechanics were busily engaged in fashioning the finest and strongest pignut hickory wood into running gears or carriage-parts. As in the former shops, the work is principally done by hand, and the utmost care is exercised to see that no faulty wood is incorporated, and that every step of the work is done in a thoroughly first-class style.

CUSTOMERS' CARRIAGES

are stored in a large room on the front of this floor, which is devoted exclusively to this purpose. A small rental is charged, which covers also the insurance against fire or other accident. A large number of elegant carriages are now stored there, showing that a considerable demand exists for such a storeroom. On the first floor is

THE BLACKSMITH SHOP,

where all the wood-work of the heavier carriages is ironed. The noise of many hammers, files, and other tools, wielded by stout and skillful Vulcans, fills the place with sounds which are but music to the ear of Mr. Rogers. To us they were rather discordant and distracting, and having more taste for the beauties of the finished work, we hurried on. We learn that the material used here is the very best Swedish, Norway, and Ulster iron, and, for some portions of the work, Bessemer steel. It is by this careful choice of material that Mr. Rogers secures such remarkable strength and durability in combination with great lightness and symmetry. Crossing over to the

CHESTNUT STREET BUILDING,

we found this to be 45 feet in width and to extend from Chestnut street back to the Mercantile Library building, 178 feet. It is four stories high in front and five in rear. The finer and lighter carriages are constructed here entirely. The division of the building into different shops and departments is even more complete and systematic than in the one just described. Every thing has been arranged with a view to the utmost convenience and facility, and all the various branches of the work go forward with the method and regularity of clockwork.

In the blacksmith shop, on the first floor, back, all the lighter carriages are ironed, and iron repair work is done. None but the best forged wrought iron is used, and experienced workmen do every thing carefully, by hand.

The west side of the second floor constitutes the wheel-shop. An unusual degree of thoroughness marks every portion of the work done in this room. The spokes and felloes are made of selected hickory, which has not only been seasoned in the rough lumber, but left to dry a long

time in bundles, after being turned. The hubs are all made of gum wood, which is found by long experience to be the best adapted for the purpose.

THE TRIMMING-ROOM,

on the rear portion of the third floor, was a place of much interest to us. The work here begins to assume more the nature of a fine art. In this room the bodies are all upholstered, that is, decorated with the beautiful and costly cushions, cloths, patent leather, and laces which, in connection with their general finish, render the coaches of Mr. Rogers' make such marvels of elegance. The leather used here is all made to order, and most of the other trimmings are imported.

Adjoining, on the same floor, is the

PAINT-ROOM, FOR REPAIR WORK,

which is full of old broken-down coaches, buggies, gigs, &c., in various stages of disease and convalescence. Passing from this infirmary to the front room on the same floor, we find

MORE PAINT.

Here the bodies of new carriages are painted. The room is redolent of turpentine and varnish. Adjoining this on the west is a room the walls of which are covered with varnished paper, and the door of which is kept almost constantly locked. In this mysterious paradise of neatness—which, however, is not at all similar in odor to a paradise of flowers—the coach bodies are given their finishing coat of varnish. The divinity of the place did not happen to be varnishing at the time, and so kindly opened the door and suffered us to enter his sacred and odoriferous precincts. Even the remarkable cleanliness of the place could not reconcile us to more than a very brief stay, and we hastened on to admire other beauties.

EIGHTEEN COATS OF PAINT AND VARNISH

are necessary to produce the brilliant color and polish for which the Rogers carriages are noted. The fourth floor front is a storeroom for bodies which have been ironed and await trimming. Passing up out of this we were conducted over a portion of roof, which is made to do duty as a drying yard, and was covered with a number of running gears freshly painted.

From the rear end of this roof we entered the fifth story, back, which is used as a paint-shop for the running-gears of new carriages. Adjoining this are more varnish-rooms. On the same floor is the

FINISHING-ROOM,

in which all the parts are collected and fitted together previous to being lowered into the warerooms for delivery to customers.

These warerooms, which we have already mentioned, absorb a large portion of the first and second stories, fronting on Chestnut street, and are constantly full of coaches, carriages, buggies, phaetons, drags, and light wagons of every known style and description, except clumsy and inferior ones. But we need not waste words in describing the contents of these attractive rooms. There is probably not a Philadelphian who ever promenaded that portion of Chestnut street without turning to admire the beautiful carriages which stand tantalizingly near the front.

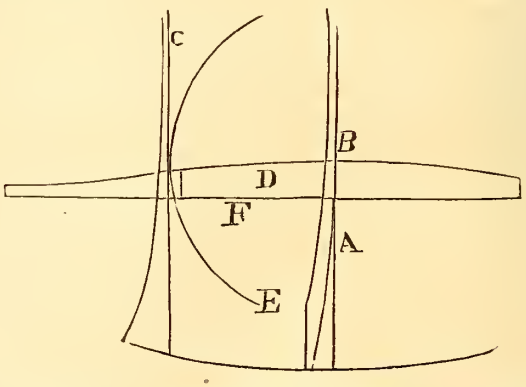
HOW IT WAS DONE.

The secret of Mr. Rogers' success may be summed up in a very few words. In the first place, he was perfectly familiar with the practical requirements of the business. He knew that the qualities requisite in all stylish vehicles are lightness and beauty of form and finish, combined with the greatest amount of strength and durability possible. Mr. Rogers studied to accomplish this desirable combination, and with what success the fame of his work attests. This high degree of perfection, however, is only attained by using the very best, and consequently the most expensive, materials, and by giving his personal supervision constantly to all departments of his great establishment.

CONSTRUCTION OF CARRIAGE DOORS.

BY P. B. J.

There is one very great mechanical imperfection attending the construction of carriage-doors, at the point where the lock-pillar meets the body, caused by lack of proper knowledge on the part of the body-maker, in giving to those parts the proper bevel. The result of this mistake has frequently been observed by practical workmen, and the mass of consumers generally. Often before the carriage leaves the factory it is found that the doors cramp, being with difficulty closed, owing to the inside edge of the lock-pillar coming in contact with the outer edge of the rabbet-pillar, or the one against which it closes, and many a foreman has committed the (not unpardonable) sin of "words both loud and deep," on being compelled to take his door plane, and chip off the inside edge of the lock-pillar, after the carriage is completed. To obviate all this perplexity we give a simple rule. We are quite sure that many of your readers will thank us for the information.



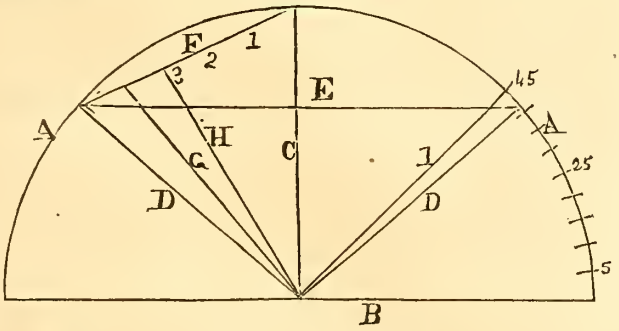
Take a pair of large dividers and place one point on line A at B, and the other touching line C where D crosses it, and make a circular line E. This line shows us the circle a door will make, no matter what its width. Therefore, where line E crosses line D we see what bevel the lock-pillar and the rabbet-pillar should have, which can be obtained from the inside edge of cant-board F. By this system we take a certain portion of wood off of the inside of the lock-pillar, and an equal proportion off the outside of the rabbet-pillar, and thus both receive the required bevel, according to the width of the door, and in harmony with the rotary motion thereof.

WHEEL-MAKING.

The proper selection of timber is a very important consideration in the making of wheels. The hubs should be examined carefully, and such ones selected as present the most even grains and as nearly alike as possible. Many hubs can be found in the market which are hard and glossy on one side while the other side is soft and brittle. Then, too, very often there are dark streaks passing along around the hub between the grains, these cannot be detected in the log, but they may be after they are turned. If they are found outside of the end bands, the hub should be rejected, as the grains are very apt to open at these places. Hubs should never be turned out of the green log, they should first be blocked out and bored, and then allowed to season. As soon as possible after turning they should be mortised and placed in a good loft to dry. The mortise should never be made the full size required, as the seasoning of the hub or the springing of the chisel, when mortised, will render it necessary for the mortise to be trued before the spoke is driven into it. With some wheel-makers the idea of a machine-made mortise not being true is considered the height of ignorance or folly. And it does seem inconsistent to suppose that a well-constructed machine should not make each mortise alike, and they may do so, but our experience has been that every mortise in a hub that was allowed to season after the mortises were made needed more or less trueing before the spoke could be properly driven. We are disposed to attribute this in great part to the shrinkage of the timber. For all light hubs select good white elm; the red elm is much used, but it answers better in large than small hubs. Locust hubs are the next best, they are, however, too hard to hold the spoke well, but when wheels are sold without painting they look very attractive. Oak should never be used for a hub that is less than eight inches in diameter; for this size and upward they are serviceable and are generally better liked than other kinds. They require much care in driving as they will split more readily than the white or red elm.—*Harness Journal.*

"STICK SEATS."

As "stick seats" are coming in vogue again, perhaps it will not be improper to revive an old rule, which, though *old*, has stood the test and proven itself equal, if not superior, to some more modern plans.



First, draw a half circle AA any given size, after which draw base line B, and then the square line C; then set your bevel to any angle you desire to give the mortise in your seat-frame, and draw line DD from the center of base line B, after which draw line E from the points where DD touches the circle AA; then draw line F. Next take your compasses and let one point rest on line C where it meets circle AA, and set them so that they will be just one-half the distance between the line E. and circle AA on line C. With your compasses thus set, place one point on circle AA, where line F and D intersect, letting the other point rest on line F, which shows you the exact location of line G. You will next let one point of the compasses rest on circle line AA where C intersects it. and the other on line F, and prick off three spaces, 1, 2, 3, and the point of the third space gives you the location of line H, after which you are ready to apply your rule to the work. Remembering that line D is to lay out the mortises in the seat-frame by, line G to cut the shoulder on the corner-pillars, and line H gives you the bevel to dress your corner pillar, line I of 45 degrees constitutes a square mitre. The above is the most complete system for framing "stick seats" we have ever seen, and every body-maker will be benefited by adopting it, especially those who have been working on the old "try and fit" plan. P. B. J.

WHY TIMBER IS PAINTED.

When water is applied to the smooth surface of timber, a thin layer of the wood will be raised above its natural position by the expansion or swelling of the particles near the surface. In colloquial phrase, workmen say that when water is applied to a smooth board, the grain of the timber will be raised. Every successive wetting will raise the grain more and more; and the water will dissolve and wash away the soluble portions with which it comes in contact. As the surface dries, the grain of the timber at the surface, having been reduced in bulk, must necessarily shrink to such an extent as to produce cracks. Now, if a piece of oil-cloth be pasted over the surface, the timber will be kept quite dry. Consequently, the grain of the wood will not be subjected to the alternate influences of wet and heat. As it is not practicable to apply oil-cloth ready made, a liquid or semi liquid material is employed for covering the surface, which will adhere firmly and serve the purpose of oil-cloth in excluding water that would otherwise enter, to the injury of the work. Metallic substances are painted to prevent oxidation or rusting of the surfaces which may be exposed to moisture.

It is of primary importance to make use of such materials as will form over the surface a smooth and tenacious pellicle, impervious to water. Any material that will not exclude water sufficiently to prevent the expansion of the grain of the timber, or the oxidation of metallic substances, must be comparatively worthless for paint. Linseed oil possesses the property of drying when spread on a surface, and forming a tenacious covering, impervious to water. Spirits of turpentine, benzine, benzole, and certain kinds of lubricating oil, all of which are frequently used in preparing paint, will not form a covering sufficiently tough and hard to resist the action of water; for which reason, the paint that is made by employing these volatile materials will be found comparatively worthless for outside work. A pigment is mingled with the oil to prevent the timber to which the paint is applied from absorbing the oil. The design is not to saturate the wood with oil, but simply to cover the surface with a coating resembling a thin oil-cloth.—*Manufacturer and Builder.*

THE PAINTER'S SECRET.

IN the days of old, in the days when painters lived to paint—not painted to live—when they were the missionaries of art, not the tradesmen; sacrificing for its sake fortune, friends, country; braving for its sake the curse of parents, the tyranny of despots—in such days, Domenico, a pupil of Van Eyck, opened a school of painting in one of the large towns of Italy.

Despite the arduous efforts of other teachers to excel him and to induce the patronage of the wealthy and noble, Domenico had gathered under his tutelage representatives of some of the noblest families in the dominion.

Though deficient in truth, originality, and simplicity of the thought that characterized the earlier masters, yet the secret of giving permanency and durability to his coloring had raised him far above all his cotemporaries. He alone knew that mixing *oils* with his colors fixed them upon canvas, and preserved them for posterity, while those of every other painter, from their want of consistency, either fell off in drops while wet, or in scales when dry. Consequently he was the painter most in vogue.

This secret Domenico had learned from his master, Van Eyck, who had bequeathed it to him on his deathbed; and he had resolved to do the same for his young and brilliant pupil, Castano, when called away from earth. The young Castano possessed a wonderful strength and freedom of pencil, and already he needed nothing but his master's secret to surpass him as well as his fellow-pupils. Often had he watched Domenico at work; often had he supplicated him, fervently, and pledged to him the devotion of his whole life if he would but impart to him the talisman.

"At my death," the inexorable master would say; "and not till then."

One morning, when all Domenico's pupils were assembled, and discussing, as was their wont, their master's secret, Castano sat by himself in a corner of the painting-room, buried in deep thought. It needs must be some subject of deep and momentous import that could thus absorb the whole man. His pencil had dropped from his hand, and he heard not what was passing around him. Castano's thoughts were of himself and all his comrades, kept in obscurity, debarred from fame by the selfish reserve of one to whom they were, for the most part, superior. With his secret, what far nobler service than he would they be capable of rendering! Would not any means be lawful to wrest the secret from him and make it their own? Any means! The motion of his hand, instinctively feeling for his dagger, and the convulsive contraction of his brow, awoke him to the consciousness of the full import of his meditation; and at that moment Domenico entered the room, with the already dry design of a new picture.

All the pupils gathered around him, Castano only excepted, who remained in his place motionless as a statue, with his eyes fixed on the master, while every one else was gazing on the picture.

"By the chin of St. Agatha!" exclaimed Domenico, "I have surpassed myself! This rough draft is admirable in its coloring. Look! you may rub your hand over it—sponge it! See! I pour water on it, I spit on it, and it is only the more brilliant! Well, I was obliged to wait a long time for Van Eyck to die, and you must be patient, too. I have made my will, Castano, and there you will find the secret."

Was it the force of the electric thrill through his whole frame at these words, that impelled Castano forward till he stood face to face with Domenico? He stood gazing sternly, fixedly upon his master, as if he would penetrate his utmost soul to drag thence the secret.

The next moment Castano was on his knees, with clasped hands and suppliant tones, pouring out tears and prayers, imploring him to have pity upon him and upon the others—nay, upon the art itself. He abjured him to have mercy upon him; not to press him too far; not to deliver him over to the fatality that he felt hurrying him along.

"Mercy!" again and again he cried, "mercy on these men—on me—*on yourself!*"

This tempest of passion was utterly unintelligible to them all. The other pupils, who had been examining and seeking the mysterious coloring with fingers, and eye, and tongue, now gathered around him; while Domenico stared at him, half-thinking he must have been seized with a sudden fit of insanity. The next moment he coldly repeated his unalterable determination never to reveal his secret during his lifetime.

That very night, under murky clouds and a starless sky, a man, wrapped in a dark mantle, made his way, with the stealthy steps of a lover, in the direction of Domenico's house, at the top of a long and narrow street. The slowest-paced clock in the city had struck the hour of twelve, but the man in the dark mantle was still waiting and watching.

At length the figure of a second man was seen approaching from the other end of the street. He was singing as he came along. It was too dark and too late not to sing.

At the sound, the first comer hastened forward, then stopped as the other drew nearer and nearer. When they were quite close to each other, the cloak was thrown back, and something flashed from under its folds.

Suddenly a cry was heard—"Murder! help! help!" Then came the sound of a body falling heavily. There was a deep stillness for a few moments, and then was heard the distant echo of footsteps in rapid flight.

The first cries of the victim having roused the inhabitants of the street, a number of persons soon crowded about him, and recognized in the mortally wounded man their neighbor, the celebrated painter, Domenico. A surgeon was soon on the spot; but the painter, feeling that he had received his death-stroke, refused to have his wounds dressed. Ordering some one of his servants who had arrived to hasten to his house and bring a small casket containing his will and the unfinished picture, he insisted on being carried to the house of his favorite pupil and only friend—Castano.

(*To be continued.*)

Pen Illustrations of the Drafts.

FULL-SIZE LANDAULET.

Illustrated in Plate IX.

THESE carriages, now quite popular with the aristocratic portion of our citizens who frequent the drives of the Central Park, make a superb vehicle for two passengers and a good show on the road, especially with the circular front, and upper portion of the door removed. Hung-off as

this is on combination springs, it makes an easy and comfortable riding carriage, seldom surpassed. Width of the body (in the clear) measured between the hinge door-posts, 50 inches; axles, 1⅛ inches; wheels, 3 feet 4 inches and 4 feet; hubs, 4¼ by 7 inches; spokes, 1⅛ inches; rims, 1¼ inches deep; tires, 1⅛ by ⅜ inches.

Painting.—The body, English patent black; the carriage-part, crimson-lake, gilt stripe.

Trimming.—Brown satin.

Workman's price for making body, $150; for making under carriage, $22; manufacturer's charge for the finished carriage, $1,600.

New York Charges for Repairs.—*Wood-work:* Hub, $5; new spoke, $1; rimming wheels, $20; half-rim, $2.75; drafting wheels, $1; furchel bed, $10; bolster, $8; back spring-bar, $9; horn-bars, $8; fifth-wheel bed, $2.50; splinter-bar $3; pole, $10. *Iron-work:* New iron tires and bolts, $38; resetting tires, $8; tire-bolts, 25 cents; carriage-bolts, 30 cts.; resetting axles, $10. *Painting:* Burning off old paint and repainting, $175. *Plating:* capping axle-nuts, $6; silver-bands, $6; door-handles, $8 to $10.

CABRIOLET CALECHÉ.

Illustrated on Plate X.

We are favored with this design for a Cabriolet Caleché through the courtesy of Messrs. Brewster & Co., of Broome street, New York. The simple mention of the firm with whom it originated will be a sufficient recommendation for the drawing, without any commendation from us. Width of the body in the clear, 48 inches; axles, 1 inch, large; wheels, 3 feet and 3 feet 10 inches high.

Workman's price for making body, $75; for under carriage, $20; manufacturer's price, $1,200.

Prices for repairing about the same as for the full-size Landaulet on Plate IX.

EXCELSIOR PARK PHAETON.

Illustrated on Plate XI.

This design originated with one of our own artists, and is a capital thing either for a private family, the watering-places, or for hacking purposes. It has a decided advantage over the "chat-a-banc" class of carriages, in which the passengers are obliged to sit sidewise, since all may here sit facing to the front. The body is a very plain one to build, and, therefore, requires no instruction to the builder from us. Wheels the same height and about as heavy as the last. Price of the carriage, about $500.

COMPOUND BUGGY.

Illustrated on Plate XII.

We call this a compound body because it is made up of at least two others, and should it possess no great beauty it certainly is a novelty. The mechanic will see that it is not difficult to build it, being nothing more nor less than the old coal-box buggy, moulded off in a *new* fashion. Price, $450.

ROAD PHAETON.

Illustrated on Plate XII.

This drawing represents a road phaeton of very chaste design, which we trust will meet the approval of our readers. It is a very plain carriage to build, and will look well when built and run on the road—an advantage not always obtainable from following paper drawings. The stick seats make the carriage look much lighter than when close. For an open carriage, in fine weather, this vehicle is well adapted. Width of the body about 45 inches, the seats projecting over the sides 1½ inches at each end; wheels, 3 feet 10 inches and 4 feet high; hubs, 3½ by 6½ inches; spokes, 1 inch; rims, 1⅛ inches; steel tires, ⅜ by 1 inch. Price of phaeton, $525.

New York Charges for Repairing.—*Wood-work:* Hub, $5; spoke, $1; running wheels, $18; drafting, $1; axle-beds, each, $4; perch, $5; head-block, $3; spring and shaft-bars, each, $2; shaft, $4; pole, $9; yoke, $7.50; fifth-wheel bed, $2.50. *Iron-work:* New tires and bolts, $20; tire-bolts, 25 cents each; carriage-bolts, each, 30 cents; an elliptic spring, $16; new fifth wheel, $5; resetting an axle, $6. *Painting:* Touching up and varnishing, $45. *Trimming:* Leathering shafts, $6; re-covering dash, $10; new apron (rubber), $10; whip-socket and fixtures, $3.

Sparks from the Anvil.

BESSEMER STEEL.

The question of steel *versus* iron is one of vital importance to the coach-maker; and we have taken much care in preparing the following article, which compares in detail the qualities of the Bessemer steel with those of iron. Steel tires have already become the standard illustrating the value of this metal over the old iron tire, and we believe the time is not far distant when steel will be used for every purpose in coach-making where iron is now employed.

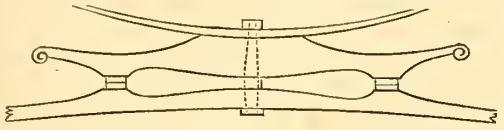
The pneumatic or Bessemer process of making iron and steel consists in forcing into a mass of molten pig-iron, contained in a suitable vessel called a converter, streams of air under a high pressure, and, by the combination thus effected between the oxygen of the air and the carbon in the iron, decarburizing the metal entirely, and then in adding to the metal under treatment, after it has been entirely decarburized by the blast of air, a certain percentage of a triple compound of iron, carbon and manganese, which is found as an article of commerce in the Spiegeleisen of Germany, and the Franklinite pig-iron of this country. And by varying the quantity of this compound, which is to be added in accordance with the percentage of carbon which is known to be contained

therein, any required degree of carburization can be given to the metal under treatment, while the manganese in the compound, acting as a detergent or cleansing material, removes or neutralizes the oxides, sulphurets and phosphurets existing in the metal, which would otherwise render the product red-short or cold-short and useless. The conversion of the molten metal by this process is a very rapid one, 30 minutes being the longest time required for converting ten tons of the grayest pig into steel or soft iron, ready to be cast into ingots or masses of any desired form. The average duration of the blowing operation is from fifteen to twenty minutes. The present practice is to provide an engine large enough to take in from 1,000 to 1,200 cubic feet of air per minute, per ton of iron intended to be treated, the pressure to which it is condensed before delivery varying from 12 to 20 pounds per square inch. The pneumatic or Bessemer process, thus briefly described, is one of the simplest, perhaps the very simplest, in metallurgy. For, although the apparatus required for its successful conduct is somewhat complex, it is not difficult, and the skill and experience needed to produce it with ease and certainty may be acquired in much less time than to puddle iron well. The apparatus for manufacturing under this process consists of a blowing-engine for compressing air and forcing it through the molten metal, a cupola-furnace for melting the pig-iron, another small one for melting the Spiegeleisen, Franklinite or other carburizing and purifying material, and a pair of converting-vessels into which the pig-metal is run. The magnitude of the apparatus is governed by the amount of business to be done, and the size and character of the castings it is desired to produce. The blowing-engine is the most important as well as the most expensive portion of the apparatus. It must be large enough to treat the greatest quantity of iron it is intended to convert at one operation. The cranes and the apparatus for tipping the converters are operated by hydraulic power, communicated by a suitable force-pump, working at a comparatively low pressure. Production by this process is very rapid, and from four to six conversions can be conducted each "turn" of ten hours with each pair of converters. A five-ton apparatus will produce from 20 to 30 tons of ingots of iron or steel every "turn" of ten hours for each pair of converters employed. The practical value and peculiar characteristics of the Bessemer metal are best shown in the great variety of applications which have been made of it to uses requiring the best material obtainable. But in order to give the clearest idea of the qualities of this product, as well as to answer the most common questions asked concerning it, we will consider the steel with reference to the following leading peculiarities of the metals with which it has to compete: Its purity.—From the nature of the process (the impurities in the iron treated being thoroughly oxydized by the streams of air, and expelled as gases, or thrown off as slags, by the violent eruptions produced by the chemical and mechanical action of the blast on the charge), the product, as left from the conversion, is purer than similar metal refined by any other method. Its homogeneity.—The pneumatic or Bessemer metal being maintained in a fluid state throughout its conversion from the pig iron, is cast at once into perfectly sound and homogeneous ingots or masses of any desired size; whereas wrought iron, whether made by the bloomery or puddling processes, being only an aggregation of the granules of metal which are developed in said processes, cannot be produced thereby in large masses, but the comparatively small and imperfect blooms or bars so produced, must afterward be welded together for forgings of even moderate size; a treatment which, even under the most favorable circumstances, and with the best skill and care, fails to give perfectly sound and homogeneous products. Fiber is never shown by this metal in any stage of its manufacture. Indeed, a pure metal cannot be fibrous; and the old dogma that fiber is a necessary concomitant to strength and toughness has long ago been shown to be an error. The absence of this quality from this metal renders it peculiarly fit for many products. Its hardness, as has been already stated, may be of all the various degrees between a thoroughly decarburized, soft and weldable iron, and a well-carburized steel; but this metal never, while untempered, manifests the peculiar brittle hardness of the high grades of crucible steel. It is compact, firm and uniform, possessing, when most fully carburized, enough of the hardness of the ordinary cast-steel to meet many of the practical needs in that respect, and yet with other qualities which render it applicable where a metal simply hard would not answer. Rails made from this product have been proven to be more than twenty times as durable as the best quality of iron rails, and tires of the same material last very much longer than the most celebrated makes of iron tires. Toughness is one of the most prominent characteristics of this product, and no iron or steel made by other modes can be compared with it in this respect. It is this quality, combined with its moderate hardness, great strength and stiffness, which makes the Bessemer steel so suitable for use upon railroads. The idea entertained by many persons that exposure to a low temperature will cause the metal to become brittle, is unfounded. In fact, it has been well settled, by experience on Russian railways, that mild-tempered steel, such as is generally used for axles and tires, is not so liable to be altered in its molecular arrangement by frost, or by jarring wear, as are the best brands of fibrous iron. The strength and tenacity of Bessemer metal varies, of course, with its character. The metal is strongest in the most highly carburized condition in which it is malleable, and its strength decreases gradually as the percentage of carbon is lessened. Tests of this product made at the Woolwich Arsenal, in England gave the unhammered ingots a range of tenacity from 41,412 lbs. per square inch for the average of the iron, to 60,031 lbs. for the average of the steel ingots tested. While tests of the hammered and rolled products gave an average of 72,643 lbs. as the strength of the soft iron, and 153,677 lbs. as the strength of the hard steel bars per square inch of section; and any grade of metal between these limits may be produced by this process. The ductility and malleability of this product are, like its toughness, very great; and combined with its toughness and tenacity, they render the metal superior to all others for crooked and difficult forgings. *The pneumatic or Bessemer product may be subjected to any mode of treatment or working to which malleable iron or steel made by other methods is commonly exposed*, as it can be made to possess all the good qualities of both of those metals without having the imperfections of either. The welding of this metal, either to itself or to ordinary iron, can, even when the metal is well carburized, be effected readily, with reasonable care on the part of the workmen. The articles now most generally made from the metal pro-

duced by the Bessemer process are *rails* (of which more than 100,000 tons are now annually rolled in Europe), axles, tires, boiler and ship-plates, anchors, shafting, beams, girders, gun and rifle-barrels, forgings for locomotives, stationary and marine-engines, machinery of all kinds, and other products which require to be made of first-class material. In England, and on the Continent, the value of this metal for general use is now so well understood and appreciated that *the production of the works there for the current year will amount to nearly* 700,000 *tons*—a very rapid development, it must be conceded, of a manufacture which can hardly be said to have come into existence till the year 1860. The discoveries and improvements of Messrs. Bessemer seem to have sealed the fate of the catalan forges, bloomeries, refineries and the ever-troublesome puddling process, by which ores or pig irons have so long been advanced toward the finished product, for these improvements enable us to make a better product at the same or a less cost. In conclusion, it may be broadly stated that the metal is rapidly making its way into every department of the mechanical arts, including carriage-making, where, for all the nicest class of work, it has already displaced wrought-iron and crucible steel for most purposes; and when its advantages are understood, we believe that the revolution in iron will be complete, and in place of the iron age will be inaugurated the age of steel.

NEW KING-BOLT.

Many objections exist against the old-style king-bolt, one of which is that the head which is let into the head-block cuts away too much of the wood, and in time begins to wear away the wood and rattle, completely cutting off the perch, where the clip king-bolt is not used. I will explain a simple, yet excellent, mode of obviating the objections to the old-fashioned bolt, which the diagram will explain in full. Let the king-bolt be made tapering from the center both ways, with thread and nut on both ends, passing directly through the head-block, axle,



and spring. It is best to work a collar on the plate of perch and axle-plate on all jobs.

Keep.

Paint Room.

BRONZE COLORS.

Many attempts have been made to utilize mica and transform it into bronze color, and at last these experiments have been successful. Mr. Schwartze in London, Mr. Tiller in Vienna and Mr. Rotter in Amberg, Bavaria, already manufacture such a product in large quantities. Consequently a new field has been opened for employing mica.

To this end the mica is ground in a crushing machine, pulverized by help of a mill, boiled in humiatic acid, freed from what acid might cling to it, and at last assorted according to its coarseness by help of a strainer. The scales of the mica, thus prepared and classified into four sorts, according to their size, have in commerce various names, as brocatel, crystalline colors, bronze of mica, etc.

These bronzes of mica possess many advantages. They contain no substance injurious to health. They have a metallic luster like the bronzes of metal, and oftentimes even surpass these in beauty of color. They are brown, black, blue, green, and even rose-colored; the latter of which is not found among the metallic bronze-colors. They are, furthermore, entirely proof against influence from sulphurous gases, a quality which the metallic bronzes lack. And as they resist very well the influence of light, and do not in the least change color, as the metallic bronzes, even when exposed to damp air, they do not require to be inclosed in expensive tin-boxes when exported. Their specific weight is very small, and as they cover a large surface, they are exceedingly economical.

They are very generally applicable, not only to fancy and household articles of metal, wood, glass, or plaster, but also in many other cases; for instance, in the art of painting, especially that of theatrical painting, in the art of decoration, in the fabrication of artificial flowers, of sealing-wax, and generally in all cases in which the metallic bronze colors have hitherto been used. Trials, however, of impressing them upon cambric muslin have not given a satisfactory result, because the scales of the mica are not sufficiently fine.

Before these bronzes are applied, it is advisable to cover the body with a ground-color resembling that of the bronze chosen. Thus the silver bronze should have an under-coat of white lead, the blue an under-coat of ultramarine, etc. If oil colors are used, it is necessary to employ binders. Yet, as with the metallic bronzes, before the application of the bronzes the coat must be dry enough in order to cease to be sticky. Bodies treated in this way obtain, especially after being varnished, a luster the beauty of which has never been surpassed.

The bronzes are manufactured with the following colors:

1. *Rose.*—The coloring matter is produced by a decoction of cochineal. This color is entirely soluble in hot water, in which case the mica will be discolored. The colored solution becomes blue, when ammonia and hydrochloric acid are added.

2. *Crimson.*—The color dissolves almost entirely in water. It is destroyed by adding ammonia, and becomes yellow by adding hydrochloric acid. A portion of the coloring matter dissolves in alcohol, which it colors red with a bluish tint.

3. *Deep red.*—Showing the scales brown-red. Hot water dissolves a part of this, and the remainder is left brown. Alcohol dissolves a brown-reddish matter, which, when ammonia is added, becomes reddish-yellow, and when hydrochloric acid is added, citron-yellow. The coloring matter is the Fluvana-brown.

4. *Violet.*—Water dissolves but a small portion of the coloring matter; water mixed with acetic acid dissolves it entirely. Ammonia discolors it. Hydrochloric acid colors the solution greenish. The coloring matter is the Flossmann green.

5. *Bright blue.*—The coloring matter dissolves neither in pure water, nor in acidulated water, nor in alcohol; it only dissolves in oxalic acid. Other effects are produced according to the way in which the Berlin blue is employed.

6. *Deep blue.*—Only a small portion of the coloring matter dissolves in pure water; a little larger portion dissolves in acidulated water, which it colors red-violet, The solution becomes entirely discolored by ammonia. and colored blue by hydrochloric acid. The scales of the mica remain blue and lose the rest of their color in alcohol; ammonia colors this solution violet, afterward red, and at last reddish; hydrochlorie acid colors it greenish. The coloring matter seems to be an aniline blue.

7. *Bright Green,* and 8. *Deep Green.*—The coloring matter of these two bronzes does not dissolve in water, but in alcohol, and shows its effects by a mixture of aniline-blue and turmeric. If an alcoholic solution of the matter is prepared and some ammonia added, a brown-red residue is obtained, indicating turmeric.

9. *Blue violet.*—The coloring matter dissolves but little in water, not at all in alcohol, but entirely in hydrochloric acid which it colors violet-red. The coloring matter is mixed with the scales of the mica as with a fine powder.

10. *Clear blue.*—The coloring matter does not dissolve in water, nor in alcohol, acids, concentrated alkalies, or concentrated nitric acid. A microscopic examination proves the mica to be mixed with small quantities of pulverized indigo.

11. *Gold color.*—The coloring matter is but a little soluble in water, somewhat more in alcohol, indicating turmeric.

12. *Silver color.*—Pure mica without any color added.

13. *Deep brown.*—The matter dissolves better in water than in alcohol. A solution with hydrochloric acid, sulphate of iron, and acetate of lead gives a residue which proves the use of a decoction of bark.

14. *Black.*—The coloring matter of logwood dissolves in water and alcohol, which becomes yellow, and is used for shadowing. The mica remains deep blue colored, and retains a lake, which, when decomposed by oxalic acid, presents characteristics of litmus.

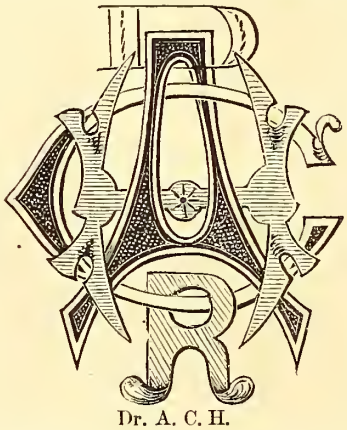
FLAT PENCILS.

To make a flat pencil for fine striping, split a piece of wood at the end, insert a layer of sable hairs, very thin and about a quarter of an inch wide, and bind with waxed thread. Use on the edge. These pencils are employed by many of the best painters for fine striping, and are decidedly the most serviceable for this purpose. They carry more color than the ordinary pencil, and allow of greater rapidity of work. An experienced painter can stripe quite a number of spokes, or even go clear around the felloe of a wheel, without replenishing the pencil with color.

MONOGRAMS.

Monograms are of very old date. As far back as we know of letters, we know of monograms too. They are found on Greek coins from the sixth century before Christ, and we know that the Scandinavian people used them even at an earlier time. Their pedigree is thus of honorable length, but perhaps its age is more noticeable than its blood, for there does not appear to be much glory in the history of monograms. It may come in the future.

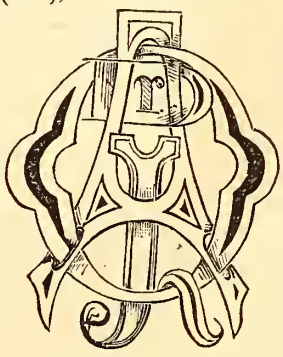
As to their origin it was very simple. When a name or a sentence was to be put down on a very small space, as for instance on coins and seals, it was common and very natural to reduce it by abbreviations to two, three, or four letters, and then interlace these letters with each other till they made a single character, small of size and easy to recognize, but difficult to understand, and therefore difficult to counterfeit. And thus, on the paternal side, monograms have, no doubt, originated as a sort of economy, a very respectable origin, indeed, but not very noble.



Dr. A. C. H.

With the Scandinavians, however, monograms do not seem to have been used in this way. They were with them rather a trick. When one had to send a message and dared not trust the bearer, he wrapped his news in a cloud of very obscure words, and put these on a wooden plate in a series of intricate monograms which only very apt people were able to decipher. Thus, his letter, though open to all the world, was covered with a double envelope, and its monograms were often its best safeguard. Sometimes monograms assumed to play the part of witchcraft. It was a common belief with the Scandinavian that certain characters when engraved on the sword-blade would make it cut through stones, or when taken in the mouth make the man invisible, or when thrown to the feet of a young girl make her love the swain who had done it, and in this way they are still used to some extent throughout Europe. Toothache, gout and other devils are still driven out of the peasants by help of mystical monograms written in the air or on the bed by the witch. On the maternal side, therefore, monograms have something romantic in their origin, though this romance seems to have an inclination towards the fabulous.

Since the origin of monograms they have been in particular vogue at two times; first, during the first period of the Christian Church, under the emperor Constantine the Great (325), and, secondly, during the first period of the middle ages under the emperor Charles the Great (811), but each time to a very different purpose.



Dr. J. Q. A.

The monograms of the time of Constantine were symbols. People were not satisfied that the initials of their names were nicely interwoven to make one symmetrical character. They required that this character should symbolically indicate some high and valuable idea characteristic of their own life, or at least of their ambition, and the cipher was thus formed as a cross or an anchor or a heart. All know, for instance, the monograms of Christ's name with which Constantine stamped his coinage. It was used until the time of Theodorus Lascaris. This passion for symbols, in which the monogram originated, was neither a whim nor a fancy, but a deep and true feeling, and it soon found a material richer and more suited to its pur-

poses than the poor monograms. These had to yield to their younger and more splendid cousins—the nobleman's coats of arms—and thus the former disappeared in utter darkness for some four hundred years.

Next we meet them at the court of Charles the Great. To what did he use them? Well, he was a great man, and knew very well how to do justice to every man and every thing. From Cæsar to the French revolution the world had received no political impulse greater than that it received from him, and, besides his greatness, he was a good man, of serene moods and refined domestic manners. But he lacked one valuable accomplishment. He could not write. Equihard tells us how patiently the old Kaiser sat down to his tablet, trying and trying again, but his fingers, which could hold the scepter and the sword, could not hold the pencil. He only learned to write one single character, the monogram of his name. And as the Kaiser did, so did the bishops. Le Blanc tells us that many of the bishops of that time could not write, and neither could the greater part of the knights or any of the lower classes. There were no printers, no mails, no paper, no ink, and of what use, then, could it be to learn writing? It was enough to learn to write one's own name below a document, and in order to do that one learned to write it in a monogram. Thus the monograms lived even to this very day, as children of ignorance and substitutes for the difficult art of writing.

In our time they have received a new being in republican America. The wealthy man is pleased to have his name painted in a splendid monogram on the doors of his coach, and the lady likes to have hers embroidered on the corner of her handkerchief. It is, so to speak, a revival of monograms, and who knows what the issue will be? Perhaps it is a step in the direction of an ingenious discovery. C. P.

CRESTS.

The ancient warriors wore crests to strike terror among their enemies, at the sight of the spoils of animals they had killed, or to give them the more formidable mien by making them appear taller. In the ancient tournaments the cavaliers had plumes of feathers, especially those of ostriches and herons, for their crests; these tufts, which they called *plumarts*, were placed in tubes on the tops of high caps or bonnets. Some had their crests of leather, others of parchment, pasteboard, &c., painted or varnished to become weather-proof; others of steel, wood, &c., on which was sometimes represented a member or ordinary of the coat, as an eagle, fleur de lis, &c., but never any of those called honorable ordinances, as pale, fesse, &c. The crests were to be changed at pleasure, being reputed only as arbitrary devices of ornaments. Herodotus attributes the rise of crests to the Carians, who first bore feathers on their casques and painted figures on their bucklers, whence the Persians denominated them cocks. The Etruscans were also famous for their crests, and modern artists have given similar additions to the helmets of the three Horatii. Golden crests were worn by knights seeking the smiles of their fair ladies.

Copal Varnish was first discovered and compounded in France, and was long known by the name of "*vernis martin.*"

CANARY YELLOW.

Canary Yellow comes in crystallized pieces, and is of so very gritty a nature that great care must be exercised in preparing it. It cannot be ground in oil nor in the mill, but must be ground on the stone, and water is added to help in cutting down. After being ground very fine, the water is worked out as in the process above described, or it may be spread on a sheet of glass and the water evaporated, and oil is then added as with ordinary colors, and it is applied in the same way.

Trimming Room.

TRIMMING OF CARRIAGES.

Like pictures, the trimming of carriages is seldom beyond criticism. This may be from reason of execution or of assortment of shades. A blue trimming is always the easiest to arrange, because the shades of this color vary but little, all the dyers using nearly the same coloring matter. Quite different it would be, if the coloring matter were obtained by mixing several colors, as, for instance, the shade of tobacco which is obtained by mixing two, three, four and even five different colors: yellow, orange, Van Dyke brown, ivory black and Japan. In the latter case it would be very rare—for it would be the effect of chance—if two dyers used the same matters in exactly the same proportions. As the cloths, the reps, and the moroccos are all colored by different makers, there will consequently always be a more or less conspicuous difference in their shades, and this difference in shade is always discordant. Studied and elaborate trimmings are in vogue in France at present, especially for open carriages. The descriptions of them, which are given by a French paper which we have before us, show the style to be much more showy than is the style here. Indeed, the present style of trimmings used in New York is plain, even *very* plain, and we are glad to see it so, for we consider it much more tasteful. We are thus enabled to avoid those many differences of shade which we have mentioned above, and which are so distasteful oftentimes.

STYLES IN LONDON.

We learn that the most stylish broughams which have lately been turned out in London are lined with black satinet. The laces are rather plainer than the fashion has been, and are stitched with a line of gold-colored silk. This quiet trimming is made to correspond with the painting, which is also very quiet—the body and carriage-parts being black, the former having no fine lining and the latter only a narrow picking out line of gold.

A rubber slide for coach doors has been contrived by the English which is very convenient. It works thus: An india-rubber roller is let on to the edge of the glass frame, working freely on its center, and it is made sufficiently large to produce a pressure within the grove, whenever the glass frame slides up. It prevents rattling and allows the door to be fixed at any elevation. Another neat contrivance is facing the inner surface of the door style (where the glass frame runs up) with plate glass. The style behind the glass is painted in the usual manner; and thus protected, it always presents the appearance of newness.

Editor's Work-bench.

HOW TO ACQUIRE TASTE.

The valuable paper which follows has been written for us by a "magister artium" of the University of Copenhagen, and in giving it to our readers we trust they will appreciate its importance, as bearing directly on the elevation of coach-building to that high point where it belongs. We hope they will study it carefully. The writer deals with coach-building as *an art*, and applies the same principles as he would to the latter. He urges that taste is a most important characteristic of the successful builder of the best coaches. Such is most surely the fact, and taste in the coach-maker becomes more and more indispensable as the art of coach-building advances and improves, and the taste of the public becomes educated and refined. We feel that no coach-builder can read this article without feeling that his labor admits and demands taste, and that it is for his best interests to apply his appreciation of taste to all that he works upon.

HOW TO ACQUIRE TASTE.

Shall the carriage wheels be large or of small diameter? Shall they have broad or narrow tires? Shall the body of a coach be hung on a level, as generally done now, or the front half an inch higher than the back, to make a more comfortable seat, or with the back half an inch higher than the front, to give the vehicle an easier speed? All of these are questions of *utility*, not of *taste*, and they are to be answered according to the dictations of usefulness, without the slightest regard to fancy, but after all problems of utility are solved, and a carriage of thorough usefulness planned, taste ought to be the guide of the workman in applying them. *Utility directs what is to be done, but taste should direct how to do it.* For most any thing can be done in a thousand different ways, but *no two ways of doing things are equally good, to have the power of choosing the best, is to have taste.*

Taste relates only to appearance. People, therefore, who know that *it is more to be than to seem*, and who have experienced that appearance is often nothing but show, are not likely to think much of taste, nor to care much about acquiring it. But it would not be difficult to prove, that the appearance has an important influence upon the thing itself; and, consequently, taste is essential. But there is no need of a philosophical demonstration. The man who sells will soon learn by his pocket that a good appearance is half the market value of every selling thing, not only of luxuries, but even of substantials, and he will learn, at the same time and of the same instructor, to appreciate the value of that mental acquirement which enables a man's workmanship to be *not only good, but good-looking.*

With coach-making, taste consists in arranging the outlines to please the eye and call forth from the mind only pleasant ideas—for instance, ideas of ease, comfort, elegance, lightness, speed, &c. As the body and the parts of a carriage comprise a large number and variety of very different lines, circles of different diameters, curves of different bendings, straight lines cutting each other at different angles, &c., it is a matter of taste, and a difficult one, to combine all these different lines into a harmonious whole. There are lines which must look as if they were running on infinitely, only melting away little by little into other lines. If intersected roughly, or in any way broken, the effect is disagreeable. Other lines require to be cut directly, and if not so cut, they lose strength and distinctness, look clumsy, and produce strange and unpleasant ideas. Thus, every kind of lines must be treated according to its nature. The difficulty of combining two lines, one of which requires to be cut sharply, while the other requires to be absorbed gradually, has been felt by every coach-maker, in planning a proper connection between the coach-box and the coach-body. How often does the coupé look like a dungeon-cell, or the landau like a goose-nest, and the phaeton like a plate presenting young ladies as if they were visiting-cards, and thus, because the outlines of the carriage are without taste. On the contrary, many a heavy vehicle looks light and elegant, because the coach-maker has understood how to lift and vivify the mass of its body and gears with fine and graceful lines.

The question now arises, how is this useful and almost indispensable science, which we call taste, to be acquired? If taste were really a science, the school would have to teach it; but it is not a science. *It is partly a natural gift and partly a mental acquirement. It is a faculty born with us and growing almost unconsciously during the whole education.* The school can do but little to give it. Taste must be earned. What the school and the public can do towards cultivating it is, first, to carefully avoid propagating a false taste, and, second, to afford the means by which true taste can grow. Drawing is generally considered as one of the best means to acquire taste in respect to lines, and hence drawing has been made a part of the mechanic's education. This is a good step. There is, indeed, nothing else which makes a man understand more easily the importance of lines and enables his eye to discriminate so easily the nature and signification of different lines. Drawing, therefore, ought to be a part of all education. Besides educating the sight, drawing is valuable by enabling us to set forth our ideas on paper, to communicate them to others; but of itself it cannot furnish us with ideas, nor can it give us any advice as to the forming of proper ideas. The very best step towards becoming quick and fertile in inventing lines which produce a lively, graceful and expressive appearance—and this is what the coach-maker aims at—is to study the two *linear arts*, as they might be called, sculpture and architecture. The coach-

maker, therefore, who wishes to work not only with his hands but with his head, should go often into the galleries where the best specimens of sculpture and drawings are exhibited. In the Greek statue he will study the running and infinite lines, and in the Gothic dome the broken ones, and in their most consummate applications, and his imagination, if once impregnated with these forms, will never degrade itself into expressing clumsy or unpleasant forms. In the smallest work he devises there will be an indescribable something which always pleases and charms. He will make the heavy look light, and the light look solid; and he will always work out something graceful, although fulfilling the most singular demands of his customers.

Sculpture and architecture are, indeed, the school to which the coach-maker must go in order to acquire the most elevated taste. There is room in one article to give but a slight idea of the various lessons which both of these arts are able to give the mechanic. In the present paper, therefore, we will speak of the influence of sculpture only.

First, there must be made a distinction. It is not taste *for sculpture* which the coach-maker needs to seek after when studying statues, but *taste of lines*. This difference may be made clear by example.

The three most eminent statues of Venus are the two antiques, Venus from Milo and the Medicean Venus, and the modern one by Thorwaldsen. These are three great master-pieces.

Venus from Milo is Greek, and represents the time when the Greek people stood highest, morally and mentally. She is the grandest ideal of true womanhood ever conceived; soft as the wave, sweet as the sunlight, yet so dignified and lofty as to abash most wooers. She is heroic. The Greeks considered it the utmost disgrace to lose the shield in battle. A warrior who surrendered his shield, surrendered himself a slave disdained by his countrymen, while the slain hero who had fought bravely was borne upon his shield to his grave amid songs of praise. Well, if this Grecian Venus had a son to send to the battle, she would reach him the shield, and tell him to come back "with it or upon it." The Medicean Venus is Roman, and represents the time of the emperors, when Nero burnt up half the city of Rome to see how such a conflagration looked, and Heliogabalus harnessed eleven thousand young ladies of Rome to draw his triumphal chariot through the streets. She is still softer and sweeter than Venus from Milo, but without dignity. She still is the goddess of beauty and love, but she has been harnessed to the triumphal chariot of the emperor's lust. She has lost that shield behind which beauty and love must be sheltered or upon which they have to die; she has lost the purity of her mind. She can still be loved, but she herself cannot love; she is coquettish. Thorwaldsen's Venus represents our time. She is soft and sweet and pure also, but she is no goddess. She is not at all coquettish, but she is as little heroic. She is a modern woman, in spite of the ancient myth arrayed around her. She meditates—and I do not know but some difficult words of the Bible about the reverence of the wife to her husband or a speech of Miss Anthony about woman's rights may be the subject of her meditation. At all events, the apple she holds by her hand is not that which Paris gave Venus on Ida; it is rather that one which Eve reached Adam in the garden of Eden. To feel the eminent beauty of these three statues, and understand the difference of their beauty; to see the soul that unveils itself through each of these three figures, and read the different ideas which different ages have manifested in their bosoms, is to have taste of sculpture. But this is of no practical use to the coach-maker.

But let us examine these statues with another object; namely, to study their lines. Let us step around one of them slowly, and with eyes fixed upon the outlines, marking how they change. No line can be pointed out as beginning or ending at any distinct point, as can be done with the lines of a house. They are infinite, like the lines of a ring. Neither can any of them be construed as a circle or oval or spiral, or suggesting any geometrical or mechanical form. They are living. Like a stream, they run through all possible curves. This has a peculiar effect, and at last it will seem as if it *were not you* moving but the lines of the figure which begin to move and become living before your eyes. When we are able to feel the effect of these lines, and understand their meaning, we have acquired a taste for lines, and if our imagination directs the head in drawing a line, thereafter we will instinctively imitate them and produce a similar effect. This faculty is of the utmost importance to the coach-maker. Two carriages may be made of the same materials, and with equal skill and attention, and they may be equally heavy, yet one may be made without any sense of the influence of lines, and look as if it required four elephants to move it, while the other has been made with consummate taste, and looks as if it would run of itself. Which of these two carriages is the best? And which will pay best?

History proves by many instances the ennobling influence upon the mechanic of the study of sculpture. Thorwaldsen was undoubtedly the greatest modern sculptor. He was a Dane, and lived partly in Copenhagen, partly in Rome. As he grew old he drew up his will, and being a bachelor, he made the city of Copenhagen his heir. After his death, the city raised a monument in honor of him, and, from its sublime idea, it is grander and more beautiful than any other in the world. A large,

square building was raised over his grave as a mausoleum, and in it were placed all his works, from the smallest sketch to the most elaborate bas-relief. Thus the very thoughts and deeds of the man, the ideas born of his soul and the works of his hands stand upon his grave to be admired and to be imitated by the world. A crowd of people throngs these halls whenever opened, and to visit Thorwaldsen's Museum is, in Copenhagen, a part of the laboring man's holiday. Many mechanical apprentices go there and study. Since the opening of this museum, the Danish house-furniture has taken the best prizes in all the great world-expositions, and it is believed that the taste thus displayed has been one of the direct results of the educational influences of the museum. The study of sculpture has power to educate the taste of the carriage-maker in a similar manner.

COPAL OF ZANZIBAR.

Among the specimens of vegetation growing along the coast of the bay of Dan-Salam, in the southern end of the island of Zanzibar, is the *Trachylobium mossambicense*, which the native inhabitants call *M'ti-Sandaruski*, or the tree of copal. A resinous, translucent, hard and brittle exudation is found on its trunk and principal branches. The upper branches, too, exude a resin which, however, is never found in a liquid state, from whence it may be justly inferred that it concretes and hardens very soon after its exudation. On account of its brittleness it cracks from the branches by the least movement. Insects are often found inclosed in such pieces, all of which present a uniform surface, as if they were polished, but none of them show that rough surface, called goose-flesh, which is characteristic of all fossil gums found in the earth. This sort is carried in large quantities to India, but as yet does not reach Europe.

After satisfying himself that the *Trachylobium* was the source of a sort of copal, Mr. M. T. Kirk, who has made considerable investigation into this subject, has admitted that the old copal of Zanzibar, well known in Europe as a half-fossil resin, and commonly used in the manufacture of varnishes, was likely to be a product of the same tree.

There are three different sorts of copal of Zanzibar, which the merchants distinguish by color, surface, general appearance, and other indications, and which they further subdivide. The first sort is called *Sandaruski-M'ti*, or copal of tree, and the second *Chakazzi*, or copal found in the earth, which, however, is similar to the first and of the same value. The third sort, which is the true copal *Sandaruski*, is, as the second, found in the earth, but it is harder, less soluble, and commands more than double the price. This last sort comprises the largest quantity of Zanzibar copal, and often 400,000 kilogrammes, worth 1,500,000 frs., are exported during the year to Europe.

The *Trachylobium mossambicense*, which, as shown, affords the first sort of copal of Zanzibar, the tree copal, grows along the coast of Mozambique as far as Lamo, from the 10th to the 15th degree of southern latitude. It is very frequent between Delgado and Monbos, abounding near the bays and the banks of the rivers, but it grows rare at a short distance from the sea, and still further inland it disappears. The second sort, *Chakazzi*, is found clinging to the roots of the copal-tree, and it is, as Mr. Kirk has ascertained, really the same sort as the first, but mixed with the third. It is found only in the neighborhood of forests still living, where the third sort never is found, and it is evidently a fresh resin which has fallen to the ground a little after the decay of the mother-tree, though still fresh enough to receive and preserve impressions from sand, stones, or other hard bodies; but crafty people understand how to mix these inferior resins from the coast with those more valuable from the inner land.

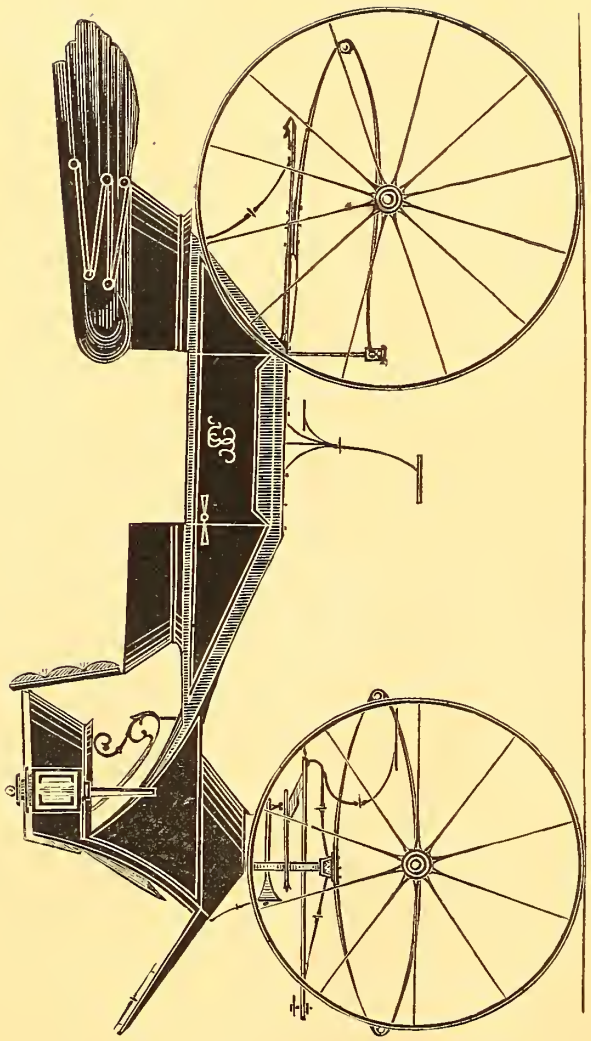
The true copal is undoubtedly a product of forests which have been destroyed; no living tree gives such a product. It is only found in the woodless inner land, where the native inhabitants dig the soil, when softened by heavy rain-storms, searching after the resin, to sell it to the foreign merchants. This fossil resin, when compared with the fresh one, resembles it in its physical character, but it affords no true evidence of being produced from the *Trachylobium*. The insects inclosed in it are all winged insects, and the leaves which sometimes are found inclosed in it together with the insects do not seem to belong to the copal-tree. Yet, when it is remembered that the resin hardens very soon after exudating, and that it cracks from the branches just at the time when leaves and flowers are in full vigor on their tops, it is evident that leaves of the shrubbery growing below the copal-tree are more likely to be found in the exudations than those of the tree itself.

Such is the origin of the copal, which forms one of the principal ingredients of coach varnish, and such are the three principal classes into which Zanzibar copal is divided.

A RARE OPPORTUNITY.

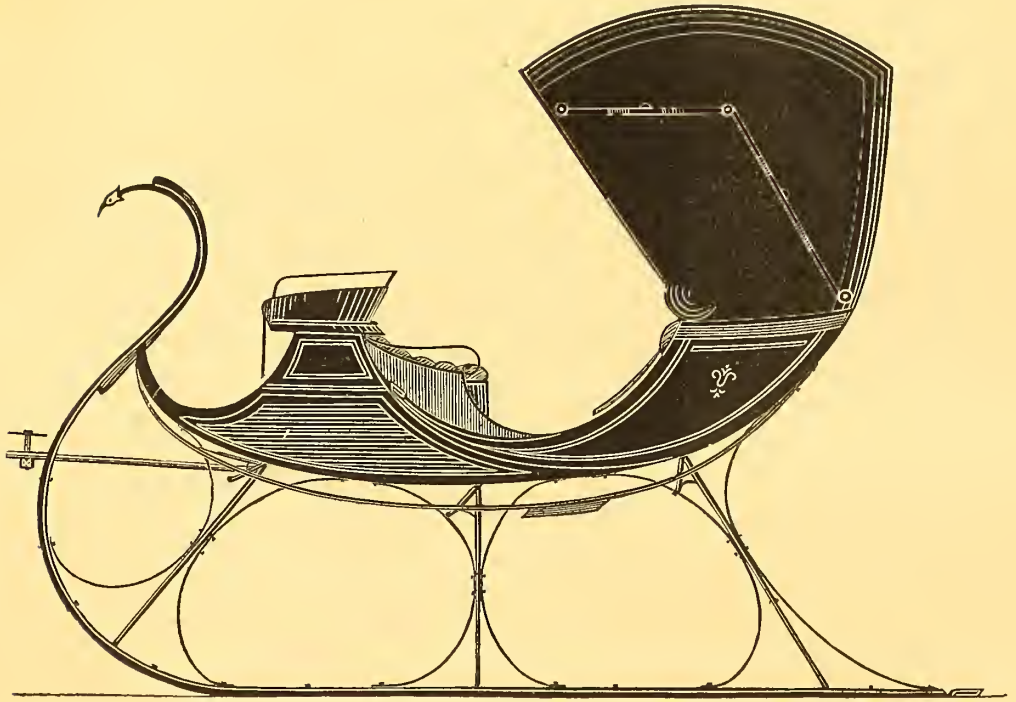
The proprietor of an old established carriage business in an important and growing city in Massachusetts is desirous of retiring on account of age, and wishes to find an enterprising man who is a draughtsman and body-maker, with a little capital, to go on with the business and take a half interest in connection with his son, who is also a carriag-emaker. As the party is an old and valued friend, we are enabled to recommend this offer as a desirable one, not often met with. All inquiries may be addressed the Editor of this Magazine, when particulars will be given.

Coach-Builders' Library.— We have prepared the list of books relating to coach-building and its branches, as heralded last month, but it is crowded out from the present issue. We shall present it in the next number, and meanwhile would be glad to receive further assistance from our friends in extending the list.



PARK PHAETON.—½ IN. SCALE.

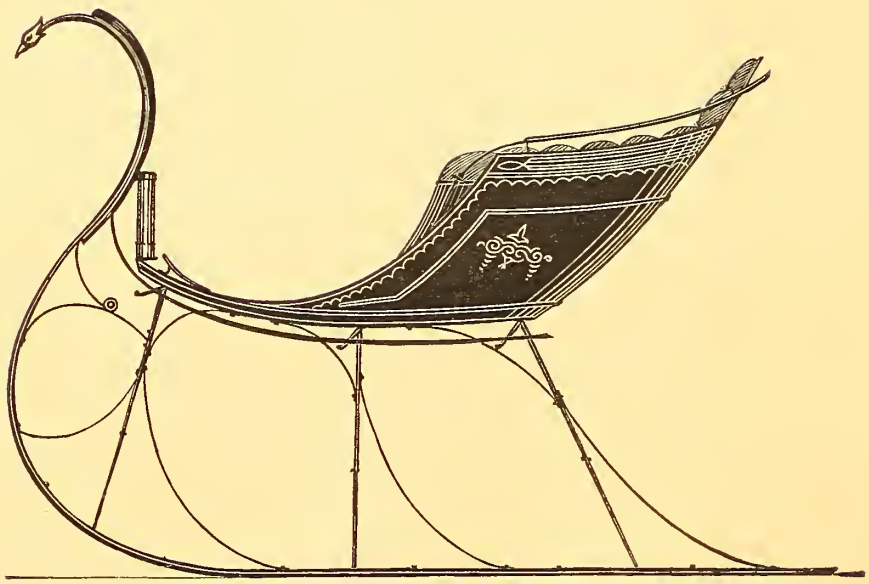
Designed expressly for the New York Coach-maker's Magazine.



SIX-SEAT HALF-TOP VICTORIA SLEIGH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

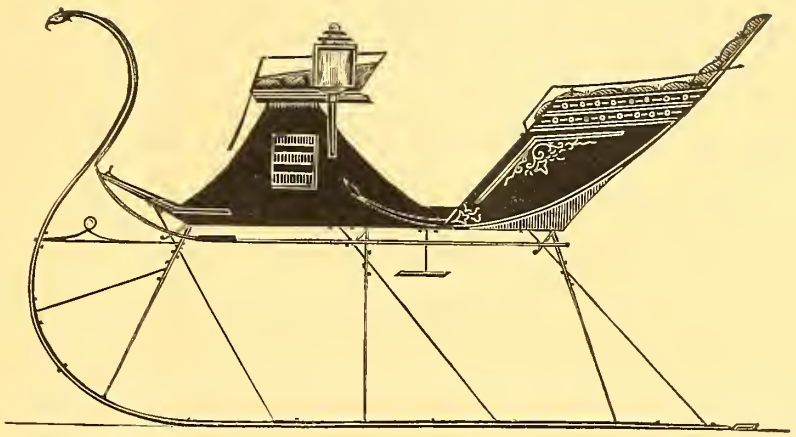
Explained on page 58.



EXCELSIOR PORTLAND.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

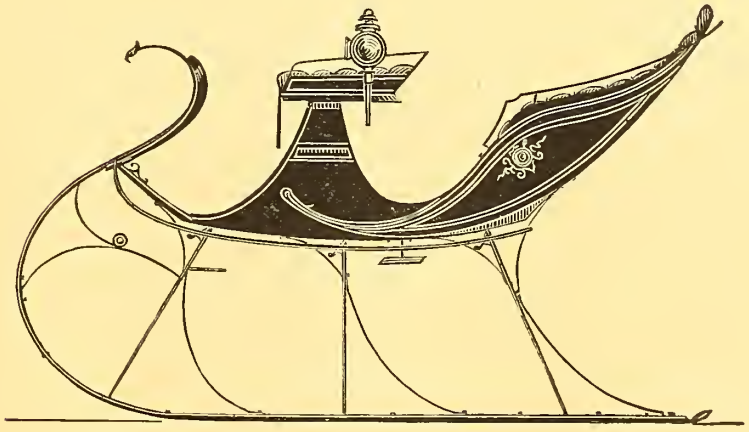
Exp'ained on page 58.



IMPROVED CUTTER.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 58.



VICTORIA CUTTER.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 58.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, SEPTEMBER, 1870. No. 4

BUSINESS IN CALIFORNIA.

The Pacific Railway has given an impulse to the emigration to California, and large numbers of mechanics from the eastern states are going thither daily. We have received requests from various sources to give a detailed statement in regard to the present condition of business in California, and particularly in San Francisco. We have taken pleasure in making these inquiries, and in the answer which we herewith give, we are indebted to a considerable extent to statistics which have been forwarded to us from California in the form of reports and newspaper articles.

In the first place, it should be fully understood that although life is generally easy in California after one has become established in business, it is a difficult place in which to make a start. Having obtained employment, the road to success lies in paying due attention to the strictest rules of business, and there is no country in which this course pays better than there. The mechanic must endeavor to become very skillful in his trade, for there is no place in which a good workman gets better pay or is more sure of employment. He should stick to one place and one business as far as possible, and moreover he must be content with slow and sure profits, for there is so much wild speculation in California that strangers often imagine it is necessary for them to take part in it, and they lose their money before they suspect that they are in peril. Wages are high in California. The best evidence of the precise rates is found in the reports of the California Labor Exchange, which furnishes employment to about one thousand persons each month. The report made in June last says:

"The truth is clearly that the supply of laboring people has not been, and still is not sufficient to meet the necessities of the country, and that our laboring classes are the most prosperous, and ought to be the happiest people in the world. The demand has been practically for common laborers, farmers, carpenters, miners, blacksmiths, cooks, boys, etc. Servants, who, in Great Britain and in the Continent of Europe, command about $40 or $50 a year, have been eagerly engaged here at the rate of $20 to $40 per month as fast as they have offered. During the fourteen months preceding June, 1869, employment was furnished to 18,600 persons."

Among the 18,600 mentioned above were included the following classes, and we have extended the wages paid them, as shown by the same report of the Labor Exchange:

Occupation.	*No. employed.*	*Wages in Gold.*
Blacksmiths	350	$60 to $100 per month, and board found. $ 2 50 to $ 4 00 per day.
Blacksmiths' Helpers	42	$ 2 00 " $ 2 50 " "
Coachmen	18	$30 00 " $40 00 " month, and found.
Cabinet Makers	87	$ 2 00 " $ 3 50 " day.
Carpenters	1,445	$ 3 00 " $ 4 00 " "
Carriage Painters	32	$ 3 00 " $ 4 00 " "
Carriage Builders	8	$ 2 50 " $ 4 00 " "
Farm Laborers	1,762	$30 per month in winter—$40 to $50 per month in summer, and board found.
Harness Makers	39	$40 00 to $65 00 per month, and found.
Hostlers and Teamsters	58	$30 00 " $50 00 " " "
House Painters	182	$ 2 50 " $ 4 00 " day.
Ship Smiths	10	$ 3 00 " $ 4 00 " "
Wagon Makers	34	$ 3 00 " $ 4 00 " "

It must be understood that the wages which are shown above are those actually given in May last to mechanics whose situations were obtained through the assistance of the Labor Exchange, and, probably, they do not show the highest rates given, as the best workmen can generally find employment without their help. Mechanics who work by the day get from $2 50 to $6 per day, and common laborers from $1 50 to $2 50 per day, or from $25 to $40 per month. And all the prices which we have mentioned are in gold, it must be remembered. Indeed, by careful examination, it appears that the rates are from 20 to 100, and, in some cases, even 200 per cent. higher than those paid to the same classes of laborers respectively in New York city. The wages of Chinamen are 75 cents to $1 a day, if they find their own board, or from $18 to $20 per month, if it is found. Those who are "found" usually understand some English, and have skill which the others have not.

It is much easier to get employment in rough or mechanical work than in clerking or keeping books; and persons who have no money and no friends able to assist them, and no special knowledge that will certainly find

them employment, should not go to California with the expectation of an easy life. It is the men who expect to make a living by the shovel, the plough the plane, and the axe, who are wanted. The factories are few and small relatively, and in many departments the high wages make it impossible to compete successfully with the cheaper labor of the Eastern States and Europe. A few articles are excepted from this rule, most of which are bulky in proportion to cost, or inflammable.

In the manufacture of carriages California has progressed very rapidly, and is now very nearly self-producing in this particular. Indeed, since 1860, the exports of carriages have fallen off at least 90 per cent., the cause being seen in the fact that since that time there have been established several large carriage factories, where good work is produced at a price that is lower than the imported. There will appear no reason why this should not be the case, when it is borne in mind that all the workmen, as well as the greater part of the material, come from the Eastern States. It is said that the leading builders in New York get a higher price for their carriages in their own warerooms than can be obtained for the same when brought here; and the ruling prices of New York are generally higher by 10 or 15 per cent. than for the best work produced in San Francisco.

The manufactures of California are now nearly all in San Francisco, and are driven by steam; but there is an abundance of water-power along the base of the Sierra Nevadas, and there are many unoccupied sites for steam factories better than any now in use. There is room for great development of manufactures on the coast, and those persons who are establishing themselves there, so as to take advantage of the turns of events as they come, stand in a fair position to make fortunes. The building up of extensive mechanical industry is inevitable. The great distance of California from the North Atlantic States will make continued importation of many articles impossible; and an additional protection exists in the fact that in consequence of the national debt, the high tariff will probably be continued many years.

The fare from New York to San Francisco by the Pacific Railway is $140, currency, for first-class passage, and $110, currency, for second-class. It takes six days to travel these 3,300 miles. From Boston, the Erie Railway now offers first-class fare for $139.25. It is very probable that the fares will be reduced as soon as competition grows, and as the distance is shortened by opening new routes. Even now emigrants are carried in freight trains from New York to San Francisco for $75.

In regard to the expenses of living the California *Alta* says: "The price of boarding without lodging in the best hotels in San Francisco is $12 per week, and the ordinary charge at good hotels is from $2.50 to $5 per day. The charge for board and lodging for poor people is from $20 to $40 per month, and for those who have means to live comfortably it is from $40 to $75. Houses well furnished, with six or eight rooms, bring from $30 to $40 per month when on retired streets, and from $40 to $80 on fashionable streets. In the smaller towns, the rents are from 20 to 50 per cent less. The cost of living is greater in California than in any other country, but it is not so great relatively as the rates of wages and the general profits of business. Indeed, the wages are so high that a man with a good trade and economical habits can accumulte a little fortune in ten or fifteen years, by putting his money in the savings bank, which is, next to a home and a man's own business, the best place for money. The savings banks generally pay ten per cent. per annum and the interest compounds semi-annually, so as to double the principal in eight years."

In conclusion we append several rules which are applicable to persons making a start in business in California as well as elsewhere.

1. Stick to your craft and master it thoroughly.

2. Be industrious, working as hard to *save* a dollar as to *earn* one, living within your income, and laying by something every month, no matter how little it is.

3. Invest no money in business which you do not understand, or which you cannot oversee. If its conditions are different from those to which you are accustomed, commence slowly that you may learn the changes and at little expense. Beware of speculation.

4. Before leaving home, read carefully all the accessible books about the parts into which you intend going. To those who intend removing to California, we would refer them to the following books to begin with: "The Resources of California," by John S. Hittell, which treats of the climate, botany, agriculture, mining and scenery of the State. A similar work is "The Natural Wealth of California." "The Report upon the Mineral Resources," by J. Ross Browne, is devoted mainly to the mines.

As a rule, we are opposed to hasty and extensive emigration, but in a new country like these United States it is but a feature in its natural growth. To those desiring to emigrate, we know of no State which offers such advantages and so brilliant a prospect, and we believe that where the right sort of men take the step, and make up their minds to follow the ordinary rules of business energy and business prudence, California will make them a good home in the end.

COL. B. C. SHAW, OF INDIANAPOLIS.

WHEN the tocsin of war was sounded in 1861, thousands of brave hearts left the arts of peace behind and rushed to the defense of the starry flag; and then, again, after the fire and smoke of the conflict had cleared away, many returned to their office or workshop, quietly resuming the duties of civilians, and performing them as unostentatiously as they had done in acquiring distinction and honor as soldiers. That a man can be alike efficient in the storm of battle and the quiet walks of life, is illustrated by this sketch.

Col. B. C. Shaw was born at Oxford, O., in 1832, in which vicinity he remained during his early years. He received but a limited education in a country school, which was only open for three months during the year. In 1845 his father died, leaving him to the care of a mother who, though poor in purse, was rich in those Christian virtues which make a woman all that a woman should be; and to the precepts and principles instilled into him in childhood, by his mother, Col. Shaw attributes whatever success he may have achieved.

At the age of sixteen, having placed his mother in the most comfortable situation their limited means would permit, he started, on foot and alone, for Greensburg, Indiana, to become an apprentice in the shop of an older brother, who was carrying on the wagon trade at that place. Here he served his time as an apprentice, worked as a journeyman, and became a proprietor, in a small

way, until 1861, remaining at that town all the time, with the exception of two years, when he was out "on a tramp" as a journeyman.

In 1861, Mr. Shaw considered himself one of the seventy-five thousand loyal able-bodied men called for by President Lincoln to suppress the rebellion, and enlisted for the three months' service in company F, of the 7th Indiana Infantry, of which he was unanimously elected Second Lieutenant. Upon the organization of the regiment, Mr. Shaw was made First Lieutenant, and so served during the three months' service, in West Virginia. When its term had expired, the soldiers satisfied they had done their duty at Phillipi, Laurel Hill, and Carrick's Ford, were welcomed home with much enthusiasm.

Mr. Shaw did not intend to immediately re-enter the service, although war still raged on the Potomac, but the reverses at Bull Run and elsewhere made him think his duty was in the field, and required him to help recruit the grand army which was to drive back the rebels, now pressing forward elated with success. So, in August, 1861, he called some of his former comrades around him, and commenced the reorganization of his old company, and in five days the ranks were full. The company was organized as Co. G, of the 7th regiment, for the three years' service, Mr. Shaw being captain. The regiment, as is well known, served with great distinction in West Virginia, under Reynolds, Lander, and Shields, and in the army of the Potomac. In more than a hundred battles and skirmishes, the red blood of these sons of Indiana ensanguined the soil of the Old Dominion.

At the battle of Greenbriar, Captain Shaw was promoted to be major of his regiment for meritorious service. At the first battle of Winchester, where Gen. Kimball met and disastrously defeated Stonewall Jackson, Major Shaw performed a more rash and perilous act than one would suppose him capable of, judging from his quiet and unassuming manner. In the charge of the brigade on the celebrated stone wall, behind which was posted a battery and seven regiments of rebel infantry, they were led in close column within sixty paces of the rebel front, while grape and cannister cut through the ranks by platoons. The moment was critical; no order had been given to deploy into line, and the column had, of course, come to a halt. At this juncture, Major Shaw, growing impatient at the delay and slaughter going on, rode into the middle of the column, and ordered the deploy movement of the two regiments. This placed him in an extremely hazardous position in front of the enemy, where the bullets were flying thick and fast; his horse received five bullets through the body, and was killed, and Major Shaw was dashed to the ground. Here he lay, unconscious of what was going on, during the battle, while his gallant comrades, thanks to his daring, were deployed, and whipped the rebels.

From the effects of the injuries received in this battle, and the extreme hardships and exposure of the next three months, Major Shaw's health rapidly declined, until it was impossible for him to be of any service to the Government, and he, therefore, resigned his position, and returned home to recuperate and to attend to private affairs, anticipating that the comforts of a home would soon restore him to health.

In 1863, Col. Shaw became so reduced in health that his life was despaired of, and Gen. Rosecrans sent him a discharge, accompanied by a complimentary special order.

After his return home he came to Indianapolis, and formed a partnership in the carriage business with Mr. S. W. Drew, on Market street, which continued for two years, when, in 1865, Col. Shaw started business by himself, in a small way, on Georgia street, where his present establishment now stands. His trade steadily increased until November 29th, 1868, when a fire swept away the earnings of years. The fire occurred on Saturday night, and on Monday, workmen commenced clearing away the debris, and rebuilding the shops, and business recommenced.

Early in the year 1869, a new partnership was formed with Mr. S. R. Lippincott, of Richmond, Indiana, and Mr. Conner, who had been a partner of Col. Shaw, at Greensburg, and had conducted business at that place for the firm, while he was in the army. The partnership still continues, and the firm is one of the best and most prosperous in the State, their business last year amounting to $90,000.

PUBLIC DRIVES.

Most of the capital cities of the Old World have one source of healthful recreation entirely unknown among us. I allude to what may be called their public drives.

The Romans have theirs on the Corso, one of their principal streets, about two miles in length, inclosed with public buildings and splendid palaces. The Viennoise have their favorite public drives on the Prater, a beautiful wood near Vienna, tastefully laid out for the purpose, and commanding fine views of the neighboring mountains. The Berliners have their public drive in their Unter den Linden, one of their principal streets, one hundred and seventy feet wide, and adorned with stately lime trees. The Parisians have their drive in the Bois de Bologne, a beautiful wood near the gates of Paris, adorned with lakes, jets, fountains, statues, and flowers. The Londoners have their drive in Hyde Park, one of the finest drives in the world, situated in the very heart of London. The Havanese have theirs on their beautiful Passeo, just outside of the city, and the Mexicans have theirs on their Alemada, a long, wide, and splendid avenue, in the city of Mexico.

Those public drives do for the whole body of the people of a given city what the drawing-room does for only a very small and a very select part of them; it brings them together at stated periods of the day. The public drive is a citizen's levee in the open air. Instead of the usual cake and wine, there is air and exercise. Instead of the accustomed cards and compliments the guests look out upon the sky, and venture or not at the beck and call of the sun and the clouds and the winds.

All the principal families in those cities, make it a point to appear on the drive at a certain time or times in the day or evening. Every conceivable style of jaunty and elegant equipage and turn-out may then be seen, from the cabriolet of the humble cit, to the coach and four, footmen and out-riders of the duchess, and the courtier, or of royalty itself.

On many of the best planned and conducted of them the carriages move up the way quite slowly on one side, and return on the other; so that friends and acquaintances on the drive are quite sure to meet and find an

opportunity to salute, if not to exchange congratulations with each other. The space between is occupied by equestrians, who are privileged to pass from carriage to carriage, where they happen to have friends, paying their respects and greeting each other. Where those public drives have become one of the social and recreative institutions of the people, as in the places that I have named, they constitute decidedly the most striking, the most pleasing, and apparently the most popular, cherished, healthful, and invigorating source of enjoyment in the whole city.

It is said that a Roman family of patrician blood would sooner give up one meal a day, and keep to their beds all morning to save firewood, than forego their drive on the Corso. The Viennoise, from the Emperor down, every evening flock in crowds to their beautiful Prater, overlooking the Danube; some in carriages, some on horse-back, and more on foot. The drive in Hyde park is peculiarly the show place of all England. There the stranger will see in one day more of the beauty and fashion of Great Britain, more of her statesmen, orators, poets, and divines, more illustrations of her wealth and her social customs, than he could see elsewhere with the aid of the best introductions in a month. It is a grand drawing-room of the privileged classes of the whole realm, and its windows thrown wide open to observers.

Nor do these drives constitute a source of recreation for the independent and privileged classes alone. Most of these public drives are lined with wide and well-shaded sidewalks; and these, at the same time, are usually well filled with pedestrians, who seem to enjoy the pagentry as well as the best mounted and provided on the drive.

It can readily be conceived that those public drives, where social union is added to healthful exercise and sweet air, should draw out daily very many of the invalid and the indolent, who would hardly avail themselves of the privilege, if that air and exercise was to be taken, as with us, without the savory salt of sociability. There is no one thing in all the world that so charms and cheers the heart of man as the sight of the human face and the sound of the human voice. For those he will leave instantly all other sights and sounds in the universe. But if, as on those great public drives, it is a place and occasion where acquaintance meets acquaintance, and friend meets friend, where notabilities congregate, and where man and woman both appear in their best estate and happiest mood, it is easy to see that it must constitute a most efficient aid and incentive to healthful recreation.

Now, while our country is young, while our cities are growing, and what is now the suburbs of the town will soon be the center, is the time for our citizens in every part of our land to move in this matter. No city should be without its great public drive. The time will come, and soon enough, too, when it will be life almost to the infirm and the invalid, length of days to the man of leisure, health and cheerfulness to the confined and weary, and a great ever-increasing public blessing to each and every one of her citizens, as well as to the stranger within her gates.

Some of the American cities have already moved in this matter; and among these prominent American parks may be mentioned with pride the great and justly celebrated one of this city, Prospect Park of Brooklyn, Fairmount of Philadelphia, and Druid Hill of Baltimore. For some time past Boston has been discussing the subject; and, before long she will, doubtless, be provided with a place more suitable for the wants of the public of that city than Boston Common now is.

We suppose that coach-makers understand what a great help lies in the establishment of these pleasure grounds. The value of the result which accrues to them is beyond all estimate; for parks not only increase the demand for carriages very much, but they cultivate the taste, and thereby improve the styles. If a man has no pretty place in which to drive, it is useless for him to keep a fine pleasure carriage; but if such a place is afforded, and all his neighbors and his friends are seen there, he finds a carriage a necessity; and if he does not, his wife will. Every carriage-maker should say a good word for the park. It is his benefactor.

SONG FOR HOOAM AN' T' SHOP.

TUNE—"*Oh! I've just mended t' fire wi' a cob.*"

An English friend has kindly written out for us this old Yorkshire ditty, which, we think, will interest many of our readers. It is a puzzle, as it abounds in colloquialisms which obscure the meaning in some cases, but the moral is good.

NAH, lass, oh've brout t' money to neet,
Wechaht even 'avin a gill;
For wonse tha shall doo as tha loikes,
An' spend it just which way tha will;
But tha knows t' house mun look strait and clean,
If oh'm not to be allis gooin' aht;
If oh fond ony comfort at hooam
Oh should'nt gooa rakin abaht.

Tha knows when oh goo ta t' Cross Keys
Oh havn't ta wait for me tea;
Y'beers ready as soon as oh call,
An' o'hm oll reight at wonse—dost 'a see?
There's allis a reight jolly fire,
And t' papers fur them as can spell;
An t' landlord as pleased as Punch,
To 'and yer a leet wi a spell.

But tha knows as oh'd rayther cum hooam
An' 'ave a warm drinking wi' thee;
If tha would but 'ave t' things reight and square,
An' oh' addent ta wait fur me tea.
Sooah nah shall see what ta'll do:
Here's thirty shillin to spen;
That's enough to buy all we shall want,
An' tha'll 'ave summat left fur thysen.

There's a stake i' th' oven just dun;
An' here, ready mashed, is thee tea,
Here's sum bread at oh've just baked mysen,
An' sum butter as fresh as can be.
Tha 'll find it far better than beer
Wi' thee stomach and 'eead ta agree;
Tha shall ollis 'ave comfort enuff,
If tha'll but bring t' money ta me.

Ther's a clean shirt on t' astner ta warm,
Soa get thysen weshed when tho's dun,
An' we'll then 'ave a short woke dahn't tahn,
Ta see if ther's oun goin' on;
An' oh mon't forget while we're aht,
Ta get some new shirtin' for thee.
Tha shall ollis 'ave comfort enuff,
If tha will but bring t' money ta me.

An' soon tha 'll be able ta get
A new sewt o' cloas ta the back,
(A noist sewt for Sundays tha knows,)
Wechaht 'aving ta gooa ta t' cheap-jack.

Oh shud loike ta see thee look spiff
As when furst oh kept cump'ny wee thee.
Tha shall ollis 'ave comfort enuff
If tha will but bring t' money ta me.

An' we'll get toathy moor thing fur t' house,
A cloek and a bit of a rug,
A sofa an' a' arm chair for thee,
Fur oh know as thee loikes to be snug;
An' tho'll seehah I'll keep it all streight,
An' as clean as a palace fur thee.
Oh'll defy t' Croo Keys or owt else,
If tha will but bring t' money ta me.

THE PAINTER'S SECRET.

Continued from page 40.

THE sad convoy slowly made its way through the streets till it stopped in front of a house, the windows of which were all closed, with the exception of the two upper ones—those of Castano's room.

"He is not in bed yet," said one of Domenico's servants.

"He is never idle," returned the other; "I believe he paints in his sleep!"

"Haste! Let me but see him!" the dying man faintly uttered.

One of the attendants pushed forward before the rest, to give some little notice to Castano of the catastrophe. Had a presentiment of the fearful sight that awaited him preceded the announcement, so that, as the door opened, Castano appeared panting, as if after a long race, and gasping for breath, with laboring chest and dilated eyeballs, as if under the influence of some terrible nightmare? None doubted but that it was the sudden shock thus breaking upon the late vigils of this devoted lover of his art that had made him thus—with cheek pale with horror, and palsied limbs, and teeth chattering together—stand gazing on the form of his murdered friend. The bearers now laid their sad burden on the bed, displacing a dark mantle as they did so.

Had the fresh blood-drops staining its folds been there previously, or had they fallen from the dying man as they lifted him to the couch?

And now Domenico took the cold and trembling hand of Castano, and, feebly but tenderly pressing it, said to him, in broken accents—broken, not by his own groans but by those that every moment burst from his pupil.

"There is no hope. I know not whence came the blow. I had no enmity to any one, though I had no friendship for any one save you, dear Castano! I did not know that you loved me so much. This box contains my will, and in it is my secret. I ask you only to finish this—my last picture. Pledge yourself that this will be done to-morrow."

Castano spoke not, moved not. His whole attitude, his every feature, told not of grief, but of desolation and despair. All night he sat by the couch of Domenico. It was a relief to turn from that ghastly face, and the glare of those tearless eyes, to the countenance of the dying man.

The old painter lingered until the middle of the next day and then expired in the arms of his heir. That very day, to the surprise of all, Castano set to with vehement energy, and the picture was finished with coloring of extraordinary richness and brilliancy, and of the same consistence and durability as that of the master. The longing desire of his soul was gratified, the object of his life attained; but how different was now the estimate of the object, and the price he had paid!

He had murdered his friend that he might put oil a few years sooner in his coloring!

The shout from the pupils, whom he had assembled, as they supposed, to exhibit to them the proof that he was indeed master of the secret for which they knew not that he had paid such a fearful price, was hushed into a dead silence as they gazed upon him. Instead of the triumphant glance of successful art, they met the despairing look of that sunken eye; instead of the cheerful accents of hopes of future unchecked progress, they heard the hollow tones in which he told them his work was forever ended, his purpose forever broken off; and instead of proud self-gratulations and haughty consciousness of being their master, and henceforth unrivalled amid his cotemporaries, there came the confession of his wretchedness and guilt, and solemn warning to beware of the sophistry that deludes into the belief of exceptionable exemption from keeping the universal and immutable law of God, in fancied peculiaritiy of individual circumstances.

"I succeeded in deceiving myself; but God is not mocked, and this hand can never hold a pencil or mix a color. But," he continued, "I will not tempt you as I was tempted. The secret shall be yours."

And he instantly read for them Domenico's will. And thus it is that the artist's cherished secret—the secret of painting in oils, the art of staining indelibly—has, from palette to palette been transmitted to us of later generations.—*Western Soldier's Friend.*

CARRIAGE LIBRARY.

A LIBRARY is a powerful educator, and we believe it would be of great value to both employer and employes if a well-selected one, consisting mostly of mechanical books, were established in each large carriage factory.

In order to illustrate how good and practical a library for carriage-makers can be made up, and to render more available the suggestion we have made above, we present the following list of books and publications in English which relate directly or indirectly to carriage-making. We do not think this list is by any means complete, but it shows how good a beginning can be made, and we invite the co-operation of all our friends in suggesting to us all other publications of a similar nature with which they are acquainted. With their assistance we hope in a few months to present a full list of coach-making works, and we trust the show of titles will make so favorable impression on some of our readers that they will be induced to carry out our suggestion and establish a shop library.

"ENGLISH PLEASURE CARRIAGES." By W. B. Adams. Published in London in 1837.

"CHEVREUL ON COLORS." By M. E. Chevreul, Director of the Dye Works of the Gobelins in Paris. Translated by John Spanton, and published in London. Finely illustrated by 17 colored plates.

"HINTS ON HOUSE-PAINTING:" Treating of Painting and Colors, and How to Use them. By J. W. Masury, of New York. Price, 50 cents.

"HOW SHALL WE PAINT OUR HOUSES?" By J. W. Masury, of New York. Contains many useful suggestions about paints and contrasts of colors. Price, $1.50.

"PAINTER, GILDER AND VARNISHER:" Treating of

Painting, Gilding, Sign-writing, Coach-painting and Varnishing, together with appendix giving a synopsis of Chevreul's Principles of Harmony and Contrast of Colors." Price, $1.50.

"CONSTRUCTION OF WHEEL CARRIAGES:" An essay by Joseph S. Frey. Published in London in 1820. Rare.

"TREATISE ON CARRIAGES AND HARNESS." By W. Felton. 3 volumes. The copies in our possession are from the third edition, and dated 1805. The original edition was published in 1796 in London. Very rare.

"ESSAY ON THE CONSTRUCTION OF ROADS AND CARRIAGES." By Richard L. Edgeworth, F.R.S. Published in London in 1813.

"ENGLISH CARRIAGES." By F. W. Fairhold, F.R.S. Three chapters in Art Journal for 1847.

"ARTISAN'S REPORT" on Paris Exposition of 1867.

"REPORT OF JURIES," London Exposition of 1851.

"THE HUB," a monthly journal for the carriage-shop, published in Boston, and edited by Geo. W. W. Houghton. Price, 50 cents per year. 1 volume.

"THE HARNESS AND CARRIAGE JOURNAL," a weekly, published in New York. Price, $3.50.

"THE INTERNATIONAL JOURNAL," published in Philadelphia. Price, $3.

"THE NEW YORK COACH-MAKER'S MAGAZINE." $5 per year. This is now in its twelfth year. We give below a brief description of the eleven volumes which have been published and the prices at which we can furnish them.

These volumes furnish designs of about 475 vehicles, including sleighs; 750 *inside* engravings; 50 ornaments for the painter; and 50 original monograms. In a word, the contents (nearly all of a practical character) possess a *living interest*, which makes them valuable as a prominent fixture in the office of every American coach-maker. The eleven volumes cost but $35.

Vol. I.—June, 1858, to June, 1859. In numbers, $3. Bound, $3.50. Contains among other things, examples in the French rule, applied to American carriages; lessons in carriage-drafting; the history of coach-making; and the biographies, with portraits, of James Brewster, Jason Clapp, and Wm. D. Rodgers.

Vol. II.—June, 1859, to June, 1860. In numbers, $3. Bound, $3.50. Besides a variety of other matter, this volume contains lessons in the French rule; the conclusion of the history of coach-making; the entertaining biography of Caleb Snug, Coach-maker; and the biography and portrait of John C. Denman.

Vol. III.—June, 1860, to June, 1861. In numbers, $3. Bound, $3.50. Among the contents are, the Anglo-French rule; siftings from the diary of a coach-maker; William's tramping coach-maker in the Western country; instructions in painting, under the head of "Gossip for the Paint-shop;" and the biography and portrait of Robt. N. Campfield.

Vol. IV.—June, 1861, to January, 1863. In numbers, $3. Bound, $3.50. Contains—what a traveling jour. saw "out West;" rise and progress of carriage-making in England; motive-power of wheel-carriages; how to paint a carriage; and the biography and portrait of H. S. Williams, &c.

Vol. V.—January, 1863, to May, 1864. In numbers, $3.50. Bound, $4. In this volume, the motive-power of wheel-carriages is concluded; composition of paints; the Tierville Miscellany; Roman carriages; the biography and portrait of the Editor, &c.

Vol. VI.—June, 1864, to June, 1865. In numbers, $4. Bound, $5. Contains more of the Anglo-French rule; a complete history of the perch-coupling *nuisance* (with diagrams); mechanical power and friction; Ede's work on steel, complete; an amusing history of the early opposition to coaches; the biography and portrait of Henry Harper, &c., &c.

Vol. VII.—June, 1865, to June, 1866. Very scarce. Bound, $6.50. Contains a complete dictionary of coach-maker technical terms; more examples in Anglo-French carriage construction; pictures from Pompeii; biography and portrait of O. E. Miles, &c., &c. *As we have but few volumes left, we prefer not selling this one unless in a set.*

Vol. VIII.—June, 1866, to June, 1867. In numbers, $5. Bound, $6. Contains a series of Illustrations of ancient carriages; all about the clip-king-bolt affair; more of the French rule; improvements in springs from early times to the present; biography and portrait of Rufus M. Stivers, &c., &c., &c.

Vol. IX.—June, 1867, to June, 1868. In numbers, $5. Bound, $6. Contains a series of articles on Egyptian chariots; theory of colors; screw-driver discussion; French rule and a great variety of light carriages. The story of the Blacksmith's Daughter, by H. S. Williams, in six chapters, is worth all the volume costs.

Vol. X.—June, 1868, to June, 1869. In numbers, $5. Bound, $6. Contains a series of articles on Assyrian and Persian chariots; also the "Boss' Story," by the popular writer, H. S. Williams; a series of practical articles on coach-painting, blacksmithing, and trimming, and several chapters of the French rule as applied to American carriages.

Vol. XI.—June, 1869, to June, 1870. In numbers, $5. Bound, $6. Contains the "Adventures of Three Jours.," by H. S. Williams; sweeps for scale-drafting; a treatise applying the French rule to the wood-work of carriages, translated directly from the French, and including all the latest improvements; the French rule applied to the framing of sleighs; a series of articles on the science of colors, and miscellaneous articles on coach-painting, blacksmithing, trimming, etc.

In subsequent numbers we shall publish lists of coach-builders' books which have been published in foreign languages. We have some in our own library in Latin, French, German and Italian, and we earnestly request our friends to assist us in swelling the lists.

DRIVING IN NEWPORT.

THE pleasantest time in Newport is between half an hour before sunset and dark. The sky and the sea are lighted up with golden, rosy, and purple hues, that extend from one horizon to the other, and span the hemisphere with the softest and most beautiful tints. The ocean seems to be dreaming of its own calmness, and the distant sails flash up against the blended cloud and wave like spirits risen from the deep. There is a hush, a sweetness, and a beauty over all the sea that fill the mind with rest, and wreathe the future into fairest shapes. That is the time for driving, which, in spite of the absence of a beach, is the best pleasure we have. Ocean and Cedar avenues are kept well watered, so that a seat in an open carriage, behind a pair of good horses, insures a very enjoyable airing.

The turnouts here are generally handsome, but often

too showy and tawdy for good taste. Persons who claim to be sensible would do well, I think, to dispense with a liveried coachman, since he is the first acquisition that a wealthy nobody without culture or manners is certain to secure. It is easy to distinguish parvenus by their super-abundant display of liveries and coats of arms, when the fact is notorious that most of their ancestors had no arms to their coats. I do not wonder that Europeans laugh at our boasted republicanism, since the first effort of the common American, after he has made money, is to ape the nobility of the Old World. Our best people are not considered, and so it happens that we are made to appear like a nation of snobs and flunkies. Who has not been mortified abroad at the wretched folly of our countrymen, notably our countrywomen, seeking introductions at court, and obtruding themselves upon those who had nothing to distinguish them but rank and title? When will the average American learn that pretense alone is vulgar, and that the original spelling of the word gentleman was with three letters?

The most "stunning" equine-and-vehicular exhibitions are made of course by James Fisk, Jr., and after him follow Lester Wallack, John Hoey, the great believer in printer's ink, Helmbold, and various others, who are anxious to advertise their fondness for spending money for the sake of show.

CENTRAL PARK TURNOUTS.

In the Central Park there is seen as yet but one six-in-hand team, and twenty-five four-in-hands. Among the four-in-hands especially admired is that owned by Mr. William M. Tweed. The leaders are iron grays, and the wheel horses bays, with finely curved necks and graceful action. Colonel Fisk is soon to bring out his six-in-hand team, consisting of three black and three white horses. The harness for this team is thus described by a contemporary:

The bit-bosses which are to be fastened to the sides of the bits are of heavily plated gold, each bearing the monogram "J. F., Jr." The bits are of nickel plate. The martingales, which are gold-plate, are very heavy, and each of them carries a center-shield, on which the monogram again appears. The gag-drops are gold; so are the brow-bands and the coupling rings. Below each of the rings, a shield will dangle, and on this shield the Fisk monogram will again appear. The twelve rosettes to be worn by the horses will be of gold, each illustrated by the Fisk monogram. The hooks, tenits, hames, and buckles are all gold, as are also the drops, face-pieces, and pads. The hames will cost $3,000, the mountings $1,000, while the whole equipage, including horses and carriage, will cost $35,000. Over one hundred and forty monograms appear on the harness.

Paint Room.

JAPAN GOLD SIZE.

The following essay appeared in *The Hub*, in reply to a prize offer, and out of about ten competitors it was the one which took the first prize, a watch. It was written by Mr. C. O. Wolcott, who was lately a carriage-painter in the factory of Henry G. Powers & Co., of Brooklyn, N.Y., but who is now, we understand, connected with Messrs. Masury & Whiton, paint dealers, of this city. It gives a good review of the Japan Gold Size which is beginning to be come established in this country:

Why is Japan Gold Size superior as a dryer to common Japan? To this question numerous answers can be given, and after a year of experience in its use I am able to claim the following advantages:

1. It will not cause paint to crack or flake off.
2. It is a good drier, and yet elastic.
3. It is a perfect binder and hardener.
4. It is very pale and does not discolor fine paints.
5. It will resist dampness instead of absorbing it.
6. Its use insures safety against the crawling of varnish upon color.
7. The ease with which it can be worked renders it possible for a poor workman to apply a good coat of color, thereby lessening the number of spoiled jobs.
8. It is preferable because seventy-five per cent. of Japan Gold Size will do more work and better work than one hundred per cent. of common Japan.
9. It is cheaper, as we shall try to prove in the end.

I make the above claims from actual experiments, and although I do not propose to take up each point alone and to discuss each separately, I hope to touch every vital point, and, if possible, to convince every practical and unprejudiced mind that the claims for Japan Gold Size are but *simple facts*.

It is a fact well known among carriage painters that common coach Japan is a brittle, lifeless substance, and so far as durability or any binding qualities are concerned, it is worthless. It is also very dark, and its use affects very materially the beautiful tints of our finest colors. Now, we will suppose that all first-class shops are using the Permanent Wood Filling, and if there are any who are not using it, let me say to all such that you are standing in your own light, and sooner or later you will discover that the men who keep pace with the age are excelling you in *time, finish, and durability*. Every painter who is not fortunate enough to hold a position in a shop devoted exclusively to the building of new work, knows that there are a multitude of small jobs to be done, such as spokes, hubs, parts of rims, perches, shafts, springs, and axles, etc., and those small jobs are looked upon by some as of very little consequence. But painters who are alive to the interests of their employers know that all such jobs are of *vital importance*. We are often expected to finish such work on the same day we receive it from the wood shop or iron worker's, and we are also expected to do them in a manner that shall make them lasting. Just now, let me ask—*have we ever been able to do this with lead and oil?* If this is not accomplished, how soon are we painters assailed as worthless. It is just here that the Permanent Wood Filling and Japan Gold Size step in, and in them the painter finds two friends which will insure him speed and durability in his hurried work. To illustrate this, let me give an example.

I receive, say, at 10 A. M., an old wheel in which five new spokes have taken the place of as many broken ones, and I am told that it will be called for at noon. I apply a coat of P. W. F. to the spokes, then wipe it off with a cloth, and at once apply color, mixed with Japan Gold Size. The spokes can be striped in fifteen minutes, and at the end of half an hour they may be finished with varnish. I do not pretend that such is a fine job, but as

an extreme case it illustrates well. I have done hundreds of small jobs in this way, and in no case have I ever seen one crack or flake.

Again, you may apply a coat of P. W. F. to a spring or any piece of steel the last thing at night, and give it a coat of Japan Gold Size color the next morning, and it will not crack. I have known a job done in this way to run five months and show no signs of giving way. It is very justly claimed that the Permanent Wood Filling is elastic; it is especially so when applied to iron and steel, and when we find a drier and hardener for our colors that can be used directly over this elastic coat in so short a time, is it not worthy the attention of every carriage-builder in the land? I submit the question to those painters who are to-day painting by the old method, lead, oil, and Japan, and ask—Can you with such dispatch turn out jobs that will stand for any length of time? We have been using Permanent Wood Filling and Japan Gold Size upon all our work, both bodies and carriage parts, for more than nine months, and have yet to see one carriage which has shown the slightest appearance of cracking or chipping off. By the use of the two articles above named we are enabled, in building a carriage, to make a saving of at least ten days' time over the old method of painting as practiced in New York, and a saving of from thirty to sixty days as compared with carriages built in some of the New England cities. We feel perfectly willing to test our work by the side of work done by the old method, and no matter how much time has been occupied in painting the latter, we firmly believe that ours will be found equal, in fullness, brilliancy, and durability.

It is a well-known fact that if color be made too glossy from the use of too much Japan, varnish will crawl upon it. But I care not how glossy color may be made with Japan Gold Size, I have never known varnish to crawl over it. And here we derive a great advantage over common Japan, as all of our colors are not always mixed by expert workmen, and they are liable therefore to trouble the varnisher sometimes in this way. Japan Gold Size is very pale, also, and does not mud your carmines, lakes, and other fine colors. It works very free, and will not curdle when mixed with raw oil, and colors mixed with it will cover well, and will not thicken. Any color mixed with this drier will resist dampness two hundred per cent. better than common Japan colors.

But I must hasten to speak of Japan Gold Size as a perfect binder. We will take a body, give it one coat of P. W. F., and, after a proper time for hardening, apply a coat of rough-stuff, mixed with common Japan as a drier and varnish as a binder, and I admit that varnish is a good binder, if the right kind is used and it is used in just the right proportion. We rub this to a surface, and feel quite satisfied with its appearance, for it looks well to the eye and feels well to the hand. But let us take a glass commonly used as a detector of counterfeit bank-notes, and if we examine our job through this glass, we shall find, to our dismay, that what looked and felt so well is a porous substance, ready to absorb our entire first coat of varnish, and in order that the surface may not show signs of pin-holes, we are obliged to apply coat after coat of varnish until the porous surface is filled.

I firmly believe that the greater the number of varnish coats we apply, the more we diminish our chances of obtaining what is most desired, namely, a perfect surface. For who at the present day makes a perfect flowing rubbing varnish? and where is the painter who can flow a body with our common varnishes and have no imperfections. Some may say—"My surface is perfect after I have applied my four coats of varnish." It may look so to you upon close examination, but let us look at the surface from a little distance, and how do you account for that wavy appearance? I think every one will agree with me in the opinion that after the body has been rubbed out of the rough-stuff it cannot be more level. Now, if our varnish does not flow *perfectly* over this surface, each coat that we apply is surely an injury to the surface. The question may be asked very properly—"how are we to avoid using so much varnish, or how are we to prevent our surface from being porous?" To my mind there appear to be two disinct reasons for a porous surface; in the first place, our rough-stuff may not be properly ground, and secondly, our binders are not strong enough to prevent the small, hard particles in our rough-stuff from falling out instead of rubbing down. But with Japan Gold Size as a binder, and all the materials properly ground, we are able to produce a surface *solid* and *compact*, which will hold out our first and succeeding coats of varnish, and we are in the full belief that with it we can produce, with three coats of varnish, a surface nearer perfection than with four or five varnish coats.

If these things are true, and I cordially invite investigation, I think any fair-minded man will concede that every claim of Japan Gold Size is based upon valuable points. Having proved all these things, of which I have written, by actual test and experience, they are to me *fixed facts*. And now, Mr. Editor, I leave it to such of your readers as are practical painters like myself to work out a decision as to whether Japan Gold Size is not *better*, *cheaper*, and *more durable* than Japan. At another time I will give you some figures upon the comparative costs of the two methods of painting.

CRACKS *VERSUS* GRAIN.

To what an extent has carriage-making improved in this country within the present century! Could the carriage owner of 1800 look upon the carriages of to-day there would be some surprise depicted on his countenance, for there would be great contrast between the lumbering stage-coach of his day and our light and airy vehicle.

But we wish to look into the future. "Upward, and onward" should be the motto of the carriage-painter. You must not expect much of use this month, however, for it is August, and with the thermometer at 120 and 130 degrees in the varnish-room, you can conceive that our poor painters get somewhat worn out; nor do you need so much, for every one has gone to the mountain lakes and the watering-places except the painter. When he goes, it is an event.

The fashions for this month are *nil;* the spring work is all out and the heavy fall work has hardly yet commenced; so we have but little to say on that point. I propose to write a little on a subject that merits great attention, and, to illustrate it clearly, I term it *Cracks versus Grain.*

It seems that we have now reached a point in carriage painting where it begins to be acknowledged by our most *expert painters* that we must have one or the other, cracks or grain; If we fill our bodies so that the grain is entirely and effectually hidden, we must submit to see the work

made unsightly, in a short time, by *cracks*. On the other hand, if we continue the present method, which aims to avoid cracks, then the grain is liable to show, and often so badly that it is nearly as unsightly as the cracks.. This question should now be thoroughly discussed, for it is an important one to the trade.

The first point to be disposed of is this, "Is it true that we must have either cracks or grain, and if so, whose fault is it or where does the fault spring from?" If we look at painting as we remember it was done some ten years ago we shall not find the grain all standing out as it does to day, nor customers walking into the shops telling that painting is nothing more or less than a fraud. This evil has now become so glaring, and in connection with work otherwise so improved, that the customers find fault, and reasonably. A remedy must be found. I began this article for the purpose of getting the views of others rather than saying any thing myself, but as it is unusual and rather poor policy to lay bare an evil without suggesting a remedy, I will touch briefly on two causes which, I think, have effected the present state of things.

The first is *time*, want of which has *ruined* many hundred jobs, and also the reputation of the men who painted them, for, oftentimes, no excuse whatever will be allowed to the painter. Yet, painting is *the* particular branch of carriage-making that either makes or mars a job. If the painting is not good, the job is sure not to give satisfaction; and yet all the carriage bosses are so unreasonable that, while they generally give time to every other branch, they expect the deficit of time to be made up when the job gets into the paint-room, the very place where it requires least haste, both for its beauty and durability.

The second is *cheapness*. And this evil is now increasing to a frightful extent, so much so that I do not believe there are many carriage-makers who make the paint-shop pay, if they employ good mechanics to do first-class work. Jobs are often taken with the painting at so low a figure that it is known no profit can be made; but the calculation is, "Paint cheap and make it up on the other branches that the customers do not understand so much about." Now, this is unfair to the painter; for why should his branch of the business be put down to the lowest grade? For instance, when the job reaches him a discussion something like the following often takes place:

Boss. Now, I want this job rushed through as quick as possible.

Painter. Well, to make a good job of it, it must be burned off.

Boss. Oh! I can't have that done; I shall lose money enough on it now. You must just rub it down a little and putty it up. It *must* go out this day week. You can make a good job of it in that time. I only had a month allowed in which to do it, and the wood-workers and blacksmiths have occupied three weeks. I can't disappoint one of my best customers, so you must get it done on time.

Painter subsides to his work. How can we wonder at cracked paint or grain showing through. We should wonder more if it did not.

These, I think, are the two great primal causes of cracked paint and grain showing through. In one case the paint is given time to dry only in part, and then it cracks; and in the other, the carriage is only skimmed with thin, quick-drying paint, and then the grain discloses itself through its ill prepared covering. Let the painters have plenty of time and good materials, and be paid sufficiently to allow of good work, and there ought to be no trouble about cracks or grain.

I consider this subject of so much importance that I shall try to find time to say more about it in your next issue. W. H.

GREEN COLORS.

Nature produces coloring matters corresponding to each of the three primitive colors—red, blue, and yellow—and their first mixtures—violet (which is formed of red and blue), orange (formed of red and yellow), and green (blue and yellow). All of these colors are found prepared in the workshop of nature, and art has to do but little in order to make them fit for use.

It has, nevertheless, been an object of eager study and indefatigable research to modern chemists to prepare artificial coloring matters to take the place of the natural ones. Nature has ideas of her own, and these do not always suit the wants of human life. Nature is benevolent, but she is aristocratic. She produces all coloring matters in two varieties. One is very abundant, and consequently cheap; but it is dull and without permanent luster. The other is bright and brilliant; but it is extremely scarce, and consequently expensive. Some of the most exquisite of natural coloring matters are worth two or three times their weight in gold. These, of course, do not suit the common wants. It is human to desire what is best, and we are too high-born to be content with any thing less. If nature will not give us the brightest colors in abundance, we strive to get rid of the inferior ones which she has lavished upon us, and we make it our aim to produce a coloring matter bright as the best, and cheap as the poorest product of nature.

The aristocratic character of nature has in no similar case shown itself more strikingly than in producing green colors. One of its varieties, the earth of Verona, is so common that it costs less than fresh air and cold water; but it is dull and lusterless. The other, the bright and splendid variety, the Malachite, is so scarce and expensive that even artists can hardly afford to use it.

The earth of Verona is found in the neighborhood of the city from which it takes its name, and in France, Germany, Hungary, on the island of Cyprus, &c. Its color, when seen in compact masses, is a dull sea-green, but it becomes clearer when pulverized. Like all earths containing magnesia, it is soft to the touch, and smells of alumina. When decomposed, it contains, according to Mr. Bertier's analysis:

Silicic acid	51.21
Alumina	7.25
Protoxyde of iron	20.72
Magnesia	6.16
Soda	6.21
Water	4.49

A little of protoxyde of manganese.

The Malachite is found in Siberia, the Ural Mountains, Tyrol, Saxony, Bohemia, England, &c. It is a natural carbonate of hydrated copper. As a compact mass, it is variegated with different shades; but when reduced into very fine powder, it furnishes a uniform green color of the utmost brilliancy. Its price, as above mentioned, is so high that even artists must renounce it, and it is thus almost useless to mankind; while, on the other hand, the earth of Verona, which is useful enough

because of its cheapness and solidity, affords no delight, on account of its lack of brilliancy.

Of all the attempts which have been made to invent a coloring matter combining the brilliancy of the Malachite with the cheapness and durability of the earth of Verona, that which produced the so-called Schweinfurt green was, doubtless, the most successful. This pigment, which is a combination of acetate and arsenite of copper, constitutes a very valuable color, giving all the various shades of green, from the deepest to the palest. The process by which it is produced is described by Mr. Liebig as follows:

"A quantity of verdigris is placed in a copper boiler, and dissolved in a sufficient quantity of distilled vinegar; to this is added a quantity of arsenic acid dissolved in water. These liquids, when mixed, precipitate a green substance, which is removed by adding more vinegar until the precipitate is entirely dissolved. Soon after the mixture boils, a crystalline grainy precipitate of a most beautiful color forms, and this precipitate must be carefully separated from the liquid, and washed and dried. To give the product, which is a little blueish, a deeper shade, it is boiled with one-tenth part of potash, which deepens the color and gives it luster.

"If the liquid which remains still contains an excess of copper, arsenic is added; if it contains arsenic, acetate of copper is added; and if it contains an excess of acetic acid, it can be used once more to dissolve verdigris."

A color known under the name of "green without arsenic" is sometimes recommended to take the place of Schweinfurt green, and has long been retailed through Germany, and much used. It may, indeed, be used with advantage, though it has not the brilliancy of the Schweinfurt green; but it is, nevertheless, poisonous.

C. P.

RISING OF GRAIN.

A COMMON fault with carriage panels is the showing through of the grain after they have been in use for a short time. When this occurs it is generally in connection with jobs which would otherwise be very durable, for it may be stated as a general rule that the less body of paint you put upon a carriage, the less liable it is to crack or chip off. Indeed, were it possible to paint and varnish a carriage with two coats, and with a substance elastic and durable of itself, the finish would be exceedingly lasting, as the chief cause of chipping and cracking would then be removed. The remedies for cracking of paint are two: An elastic coat, and a thin one. But with a thin coat often follows the showing of the grain, and how shall that be remedied? Let us first examine the cause.

If we allow an unpainted wheel to lie on the shed during a wet or damp day the grain will rise, and it will do this by absorbing moisture into its pores and thereby swelling. If another wheel is covered with a coat of lead and similarly exposed, its grain will rise also, but to a less extent, for the lead will help to keep out the moisture, but will not do so completely as a general thing, for lead is porous. If another wheel is well coated with permanent wood filling, allowed to dry perfectly and then exposed similarly, this ought not show grain, as it is covered with a substance which claims to be a perfect anti-damp, and such is the testimony of those who use it. We see by the foregoing that the absorption of moisture is the cause of grain rising, and one important preventive is to cover with an anti-damp substance.

But even when thus covered, grain will sometimes rise, and this is often regarded as very mysterious, when the closest examination would seem to show that no moisture could have penetrated the covering. Under these circumstances we have in several cases traced the trouble to a very simple origin. It was caused by moisture, and by the absorption of moisture, but this came not from without, but from the interior of the wood itself. In other words, the wood was not thoroughly seasoned way through, and some agency had brought the moisture to the surface. We have seen a job, primed with the permanent wood filling and exposed to the hot sun, show bubbles on the surface, and on breaking them we have found water within. Of course this did not come from without, where all was dry, but it was stewed out from the interior. And thus will the grain sometimes rise upon nicely primed carriages, and of course the better and more perfectly primed, the worse the trouble, for the moisture might find way to evaporate through a coat of lead, but through permanent wood filling, this would be impossible. Some have discountenanced the latter for this very reason, but in such cases it will be seen that virtue was counted as a vice. From this we see that another important consideration in preventing the rising of grain is to see that all the wood used is seasoned perfectly.

Use perfectly dry wood, and cover it with a coating which will totally exclude moisture, and you will not be troubled by the rising of grain.

Pen Illustrations of the Drafts.

SIX-SEAT HALF-TOP VICTORIA SLEIGH.

Illustrated on Plate XIV.

WE are not much in favor of tops to sleighs, and cannot perceive their usefulness except as a sort of screen from the winds when traveling with it. In this instance the artist has set-off his design with considerable ornamentation, especially in the forward portion of the sleigh, which may nearly all be done by painting. The ground color of the body should be French gray; striping and under part, buff; and the fillings or the front quarters, Vandyke brown.

EXCELSIOR PORTLAND SLEIGH.

Illustrated on Plate XV.

THIS sleigh is drawn three-quarters of an inch to the foot, which it will be well for the mechanic to bear in mind. Portlands are becoming more and more fashionable in this country every season; the cheapness at which they can be sold proving a strong recommendation for them in the estimation of the public. There are some original points in this design, giving it a special recommendation in this instance, which we need not particularly

notice, the drawing being its own interpreter. Paint the ground blue, and stripe with orange and gold.

IMPROVED CUTTER SLEIGHS.

Illustrated on Plate XVI.

The first cutter an artist calls a "Gentleman's Promenade sleigh." How the term *promenade* can properly be applied to a sleigh we cannot understand, and therefore have left it out in our heading. Paint the groundwork of the body, lake; and the runner part, yellow; and stripe with carmine and yellow, or gold.

The second, a Victoria cutter, should be painted—the body (hind-quarter) and belt under the front seat olive-green, and the runner portion Solferino.

Trimming Room.

ARRANGEMENT OF COLORS IN TRIMMING.

In a Paris paper was recently published an article entitled "Cost of Carriages." Though valuable and interesting as a whole, it contained some rules of artistic coach-making, and, especially, rules of taste, which, even if true, would be of no practical value on account of their quaint minuteness. In publishing a translation a cotemporary pointed out those false rules by inserting the parenthesis, "This sounds Frenchy," thus guarding himself from the suspicion of any partnership.

There is one of these points of which we wish to speak, partly because it is singularly erroneous, and partly because we think a true criticism of it may have some intrinsic interest. It runs thus, "The shade of the lining, especially, should favor the complexion of the lady." It is, indeed, quite impossible to read this without smiling, for, if it contained truth, according to the principle of the division of labor, a consequence might be that we would have carriage firms which made coaches for blondes only, and others which made them for brunettes. But it contains no truth. It is a mere misunderstanding of the mutual influence of colors when placed contiguous to each other, and especially of Mr. Chevreul's doctrines about the simultaneous contrast of colors. Mr. Chevreul has shown that two colors when juxtaposed affect each other; and he has shown *how*, and *why* they do so. His observations are original and striking; but, although true and very valuable to the painter, they have, nevertheless, given rise to a great deal of misunderstanding and affectation among those who have misinterpreted them, and the ingenious author himself is not quite without fault. We think there is a circumstance influencing the laws of simultaneous contrast of colors which he has overlooked.

The laws of simultaneous contrast of colors, as established by Mr. Chevreul, are true when the two different colors juxtaposed are applied to the same body or to two bodies of the same order. If the colors, on the contrary, are applied to bodies of different kind, we think the laws are false. It is true that red and green are complementary colors, and that they are harmonious because they are complementary; also, that red, when juxtaposed to blue, will make it greenish, as the blue will impart to the red a shade of orange, according to the laws of complementary colors, &c. But all this is true only on the condition that the two colors are placed contiguous on the same body; for instance, on a wall or carriage panel, or on two bodies of the same kind—or, on the upper and lower parts of a dress; but, if the red and green colors meet each other on bodies of different kinds, for instance, on the flowers and leaves of a plant, or on the cheek of a girl and a ribbon of her hat—they may still be fully harmonious in their juxtaposition, but they are not so because they are complementary; on the contrary, their power of influencing each other according to the laws of complementary colors is lost. It is true that blue and green are unharmonious, and make each other dull and lusterless; but a blue flower among green leaves is neither dull nor discordant; and nature has, perhaps, no view more enlivening and charming than the deep-blue mountain lake surrounded by the forest of deep-green fir-trees.

When Mr. Chevreul speaks about the arrangement of colors in dress and furniture, his remarks are generally true, because he has a keen and practised eye; but his explanations are often questionable, and what with him may be called a lack, or an error, degenerates, of course, with his followers into mere nonsense, such as is displayed in the sentence quoted, "The shade of the lining, especially, should favor the complexion of the lady." The shade of the lining may be said to have no power to favor the complexion of a lady, as, upon the whole, the color of a lady's dress has to be chosen, not with regard to her complexion, which is of comparatively small consequence, but according to the symbolical significance which naturally adheres, or has been attributed to a certain color, in order to make the dress harmonious with the occasion. A corpse wrapped in red would excite amazement and disgust, but only because red is thought to be the symbol of life and activity. An old lady dressed in pink would be ridiculous, but only because pink is thought to be the symbol of spring and youth. Color of dress has nothing to do with color of the skin. C.

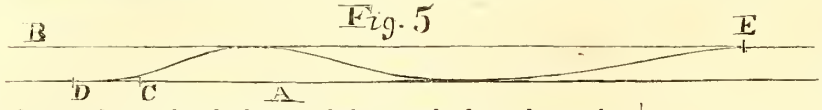
Wood Shop.

TO OBTAIN A LEVEL WHEEL.

BY P. B. J.

Presuming that our previous observations have been fully understood by the careful reader, we are prompted, according to promise in our last, to resume the task, and advance one step farther. In order to complete the former article, it is necessary to introduce a rule to lay out the perch, so that the fifth-wheel will be level when the job is set upon its wheels. This is shown in Fig. 5. First ascertain the difference between the front and back end of the perch, when the carriage is on the wheels. This can be done by ascertaining the difference there is in the height of wheels, and in the raise of the back and drop of the front axle-beds. We will say, for illustration, five inches—and draw two parallel lines, A B, five inches from each other. Next mark two points for the head-block and back axle-bed, the head-block on line A, and the bed on line B; now mark the size of the fifth-wheel, as shown by D C, and laying the board down by the rocker pattern, proceed to shape the perch, allowing it to raise at C three-eighths

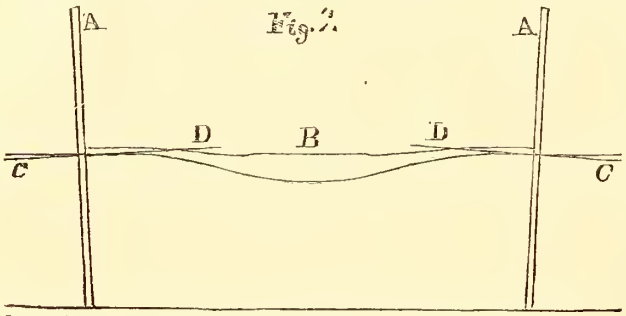
Fig. 5



of an inch, or the thickness of the perch-plate above the point C, keeping the points of the perch at lines A and B. Work from and shape the head-block even with the bottom of perch at D, or if you shave out the head-block the thickness of perch-plate, keep point C on line A, or level with D.

I will endeavor to show you how to obtain the patterns for the axle-beds. In doing so, three points must be considered in its formation: *First*, Its length, which should remain undetermined until the wheels have their tires set. *Secondly*, Its shape, which depends altogether on the shape of the body to which it is applied. Should it be like that of Fig. 5, the front bed would need to be dropped to the center of the axle-arm. *Thirdly*, To shape the ends, so that when the axle is fitted to it, the arms will incline to their proper set, and thereby avoid a short bend at or near the shoulders of the axle. The difficulty caused by this bend, I have no doubt, many have met, who have cased an axle. Now, in order to accomplish the former and avoid the latter, we will follow the rule as illustrated in Figs. 2 and 3. Fig. 2 shows, as we will suppose, a bed four feet long,

Fig. 2.

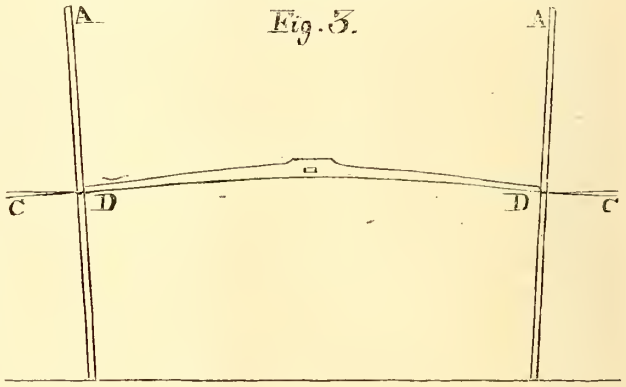


dropping on a line with the center of the axle-arm, as at line B. Now we have the length and the drop, we will proceed to shape the ends, which should be done according to the dish of the wheels. We will suppose the wheels to be dished three-quarters of an inch, which will throw each wheel (as you have seen in the manner of setting axles), on an angle of an inch and a half in its height, as shown by A A, representing the rim of the wheel. Now, in order to have these wheels revolve and still keep the same angle in the center, the arm will be required to be placed through it, square to the perpendicular line of the rim, as shown by the arms C C. You will notice that these arms incline downward; therefore, the ends of the axle-bed will require to have a slight turn, as will be seen by the lines D. For practical purposes an eighth of an inch is sufficient in the length of the arm (six inches).

In making, the pattern the lines A A, and the arm C C, can be omitted. They are merely introduced here to illustrate the point. The front bed being completed, we will commence upon the back one; as in the front, we take into consideration the dish of the wheels, in this case with the three-quarters of an inch dish. It throws each wheel on an angle of two inches in its height, as shown by A A, Fig. 3. It also shows a bed of four feet in length, and raises one inch and a half, and in order to give it the proper shape on the ends, it is necessary to follow the rules laid down in Fig. 2, in regard to the points D and C.

There is no knowledge more cheering and satisfactory to the practical carriage-maker than that which imparts the evidence that his plan or design is correct in every point of view. With this assurance, he

Fig. 3.



proceeds to the execution of his work with cheerful heart, and mind free from doubts and fears as to the results of his labor. This, as the reader understands, is the object of the principles which form the basis of our remarks under this head. Hence the great importance of every carriage-maker understanding the different rules laid down by practical experience.

CARRIAGE DRAFTS.

It has always been our purpose to give our drafts of carriage fashions in as exact proportions as possible, although, knowing that oftentimes we thereby sacrifice some beauties. We frequently see points in which we might decrease the proportions of this part, or increase that, and make the picture more beautiful, but we have conceived that literal exactness is of more importance. In this fact will be seen one of the difficulties in pleasing every one with our charts. Some desire truth, from which they may work, while others desire ideal beauty, for the inspection of their customers. The following note, which we have extracted from a French journal devoted to this subject, shows how others have felt the same difficulty, and have adopted the course opposite to ours:

"Some coach-makers, especially those from the provinces, have sometimes censured us that our small drawings are not diminished in exact proportions. But if they knew the effect which would be produced by so doing, they would certainly change opinions. It would not be possible to diminish the proportions more exactly than by way of photography, yet there are no coach-makers who send their patrons samples of this kind, because such a copy would look much heavier and less graceful than the original, because of certain optical effects which we will not try to demonstrate here. All coach-makers know that a carriage, when finished, looks much lighter than before it has been painted. This is owing to the fact that the rounded forms, when their surfaces are painted and varnished, present luminous parts and well marked shades, which disappear in the diminished copy. It is an image, made with reference rather to the optical effects than to mathematical proportions, which we wish to represent in our carriage drawings. Boileau has said: None can please the mind when wounding the ear. It may be said with equal truth:

To please the mind it is necessary first to please the eyes. And it is this which we have aimed at in our small drawings. For the manufacturer we have placed below the drawings, tables of dimensions, and scales by which to measure the dimensions. And thus we are prepared to satisfy all wants."

Editor's Work-bench.

THE POWER OF ELASTICITY.

America builds very light carriages. She makes it her boast that they are the lightest in the world, and this is, doubtless, true. The question sometimes arises, "Are they not too light?" We have heard an English coach-maker assert that they were, and say in this connection, "Sir, you Americans can make the lightest vehicles, but the point is, can you ride in them?" To a certain extent, lightness helps durability. This is illustrated by the following occurrence, which we saw in Fourth avenue last week:

A light buggy was driving up the avenue, near the edge stone, and a horse-car was just abreast of it. They were met by a heavy express wagon, driven by a drunken person, who attempted to pass between the buggy and car. The driver of the buggy stood his ground, being on the right side of the street, and prevented from turning out by the presence of the car on one side, and edge stone on the other. The result was a collision, in which the hub of the buggy, being higher than that of the wagon, passed above it, and between the spokes; and at the next revolution of the wagon wheel, every spoke therein was torn completely out, leaving the rim unattached, and this without any injury to the buggy, owing to its lightness and elasticity. This is the more remarkable when we remember the position of the latter, crowded between the wagon and the edge stone, and sustaining so severe a shock.

CARRIAGE REPAIRING.

Our cotemporary, *The Hub*, has been agitating the subject of prices charged for carriage repairs, and in doing so has developed many important points, which ought to be a help to many jobbing shops, as well as to large factories. It has for many years been a well-known fact that repair prices were very variable in different places, and there was no real standard by which to charge. This being the case, it has been for the interest of a gentleman wishing his carriage re-painted to go to several shops, asking quotations, and directly hinting that they must be in competition with his neighbor. Out of this has grown much hard feeling.

It is not possible that there should be a uniform tariff by which every carriage-maker in that city should make his charges, for the quality of work in each shop will be different, and the prices must be in proportion to the time and material employed. One builder, who is an artist in his line, will spend as much time in putting new steel tires and bolts on light buggy wheels as would allow another less particular builder to do the same job three times, and the materials used by the former would cost him much more. This artist will, perhaps, charge $28 for his work, and he earns it, while his neighbor charges, perhaps, only $12 or $15 for the same job, and earns no more. *Cost to the maker* is the only true standard by which to make charges, and this includes *time* and *material*. But there are many makers who do not know how to reckon the actual cost to them of certain work, or, if they know how, do not take the time to do it. It is to those that the published tariffs of the different cities, made up from the highest quotations given by the builders of these cities, will be of great value. Every carriage-maker ought to compare them carefully, and figure up his own charges, and carry the comparison still further, and after giving the subject a full hearing, make up a tariff by which to charge in his shop.

We think his list should be longer and fuller than that given in *The Hub*, however. That contains only about fifty items. We, therefore, give below a much longer list, including about one hundred items, and it would be well if every carriage-maker had established prices for all these items. The subject of carriage repairing was agitated in a leading Massachusetts center in 1867, and the result was that a meeting was held by the repairers of that city, and prices were arranged for the items which we mention below.

LIST OF PRICES.

Iron Repairing.

For setting bolted tires, under 1¼ inch.
" " hack and express tires, over 2 inches.
" " 2½ inch tires.
" " 4 "
" new tire bolts, 5 and 6 cts. each, as the number may be.
" mending springs, 1 new top main leaf, 1½ inch and under.
" mending springs, 1 bottom main leaf, 1 inch and under.
" mending springs, ½ new leaf, 1 inch.
" " " 1 " " 2 inches.
" " " ½ " " 2 "
" " " short.
" " buggy springs.
" setting up and tempering springs, 3 or 4 leaf.
" new jack clips.
" " " " eye barrels.
" " top circle.
" " bottom circle.
" " clip king bolt.
" " " " " straight, ¾ inch.
" " " " " " 1 "
" " " " " " 1¼ "
" all common bolts.
" one set new steel tires, 1 inch by 3-16.
" " " " " " 1¼ " ¼.
" " " " " " 1½ " ¼.
" " " " iron " 1 " ¼.
" " " " " " 1¼ to 1½ by ⅜, 10 cts. per lb.

Wood Repairing.

For new rimming wheels, walnut rims, 1¼ inch.
" " " " " " 1⅜ "
" " " " " " 1½ "
" " " " " " 1⅝ "
" " " " " " 1¾ "
" ash and oak, one dollar less on each.

For new hubs and setting boxes, buggies and carryalls, 8 inch.
" new hubs and setting boxes, buggies and carryalls, 10 inch.
" new hubs and setting boxes, buggies and carryalls, 12 inch.
" new hubs and setting boxes, buggies and carryalls, 14 to 15 inches.
" new spokes, from 1 to 1½ inch, for 1 spoke.
" " " " " from 3 to 6 in a wheel.
" all spokes, from 1 to 1½ inch, 3 to 6 in a wheel.
" " " " 1¾ " 2 " " "
" " " " 2¼ " 2½ " " "
" " " " 2¾ " 3 " " "
" new rimming wheel, short felloes, 1¼ inch tire.
" " " " 1½ "
" " " " 1¾ "
" " " " 2 "
" " " " 2¼ "
" " " " 2½ "
" " " " 3 "
" " " " 3½ and 4 inch tire.
" single felloes.
" 1 bent rim, 1½ to 1¾ inches.
" ½ " " "
" 1 " 1 to 1¼ "
" ½ " " "
" straight shafts, from 1¾ to 2¼ inches.
" " " 1¾ to 2½ "
" " " 1¾ to 3 "
" bent carriage shafts, from 1¾ to 2 inches.
" " " " 2¼ to 2½ "
" " chaise " same wood, per pair.
" strai't " " " "
" chaise springs.
" new shaft bar.
" " bent whiffletree.
" " straight "
" " plain spring bar.
" " " axle bed for carriages.
" " " " axle let in.
" " " " grocery wagon.
" " " " common express wagon.
" " " " " " " 4 by 4½ inches.
" " plain axle bed, common express wagon, 5 by 6 inches.
" " buggy or carryall head block.
" " purches, two in a carriage.
" " " one " "
" " coach and hack poles.
" " 2 inch poles.
" " 2½ " "
" " bent "
" " hack whiffletrees.
" " carriage pole, plated, made to order.
" " " " and shifting, made to order.
" " express bodies, three rave, 6 & 7 feet long.
" " " two " " "
" " " one " " "
" " " three " 7½ & 9 "
" " " two " " "
" " " one " " "
" " board seats.
For new frame seats.
" " set wheels, first quality.
" setting boxes.
" " tires and fitting up.
" new set bands.

Carriage Painting.

For painting running parts, plain, and varnishing hacks, open quarters.
For painting running parts, plain, and varnishing hacks, close quarters.
For re-painting, striping, and varnishing hacks.
For taking off paint, re-painting, striping, and varnishing hacks.
For mending, painting, and varnishing phaetons, buggies, and chaises.
For re-painting, striping, and varnishing phaetons, buggies, and chaises.
For cleaning and oiling enameled tops.
" " oiling, and enameling tops.
" mending, painting, and varnishing one-horse carryalls, curtain quarters.
For mending, painting, and varnishing one-horse carryalls, close quarters.
For repainting, striping, and varnishing grocery wagons.
For painting new light express wagons.
" " " coal-box top buggies.
" " " " " open "
" " " Concord " "
" " striping, and varnishing new shafts.
" " " " " single spokes.
" " " " " one set new "
" wheels well finished.

OUR STREET PAVEMENTS.

SHALL our streets be paved with wood or stone? This is a subject in which the carriage-maker is directly interested, and it is for his advantage to look into it. The following letter argues the subject from a sanitary point of view, and brings up many interesting points in this connection:

Experience in this country has shown that the material employed in paving streets must be either *stone or wood.*

There are many different methods of laying each of these materials, some of which have been universally condemned. For instance, the "cobble-stone," which is simply an abomination in the sight of horse and man. The "macadam" produces dust, which is not only disagreeable, but deleterious to health. Without comparing structural devices, and in order to get at the merits of the materials, and make just estimate of both, let blocks of stone of suitable size and dimensions be placed upon edge, and blocks of wood shaped in like manner be placed upon end. Now, *all things* considered, which makes the best pavement, the stone or the wood? In other words, which material subserves best the purpose intended by paving?

The objects sought in paving streets are cleanliness, health, comfort, facility of locomotion, the consequent saving of time, labor, and expense of transportation. Pavement of stone does facilitate transportation, but at the expense of horse-shoes, horse-flesh, and of great wear and tear of vehicles. The danger to rider and driver, on stone, is, to say the least, unpleasant, while the rattling

and clattering noise, the side-tripping and sliding of wheels, and slipping of horses, is a positive discomfort. Besides, it has been estimated that the dirt from stone pavement exceeds that from wood, by at least one-third. This dirt contains, with other deleterious substances, pulverized stone, which enters the lungs in minute particles, and will sometimes make a lodgment in the most delicate membranes of the air-cells, and often create irritation and even inflammation. On the other hand, wooden pavements are easily kept clean, they are smooth and elastic, they give certainty of footing, ease of draught, and we ride, drive, and haul over them with little noise, and great care, safety, comfort, and satisfaction. Indeed, they so fully fill all the requirements, that those who favor the stone make but one objection to the wood, and that is want of durability. Persons go out of their way to get upon wooden pavements, and the universal exclamation is, "This is the pavement we want, if it will only stand." If wood can be preserved from decay it will "stand." From experiments lately made in Europe and America, I feel satisfied that the wood can be preserved from decay. Coal tar contains certain ingredients which will preserve wood from decay, if properly applied. Carbolic acid, or the creosote of coal, is one of the finest antiseptics known, whether applied to animal or vegetable substances—and this is one of the ingredients of coal-tar. The mere dipping of wood into coal-tar is not sufficient, more especially if the wood be green, as is generally the case. Because, in the first place, the coal-tar will not penetrate wood filled with sap. In the next place, the crude coal-tar used furnishes a covering similar to a coating of paint, and when fermentation in the sap takes place, and gases are generated, they are confined by this coating of coal-tar, and dry rot ensues. It is a well-known fact that painting green wood makes it rot more rapidly.

If, however, coal-tar be applied in the form of *vapor* (as, for instance, by the "Robbins Process") the heat will expel the moisture from the wood, coagulate the albuminous portion of the sap, and the carbolic acid, in this sublimate form, will permeate the block and completely saturate it, thus preventing decomposition. By the use of wood thus treated, our pavements would be filled not only with an *antiseptic*, but with one of the best *disinfectants known*. If it be thought wise to sprinkle the streets of New York and all the great cities of Europe with water mixed with carbolic acid, because of its disinfectant properties, how much better to have the whole street laid with blocks of wood completely saturated with it! Disinfectants, such as chlorine, permanganate of potash, or candy fluid, oxydize the gaseous products given off by putrifaction, and all organic matters with which they come in contact, while carbolic acid merely destroys the causes of putrifaction without acting upon the organic substances. The former deal with the effects, the latter with the causes. A very small quantity of carbolic acid will prevent decomposition of substances. Being volatile it meets with and destroys, according to Dr. Jules Lemaire, the germs and sporules which float in the atmosphere and vitiate it. The health of a city will be greatly promoted by laying the streets with wooden blocks, saturated with carbolic acid. In the subject of pavements, you, and I, and the whole community, have a deep interest. This fact will furnish apology for so long a communication. LEWIS A. SAYRE, M.D.

TRADE NEWS.

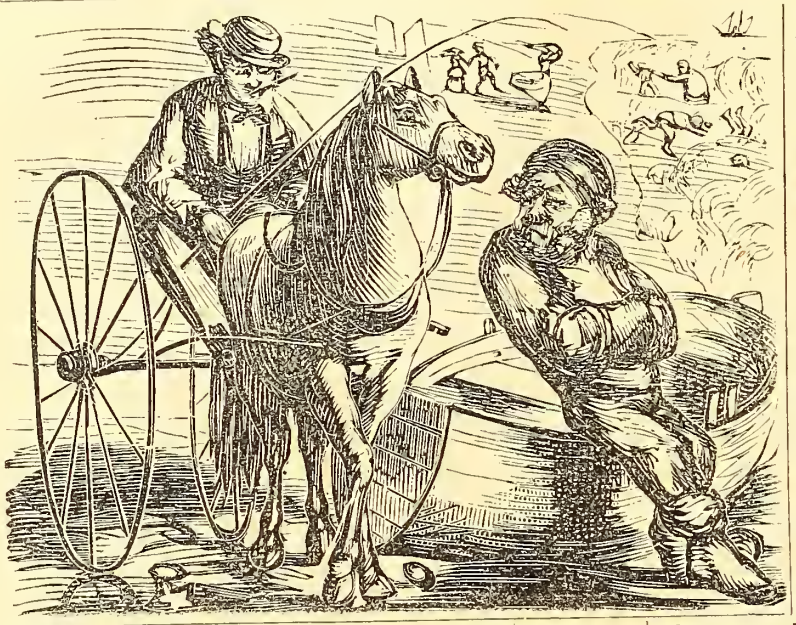
MINER, STEVENS & Co. have made some further improvements on that light and popular style of carriage called "Britzka," a fine specimen of which, just finished in their factory in East Thirteenth street, can be seen at their carriage depository, Broadway and Bleecker-street. We were shown to-day the "Carriage of the Period." This is a basket pony phaeton, of a new style, made popular under the above title by A. S. Flandrau, carriage-builder, of Eighteenth street, who introduced this vehicle at the beginning of the present season. Jay Gould, Esq., drives one at Newport. Mrs. Hoey has one at Long Branch, and as Mr. Flandrau has sold already over one hundred of them, they, doubtless, can be seen at all our summer resorts. We are informed that the firm of James B. Cone & Co., Broadway, near the Metropolitan Hotel, will close August 1, and the remaining stock is to be transferred into the new carriage depository of J. B. Brewster & Co., in East Twenty-fifth street.

MCLEAR & KENDALL have a large and finely arranged carriage factory in Wilmington, Delaware, employing a force of one hundred and fifty hands. Indeed, it is one of the finest shops we ever visited, being 218 feet deep, by 90 feet front, comparatively new, and full of work. Their working capacity is reinforced by a Corliss' engine of twenty horse power, supplied by a new patent Root tubular boiler, and before long they intend putting in a new engine of forty horse power. They build a variety of work, but mostly top buggies. During the year 1869, they turned out about 1,150 vehicles, most of which were sent South and West. This enterprising firm started in the business of carriage-building in 1864, which might seem like rather an unfortunate time, but they have worked success out of it. They have a repository in Philadelphia which accommodates sixty carriages, and another in Charleston, S. C., in which they keep a stock of nearly twice that number. They have occupied their present factory about four years, and it certainly ranks high among the fourteen carriage shops of Wilmington.

CHIPS AND SHAVINGS.

TURN OUT!—The snow was so deep in Cheshire county, New Hampshire, last winter, that it was difficult for persons meeting with teams to pass. An eccentric citizen, well known in that county, and having a defect in his speech, was coming to the village with a horse and sleigh, and being about to meet a stranger with a team, exclaimed, "Turn out! turn out! my father's dead!" Upon which the stranger, with much difficulty, turned out, and gave him the entire road. After he had got fairly by, the stranger turned and inquired of him when his father died; to which the grief-harrowed citizen responded, "About fifteen years ago!"

BATH SLEIGHS are acquiring a reputation equal to that of Portland carriages. S. R. Bailey, of the former city, is giving special attention to the manufacture of these winter vehicles. Of his patent bent-standard and truss-floored sleighs he has made over 200 during the past year, and will increase his facilities so as to turn out 1,000 in 1870. Mr. Bailey has had an experience of 15 years in his business, has a factory, supplied with the best machinery, and makes none but first class work. All his sleighs are made under four patents obtained by himself.



Flies on Horses.—The following is given as a preventive of horses being teased by flies: Take two or three small handfuls of walnut leaves, upon which pour two or three quarts of cold water; let it infuse one night, and pour the whole next morning into a kettle and let it boil for a quarter of an hour. When cold it will be fit for use. No more is required than to moisten a sponge, and before the horse goes out of the stable, let those parts which are most irritable be smeared over with the liquor, viz: between and upon the ears, the neck, the flanks, etc. Not only the gentleman or lady who rides out for pleasure will derive pleasure from the walnut leaves thus prepared, but the coachman, the wagoner, and all others who use horses during the hot months.

Politics.—We notice by the Boston *Herald* of August 11th, that C. P. Kimball has declined to run for Governor of Maine on the Democratic ticket.

Coöperation.—Brewster & Co., of New York, some time since announced to their men that for the future they would allow them, in addition to their wages, a half-yearly dividend of one-tenth of the net profits of the firm, to be divided according to the greater or less amount of work performed by each. Recently they declared the first semi-annual dividend, giving three and a half per cent. on the earnings of each man. Some of them received from $32 to $52, others from $5 to $10. Another manufacturing firm, who tried the same experiment, declared a dividend of 4 38-100 per cent. on which some of the hands got over $100.

Blacking for Harness.—Melt four ounces of mutton suet with twelve ounces of beeswax; add twelve ounces of sugar-candy, four ounces of soft soap, dissolved in water, and two ounces of indigo, finely powdered. When melted and well mixed, add half a pint of turpentine. Lay it on the harness with a sponge, and polish it off with a brush.

Cushion for Wheels.—Mr. John Raddin, of Lynn, has invented an elastic cushion for heavy carriage wheels, which seems to be of value, as the saving in the wear of wheels, rails and machinery effected by the use of this cushion is considerable. It is applicable to the wheels of common carriages. Considering the rapid destruction of pavements in large cities by the passage of heavy carriages, any invention which tends to diminish this wear is worthy the attention of our lawmakers; and if this elastic cushion can do what is claimed for it, its adoption in cities is likely to become general.

Varnish Making.—This business is a large one in the United States, and it is constantly increasing. Among the most successful manufacturers of coach-varnishes are Valentine & Co., formerly of Boston, who have recently opened an office at 88 Chambers Street in this city. The inside wood-work of their new office is finished with the Perma nent Wood Filling, which has made its way so rapidly into most of the leading carriage shops. A general invitation has been extended by them to the carriage-makers and painters to call upon them when in the city, and examine the appearance and working of the P. W. F. on inside work as shown by this test. This firm is now manufacturing and selling their varnishes in direct competition with the English, and it must be conceded by those who look into the subject, that they are carrying on the war of competition very energetically, and with a degree of success which is hard to realize.

Golden Rules.—There are carriage builders who guide themselves by the following golden rules, which ought to insure success:

1. To build only the best quality.
2. To have prices uniform to all.
3. To adhere faithfully to their guarantees.
4. To sell only their own make.

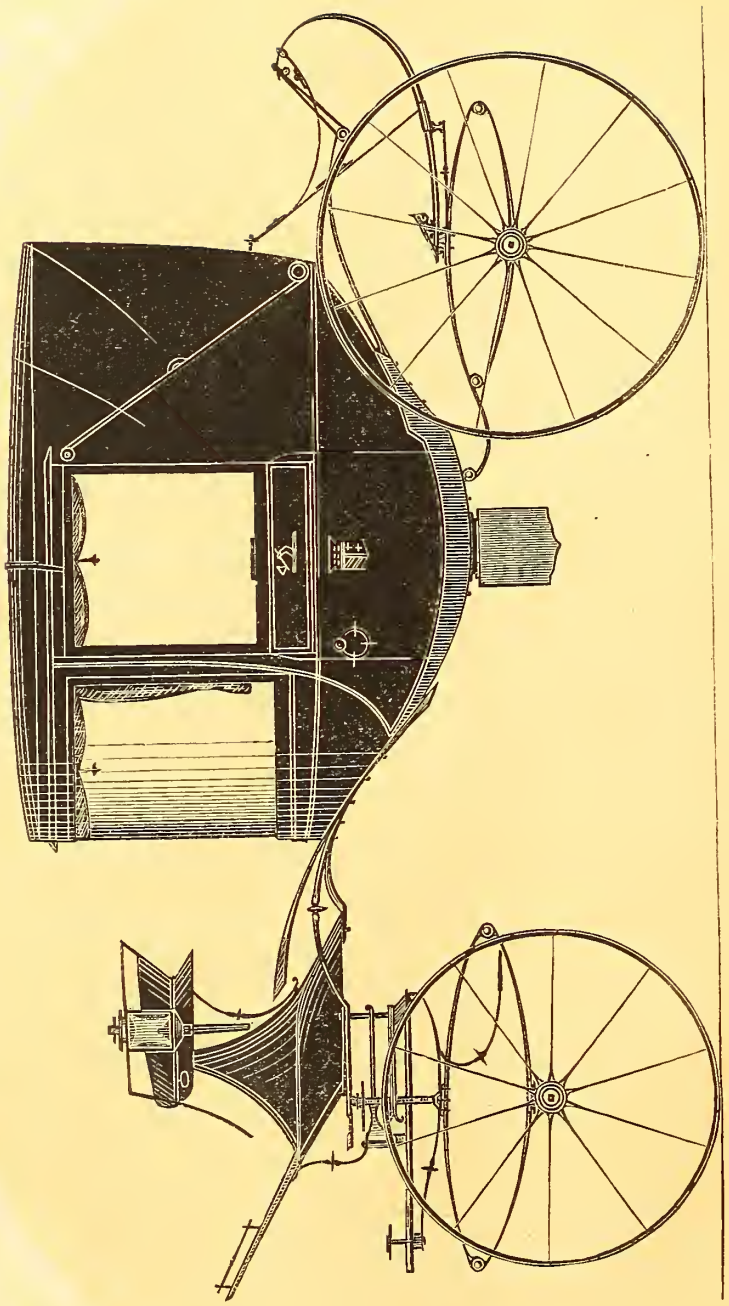
Yankee Calculation of Railroad Speed.—"Well it is curus how we du git over the ground. Why, the trees all look as if they was a-dancin' a jig to double quick time. I kin reckerlect ten or twelve years ago that if I started from Bosting on a Wednesday, I cud git in Philidelphy on the next Saturday, makin' jest three days. Now, I kin git from Bosting to Philidelphy in one day, and I've ben cal'latin' that if the power of steam increases for the *next* ten years as it has ben a-doin' for the *last* ten years, *I'd be in Philidelphy jist two days before I started from Bosting.*"

The War.—Some coach-builders will be prominently reminded of the Franco-German war by the rise in price of French plate glass. We hear that in some cases a premium of twenty-five to forty per cent. is demanded.

Another Effect.—Several dealers in carriage materials are holding back orders received from Prussia. One New York house has stored away a dozen or more large cases which were in readiness for shipment when the war broke out. Prussia depends upon America for all the hickory she uses.

Carriage Making Hereditary.—Benson Bros. of New York have a painter whose father, grandfather and great-grandfather were connected with carriage making.

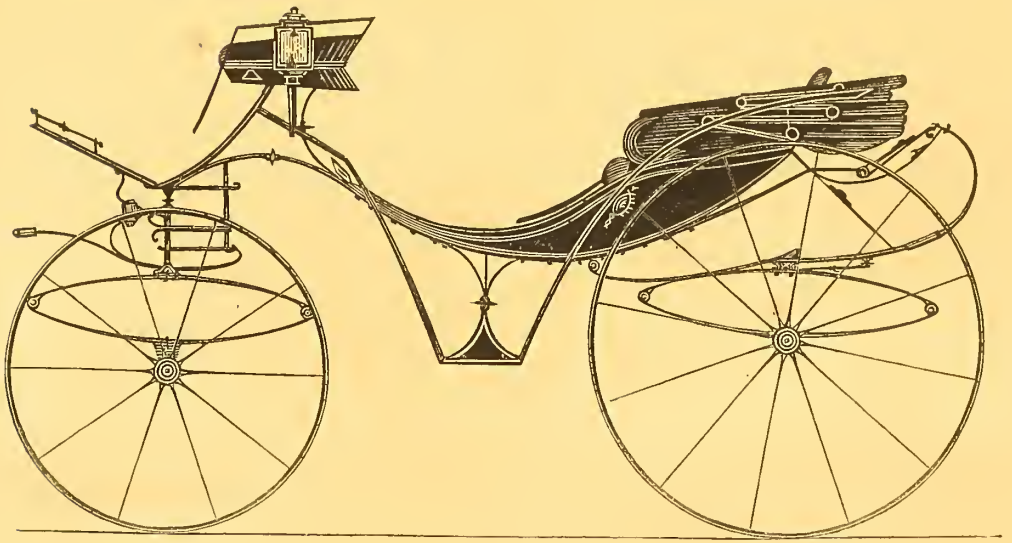
Well Housed.—A Chicago paper states that the finest residence in that city is owned by a carriage-maker.



FULL-SIZE LANDAULET.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

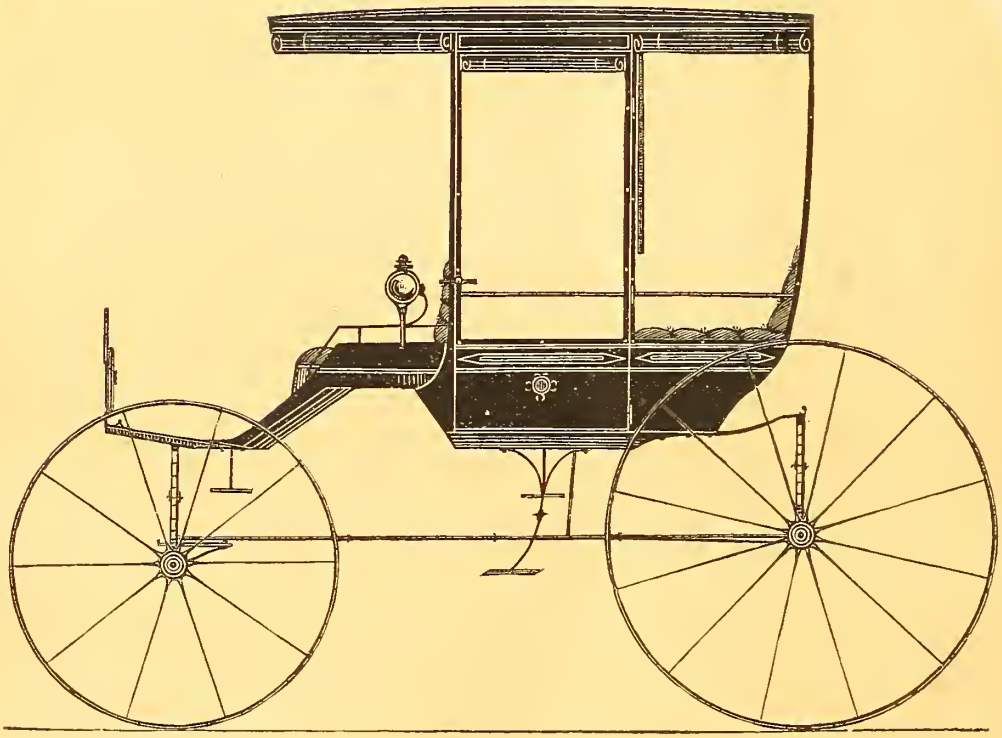
Explained on page 74.



DICKEY-SEAT VICTORIA PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

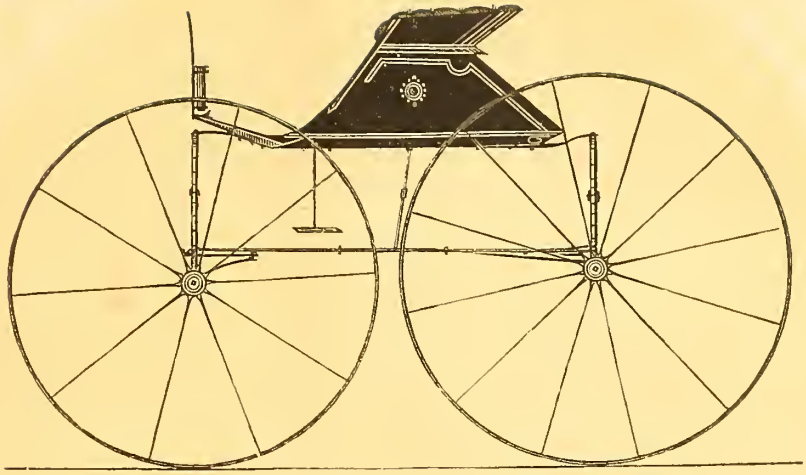
Explained on page 74.



EXCELSIOR ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

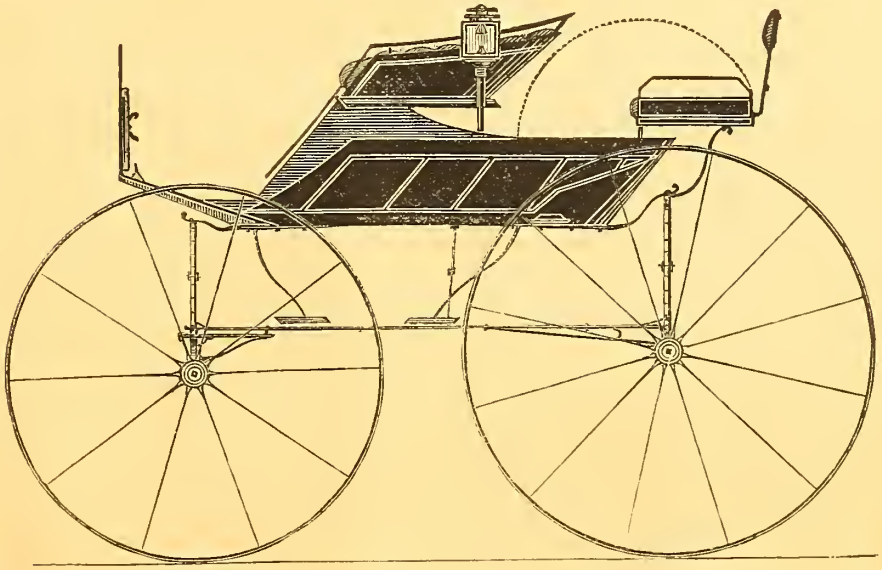
Explained on page 74.



ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 74.



TURN-OUT-SEAT PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 74.

THE NEW YORK
SCRIBNER'S MONTHLY

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

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ARCTIC TRAVELING IN WINTER.

The morning of December 13th dawned clear, cold, and still, with a temperature of thirty-one degrees below zero; but, as the sun did not rise until half-past ten, it was nearly noon before we could get our drivers together, and our dogs harnessed for a start. Our little party of ten men presented quite a novel and picturesque appearance in their gayly-embroidered fur coats, red sashes, and yellow fox-skin hoods, as they assembled in a body before our house to bid good-by to the Ispravink and the Major. Eight heavily-loaded sledges were ranged in a line in front of the door, and almost a hundred dogs were springing frantically against their harnesses, and raising deafening howls of impatience as we came out of the house into the still, frosty atmosphere. We bade every body good-by, received a hearty "God bless you, boys!" from the Major, and were off in a cloud of flying snow, which stung our faces like burning sparks of fire. Old Paderin, the Chief of the Geezhega Cossacks, with white, frosty hair and beard, stood out in front of his little red log house as we passed, and waved us a last good-by with his fur hood as we swept out upon the great level steppe behind the town.

It was just mid-day; but the sun, although at its greatest altitude, glowed like a red ball of fire low down in the southern horizon, and a peculiar gloomy twilight hung over the white wintry landscape. I could not overcome the impression that the sun was just rising, and that it would soon be broad day. A white ptarmigan now and then flew up with a loud whir before us, uttered a harsh "querk, querk, querk" of affright, and, sailing a few rods away, settled upon the snow and became suddenly invisible. A few magpies sat motionless in the thickets of trailing pine as we passed, but their feathers were ruffled up around their heads, and they seemed chilled and stupefied by the intense cold. The distant blue belt of timber along the Geezhega River wavered and trembled in its outlines, as if seen through currents of heated air; and the white, ghost-like mountains, thirty miles away to the southward, were thrown up and distorted by refraction into a thousand airy, fantastic shapes, which melted imperceptibly, one into another, like a series of dissolving views. Every feature of the scenery was strange, weird, arctic. The red sun rolled slowly along the southern horizon, until it seemed to rest on a white, snowy peak far away in the southwest; and then, while we were yet expecting day, it suddenly disappeared, and the gloomy twilight deepened gradually into night. Only three hours had elapsed since sunrise, and yet stars of the first magnitude could already be plainly distinguished.

We stopped for the night at the house of a Russian peasant who lived on the bank of the Geezhega River, about fifteen versts east of the settlement. While we were drinking tea a special messenger arrived from the village, bringing two frozen blueberry pies as a parting token of regard from the Major, and a last souvenir of civilization. Pretending to fear that something might happen to these delicacies if we should attempt to carry them with us, Dodd, as a precautionary measure, ate one of them up to the last blueberry; and, rather than have him sacrifice himself to a mistaken idea of duty by trying to eat the other, I attended to its preservation myself, and put it forever beyond the reach of accidental contingencies.

On the following day we reached the little log yourt on the Malmofka, where we had spent one night on our way to Geezhega; and, as the cold was still intense, we were glad to avail ourselves again of its shelter, and huddle around the warm fire which Yagor kindled on a sort of clay altar in the middle of the room. There was not space enough on the rough plank-floor to accommodate all our party, and our men built a huge fire of tamarack logs outside, hung over their tea-kettles, thawed out their frosty beards, ate dried fish, sang jolly Russian songs, and made themselves so boisterously happy, that we were tempted to give up the luxury of a roof for the sake of sharing in their out-door amusements and merriment. Our thermometers, however, marked 35 below zero, and we did not venture out of doors except when an unusually loud burst of laughter announced some stupendous Siberian joke which we thought would be worth hearing. The atmosphere outside seemed to be just cool enough to exert an inspiriting influence upon our lively Cossacks, but it was altogether too bracing for unaccustomed American constitutions. With a good fire, however, and plenty of hot tea, we succeeded in making ourselves very comfortable inside the yourt, and passed away the long evening in smoking Circassian tobacco and pine bark, singing American songs, telling stories, and quizzing our good-natured but unsophisticated Cossack Mereneff.

It was quite late when we finally crawled into our fur bags to sleep; but long afterward we could hear the songs, jokes, and laughter of our drivers as they sat around the camp-fire and told funny stories of Siberian travel.

We were up on the following morning long before daylight; and, after a hasty breakfast of black bread, dried fish, and tea, we harnessed our dogs, wet down our sledge-runners with water from the tea-kettle to cover them with a coating of ice, packed up our camp equipage, and, leaving the shelter of the tamarack forest around the yourt, drove out upon the great snowy Sahara which lies between the Malmofka River and Penzhinak Gulf. It was a land of desolation. A great level steppe, as boundless to the weary eye as the ocean itself, stretched away in every direction to the far horizon without a single tree or bush to relieve its white, snowy surface. Nowhere did we see any sign of animal or vegetable life, any suggestion of summer or flowers, or warm sunshine to brighten the dreary waste of storm-drifted snow. White, cold, and silent, it lay before us like a vast frozen ocean, lighted up faintly by the slender crescent of the waning moon in the east, and the weird blue streamers of the aurora, which went racing swiftly back and forth along the northern horizon. Even when the sun rose, huge and fiery in a haze of frozen moisture at the south, it did not seem to infuse any warmth or life into the bleak, wintry landscape. It only drowned, in a dull, red glare, the blue, tremulous streamers of the aurora, and the white radiance of the moon and stars, tinged the snow with a faint color like a stormy sunset, and lighted up a splendid mirage in the northwest, which startled us with its solemn mockery of familiar scenes. The wand of the Northern Enchanter touched the barren, snowy steppe, and it suddenly became a blue tropical lake, upon whose distant shore rose the walls, domes, and slender minarets of a vast Oriental city.

Masses of luxuriant foliage seemed to overhang the clear, blue water, and to be reflected in its depths, while the white walls above just caught the first flush of the rising sun. Never was the illusion of summer in winter, of life in death, more palpable or more perfect. One almost instinctively glanced around to assure himself, by the sight of familiar objects, that it was not a dream; but, as his eye turned again to the northwest across the dim blue lake, the vast, tremulous outlines of the mirage still confronted him in their unearthly beauty, and the "cloud-capped towers and gorgeous palaces" seemed, by their mysterious solemnity, to rebuke the doubt which would ascribe them to a dream. The bright apparition faded, glowed, and faded again into indistinctness, and from its ruins rose two colossal pillars, sculptured from rose-quartz, which gradually united their capitals, and formed a Titanic arch, like the grand portal of heaven. This, in turn, melted into an extensive fortress, with massive bastions and buttresses, flanking towers and deep embrasures and salient and reëntering angles, whose shadows and perspective were as natural as reality itself. Nor was it only at a distance that these deceptive mirages seemed to be formed. A crow, standing upon the snow at a distance of perhaps two hundred yards, was exaggerated and distorted beyond recognition; and, once having lingered a little behind the rest of the party, I was startled at seeing a long line of shadowy dog-sledges moving swiftly through the air, a short distance ahead, at a height of eight or ten feet from the ground. The mock sledges were inverted in position, and the mock dogs trotted along, with their feet in the air, but their outlines were almost as clear as those of the real sledges and real dogs underneath. This curious phenomenon lasted only a moment, but it was succeeded by others equally strange, until, at last, we lost faith in our eyesight entirely, and would not believe in the existence of any thing unless we could touch it with our hands. Every bare hillock or dark object on the snow was a nucleus around which were formed the most deceptive images, and two or three times we started out with our rifles in pursuit of wolves or black foxes, which proved, upon closer inspection, to be nothing but crows. I had never before known the light and atmosphere to be so favorable to refraction, and had never been so deceived in the size, shape, and distance of objects on the snow.

The thermometer at noon marked 35o, and at sunset it was 38o, and sinking. We had seen no wood since leaving the yourt, on the Malmofka River, and, not daring to camp without a fire, we traveled for five hours after dark, guided only by the stars and a bluish aurora which was playing away in the north. Under the influence of the intense cold, frost formed in great quantities upon every thing which was touched by our breaths. Beards became stiff, tangled masses of frozen iron-wire, eyelids grew heavy with long white reins of frost, and frozen together when we winked, and our dogs, enveloped in dense clouds of steam, looked like snowy polar wolves. Only by running constantly beside our sledges could we keep any sensation of life in our feet. About eight o'clock a few scattered trees loomed up darkly against the eastern sky, and a joyful shout from our leading drivers announced the discovery of wood.

We had reached a small stream called the Ooseenova, seventy-five versts east of Geezhega, in the very middle of the great steppe. It was like coming to an island after having been long at sea. Our dogs stopped and curled themselves up into little round balls on the snow, as if conscious that the long day's journey was ended, while our drivers proceeded to make, rapidly and systematically, a Siberian half-faced camp. Three sledges were drawn up together, so as to make a little semi-enclosure about ten feet square; the snow was all shoveled out of the interior, and banked up around the three closed sides, like a snow-fort, and a huge fire of trailing pine branches was built at the open end. The bottom of this little snow-cellar was then strewn to a depth of three or four inches with twigs of willow and alder, shaggy bearskins were spread down to make a warm, soft carpet, and our fur sleeping-bags arranged for the night. Upon a small table extemporized out of a candle-box, which stood in the centre, Yagor soon placed two cups of steaming hot tea and a couple of dried fish. Then stretching ourselves out in luxurious style upon our bearskin carpet, with our feet to the fire and our backs against pillows, we smoked, drank tea, and told stories in perfect comfort.

After supper, the drivers piled dry branches of trailing pine upon the fire until it sent up a column of hot, ruddy flame, ten feet in height; and then, gathering in a picturesque group around the blaze, they sang for hours the wild, melancholy songs of the Kamtchatdals, and told never-ending stories of hardsdip and adventure on the great steppes and along the coast of the "icy sea." At last the great constellation of Orion marked bed-time. Amid a tumult of snarling and fighting the dogs were fed their daily allowance of one dried fish each; fur stockings, moist with perspiration, were taken off and dried by the fire, and, putting on our heavi-

iest fur "kookhlankas," we crawled, feet first, into our bearskin bags, pulled them up over our heads, and slept.

A camp in the middle of a clear, dark winter's night presents a strange, wild appearance. I was awakened, soon after midnight, by cold feet, and, raising myself upon one elbow, I pushed my head out of my frosty fur bag to see by the stars what time it was. The fire had died away to a red heap of smouldering embers. There was just light enough to distinguish the dark outlines of the loaded sledges, the fur-clad forms of our men lying here and there in groups about the fire, and the frosty dogs, curled up into a hundred little hairy balls, upon the snow. Away beyond the limits of the camp stretched the desolate steppe in a series of long snowy undulations, which blended gradually into one great white frozen ocean, and were lost in the distance and darkness of night. High overhead, in a sky which was almost black, sparkled the bright constellations of Orion and the Pleiads—the celestial clocks which marked the long, weary hours between sunset and sunrise. The blue mysterious streamers of the aurora trembled in the north, now shooting up in clear, bright lines to the zenith, then waving back and forth in great majestic curves over the silent camp, as if warning back the adventurous traveler from the unknown regions around the pole. The silence was profound, oppressive. Nothing but the pulsating of the blood in my ears and the heavy breathing of the sleeping men at my feet broke the universal lull.

Suddenly there rose upon the still night-air a long, faint, wailing cry, like that of a human being in the last extremity of suffering. Gradually it swelled and deepened, until it seemed to fill the whole atmosphere with its volume of mournful sound, dying away, at last, into a low, despairing moan. It was the signal-howl of a Siberian dog, but so wild and unearthly did it seem in the stillness of the arctic midnight, that it sent the startled blood bounding through my veins to my very finger-ends. In a moment the mournful cry was taken up by another dog upon a higher key, two or three more joined in, then ten, twenty, forty, sixty, eighty, until the whole pack of a hundred dogs howled one infernal chorus together, making the air fairly tremble with sound, as if from the heavy bass of a great organ. For fully a minute heaven and earth seemed to be filled with yelling, shrieking fiends. Then one by one they began gradually to drop off, the unearthly tumult grew momentarily fainter and fainter, until at last it ended, as it began, in one long, inexpressibly melancholy wail, and all was still. One or two of our men moved restlessly in their sleep, as if the mournful howls had blended unpleasantly with their dreams, but no one awoke, and a death-like silence again pervaded heaven and earth.

Suddenly the aurora shone out with increased brilliancy, and its waving swords swept back and forth in great semicircles across the dark, starry sky, and lighted up the snowy steppe with transitory flashes of colored radiance, as if the gates of heaven were opening and closing upon the dazzling brightness of the celestial city. Presently it faded away again to a faint, diffused glow in the north, and one pale green streamer, slender and bright as the spear of Ithuriel, pushed slowly up toward the zenith, until it touched, with its translucent point, the jeweled belt of Orion. Then it, too, faded and vanished, and nothing but a bank of pale white mist, on the northern horizon, showed the location of the celestial armory, whence the arctic spirits drew the gleaming swords and lances which they shook and brandished nightly over the lonely Siberian steppes. Crawling back into my bag as the aurora disappeared, I fell asleep, and did not wake until near morning.

With the first streak of dawn the camp began to show signs of animation. The dogs crawled out of the deep holes which their warm bodies had melted in the snow, the Cossacks poked their heads out of their frosty fur-coats, and whipped off, with little sticks, the mass of frost which had accumulated around their breathing-holes; a fire was built, tea boiled, and we crawled out of our sleeping-bags to shiver around the fire, and eat a hasty breakfast of rye-bread, dried fish, and tea. In twenty minutes the dogs were harnessed, sledges packed, and runners covered with ice, and, one after another, we drove away at a brisk trot from the smoking fire, and began another day's journey across the barren steppe.

In this monotonous routine of riding, camping, and sleeping on the snow, day after day slowly passed, until, on December 20, we arrived at the settled Korak village of Shestakova, near the head of Penzhinak Gulf. From this point our Geezhega Cossacks were to return, and here we were to wait until the expected sledges from Penzhina should arrive. We lowered our bedding, pillows, camp equipage, and provisions down through the chimney-hole of the largest yourt in the small village, arranged them as tastefully as possible on the wide wooden platform which extended out from the wall on one side, and made ourselves as comfortable as darkness, smoke, cold, and dirt would permit.—*Putnam's Magazine.*

THE PRATER AT VIENNA.

BY CLEMENS PETERSEN.

The first time I saw an American buggy was in the Prater, at Vienna, about three or four years ago. It must at that time have been quite a novelty in that city, for as it drove along every body stopped, stared, and burst out laughing. And so did I.

The Prater is a large forest extending many miles into the country from the northern suburb of Vienna, which is called the Leopoldstadt, and is the residence of the Jews. This forest is traversed by several broad, straight driveways, which run fan-like from the foot of the main street of Leopoldstadt. But only two of these driveways are remarkable—the Wurstelprater and the Prater proper. The others have, I understand, very few visitors, and not even a name. The Wurstelprater, on the contrary, and the Prater proper, are well known over all Europe. They are crowded and noisy, and are pleasant to visit on any night in the summer; and though there is a great and marked difference between them, both of them are so interesting as to make the foreigner uncertain which to prefer. In the Wurstelprater the common people sing and dance, drink "Bier and eat Wurst" (which last is similar to the American sausage), fall in love and at variance with each other, while the high-bred ones play the spectators. In the main Prater the rich and high-born people ride and drive, court and comment upon each other, take supper and make scandal, while the common ones stand by as lookers-on. The Wurstelprater is the sport of the people; the Prater is the elegance of the nation. Both of them are interesting. To-day, however, we have errand only in the main Prater, for it was there I first saw the American buggy.

On the right side of this driveway there is a broad, well-prepared carriage road, and on the left an excellent, macadamized walk, with comfortable benches and seats. Behind the driveway the forest opens, and it is indeed charming to sit here in summer, when the sun is setting, and look across into the glades where the sunbeams drop like golden rain. Behind the walk the forest grows thick and dark, enlivened, however, by a long row of pleasure establishments of a kind peculiar to Vienna. They are called No. 1, No. 2, No. 3, etc. The buildings themselves are quite insignificant. They contain, I think, only a large kitchen for the meats, and a still larger cellar for the wines. But the places between the buildings and the walk are often very beautifully decorated with statues and fountains; and here under the deep shade of linden and chestnut trees, the merry people of Vienna gather around the small, white-spread tables to have their supper and their wine, while the bands are playing the most exquisite music. Indeed nowhere in the world is such music to be heard as in Vienna, which was Mozart's and Beethoven's homestead. Here it is very pleasant to walk on a warm summer night at nine o'clock, when each table is lighted by a little wax candle, protected against the dratt by a large cup of glass, and the whole enlivened by a crowd of merry faces, and listen to the notes of Mozart's melodies seeking their way through the forest and echoing in the glades, and to watch the rising moon throwing her silver veil over the dreaming landscape.

In the afternoon, between five and seven o'clock, this drive is crowded with the most splendid carriages, occupied by the nobility who wish to take fresh air. They drive in two rows, one line passing up the avenue and the other down; and sometimes, on the first of May for instance, there are two, three, or four lines of carriages on each side of the road. It is a brilliant sight. We can point out only a few of the most remarkable details. The Kaiser himself is seldom seen in the Prater. The turnout of first importance, therefore, belongs to the ex-King of Hanover, who is a frequent, if not a daily, visitor. Prussia took his kingdom, but left some of his millions untouched. Now he lives at Hiezingen, a village in the neighborhood of Vienna, where he keeps an army of vagabonds, a council of newspaper reporters and pamphlet peddlers, and a court of poor hangers-on. His coach is always accompanied by another similar coach containing his suit. Each of these is drawn by a span of six horses. Thus his Majesty's train is quite lengthy. The coaches have no boxes and the horses no drivers. The horses are driven in three pairs, and the nigh horse of each pair is ridden by a "jockey." These "jockeys" are clothed in tight silk trowsers of white, blood-red coat embroidered with gold, and huge periwig white with powder. Three other persons of the same aspect are placed behind the coach, standing on a small platform which is hung between the wheels. The whole array would, indeed, have been very imposing if the king had only been possessed of a kingdom, but he had none; and I could not forbear thinking of his rival, the honest old King of Prussia, who robbed his realm and some of his millions too. The latter rides in a very plain phæton, with only two horses, and I should never have imagined that it was the good, beloved King Wilhelm I met with in the streets of Berlin, had not half a hundred policemen preceded his carriage, and kicked and knocked people out of the way in quite regal style, crying enthusiastically: "The king! Hurrah!"

After the ex-king of Hanover come the Austrian archdukes, a number of tall youths, with their sandy beards and big red under lips, which latter, together with some big revenues, are said to be the only heritage they hold from their great ancestors. They ride in a sort of American hearse, on the top of which are placed, in the front, a calash-seat for the archduke and the archduchess, and in the rear is a spring seat for the groom. The dukes drive for themselves, and drive excellently. Of course all other carriages turn aside respectfully before them. After the archdukes follow the Princes of Metternich, Auerspery, Fürstenfels, Czartorisky, Esterhazy, etc.; they are counted by scores. And after them come the counts and the barons, which are counted by hundreds. At last ro ls along the banker, and though he has no coat of arms painted on his carriage door, his coach, and even his team, may be as splendid as any one's else.

The most attractive part of the whole scene for a foreign spectator is, no doubt, the show of horses. I have never seen English horses, but though I have heard them praised very much, I nevertheless doubt if there are to be seen at once elsewhere so many beautiful horses as in the Prater at Vienna. I speak, of course, of the Hungarian horses. They are more excellent even than the Hungarian wine. There must, indeed, be something in the soil of Hungary that gives those proud necks and those bright eyes to the inhabitants, for the horses have them too. They are not tall, but are rather long, round in the bodies, and exceedingly fine in the limbs. Fiery and fierce they look with their quivering nostrils and palpitating loins, and yet how docile they are. A good teamster, who is known to them, may drive them by a silk ribbon. They are often spotted, and even if they are of a uniform color, this is seldom pure white or pure black, but rather one of those mixed colors which suit a horse so well.

Pure white or pure black are not favorable for showing the forms of a horse. On the contrary, they set off even the most minute lacks of consummate proportion. A white or a black horse seems always to be too fat or too meagre, and it looks rather wild than fiery, rather drowsy than soft-tempered. Far better is the brown color, especially if well shaded; but the best ones are the mixed, such as gray, or grayish brown, or brownish yellow, or Isabella yellow. Does the reader remember that color? History mentions it with considerable gusto. When Queen Isabella was besieging Granada, the capital and the last spot of Moorish dominion in Spain, she made two remarkable promises—first, to give ships to Columbus for his adventurous expedition, provided that she took the city; and secondly, not to change her under garments until she had taken it. The siege lasted eleven months before the city surrendered, but these two great discoveries were thereby made—that of America by Columbus, and that of a new yellow color from the Queen's chemise. This color is much used by ladies for morning dresses and dust mantles, but it shows best as the color of a horse. I saw, indeed, in the Prater, four Isabella-yellow horses, with black tails and black manes, dancing before a light elegant vehicle, and never before and never since was I so anxious to own a horse myself, though I have always been very fond of them.

The carriages, on the contrary, would hardly please a spectator who was accustomed to the sight of American carriages. He would have considered them too heavy

and too large. They may be both elegant and noble in their forms, but they are, indeed, much heavier and a good deal larger than the American vehicles. The European coach is constructed upon another principle; it has not, as the American, a box for the driver and a seat for the servant. It is rather constructed after the fashion of a castle from the middle ages. It has platforms for sentinels in front and in rear. The European coach must be capable of carrying four, or even six, domestics outside. Previous to the great slaughter of European prejudices in 1848, the Danish king, when driving in a procession, was accustomed to have two chamberlains or under-chamberlains, with flowerpots on their heads, and naked swords in their hands, standing on each of his carriage steps. I am inclined to think that a European lady demands a more comfortable seat, or at least far more room, in her private pleasure-carriage than an American lady. A coach in the Prater, or in the Champs Elysées, is not made merely to carry a lady, but to display her, and if it has not room for the proper arrangement of some hundred yards of velvet, silk, laces, and ribbons, it will not suit her. At the time I last visited the Prater, there was one more reason for making the coaches as large as possible. It was the high tide of crinoline fashion, and at that time no girl thought herself decently dressed if she did not cover some five or six square yards. When Marie Antoinette took a fancy for wearing ostrich feathers in her head-dress, it cost France two millions of francs to have the doors of the Louvre and the Palace of Versailles heightened, that the queen might pass through them without spoiling her feathers. How much has it cost the world to have the carriages altered after the Empress Eugenie caught the caprice of concealing with crinoline what was triumphantly published in all the Paris newspapers, namely, that she bore the heir of the French crown under her heart?

In the midst of this ridiculous fashion for extreme size, which extended even to the carriages, the American buggy made its first appearance in the Prater. It was a spider-like vehicle, with a very small seat placed somewhere on the axles, between four huge wheels. It was wheels all of it, and yet these wheels were as fine and thin as a cobweb. They almost disappeared to the eye, when in motion, and thus the vehicle seemed to move in the air. At first, people considered it a new sort of plaything for children, but when a strong and quick trotter was harnessed to it, and the owner, a horse-jockey from Connecticut, a tall, raw-boned man, with a sharp eye and a huge chimney hat perched on the back of his head, put himself on the seat, the curiosity grew into amazement. And then the buggy, like a swallow, flew down the avenue, meandering among the pompous and sedate coaches of the Austrian nobility. The archduke dropped his whip from astonishment. The drivers of the princes grew red with rage, and we lookers-on jumped on the benches laughing and applauding and ridiculing this strange apparition from the New World.

CARRIAGE LIBRARY.

A LIBRARY is a powerful educator, and we believe it would be of great value to both employer and employees if a well-selected one, consisting mostly of mechanical books, were established in each large carriage factory.

In order to illustrate how good and practical a library for carriage-makers can be made up, and to render more available the suggestion we have made above, we presented in the September Magazine a list of about twenty-five books and publications in English which relate directly or indirectly to carriage-making. We do not think this list is by any means complete, but it shows how a good beginning can be made, and we invite the co-operation of all our friends in suggesting to us all other publications of a similar nature with which they are acquainted. With their assistance we hope in a few months to present a full list of coach-making works, and we trust the show of titles will make so favorable impression on some of our readers that they will be induced to carry out our suggestion and establish a shop library.

In the present number we carry on our plan by enumerating such French works as are known to us.

L'ART DU MENUISIER-CARROSSIER.—(The Art of Carriage Joinery.) This was published by M. Roubo le Fils, in 1771. Very rare.

MONITEUR DE LA CARROSSERIE.—(Journal upon Carriage Building.) This publication was started in 1850, under the editorship of Guillon.

LE CARNET DU PEINTRE EN VOITURES.—(Hand-book on Painting Carriages.) This book was edited jointly by Brice Thomas and Gastellier.

MERCURE UNIVERSEL.—Published in Paris.

MANUEL COMPLET DU PEINTRE EN VOITURES.—(Complete Manual of Carriage Painting.) By Gastellier.

We feel that this is far from being complete. In November we shall continue this subject.

PUBLIC PARKS.

ONE of the most interesting papers read at a recent meeting of the Social Science Association was that by Mr. Fred. Law Olmstead on Public Parks and the Enlargement of Towns. It is full of suggestion and sound thought, the result of many years of experience. Mr. Olmstead begins by referring to the almost irresistible tendency of population in all countries to gather into towns. The time was when the best sort of people liked living in the country, and the rural gentry were not only the most cultivated, but the ruling class. Even in England, which has so long been celebrated for its snug country homes and beautiful estates, on which the owners resided all the year round, maintaining a hospitable cheer, and keeping up the amusements of field and hall, people are rushing to the cities. Our farmers' sons and daughters are not happy unless they have the prospect before them of ultimately settling in town. The former want to become merchants or shopkeepers, in order to participate in city enjoyments, and the latter dream of nothing but city fashions, city delights, city beaux. London is getting to be more and more the heart of England, as Paris has long been the heart of France. Glasgow grows six times faster than the rest of Scotland, Berlin twice as fast as the rest of Prussia, and Dublin holds its own while Ireland depopulates. Such being the fact, it becomes one of the most important questions, how the people of the towns can be made most comfortable, most healthful, most refined, in a word, most civilized. Mr. Olmstead's answer is, by the proper regulation and planting of the streets, and the multiplication of parks which will admit of all kinds of neighborly recreation. Nor, in our opinion, does he exaggerate the importance of these means. The gregarious instincts of human beings are nowhere so safely,

harmoniously, innocently, beneficially gratified, as in the free, open-air assemblages of well-planned and well-regulated parks.

We New Yorkers, who have felt the inestimable benefit of the Central Park, will commend with all our hearts to the residents of smaller cities the wise remarks of Mr. Olmstead.

We do not believe, however, that the country is going to be wholly deserted for the cities; on the contrary, we think that by means of a park-like arrangement, rural neighborhoods may be made as attractive as any towns. The great drawback of country life, now, is its solitariness, or the want of those conveniences which are to be found only in larger aggregations of families. The farmer and his family are comparatively isolated, or, if they have neighbors they are so remote as to be of little use as society. Each house must suffice for itself, not only raising its own supplies, but furnishing its own recreations and amusements. If teachers for the children are wanted, they can only be had at great expense. Men of wealth, even, who retire into the country, very soon find themselves deprived of many of the comforts to which they were accustomed, of ordinary human intercourse often, and are glad to hurry away to the watering-places in summer and to return to the cities in winter. The remedy for this is in some sort of united settlement, where the lands, though not owned in common, may yet be laid out in common, and where a sufficient number of families will be joined together to command a good market, good mechanics, good teachers, and an adequate social intercourse. We have heard of one or two of these settlements, not far from this city, where all the advantages of both town and city life are combined to a surprising degree. The residents have their separate houses and patches of ground, but a common park to ride and walk in, plentiful supplies, good society, a frequency of amusements, and, in short, such attractions, that instead of going to Newport or Saratoga in the hot months, and instead of returning to the Fifth Avenue Hotel or the Everett in the winter, they stay all the year round in their own homes. Such rural parks, if more generally established, would counteract the tendency to concentrate in towns, and lend a charm to country life which, to the greater part of people, it has not now. To ruralize the cities, as Mr. Olmstead proposes, by shade trees and public grounds, and urbanize the country by contiguous buildings and the clustering of estates, are at this time the supreme *desiderata* of a higher civilization; and without them, it appears to us, both city and country will degenerate.

PITT INSURED BY HIS COACH-MAKERS.

The greatest British minister of the last century died insolvent, and from this arose a most interesting insurance action.

In 1803 William Pitt was indebted to Godsall & Co., his coachmakers, for over $5,000, and to make sure of some part of this, in case of his death, they insured his life for seven years with the Pelican Company, for $2,500, at the rate of about sixteen per cent. In 1806, three years after this, the premier died without sufficient assets to meet his liabilities. The greatness of his services to his country, and the proof of his self-abnegation, which was afforded by the fact that he died in debt, demanded an acknowledgment, and the State determined very properly to pay his creditors. This did not satisfy the coach-makers, and immediate claim was made by them for the $2,500 insured. As they had received, however, the entire amount of their bill from the State, the insurance company refused to pay, on the ground that the insurable interest in the life of the deceased had been terminated by the payment of his debts, and that the insurance was to meet a special debt, since discharged. On a trial of the case, the court decided against the coach-makers.

THE DESERT WAGONER.

The following singular piece of versification, printed in the *Territorial Enterprise*, is written by a man who crossed the plains some years since, and has experienced all that which he describes so well. There is much real artistic merit in the poem:

Alone! Alone!
Night after night
Alone!
I lie and watch the stars
Or count the fleece-clouds in their flight
Across the track of Mars.
Stillness! Stillness—
Pains the listening ear,
Far off, around, above and near—
Save where the horses, weary with the day,
Tramp round the wagon—grinding—grinding hay.
No human landmark
And no social sign;
Naught but the sand-mark
Of the wagon line.
And here I lie, or sit, and peer around
Among the sage-brush on the arid ground—
But yonder! yonder!
Far across the plain,
Loom grandly the tall mountains;
Stony, sterile, with no fountains;
Thirsty—drinking all the summer rain.
Looming! Looming!
Darkly, lifting high
Their ancient heads
Athwart the starry sky,
While nature treads—
In night-robes sombre clad—
With slipper-footed Silence
Chill and sad—
Among the rocky, torn and rugged scars;
The canyon rifts of elemental wars.

Alone! Alone!
If I should die
Alone!
Without a helping hand,
Or one fond, faithful, tearful eye
To light me from the land!
Stillness! Stillness!—
Then will be profound,
Save where the horses stamp the ground,
Clanking their halters on the sounding wheel,
Feeling, in hunger, all they know to feel.
No funeral tramping
And no church's sign;
A dead man's camping
Off the wagon line.
And here I lie to think, or sleep, or die,
Among the sage-brush, roofed with all the sky;
But yonder! yonder!
Monuments arise;
God's handiwork, in masses,
In the night wind, as it passes,
Singing, singing glory to the skies.
Looming! Looming!
God's majesty is here!
No Jewish story—

Only truth so clear.
Majestic glory
Of a fact, with Nature
Bowed in silence at his feet.
His creature—
That is me—I'll lay me on my pillow hard
And sleep: the Universal Keeper is on guard.

Alone! Alone!
I wake at dawn,
Alone!
And watch the softer light
Where fair Aurora's robes are thrown
Full in the arms of Night.
Stillness! Stillness!
Welcomes me again.
Refreshed, renewed, without a pain,
I raise my head to hear the beggars' neigh—
My horses—"Ho! ho! How about more hay?"
No other life abroad
Save me and mine;
Deserted is the road;
No smoke along the line!
But now I'm busy, and I do not muse
On gravest matter or important views,
Yet yonder! yonder!
Near, across the plain—
Loom grandly the tall mountains;
Stony, sterile, with no fountains;
Thirsty—drinking all the summer rain.
Looming! Looming!
In the golden flood.
No printed leaf
Or story about blood,
With grief on grief—
But glorious masses
Flinging back the light to us—
Poor asses!—
Who, without reason, show, or cause,
Think we can pray a crook in Nature's laws.

—*Singleline.*

Paint Room.

COMPLEMENTARY COLORS.

The fundamental principle to be observed in the tasteful arrangement of colors is that relation between them which makes two colors complementary. Without a thorough knowledge of this phenomenon of colors which we call "complement" and its cause and its effects, the painter will never be able to use colors as colors ought to be used, for, indeed, all their power of setting off each other, and all their capacity of melting together into harmony, rest on this relation between them.

In some way or another almost every person will at times evince some appreciation of the foregoing fact. Thus it often happens when buying red yarn or cloth, and choosing the tint, that customers will declare the specimen which was first shown them to be the most brilliant or even the only bright and pure one, or they will even protest that all the others, especially that one which was shown them last, are greyish and dull; and they will perhaps even feel a little offended if the merchant, not knowing the only argument possible, denies their statement, and tells them that the case is quite the opposite. He may, however, be right. It is the customer's eyes which are greyish and dull. They have become tired by gazing for a long time at the same color, and they seek for rest in the complementary color, which in this case is the green, which their eye itself produces, and with which they mix the red. The only way to settle the matter is to place something green among the red colors and make the customer look on that. Within a minute his eyes will recover their natural power to discriminate between the several red tints. We give another instance of this: In a silk dress with sky-blue ground and white flowers, some of the flowers will appear white and some orange, and, when in motion, the white flowers will become quite orange and the orange white, as the blue ground happens at times to subdue the white color, and throw over it its own complementary color, namely orange. The following is a still more striking proof of the power of this relation: If we hold a large surface of red cloth before the sky or a wall so that the sunshine falls directly upon it, and then look steadily on it for a minute or two, we shall see it surrounded with a green border. Thus every color attracts to it more or less perceptibly another one, namely, its complementary color. This is the fact. Now, we will try to give the explanation:

If a ray of solar light falls direct upon a sheet of white paper, it will be reflected unbroken, and the sheet will remain white. If the ray, on the contrary, is led through a prism, it will be broken and decomposed, and the sheet will show a sort of solar spectrum, exhibiting the three primitive colors, red, yellow and blue, with their chief mixtures, orange (red and yellow), violet (red and blue), and green (yellow and blue). The sunbeam, indeed, which, when unbroken, gives white light, contains, when decomposed, a number of colored rays, and is thus able to produce every variety of color. The blue-colored body is blue, because it reflects the blue rays and absorbs all the others. The yellow-colored body is yellow because it reflects the yellow rays and absorbs all the others, and so on. If all the rays are equally reflected, the body is white; if all of them are equally absorbed, the body is black.

Now, two colors are called complementary if one of them reflects those rays which the other absorbs, and vice versa, so that if the rays reflected by the one were added to those reflected by the other, white light would be produced. Thus green is the complementary color of red, because red, blue and yellow give white, and green is a mixture of blue and yellow; orange, being a mixture of red and yellow, is the complementary color of blue; violet, being a mixture of red and blue, is the complementary color of yellow. But as the whiteness is the divine nature of light, and the eye is busy always in gathering and melting together the broken and decomposed rays with whiteness, the importance of that relation between two colors which makes them complementary will easily be understood. As the soul seeks for clearness and certainty by referring all the intricate cases of earthly life to the simple decision of the divine commandments, so does the eye seek for rest and repose by uniting the colors with which nature and art surround it into one single combination, making up white light. White light is the source of all the colors, and it is their soul. It is the invisible but powerful agent which spreads them into glowing life, and which gathers them into sweet harmony. To arrange colors so that they may unite with readiness and reflect white light is the great mystery of harmony of colors, but he who understands the phenomenon of complementary colors, and understands how to deal with it, has, indeed, lifted the veil from the mystery. Thus it will often occur that a large surface, if covered with one single color, for instance, a wall painted with a bright tint

of brownish red, will appear dazzling to the eye at the first moment, but in the next will be unpleasant. Here draw around the surface a border of due proportion and exactly of the complementary color, and the whole surface will become rich and splendid, and perfectly harmonious.

Harmony, however, although it is the supreme law to be observed in applying colors, is not the only one. There is harmony which is tame and dead, in which all colors have faded away, and such a harmony is of course an outlaw. As it is not the aim of the divine commandments to remove all the beauty and comfort of earthly life, leaving only a barren asceticism, so it is not the aim of harmony to blot out all colors with white, or to subdue them into grey dullness. On the contrary, colors have an intrinsic value, and the most beautiful harmony is that one which comprises the purest, brightest and liveliest effect. But here again we meet with complementary colors. This relation is effective, not only in making harmony by softening and melting together the different colors, but it is still more useful in showing off the several colors which are placed in juxtaposition, by making them brighter and purer.

Mr. Chevreul, the learned French chemist and director of the dye works of the Gobelins, has published a very remarkable book about this matter, which Mr. John Spanton has translated into English, under the title: "The Laws of Contrast of Colors." A considerable number of facts relating to the influence of juxtaposition of colors are noticed and explained in this, but an attentive scrutiny of these facts will establish it as a general rule that a color, when placed contiguous to another, modifies it by throwing a shade of the complementary color over it, and is itself modified in the same manner. Thus when orange and green are placed beside each other in a pattern, the orange will throw a shade of its complementary color (blue) over the green, thereby making the green bluer and less yellow, and the green will throw a shade of its complementary color (red) over the orange, thereby making it redder and less yellow. When violet and blue are placed contiguous to each other, the violet will become redder and the blue greener, and so on. If the two colors juxtaposed are complementary, the juxtaposition will make them brighter and purer. The red will become redder and the green greener.

The explanation of this fact is this: As there is no body absolutely white or absolutely black, that is to say, a body which reflects or absorbs perfectly all the rays of a sunbeam, there is no perfectly red, yellow, or blue body. Every body reflects at once many differently colored rays, and it has this or that color only because this or that kind of colored rays is reflected in the greatest number. Hence the immeasurable number of tints and hues. When now a color is said to throw a shade of its complementary color over every other color juxtaposed, this means that every color induces the eye, which is always busy making white light, to catch every ray of the complementary color which may be reflected from a juxtaposed color. Thus the red color will induce the eye to lay hold upon every green ray which a juxtaposed blue color reflects, and it will thus make the blue greenish, while the blue will make the red as orange as possible. The painter, therefore, when placing two or more colors contiguous to each other, has first to ascertain how these colors will modify each other, for the juxtaposition will enchance or spoil the effect, according to the influence of complementary colors. It will make the colors juxtaposed brighter and intenser, or it will make them dull and gray.

Some striking remarks in "Le Guide de Carrossier," about a coach exhibited in the Havre Exposition of 1869, give a very good illustration of this: "The ground-color of the body and of the carriage parts was ivory black. The carriage parts were set off with a stripe of ultramarine blue and two stripes of gold-yellow. The panels of the body were striped with one line of gold of the same breadth as those of the carriage parts. But here a very striking contrast appeared between the stripes of the body and those of the carriage parts. The former, applied on a black ground, appeared with all their lustre and brilliancy, while the latter, on the contrary, placed beside the blue stripe, appeared orange-yellow, and this to such a degree as to make the spectators believe that two entirely different shades of yellow had been employed." The cause was this: It was the blue stripe that threw its complementary color over the gold-yellow, and weakened its effect.

SPOTTING OF VARNISH BY MUD.

Mr. Editor: We have been using the best American varnish with satisfaction for some time past, but we find one trouble. It is liable to spot when mud dries on it. Inclosed we send you a sample board, which has been varnished for at least two months. We covered one end of it with mud, such as our work is commonly exposed to in this part of Illinois, and let it stand over night, after which we carefully washed it off by pouring water upon it, and wiping dry with buckskin. You see the result. We have denoted the end on which the mud was put, and you see the gloss on this end is nearly destroyed. In washing it, all parts of the panel were treated alike. Several carriages have returned to us, which had been covered with mud and washed, on which the effect was very similar. If you can, through *The Hub*, throw any light on this important question, we shall read it with great interest. We like the working of the varnish which we have very much; but if mud continues to affect it in this way, we shall, of course be obliged to quit using it. We hope you will help us to discover the cause.

Robert S.

We have carefully considered the panel sent us by our correspondent, and have talked with several carriage-makers about it. In certain cases all varnishes are liable to retain mud spots, and this is particularly so with the highest grade of coach varnishes, including English, which are slow in drying. We are glad the subject has been brought before us, and there are some points we can speak of which may be useful to Mr. S. and to others of our readers who are troubled in a similar manner.

First, the Cause. Our theory in regard to the cause is as follows: The mud which is found in many parts of the West has a very corrosive action upon varnish when allowed to dry thereon, and this effect has often been ascribed to the lime which exists in the soil of that region. But as lime cannot long exist in a caustic state, but speedily becomes a harmless carbonate when exposed to the air and moisture, and never occurs in nature in an alkaline state, this theory is improbable. We

therefore look elsewhere. Any one who has traveled in the West and South must have noticed the extremely adhesive character of the mud in question, which, being composed in great part of clay, adheres with remarkable tenacity to surfaces with which it comes in contact. In our opinion, its action on varnish is similar to what takes place when oil stains are removed from a carpet, or from clothing, wood, or marble, by spreading a layer of pipe-clay on the spot. In this case, the oil is absorbed by the force of the capillary attraction with which the clay is endowed by reason of its porosity, and the stained surface is made clean. In the same manner when the clayey mud is left to dry on varnish, the water evaporates and *the porous clay acts upon the varnish, absorbing a portion of the oil from its surface, and the brilliancy is thereby destroyed.*

Accepting this theory as the true explanation of the trouble, we next turn to the cure.

The Cure. When varnish is thus deadened by mud, *its lustre may be restored gradually by washing frequently with cold water and by sunning.* Light and fresh air have a powerful influence in preserving a varnish, and when it is observed that it is growing dull, the carriage should be run out of the stable or repository and given a good sunning and airing. If advantage is taken of these restorers, our correspondent will undoubtedly find the carriages he mentions will look much brighter in October and November than they did at the time of his writing.

A Prevention. This is still more important than the cure, for "an ounce of prevention is worth a thousand pounds of cure." We know of but one way to avoid the spotting of varnish in those regions where clayey mud abounds, and that is to *use a harder drying varnish* during the summer months, *which would offer greater resistance to the absorptive power of the clay.*

We have sent the sample panel to our correspondent with one edge of the discolored part washed off with a strong soap, and we have requested him to return it to us after examination that we may follow out this question.—*The Hub.*

LINSEED OIL.

This is the most important of the drying oils, and forms a most important constituent in the manufacture of varnish. It is obtained by expression from the seeds of common flax, which is extensively cultivated in the European countries, both for the oil obtained from its seeds, and for its fibre, which is used for producing thread. It is said to be a native of Britain, and yet it appears that flax-seed was not sown in England until about 1533, when it was directed to be sown for the production of flax for the manufacture of fishing nets. The small seeds, commonly called linseed, are smooth and of a glossy brown color, and have an oily taste.

There are two varieties of this oil. The most valuable is the "cold drawn," which is extracted by cold expression, and is paler, less odorous, and has less taste than that obtained by aid of heat. By cold expression the yield of oil is from twenty-one to twenty-two per cent. of the seeds, and by assistance of heat, combined with a powerful and long-continued pressure, as much as twenty-eight per cent. of oil may be obtained. If a very pure oil be required, the process of cold expression must be pursued, and as the utmost degree of purity is the great desideratum in varnish making, this quality is generally employed by makers of high-grade varnish. A very good oil, however, may be obtained by a steam heat not exceeding 200 degrees. The *marc* remaining after the expression of the oil is generally known as *oil cake*, and is an article of great importance to the agriculturalists of those countries in which flax is grown, being extensively employed, especially in the winter season, as food for cattle.

Linseed oil is the most important of the drying oils, whose characteristic is that when exposed to the atmosphere they become converted by the absorption of oxygen into a transparent resinous body of varnish, especially when they are in a thin strata; while non-drying oils, of which class olive oil forms an example, change under the same circumstances to a thick and viscid mass, and acquire rancidity and an offensive smell.

Saussur particularly investigated this action of air and oils, and found that newly expressed oil is scarcely affected by the oxygen of the atmosphere, but that after a variable period, sometimes of several months, but dependent upon temperature and exposure to light, it begins to absorb oxygen very rapidly, and to evolve hydrogen. He mentions an experiment in which a quantity of oil stood eight months and absorbed only three times its bulk of gas, but in the course of ten days during the last month it absorbed sixty additional volumes. The absorption then diminished gradually for three months, at the end of which time it entirely ceased, having taken up 155 times its bulk of the gas. This was with nut oil. Under certain circumstances the action of the oxygen may become so energetic as to lead to a considerable elevation of temperature and ultimate inflammation. This is particularly the case when the surface of the oil is greatly extended, as in case of oily wool or hemp, or greasy cloth, which, when left in a heap, frequently takes fire spontaneously, and often causes the destruction of mills, warehouses, and ships. This fact may be proved experimentally by placing paper, linen, or cotton, slightly imbued with linseed oil, in contact with sun and air, and they will quickly inflame, especially when in heaps. This spontaneous combustion is due to the rapid absorption of oxygen by the oil, the hydrogen of which is inflamed by the heat hitherto existing in a latent condition, but now given out from the gas at the moment of its absorption.

Linseed oil, like most of the vegetable oils, is obtained by expression, as follows: The seed is first passed between iron rollers in order to crack the shells. They are introduced into a hopper, through which, by means of a fluted roller, they are caused to descend between the crushing rollers, after passing which they fall into a receiver. They are then passed under two vertical granite millstones, which bruise them to a pasty mass, and this then heated to a greater or less extent by being placed in pans over an open fire, or in connection with steam or boiling water. The object of the heat is to coagulate the albumen contained in the seeds, and which would otherwise retain a large quantity of the oil, and to render the oil more limpid, and therefore more easily expressed. The mass is then transferred to a hydraulic press. The old method of pounding the seed in hard wooden mortars, with pestles shod in iron and set in motion by cams driven by a shaft turned by horse or water power, used to be used. The bruised seed was then transferred to woolen bags, which were wrapped in horse-hair cloth and squeezed

between upright wedges in press boxes. This arrangement, known as the watch mill, is still obstinately adhered to in some districts of England, Great Britain, and on this continent, being supposed to be preferable to the hydraulic mills and presses, which have in modern times almost entirely superseded the old method.

A LONDON PHAETON.

A horse-show was lately held in London, in which was exhibited quite a variety of carriages. Indeed, this department is said to have been well represented, and very interesting. In the report of this show occurs the following brief description of the painting of a mail phaeton, which is spoken of as being particularly pleasing: "The ground was of deep invisible green, the picking-out of emerald green, with a fine line of orange running down the center of the picking-out. The effect of this was excellent." The deepest shades of green, blue, and brown are exceedingly pleasing in many kinds of dress and furniture, but they generally appear as black, until a lighter shade of the same or some other color is placed contiguous to them, causing their actual hue to appear. We can easily imagine how happily the emerald green affected its ground work of deep green, enlivening and brightening it. And again, the orange tended to make the emerald green still more effective.

Pen Illustrations of the Drafts.

FULL-SIZE LANDAULET.

Illustrated on Plate XVII.

The outlines of this design are good throughout. Its points of construction need no detailed description. Price $1,500.

DICKEY-SEAT VICTORIA PHAETON.

Illustratad on Plate XVIII.

This style of carriage is always pleasing, and the design which our draftsman has given us this month is no exception to the rule. It is a pleasant vehicle for the park, being light and airy and easy in motion if well constructed. The height of the wheels should be about 3 feet and 3 feet 10 inches. Brown moroccos are still popular for trimming this style of vehicle. The price will vary with the workmanship from $400 to $500.

EXCELSIOR ROCKAWAY.

Illustrated in Plate XIX.

The above-named plate gives a very graceful design for a rockaway. The outlines are exceedingly pleasing, and we can suggest only one improvement, namely, to make the back line of the body cut straight, in order to agree with the other lines, which are generally angular.

Painting.—A deep brown, striped with a broad line of lighter brown. The stripe of lighter brown would be relieved and the carriage parts be made still richer by a delicate line of gold or of straw color down its center.

Trimming.—The color of the trimming should be a nice shade of brown, corresponding with either of the shades used in the carriage parts.

New York Charges for Repairing.—*Wood-work:* Hub, $5; new spoke, $1; rimming wheels, $20; half-rim, $3; drafting wheels, $1; back spring-bar with carved center-figure, $15. *Iron-work:* new tires and bolts, $35; re-setting tires, $8; tire-bolts, each, 25 cents; washers and oiling axles, $2; re-setting axles, $10; carriage-bolts, each, 30 cents. *Painting:* burning off old paint and re-painting, $125; coloring and varnishing body, painting and striping rims, and varnishing carriage-part, $100.

TURN-OUT-SEAT PHAETON.

Illustrated on Plate XX.

This drawing represents a road phaeton of a very pretty pattern, which we think will be pleasing to our subscribers. For park driving and for an open carriage generally this is well calculated, and when accompanied by a nobbily-dressed footman, perched in the turn-out-seat, a gentleman so inclined may make quite a show.

The Leading Dimensions are as follows: Width of body, 45 inches; wheels, 3 feet 10 inches high and 4 feet; hubs, 3½ inches by 6½, with spokes and rims to correspond with the size of hubs; and steel tires, ⅜ by 1 inch. Price, from $450 to $550.

New York Charges for Repairing.—*Wood-work:* hub, $5; spoke, $1; running wheels, $10; drafting, $1; axle-beds, each, $4; perch, $5; head-block, $3; spring-bar, $2; shaft-bar, $2; shaft, $4; pole, $9; yoke, $7.50; fifth-wheel bed, $2.50. *Iron-work:* New iron tires and bolts, $22; tire and carriage-bolts, 25 cents each; elliptic spring, $15; new fifth wheel, $6; re-setting an axle, $6. *Painting:* Touching-up and varnishing, $50; burning-off and re-painting, $150. *Trimming:* Leathering shafts, $6; re-covering dash, $12; whip-socket, $3.

ROAD BUGGY.

Illustrated on Plate XX.

This forms a very neat pattern of road buggy, and if agreeably painted would make a good appearance. In regard to colors, black lined with gold is always rich and always in style; but for this class of buggies a tint something brighter is generally better, provided the color used is in style. For the groundwork of the body and gears of the one in question, we would suggest a deep brown, lined either with vermilion or carmine. There are shades of straw color which are complementary to the deep shades of brown, this would make an excellent striping color, especially if set off and brought out by a line of light green on each side of it. The trimming should be brown.

Dimensions.—Height of wheels, 4 feet and 3 feet 10

inches; hubs, 3¼ by 6½ inches; spokes, ⅞ inches; rims, 1 inch; steel tires, ¼ by ⅞ inches; manufacturer's charge for the buggy, $300.

Workman's charge for building the body, $18; carriage part, $8; wheels, $10; shafts, $3.50; spring-bars, $3.

New York Charges for Repairing.— *Wood-work:* New set of wheels, $75; hub, $5; spoke, 75 cents; new rims, $16; drafting wheels, $1; new shaft, $4; shaft-bar, $2; spring-bar, $2; axle-bed, $4; perch, $5; head-block, $3. *Iron-work:* New ties and bolts, $20; re-setting ties, $8; tire-bolts, 25 cents; carriage-bolts, 30 cents; fifth wheel, $5; re-setting two axles, $6. *Painting:* Touching-up and varnishing, $35; re-painting, $75. *Trimming:* Re-covering dash, $12; body-lining, $40; leathering shafts, $7; whip socket, including pat. fastenings, $3; check-straps, $1.50; oil-cloth carpet, $2; velvet carpet, $4.

Trimming Room.

SOMETHING ABOUT TRIMMING.

Of all the departments of coach-making, trimming is the most difficult for us to treat upon, partly because it is a mere matter of taste, and consists of small details so minute as to escape almost every general rule; and partly because we have been benefited with but little correspondence from the trimming-room. We beg our readers among the trimmers to consider the following article as only preliminary, and we hope they will favor us with an occasional letter under this head, giving their ideas and experiences.

One would think that the most important part of the trimmer's art consisted in choosing the colors. We do not think this is so, however. As far as we have observed it is the question of *fashion*, and not the trimmer's taste, which denotes and always has denoted the colors to be employed. At this time, for instance, eight carriages out of every ten are trimmed with brown. Some ten years ago an equal number were trimmed with grey. Every color seems to have had, and is likely to have again, its fashionable period, and the trimmer is, to a certain degree, bound to use the fashionable color, whether he likes it or not.

What makes a color fashionable? Sometimes it may be some *practical observations*. For instance: if, while most carriages are trimmed in brown, the weather should be unsually warm, dry, and dusty, for two or three seasons, grey would, doubtless, be fashionable thereafter, because dust is very discernible on brown, and nothing is more disagreeable than to sit down on a dusty seat. Or, if grey was then the fashion, and the season became very wet and rainy, brown would, doubtless, take its place, because grey looks, when wet, worse than any other color. Often it may be a *notion* which makes a color fashionable. When, for instance, a people wages war, the colors of their flags will appear in the ladies dresses, in the trimmings of the carriages, in short, wherever colors are used, and always they will be hailed as something of the greatest beauty, while at the same time the colors of the enemy's flag will be abhorred as something of the ugliest on earth. * Most often, however, *chance* is the mother of the fashion. When people have no time or no mind to find out for themselves what they like the best, they suffer chance to take care of the matter, and they adhere to its determinations the more firmly as there is no reason to adhere to them at all. The most unreasonable fashions have always proved to be the most tyrannical. Thus, every color whatever may happen to be used and considered nice in the trimming of a carriage, and oftentimes the trimmer has only to take the color which fashion dictates, without any exercise of his own taste.

As to the arrangement of the color chosen, there is a general rule which may well be followed. In trimming a carriage, the trimmer always uses two or three different colors, or two or three different shades of the same color, and he applies this difference of colors in order to brighten and set off the main color. He is compelled to use only a lustreless color as a main color, because rain, dust, and sunshine would spoil very soon even the most splendid lustre, and give the whole trimming a worn-out aspect. Thus he always has to vivify and never to soften the main color used. Now the rule is this: *Deep colors applied to a light ground soften and weaken it, while, on the contrary, light colors applied to a deep ground, lift, enliven, and brighten it.* That this is the true relation between bright and dark colors, and between light and deep shades, is easily proved. When going through a street every one will observe that signs painted with gold on black, or with white on blue, are more prominent and distinct to the eye than those painted with black on gold or on white. When a railroad train rushes by, the white inscriptions on the dark-red freight cars are easily read, while, on the contrary, the black letters on the yellow passenger cars cannot be discerned. The dark color seems to melt down in the bright ground, subduing its dazzling lustre, softening, weakening, perhaps spoiling it. The bright colors, on the contrary, shine out from the dark ground, making it purer, lifting and enlivening it. And, therefore, we think it a just rule for the trimmer always to use buttons, welts, ribbons, laces, etc., of a brighter color or a lighter shade than the groundwork.

We do not, however, lay much stress upon the arrangement, and none at all upon the choice, of colors in trimming. The chief point in the trimmer's art is the question of patterns; a nice pattern in the trimming executed with skill and accuracy can give an agreeable and inviting aspect to a heavy and not very happily planned body, while a poor and poorly executed pattern in the trimming very often has spoiled the body-maker's finest ideas, and made clumsy what was before light and elegant.

The first thing that is essential to a good style or pattern in trimming is that it does not impair, nor conceal, nor in any way interfere with the outlines of the body. It is now very common to fasten the flaps of the top outside on the body in such a way as to conceal entirely the distinct lines of the wooden body, and substitute the loose, irregular lines of the flabby leather covering. It may be necessary from several reasons to fasten the flaps outside

* When Austria and Prussia fell upon Denmark, many new and elegan "Droskies," or hackney coaches, in Copenhagen had to be painted and trimmed anew, because their bodies were yellow, their tops black, and their seats purple, and black, red, and yellow being the German colors, nobody in Denmark would ride in Droskies thus painted.

on the body; but, if so, the trimmer and the body-maker have to find out how to do it without spoiling the outlines of the body. The way by which it is generally done at the present time is not right; it gives the carriage an aspect of night-cap and preparation for bed. Even the lightest and most elegant carriage will look clumsy and drowsy when the loose, tattering lines of the calash are allowed to take the place of the sharp and firm lines of the body.

It is not sufficient, however, that the trimming avoids concealing the outlines of the body; it must, moreover, aid in showing them. In the inside trimming, for instance, of a landau, we should advise the use of two different patterns, one for the top and the other for the seats. The former ought to be plainer and simpler than the bottom, and with few straight lines, always drawn vertically, in order to produce an impression of lightness. The pattern to the seats may be ampler, more intricate and with curved and crossing lines, which will tend to give an impression of warmth and comfort and solidity. If the same pattern is applied to both top and bottom, one is likely to receive the impression that the top is as heavy as the body, and like this, made of wood. If the pattern of the top is smaller and more complicated than that of the seat, it would perhaps appear as if the whole carriage was overturned, the solid and heavy parts being uppermost, and the fragile and light ones beneath.

This statement, however, and, indeed, most of the remarks made in this article, need be illustrated by examples taken out of a larger experience than ours, and perhaps they need to be modified and corrected. They are meant as suggestions, and we shall be glad if they occasion our readers among the trimmers to become our correspondents upon some of the subjects which they merely outline.

TEXAS TRADE NEWS.

The following article, on the condition of things in the South, has been kindly furnished us by Messrs. Robinson & Beard, carriage makers of Kaufman, Texas:

The press of the South is charged with the solemn responsibility of teaching the public how to grapple with the changed condition of the country, and how to adapt themselves to the present order of things. It is wholly immaterial how they were brought about, or who is responsible therefor—it is a duty we owe ourselves to make the best of our condition. But it is apparent to the most superficial observer that the public mind at the South is undergoing a great change in relation to many things. Before the war there was not a single cotton or woolen factory in Texas; now there are some ten or fifteen, and all are doing well. The mechanics in the South, in the days of slavery, were poorly patronized, and, as a general thing, were barely able to make a scanty support for their families. It is useless to disguise the fact, that slavery, like all other capital, was timed, and that it cannot bear competition with free labor. It was, therefore, the interest of the slaveholder to prevent the establishment of any extensive machinery which called for skilled free labor. With the loss of slavery these fears were dissipated, and every well-informed and reflecting man in the South begins now to see the importance of introducing into the country all kinds of labor-saving machinery. The mechanics of the South are generally unable to supply themselves with the necessary machinery, and hence they are barely able to live by their daily toil. Take as an example: our readers will observe that spoke machines may be bought for $250, capable of making from 1,200 to 1,500 spokes per day, and the necessary machinery for making wagon hubs, for the same price, that will make 450 hubs daily. Now, we are told by mechanics, that twenty-four spokes, or four wagon hubs, is a good average day's work for a hand. If this statement be correct, it will be seen that two hands, with $500 worth of machinery, can do the work of over one hundred hands without any machinery. We make this calculation for the purpose of encouraging our home mechanics to procure the necessary machinery, and with it go to work like men who intend to do something for themselves and country.

For one, we would like to see the towns and cities of the South become temples of industry, instead of being the resort of loafers and gentlemen of leisure. It is a duty every one owes to his country to point out the best mode of advancing the community in which he lives. As this county is destined to be, at no distant day, the great railroad center of northern Texas, the most productive and desirable spot in the South, so we would like to see it become famous for its mechanical pursuits and manufacturing establishments. Our readers need not be surprised at our zeal; the public good and general prosperity of the country is the only reward we ask or expect. For the establishment of extensive factories, for making carriages and wagons, and the various labor-saving agricultural implements, no part of the United States presents better facilities than this. We are in the center of the bois d'arc region of texas. The supply is exhaustless. The Bois d'arc fork of the Trinity river passes through this county, and its bottom is a dense forest of bois d'arc trees. This bottom will average two miles in width and fifty in length. The timber is of the most rapid growth, and its increase will be more than equal to its consumption. Persons living at the North, who have seen bois d'arc hedges, would be astonished to see a stately bois d'arc tree measuring two or three feet in diameter. This timber is the most durable in the world. We will venture the assertion that no living man ever saw decay in this remarkable timber. The running gear of a wagon that has been in constant use over twenty years is before us as we write this article, and yet the wood-works are, to all appearance, as sound as when turned out of the shop. There is an oil in the wood which fills up the pores and prevents either air or water from affecting it. No one can tell how long it will last, even when exposed to the weather. It is not affected by the rays of the sun, and hence it never shrinks. A carriage wheel made of bois d'arc will run until the tire is worn out, without having it to cut. But the greatest evidence of the superior quality of this wood, for wagons and carriages, may be estimated from the fact that a rough home-made bois d'arc wagon is worth about double the best Northern made wagon.

THREE-WHEELED OMNIBUS.

A Melbourne correspondent of the *Scientific American* gives the following description of a novel sort of street conveyance, which was recently patented by a Mr. Dyer, and has attracted considerable attention in Melbourne. The main principle involved in this new contrivance is the carriage of the load below the centre of gravity. It

will be seen that the arrangement of the seat is identical with that which is observed in many of the street cars used in Brooklyn and other of our American cities.

Instead of the passengers being inside the vehicle, as at present, they are all outside of it. There is no close box into which twelve human beings are stuffed to inhale each other's expirations and exhalations. There is no crushing up for a seat, or putting seven in a space intended for six and not too large for five. All inconveniences are avoided by placing the passengers back to back, instead of face to face. The new omnibus has only one hind wheel, instead of two; and this one wheel, placed in the center of the vehicle, does the work of the two now used. A light and elegant roof covers the two rows of seats, and reaches down in front far enough to shelter the passengers from rain or sun, but not far enough to obstruct their view of the opposite side of the street in which they are going. There are aprons also which draw up from the foot-board, as a protection in wet weather. The vehicle is therefore much lower than the present omnibus, being only about eight feet in height. A passenger steps in and out at one effort from the street into his or her own separate place or division. The large wheel at the back is quite concealed, and revolves in a closed case or sheath some twelve inches in width. The seats being on two sides and the end, and being comfortably padded at the back and cushioned, the vehicle will somewhat resemble that piece of furniture known as an ottoman, with arms to it and a roof overhead. There will be an immense economy in construction, as there are no doors, no glazing, no painting of sides, no internal paneling, and only three wheels, instead of four. The draft on the horses will be much lighter, as the friction will be diminished by one-fourth at least. In addition to this it is known that a wheel of large diameter is much easier to draw than one of small, so that there is no doubt but that the draft will be very largely lessened. The weight of the vehicle will not be more than two-thirds of the present one, and the cost also. The vehicle, nevertheless, is not adapted for bad weather.

Editor's Work-bench.

APPRENTICESHIP.

In England a boy who intends following a branch of coach-building is apprenticed at fourteen years of age, and held seven years, or until twenty-one. The parent usually gives the coach-maker, to whom his son is apprenticed, a bonus of £100 at the start, and in this case the boy receives four shillings per week for the first year, and one shilling per week additional for each subsequent year, so he receives ten shillings per week in the last year. If the parent is unable to pay the bonus, the boy works for two years without wages, receives four shillings per week for his third year, and one shilling per week additional for each subsequent year.

After the apprentice has served his time, the boss employs him for three months at the jour's wages, and the apprentice is then entitled to become a member of the Society of Coach-makers. Afterwards, the boss sometimes recommends him to travel for two years, working in different cities and different shops, picking up ideas in each, and at the end of that time he may return to his former employer. This system of training a hand insures to the coach-painter a thorough knowledge of his important branch, and, by writing to the Secretary of the Society, a boss in want of a good mechanic, may be generally referred to a thoroughly educated one.

In this country a boy works for two or three years in various shops, without any binding, sandpapers a little here, stripes a little there, and varnishes a little in the other place, but, having no regular instruction in the art step by step, under an experienced boss, his knowledge is often very limited. There is in this country a want of method in the matter of educating boys to a trade, which is lamentable, as the present system produces but seldom a thoroughly educated mechanic. We would suggest that it would be of great practical value to the trade if coach-makers would consider this important matter, and make some arrangement by which boys could see that it is for their own interest to stick by the same employer and to give facilities for inducing boys to make the trade a study, and thus to become masters of the branch to which they belong. We will not offer any plans in this place for securing these results, but shall be glad to hear from our correspondents upon this subject.

HEARSES.

The hearse generally used in northern Europe consists of a heavy wooden platform, placed, without springs, on two very strong wooden axles, between four low, broad-tired wheels. The whole is painted black, without ornaments, and the platform is covered with a carpet of wool or velvet, trimmed with a border of white or silver and broad black laces. From the four corners of the platform rise four heavy columns, either painted white or silvered, and there support another platform or vaulted roof, which is painted black, and trimmed with festoons of black cloth and silver laces, and, from its top, rises a high cross. The coffin is placed on the lower platform, in front of which is a sort of coach-box for the driver. The horses are generally four or six in number, and, like the driver and vehicle, are trimmed in black and silver. They are hung with long mourning robes, and the driver wears a huge cocked hat, white neckcloth, and swallow-tailed coat.

This pageant moves along very slowly, and has, indeed, a solemn and pompous aspect. Nevertheless, the peasants, who always bear their dead friend to his grave, are much horrified at this carrying of a corpse on a vehicle, and consider the inhabitants of the larger cities, in which hearses are used, to be very impious. Yet the latter, in turn, are as much horrified at the American hearses

as the peasants are at hearses at all. They say that the corpse seems destined to take a pleasure-ride in this light and elegant vehicle, borne on springs, and provided with windows, and they discover precisely the same impiety in this custom of the American metropolis as the peasant discovers in their custom. Both the peasant and the European citizen are wrong however. They forget that one-half of our deepest and most serious feelings are nothing but the effects of fashion and custom.

FIRST COACHES IN ENGLAND.

The word *coach* is defined by Chambers to be "the general name for a vehicle drawn by horses, designed for the conveyance of passengers, as distinguished from a wagon or cart for the conveyance of goods."

The invention of coaches, or inclosed carriages drawn on wheels, and intended for passengers, has been claimed by Hungary, England, Italy, France, Spain, and Germany. The name is derived by Wedgwood from the French word *coucher*, which means *to lie*. The earliest record of a coach found by Beckmann relates to about the year 1280, when Charles of Anjou entered Naples, and his queen rode in a *caretta*, a small but highly decorated car, from which the modern *chariot* was derived. It is believed that in early times these vehicles had very broad wheels, the only form suited for the wretched roads of those ages, and it is certain that those of early date were open over over-head. Many of the coaches used by the continental princes and nobles in the sixteenth century were closed only to the extent of having canopies, supported by ornamental pillars, and curtains of cloth, silk, or leather, which could be drawn aside easily. A glass coach, or coach with glass windows, is specially mentioned as being used by an Infanta of Spain in 1631. The traces of coaches were at first made of rope, and those only which belonged to the highest personages were made of leather. It is believed to have been in the time of Louis XIV. that coaches were first suspended by leathern straps, in order to insure ease of motion.

According to *The Carriage Builders' Art Journal*, as shown by an article which appeared in its first volume, "the first coach in England made its appearance in 1557, or eight years after its introduction into France. It was rudely constructed; and as the art of making was not yet understood in England, it was imported from the continent."

The first coach of English build was made in 1558, by Walter Rippon, for the Earl of Rutland. This date is given on the authority of *Chambers' Encyclopedia*. In 1564 the same builder made a showy vehicle for Queen Elizabeth, and later in the reign the royal carriages had sliding panels, so that the queen could show herself when desired. During the closing years of Elizabeth's reign, and early in the seventeenth century, the use of pleasure-carriages extended rapidly in England, but they had to struggle for a long time against the opposition of the boatmen on the rivers, and then against that of the sedan owners and bearers.

A VETERAN CARRIAGE-MAKER.

Charles Swift, Esq., is a veteran carriage-builder of New York. He was apprenticed in 1822, at the age of fifteen, and has been in the business ever since.

This is a long business experience, and during the continuance of these forty-seven years there have been many and great changes in the carriage trade—as, indeed, in every thing connected with American affairs, which, as a rule, never stay long in a place.

SHOOTING FESTIVALS.

On Saturday, the 17th of September, the employees of Messrs. Brewster & Co., of Broome Street, held their second annual shooting festival, at Lion Park, New York. About three hundred persons were present, and, although the day was unpleasant, the occasion passed off very satisfactorily, on the whole.

On the following Saturday, Sept. 24, a similar excursion was made by the employees of Messrs. J. B. Brewster & Co., who were organized into what is called the "J. B. Brewster Guard, of 25th Street." It came so near our time of going to press that we were unable to attend, nor have we received any report of the proceedings. We have no doubt, however, that they were exceedingly pleasant These reunions of the mechanics and working men, when they can throw off business for a time, and enjoy social pleasure in company with their wives and children, are certainly beneficial, and they should be encouraged.

CARRIAGE-MAKERS' HARDWARE.

On the last two cover-pages of this number we give the large business notice of Messrs. H. D. Smith & Co., of Plantsville, Conn. It is well and beautifully arranged, and has an intrinsic interest, as illustrating, and explaining, many of the newest styles of iron work used in carriages. It certainly denotes enterprise, and it comes, not from a new concern, but from an old and well-established house, which advertised with us in the same liberal manner when the New York Coach-maker was a new enterprise. That was many years ago, and we are glad to still claim the same friendship. The card speaks for itself.

EDITORIAL CHIPS AND SHAVINGS.

Taking the Bark off.—A young Highlander was apprenticed to a cabinet-maker in Glasgow, and, as a first job, had a chest of veneered drawers to clean and polish. After a sufficient time had elapsed for doing the work assigned him, the foreman inquired if he had finished. "Oich, no," replied the Highlander, "it's a tough job; I've almost taken the skin off my ain hands before I've got it off the drawers."

"What!" exclaimed the startled director of plane and chisel, "You are not taking the veneering off, you blockhead."

"What I'll do, then?" said the staring apprentice, "*I could not surely put a polish on before I take the bark off!*"

Prince Erie's Nobby Team.—Abbot, Downing & Co., of Concord, N. H., have just completed a fancy turn-out for Com.-Col. James Fisk, of the Erie Railway. The vehicle is a four-wheeled nondescript, that comes nearer towards resembling an English drag than anything else, and weighs a thousand pounds. The wheels and wood-work are painted deep black, liberally striped and decorated in gold leaf, shaded by blue. The pole terminates in a hook of gold plate, and all the metal trimmings are rich with the same, and the three steps leading to the deep body.

The body is mounted on twelve springs, on which a rider might travel as free from jar as if upon a hay-rack loaded with feather beds. The decorated letter "F" is elegantly done in gold upon the centre of the carriage body. There are two seats, the accommodations being intended only for four, the cushions, backs, &c., being of brown morocco. The high, close top of enameled leather over the back seat is lined with brown broadcloth, to match the cushions; the driver is furnished with an additional cushion. The side lamps are in consonance with the general appearance, being heavily gilded in every part, outside and in, even to the lamps and reflectors. The glasses for the "glim" are of thick French plate, richly cut. An extra pole, lead-bars, &c., are furnished, which will be linked on with chains of silver-plated nickel.

The cost of this equipage was nearly $4,000. It is drawn by six horses, who are splendidly adorned with gold-mounted harness, which alone cost $3,000. The turn-out entire, coach, horses, harness and all, is valued at $35,000. Lester Wallack owns a similar establishment, which cost him $25,000.

Rubbing Stone.—English rubbing stone admits of economy in rubbing down cracked work and rough-stuff. The advantage in preference to pumice stone is that it does not clog, and it wears a longer time, besides which it is uniform throughout, and free from pebbles or flint. Consumers should note that the grain ought to be cut across, and not lengthwise, and it must be kept in a damp place, else it will become hard. When hard, it may be softened by being placed in water for a day or two; but in such case it must be used at once, else if taken from the water, and left to dry, it will become harder than before, and will be fit only for powdering.

Ship-Building in the Ancient Time.—The art of ship-building has been attributed to the Egyptians as the first inventors; the first ship, probably a galley, having been brought from Egypt to Greece by Wanaus, 1485 B. C. The first double-decked ship was built by the Tyrians, 786 B. C. The first double-decked of English make was built in 1509, to the order of Henry VII., and was of one thousand tons burthen. It was called the "Great Harry," and cost about $60,000. Ship-building was first treated as a science by Hoste, in 1696.

Defects of Tires.—It is a well-established fact that a new tire is always elongated by rolling on the road; at the same time a new felloe, however well seasoned, will shrink or expand alternately in wet or dry weather; hence the tire becomes loose from one or the other of these conditions. The tendency in such case is for the tire to slip and work inward, leaving the felloe exposed to contact with the hard substances, which wears off the paint and flays the corners.

To avoid this a flanged tire is used by Messrs. Loos & Williams, carriage builders of this city, and, after an experience with it which dates back many months, they have became satisfied that it is a great saving in the wear of wheels. The distinguishing features of this invention of theirs are a flange on the outer edge of the tire, which protects the rim of the wheel from abrasion against curb-stones, and another flange which sets into the rim and prevents the tire from being displaced easily.

A Wagoner and Attorneys.—Two country attorneys overtaking a wagoner on the road, and thinking to be witty upon him, asked why his forehorse was so fat, and the rest so lean. The wagoner, knowing them, answered "that his forehorse was a lawyer, and the rest were his clients."

American Learning, 1798.—A manufacturer, not a carriage-maker, who had rapidly amassed a princely fortune, wishing to figure as a scholar, sent the following order to an eminent bookseller in Boston: "Sur, i wants to by sum Buks—as I am prodighouse fond of larnen—plese to send by the Bear here 5 hunder Dollers woth of the hansumest You hav.—Yoors, &c.

Stephen Jumel was among the early merchant princes of New York. One morning, in the year 1806, he was in company with several leading merchants, when a carman accidentally backed his horse into the White-hall Slip, near which the merchants were grouped. The cart was got out, but the horse was drowned, and every one began pitying the carman's ill-luck. Jumel immediately held up a ten-dollar bill, and while it fluttered in the breeze, he walked through the crowd, exclaiming, "*How much* do you pity the poor man? I pity him *ten dollars*. How much do *you* pity him?" By this ingenious and noble conduct he collected in a few moments about seventy dollars, which he handed at once to the carman.

WIDE SPREAD

The circulation of the New York Coach-maker s Magazine, unlike those of most other publications of its class, is not confined mainly to the district in which it is published, but is of general interest all over the United States and abroad. It hails from the leading business center of this country, and is, therefore, the representative paper.

LITERARY NOTICES.

The Educational Reporter is the name of a new and well-printed exchange which has come to us. It is published in New York, by Messrs. Ivison, Blakeman, Taylor & Co., of 140 Grand Street, the well-known publishers of educational books, including the Spencerian series of Writing Books. We hear that the edition of this opening number of the *Reporter* numbered *over forty thousand copies*. This exceeds even the New York Coach-maker.

The Atlantic Monthly for October has arrived and is unusually interesting.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKERS' MAGAZINE.

New York, September 20, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅞ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Benzine, per gall., 35c.
Bolts, Philadelphia, list. 45 off.
Do. T. per 100, $3 *a* $3.50.
Borax, English, refined, per lb., 33c.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Buggy bodies, finished, $15 to $20.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

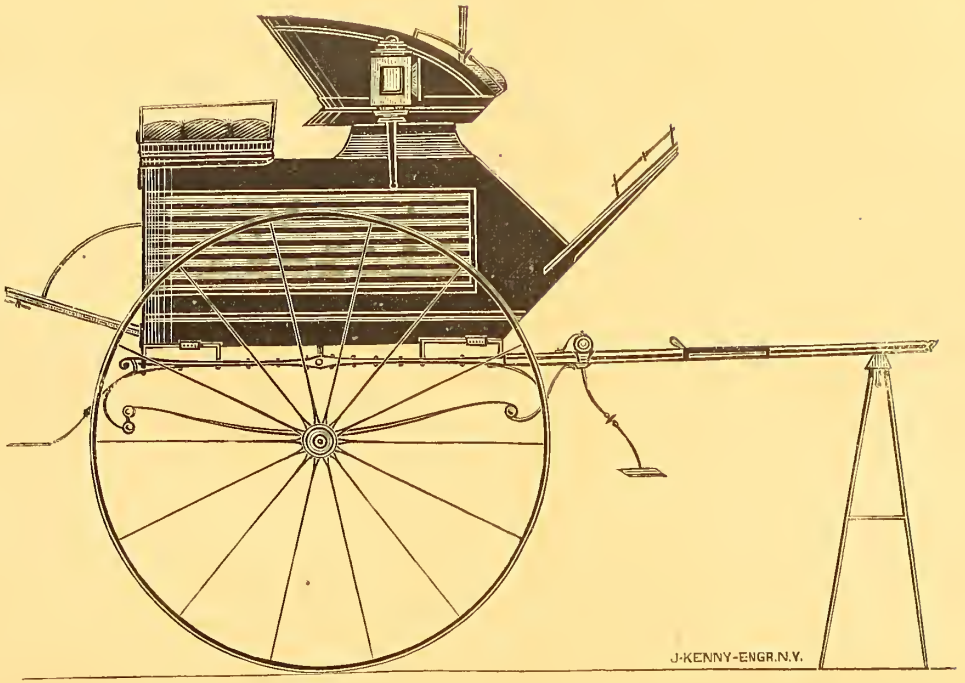
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $2.00.
Japan gold size, $4.00.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $5.00 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Pumice-stone, selected, per lb., 7 to 8c.
Putty, in bbls. and tubs, per lb., 5 to 7c.
Putty, in bladders, per lb., 6 to 8c.
Rubbing-stone, English, per lb., 9 to 10c.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Serims (for eanvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shafts, finished, per pair, $3 to $4.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c,; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes, American, wearing body, $6.50; elastic gear, $5.50; hard-drying body, $5; Quick leveling, $4.50; black body, $5; enameled leather, $4.00.
Varnishes, English. Harland & Sons', wearing body, $8; Carriage, $7; Noble & Hoar's, body, $7.50; Carriage, $6.50.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Wheels, coach, $20 to $40 per set; buggy, $12 to $18.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

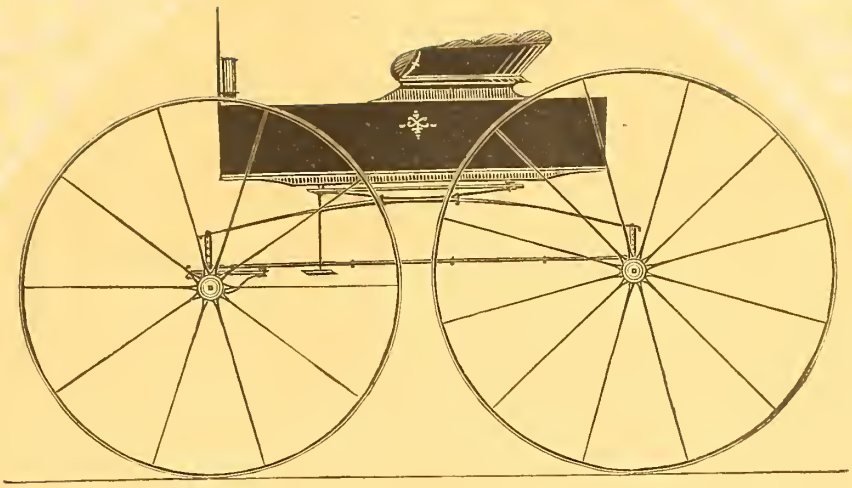


TWO-WHEEL DOG CART.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY J. B. BREWSTER & Co.

Engraved expressly for the New York Coach-maker's Magazine.

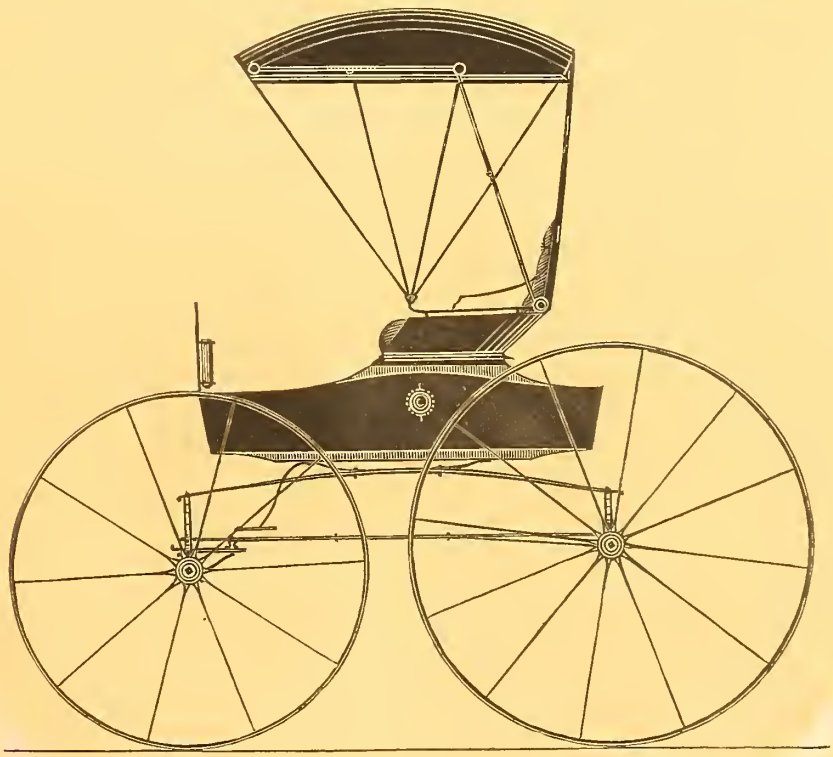
Explained on page 88.



LIGHT ROAD WAGON. — ½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY E. SMITH.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 88.



SQUARE-BOX TOP WAGON. — ½ IN. SCALE.

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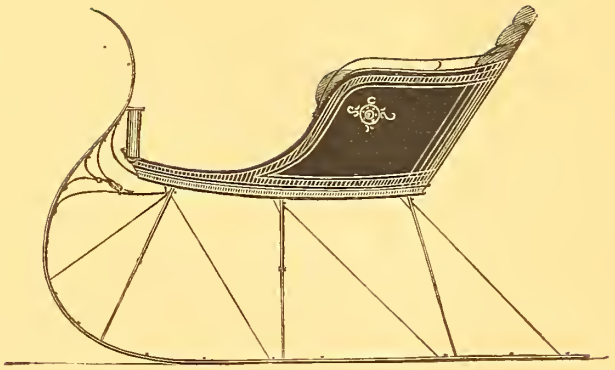
Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 88.

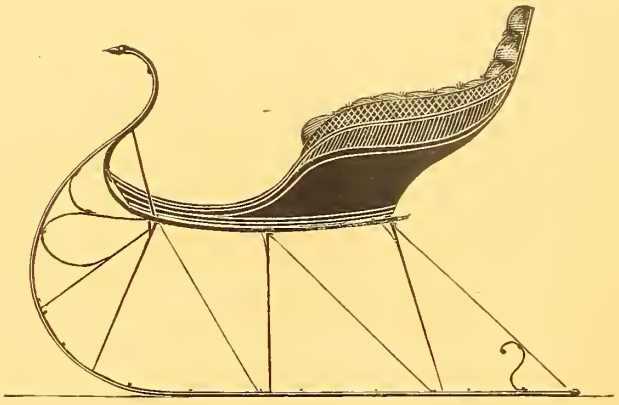


DEXTER CUTTER.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY R. M. STIVERS.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 89.



EUREKA CUTTER.—½ IN. SCALE.

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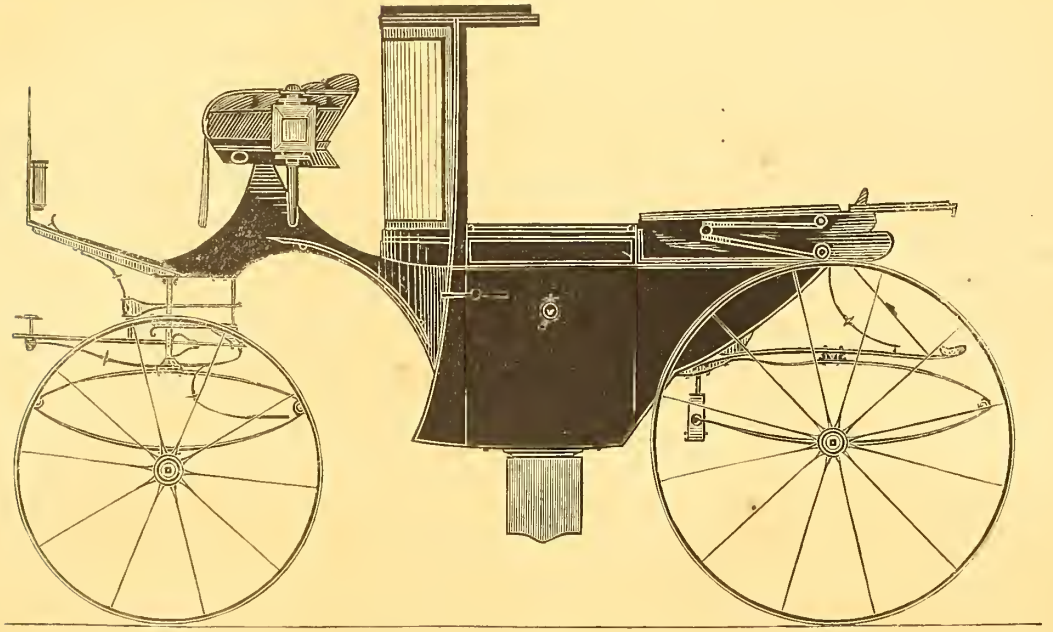
Explained on page 89.



THREE-FOURTHS LANDAULET.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY JOHN C. HAM.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 89.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, NOVEMBER, 1870. No. 6

THE SEA-SHORE.

On Maine's rough coast-land lies a little port
Called York—an olden place, in which old Time
Seems to have stayed a moment from his race,
And, crouched among these deep-protected haunts,
Here stilled his poor old heart with retrospect
Of other days, when modern tumults were not.
A very quiet place, in which the air
Seems listening, as o'er a sleeping babe,
Its only song a gentle lullaby—
Save in a storm, and then all things are changed,
And York is not York, but a roaring surge.
To-night is peace, and the only sound that's heard
Is the monotonous plash—plash—plash
Of distant waves, as they wash the sandy beach
With murmurings of plaintive monody,
And sweep away the prints I lately left
While gathering their mossy gift and shells.
Tis passing sweet to make a truce with Time,
And, leaving those mad haunts where he is but
The slave, the teller of the hoarded gold,
To nestle thus with him in solitude,
And learn from out his lips, which never tell
Their secrets to the dizzy whirl of din.
I have a summer love to loiter here
In lone reserve, where reservation reigns
Supreme—where even the straggling town
That skirts the grass-grown road, and as it skirts,
Cons each most tasty spot, and wanders on
Toward the beach, like wayward child from home—
The very village dreams in placid calm
Of solitude, and just without its bounds
It slumbers by the quiet of the way,
And leaves the outer world a wilderness.

We have thought that a brief account of an editor's trip to the sea-shore might be of interest to some of our readers. It will serve as an introduction to the more practical articles which follow.

We left the extreme heat of New York about the middle of August, and took steamer direct for Portland, which we reached after a pleasant voyage of sixty-two hours. We know of nothing better than an ocean trip for resting and invigorating one who is completely wearied out, and certainly in this case it worked a marked change in our feelings. We forgot *The Hub*, and the many plans which we had in view for its future aggrandisement. We forgot the *Magazine* which was soon to come under our control. We forgot the carriage-makers, and the various subjects which they had proposed for our solution. We forgot to think connectedly, and simply gave ourselves up to the present, and enjoyed heartily the conversation and amusements of our fellow voyagers, wanderers like ourselves, seeking a quiet nook among the Maine woods. The result was, that when we reached Portland on Saturday morning, we were ourselves again. In this beautiful city we spent the greater part of the day, and we took occasion to call upon Mr. C. P. Kimball and his brother, Mr. J. M. Kimball, and we looked in at several other carriage-shops. We had the pleasure also of meeting "The Fisherman," who has been describing such pleasant trout experiences for *The Hub*, under the signature of "Sanez." Mr. C. P. Kimball was one of the twelve leaders in the plan of holding the Coach-Builders' Convention, and we inquired particularly of him as to how matters were progressing. At that time every thing was promising, but since, as we announce in another place, the subject has been abandoned for the present.

In the afternoon we took the cars for York, Maine, which is situated about ten miles northeast of Portsmouth. This was to be our final destination, but we did not reach it immediately, for, being left at Kittery, we missed the stage-coach, which lumbers along between York and Portsmouth once a day, and in so deserted a place we were unable to hire a carriage. Here was a predicament. Night was coming on; the roads were in bad condition and very dusty, and we were nine miles from the farm house where our friends were awaiting us. A pretty situation for the editor of a carriage-maker's paper! There was no alternative, so we trudged along, hoping to catch a ride. But no chance presented. We walked two miles, and then came a rattle of wheels, and a cloud of dust, and a lank man, whom we addressed: "Will you be so kind, sir, as to give us a lift?" "Wal," said he, "I'd be glad ter, but this team of mine is 'bout broke down, and I'll have to say *no*. Sorry to do it." We were disappointed, but as we took a nearer inspection of his vehicle, and from behind, we were impressed with the fact that any addition might result seriously, for such a tumble-down old affair was seldom inflicted on this century. As it wriggled slowly away, the wheels presented a complicity of movement and a variety of track which was truly astonishing. The plan of *uniform track* is untenable, it would seem, for the country districts.

We walked two miles further, and then came another rattle and another rickety team. We again addressed our petition: "Will you be so kind, sir, as to give us a lift?"

"Yes," said the hearty down-east farmer; "jump in, young feller. How far you come! From Poachmuth? Kittery, eh? Wal, yer look mighty tired with thet ere big carpet bag ov yourn."

This was the man we wanted.

"How fur yer goin? Ter the Pint down ter York? By snum! That's awful. Guess yer aint much used to sich kind of doin's, either, be yer? Wal, I'm mighty glad to give you a lift, but it'll be a short one, fur I turn out soon."

We thanked him heartily, and he talked on.

"Yes, sir, mighty glad. But this ere old kerridge of mine aint so fine as some of your yaller wheeled city kerridges. The wheels are out of joint this hot weather —tarnal hot weather this—warps the wheels—makes the fellies loose. I have to pour water on the wheels this 'tarnal hot weather to keep them together."

We felt quite lonesome after this kind friend left us, and as we walked on, the twilight deepened gradually and the crickets chirped in the meadows, and the marsh frogs croaked, and it was quite tiresome altogether. Kind fortune then sent us another friend, with a good horse and good wagon, and as we rode along the subject turned as follows:

"How is business in Boston?" we asked.

"Good," he replied; "it has been very good in the carriage business."

"You are in that line, are you?"

"Yes, I am a carriage-maker," mentioning his name.

"Is that so?" we exclaimed; "then you know the paper—*The Hub*—and you know me, its editor."

This meeting was certainly a coincidence in this out-of-the-way place,-and it established our friendship at once. We talked of the prospects, and of trade in New York, and of the proposed convention, and it seemed but a short half hour before he left us at the village, having gone some distance out of his course in order to help us along. The remainder of the walk, and the old farm-house where we passed our two weeks of vacation, so delightfully varied with bathing and boating and musing on the ocean rocks, are best described by the following:

A long mile further on, through narrow path
That threads its triple ply from out the town,
Twisting and angling 'mong the stunted growth
Of fragrant fern and thistled pasture land,
And oft embargoed by opposing rail
To mark the sheep's domain, the way extends
To a far dwelling of the outer world,
That looks adown upon the land and sea.
The way is bare and open to the winds,
Which, shut from out the harbor's close defense,
Here beat across to join their lawless crew
That ravage in piratical array
Upon the outer ocean's vast domain.
A length of unkempt barrows, lying waste
In all their native nudity, here gird
The sea, and rear their thin and ragged gear,
Through whose precarious substance there appear
The ribs of rock which bind the sinewy hill,
And brace it 'gainst the never-ceasing power
That wallows round, venting its frequent wrath.

And now the narrow path, meandering
Upon its leisure way, briefly ascends
By gentle slope to parts more verdant far.
The grass grows greener, and the show of rocks
Less frequent, and the trees, supported fast
By more alluvial soil, here grow more bold,
And form a hamlet. Louder grow the plaints
Of the sea, and more distinct they call below,
As we approach, where, on the rocky hill,
Upon the sea-girt promontory's peak,
There stands a farmstead, with its clustering clan
Of farm attendants all, whose cosy mien
Seems to invite, with open hand and heart
And beaming face of hospitality,
Each seldom step that ventures to this bound—
This lone, remotest bound of homesteadry.
The quaint old mansion, clad in ruddy hue,
Looks to the eastward, and with tireless cheer,
That speaks the cheery tenant with its glow,
Returns the earliest greetings of the dawn,
And to the last, from off the mirroring waves,
It catches all the welcomes of the eve.

Behind the house there rears a barren steep,
Close-armed with rock, and high above its peak,
Like worn-out gallows of an ancient day,
A storm-beat signal lifts its warning sign
From out its stone-heaped base, and in the wind
It soughs and creaks in mournful unison.
Beyond the kitchen windows huddle close,
Like terror-stricken things, a lilac copse,
Which flood with rare and aromatic sweets
The sash first lifted in the early spring;
But now, bereft of all their youthful bloom,
They serve the baser but more thankful task
Of thrusting to the sun the outspread cloths
That beg the benediction of his rays.
And just beside them lifts a lofty elm
That guards the grin'stone's place, and helps
To sift the fervor from the midday sun,
When from the hay-field comes the gleaming scythe,
To cool its brilliance with a watery edge,
And farmer and the thirsty boy, to ease
Their throats with draught of autumn stored,
And tease the ear of the o'erheated day
With rasp and whet of the far-sounding steel.
Before the house a weedy garden strives;
Its baffled weeds seek vainly though to choke
The hardy poppy and the marigold,
And fragrant camomile and southern wood.
Still thrives the four-o'clock, the "bouncing betts,"
And hollyhock, in whose begolden breast
The bee swings pendant, drunk with overfeast,
And dying "pinies" proudly lift their stalks
And flaunting leaves, while fiery sun-flowers tower
Above their heads, and stare a gorgeous stare.

Across the broad and grassy lawn in front
The spacious barns stand yawning wide their doors,
Behaired with new made hay, and every bird
That struts the floor or carols on the beam
Bespeaks the goodly bounty of the place.
The stables, pens, and sheds of nameless need,
And well-filled granaries, stand clustered near.
And further on the lofty well-sweep hangs
Beneath a stalwart chestnut's generous shade,
And o'er the well, in whose pellucid depths
There hangs another sweep in duplicate.

Such is the farmer's home,—or such the view
Of outward things that cluster round his home
And speak the soul within,—and all about,
On every side save one, a narrow neck,
The hillsides, checked with vary-colored plats
Of corn and yellow grain and billowy grass,
Slope fertile downward to the rocky shore.

ENGLISH COACHES.

THE MAIL-COACH AND THE STAGE-COACH.

THE pleasure to be had in a mail-coach is not so much at one's command as that in a postchaise. There is generally too little room in it, and too much hurry out of it. The company must not lounge over their breakfast, even if they are all agreed. It is an understood thing that they are to be uncomfortably punctual. They must get

in at seven o'clock, though they are all going upon business they do not like or care about, or they will have to wait till nine before they can do any thing. Some persons know how to manage this haste, and breakfast and dine in the cracking of a whip. They stick with their fork, they joint, they sliver, they bolt. Legs and wings vanish before them, like a dragon's before a knight-errant. But if one is not a clergyman, or a regular jolly fellow, one has no chance this way. To be diffident or polite is fatal. It is a merit eagerly acknowledged, and as quickly set aside. At last you begin upon a leg, and are called off.

A very troublesome degree of science is necessary for being well settled in the coach. We remember traveling, in our youth, upon the north road, with an orthodox elderly gentleman of venerable peruke, who talked much with a grave looking young man about universities, and won our inexperienced heart with a notion that he was deep in Horace and Virgil. He was deeper in his wig. Toward evening, as he seemed restless, we asked, with much diffidence, whether a change, even for the worse, might not relieve him; for we were riding backward, and thought all elderly people disliked that way. He insinuated the very objection, so we recoiled from asking him again. In a minute or two, however, he insisted that we were uneasy ourselves, and that he must relieve us for our own sake. We protested as filially as possible against this; but at last, out of mere shame of disputing the point with so benevolent an elder, we changed seats with him. After an interval of bland meditation, we found the evening sun full in our face. His new comfort set him dozing; and every now and then he jerked his wig in our eyes, till we had the pleasure of seeing him take out a night-cap, and look very ghastly. The same person, and his serious young companion, tricked us out of a good bed we happened to get at the inn.

The greatest peculiarity attending a mail-coach arises from its traveling at night. The gradual decline of talk, the incipient snore, the rustling and shifting of legs and night-caps, the cessation of other noises on the road, the sound of the wind or rain, of the moist circuit of the wheels, and of the time-beating tread of the horses—all dispose the traveler, who cannot sleep, to a double sense of the little that is left him to observe. The coach stops, the door opens, a rush of cold air announces the demands and merits of the guard, who is taking his leave and is anxious to remember us. The door is clapped to again; the sound of every thing outside becomes dim; and voices are heard knocking up the people of the inn, and answered by issuing yawns and excuses. Wooden shoes clog heavily about. The horses' mouths are heard swilling up the water out of tubs. All is still again, and some one in the coach takes a long breath. The driver mounts, and we resume our way. It happens that we can sleep any where except in a mail-coach; so that we hate to see a prudent, warm old fellow, who has been eating our fowls and intercepting our toast, put on his night-cap in order to settle himself till morning. We rejoice in the digs that his neighbor's elbow gives him, and hail the long-legged traveler that sits opposite. A passenger of our wakeful description must try to content himself with listening to the sounds above mentioned, or thinking of his friends, or turning verses, as Sir Richard Blackmore did, "to the rumbling of his coach wheels."

The stage-coach is a great and unpretending accommodation. It is a cheap substitute, notwithstanding all its eighteen-penny and two-and-sixpenny temptations for keeping a carriage or a horse. And we really think, in spite of its gossiping, is no mean help to village liberality; for its passengers are so mixed, so often varied, so little yet so much together, so compelled to accommodate, so willing to pass a short time pleasantly, and so liable to the criticism of strangers, that it is hard if they do not get a habit of speaking, or even thinking, more kindly of one another, than if they mingled less often, or under other circumstances. The old and infirm are treated with reverence; the ailing sympathized with; the healthy congratulated; the rich not distinguished, the poor well met; the young, with their faces conscious of pride, patronized and allowed to be extra. Even the fiery, nay the fat, learn to bear with each other; and if some high-thoughted persons will talk now and then of their great acquaintances, or their preference of a carriage, there is an instinct which tells the rest that they would not make such appeals to their good opinion if they valued it so little as might be supposed. Stoppings and dust are not pleasant, but the latter may be had on grander occasions; and if any one is so unlucky as never to keep another stopping himself, he must be content with the superiority of his virtue.

The mail or stage coachman, upon the whole, is no inhuman mass of great-coat, gruffness, civility, and old boots. The latter is the politer, from the smaller range of acquaintance, and his necessity for preserving them. His face is red, and his voice rough, by the same process of drink and catarrh. He has a silver watch, with a steel chain; and plenty of loose silver in his pockets, mixed with half-pence. He serves the houses he goes by for a clock. He takes a glass at every ale-house—for thirst, when it is dry; and for warmth, when it is wet. He likes to show the judicious reach of his whip by twigging a dog or a goose on the road, or children that get in the way. His tenderness to descending old ladies is particular. He touches his hat to Mr. Smith. He gives "the young woman" a ride, and lends her his box-coat in the rain.

His liberality in imparting his knowledge to any one who has the good fortune to ride on the box with him is a happy mixture of deference, conscious possession, and familiarity. His information chiefly lies in the occupancy of houses on the road, prize-fighters, Bow-street runners, and accidents. He concludes that you know Dick Sams or Old Joey, and proceeds to relate some of the stories that relish his pot and tobacco in the evening. If any four-in-hand gentlemen go by, he shakes his head, and thinks they might find something better to do. His contempt for them is founded on modesty. He tells you that his off-hand horse is as pretty a goer as ever was, but that Kitty—"Yeah now, Kitty; can't you be still? Kitty's a devil, sir, for all you would'nt think it." He knows that the boys on the road admire him, and gives the horses an indifferent lash with his whip as they go by. If you wish to know what rain and dust can do, you should look at his old hat. There is an indescribably placid and paternal look in the position of his corduroy knees and old top-boots, on the foot-board, with their pointed toes and never-cleaned soles. His *beau ideal* of appearance is a frock-coat with mother-of-pearl buttons, a striped yellow waistcoat, and a flower in his mouth.

LEIGH LUNT.

Wood Shop.

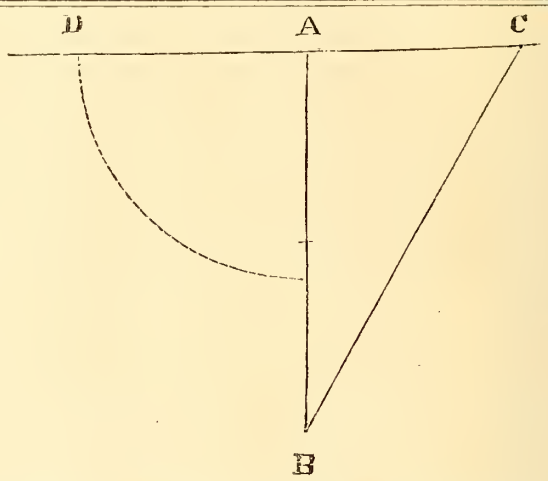
THE GOLDEN RULE OF PROPORTION.

It has been said very often that consummate proportion is the work of genius, and it is true. It is the greatest masters only who have carved a statue, or raised a building of perfect proportions. But generally the remark is added that proportionality has no intelligible principle, but is a mere matter of taste to which no general rule is applicable, and this is a mistake. On the contrary, when, in every-day life, a house, a room, a door, or anything else looks unpleasant on account of its lack of due proportion, it is possible, in most cases, to demonstrate the disproportion in accurate figures, and with mathematical exactness.

There is, indeed, a plain yet fundamental rule on which all proportionality must be built, and both nature and art prove to have followed this rule whenever they have succeeded in producing delicate and beautiful proportions. The more happily anything strikes us with its finished proportions, the more apparent becomes the rule, sweeping over the entire shape, and regulating every combination between the several parts. The crystal forms, the oak tree increases, the boy grows in accordance with this rule; and if the tree is sheltered from the winds, and has air and light distributed freely and equally around it, it will accomplish the rule with the utmost exactness. On the Parthenon or on Titus' triumphal arch, on the cathedrals in Cologne and Strasbourg, on every architectural building which charms us with the harmony of its proportions, the rule can be demonstrated by help of the yardstick, and the same can be done with Apollo from Belvedere, or Thorwaldsen's Jason, or any eminent statue. Indeed, the rule may be shown to control even the flying passages of a melody of Mozart, or the dancing feet of one of Pope's verses.

This rule, so universal in its application, and so essential in its consequences, demands this condition: *Of two lines of unequal lengths, the longer one must be the mean proportion between the shorter line and the sum of both of them; then the combination of them will appear well proportioned.* When speaking of lengths of time, as well as of lengths of space, about notes and thoughts and their rhythmical arrangement in music and poetry, as well as about lines and surfaces and their plastic arrangement in sculpture and architecture, the rule is still the same, only differently worded. In this place, however, it is our purpose to speak particularly of the rule *as applied to lines and surfaces.*

Geometry teaches us how to divide the given line A B medially, or in extreme and mean ratio, that is, to divide it so, that the whole line is to the greater segment as the greater segment is to the other segment.

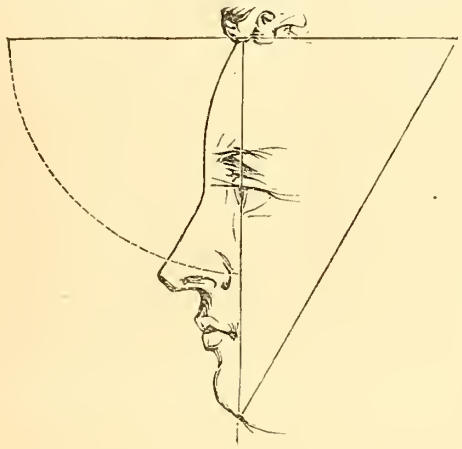


Draw a perpendicular at the end of the given line A B, and produce it on both sides of A; bisect the given line and set off the half, thus found, on the perpendicular from A to C; take the hypothenuse B C and set it off from C to D in the perpendicular. The distance A D will be the greater segment, and may be set off from A or B along the given line, and thus the mean proportion is found; that is to say, such a division of the line A B that will make the two parts of this line appear well proportioned.

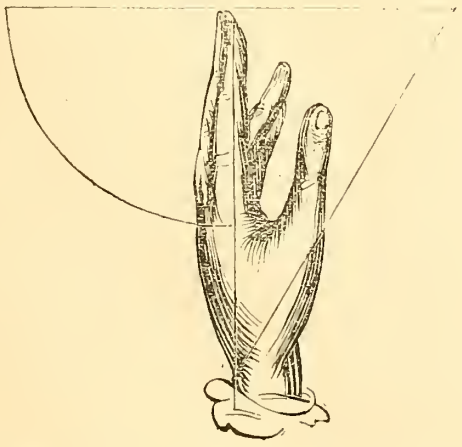
If now we should examine, for instance, one of the two front steeples of the cathedral in Cologne, we should find that the tapering of the spire begins exactly at that point where the Golden Rule divides the whole line, extending from the foot of the tower to the top of the spire, in its extreme and mean ratio, so that the height of the tower exactly denotes the mean proportion between the height of the whole steeple and that of the spire. And if then we would continue the investigation through all the subdivisions of each of these two lines, we should find that *every two adjacent parts, even of the smallest ornaments, together produce a line divided medially by the Golden Rule.* Indeed, it is this rule which causes the huge pile of dead, heavy stone in these steeples to rise light and airy toward the sky as if it were growing upward by an inner, individual impulse. And in our opinion, the reason why most of the steeples in Boston and New York—we will make a special exception of Trinity Church, in the latter city—look so heavy and depressed, may be found in the fact that they are not formed in accordance with the golden rule. All architectural proportion rests on this rule. The length and the height of a villa should be determined by the mean and extreme ratio of the sum of them. The height of the furniture in a room, or the position of a picture on a wall, ought to be determined by one of the two points which the Golden Rule will advise as the greater and shorter segment of the wall, and so on.

If next we should look on Apollo from Belvedere,

or on Thorwaldsen's Jason, two of the most conspicuous specimens of ancient and modern sculpture, we should find every minutest detail of their forms moulded according to the Golden Rule. If a line be drawn from the top of the head to the soles of the feet, and divided medially, the point of division will precisely reach the navel, and if this line be subdivided further, according to the same rule, every point of division will coincide with the natural intersection of the human body. Thus the line from the beginning of the hair to the root of the nose is the mean proportion between the whole length of the feature and the line from the root of the nose to the end of the chin.



The forearm is the mean proportion between the whole arm and the upper part of the arm. The outside line of the thigh is the mean proportion between the whole limb and the leg proper, while the inside line is the extreme ratio of the same proportion. Even the foot, the hand, and the finger, are, as illustrated by the diagram, formed after this rule.



One might think, however, that the rule itself was only an invention of some artist, and its general use only an inveterate custom, as it is a custom to divide a tragedy into five acts, and not into six. Yet, nature itself, when minutely investigated, is found to proportion its workmanship by this very rule. Not only the statue is formed in any part according to the golden rule, but so is the living man too. Whenever a man looks well—we do not speak of the expression of character, which is quite another thing—it will be found that the trunk of his body is cast, and the limbs cut, according to this rule, and whenever they are not so molded, we perceive the deviations, even though very small, and pronounce them unpleasing. How unsightly would a man look if the knees were placed exactly at the middle of his legs! I surmise even that he would not be able to walk. The rule seems to be not only a rule of beauty, but one of utility. At all events, we find it is a natural law enforced in the arrangement of the stars, and in the shape of the leaf even. Take, for instance, a pine tree which has grown up on a free place, yet protected from all disturbing influences. Each year it has shot forth a new set of branches. You can estimate its age from the number of its branchings. Yet, look at the distance between every two set of branches. They are different, becoming larger and larger as you reach the top, because the tree year after year has gained additional strength by which to grow; but the difference between every two distances adjacent is exactly that between the mean and extreme ratio, as denoted by the golden rule. Look at the distance from one leaf to another on the oak twig, or the distance from one leaflet to another on the compound leaf of the lance wood, or the distance from one vein in a rose leaf to another—in all cases you will find the rule is observed. It is, indeed, the all-governing law of proportioning.

If, then, a man is not born a genius, that is to say, if the natural law is not inborn in him as a living instinct of his soul, he has to learn the law from the outside world, to study its manifestations, and scrutinize its applications, and he may thereby acquire to a certain degree a lively and accurate sense of proportion which will enable him to avoid breaking the law, even if he is not able to apply it. There are cases in which the rule does not seem to be of any great consequence. How, for instance, does it apply to the building of a wind-mill or a coach?

At first there does not appear to be any application of it in carriage building, but we feel sure that if the subject were looked into with care and precision, many applications would be found. At least, a perfect understanding of the rule would prevent the designer or workman from disobeying it grossly, and would often assist him in determining questions of proportion where his taste was doubtful. We have taken pains to look over several back volumes of this magazine with a view to discovering some point or points on which the rule had a bearing. We selected a score or more of the most grace-

ful patterns, and examined them very carefully, seeking for some manifestation of the truth of the principle. The result was as follows:

First, in the heavy class of carriages, including clarences, coaches, and landaus, we found in those of pleasing pattern this common point was observed: *the height of the vehicle was the greater segment of the length of the vehicle, measuring from the foremost part of the rim of the front wheel to the most distant part of the hind wheel.* It will be found by calculation that this ratio is observed exactly in Mr. Ham's landaulet, which appears on Plate 24 in this copy of the Magazine. Thus its height in the draft is $3\frac{1}{4}$ inches, and its length $5\frac{1}{4}$ inches, which resolves itself into the following proportion:

The length is to the height as the height is to the difference.

$$5\tfrac{1}{4} : 3\tfrac{1}{4} :: 3\tfrac{1}{4} : 2$$

We test the proof of this proportion by multiplying the extreme ratios, and then multiplying the mean ratios, and the results must be equal.

$$\tfrac{21}{4} \times \tfrac{8}{4} = \tfrac{168}{16} = 10\tfrac{8}{16}$$

$$\tfrac{13}{4} \times \tfrac{13}{4} = \tfrac{169}{16} = 10\tfrac{9}{16}.$$

It will be observed that there is a difference of $\frac{1}{16}$. This slight variation is due to the fact that the mean proportion can never be expressed rationally. They are always surd.

Secondly. In the same class of carriages we find that in pleasing patterns this rule was observed: *the height of the hind wheel was the greater segment of the height of the whole vehicle.* Mr. Ham's Landaulet answers this condition also.

Thirdly. We next chose a number of heavy carriages which were ungraceful (we were glad to find that the Magazine contained a few such), and examined them, *seeking for some infringement of the foregoing rules, and such were manifest in nearly every instance.*

Before our next issue we will try to discover some further applications of this valuable principle as relating to carriage building. We are confident that there are many such, and we wish our friends would help us to show them.

In conclusion, we will mention that among those vehicles which do not seem to come under the requirements of the Golden Rule of Proportion, are the Broadway omnibusses. Is it not the opinion of our readers that they are too short for their height?

JAPANESE CARPENTERS.

THE Japanese wood-workers are ingenious workmen, and their work is done with marvelous neatness. A curious feature of their houses is, that they do not contain a nail, all of the joints and timbers being dovetailed together by many ingenious devices; and the whole work, even to the rafters, is as smooth as if it had been polished down with sand paper. And the Japanese are a neat people; for they use no paint to hide any blemishes of construction or ornamentation—no filagree work or plaster-of-Paris gew-gaws, but every stick in the building is exposed. Every night, as regularly as she cooks the supper or sweeps the floor, the Japanese housewife takes a wet cloth and scours the whole interior of the dwelling, leaving no part untouched, and no stain or dirt spot to mar its cleanly appearance. Then the Japanese do not come into the house with muddy boots, after the style of the American sovereign; but, having covered the floor with neat matting, always remove the dirty sandals before stepping upon it. The Japanese carpenters have some peculiarity of movements. The Japanese works toward him—that is, instead of shoving a plane from him, he reaches out, sets the plane upon the board at arm's length, and pulls it toward him; and he cuts, saws, and chops in the same way. His saws are fixed in handles, like a butcher's cleaver, and the teeth slant or rake toward the handle. The planes are constructed like ours, but the wooden portion is very thin and wide. The adze is fastened to the end of a hooped stick, like the handle of one of the crooked canes worn on the arm in our streets. And although their tools are different from ours, yet they are not awkward in appearance or awkwardly handled; though they might prove very unhandy in the hands of an American carriage workman. There is every thing in habit.

Smith Shop.

THE DRAFT OF VEHICLES.

EVIDENTLY the draft of vehicles depends upon two distinct things beside the motive power, viz.: the vehicle itself and the road. If an absolutely perfect roadway could be made, the draft of all vehicles would be equal to the power absorbed by the friction of its axles, and rolling friction of its wheels over a smooth surface, and that necessary for the assent of grades. The Scientific American figures thus: The power absorbed by friction, when axles and boxes are both iron and kept constantly well oiled, would for the axles be a pressure of about four per cent. of the load, multiplied into the ratio of the mean diameter of the axles to the mean diameter of the wheels, overcome through the distance the vehicle travels in a given time. Thus the mean diameter of the wheels being forty inches, the load, including weight of the vehicle, exclusive of wheels being 4,000 lbs., and the mean diameter of the axles being 2.5 inches, the power absorbed by the friction of the axles at three miles per hour would be $.04 \times 4{,}000$ lbs. $\times \frac{2.5}{40} \times 3 \times 5{,}280 = 158{,}400$ foot-pounds per hour, or .08 of one horse power. The rolling friction would be much less than this.

Comparing this with what is found by experiment to be the actual power consumed on the average, and on what are thought good, metaled roads, the difference is surprising. The power required in the latter case is, on the average, nearly one-third of one-horse power per tun of load transported three and one half miles per hour.

This wide difference is attributable, in large measure, to the construction of the vehicles used for transportation of loads, partly to defective lubrication, and partly to the imperfect road surface.

The principles upon which the draft of vehicles depends are quite imperfectly understood by most mechanics, although they have been made the subject of elaborate experiment and investigation by Morin, who, in his valuable treatise on mechanics treats this subject exhaustively.

Wheels acting upon road-surfaces may be considered as simple rollers. Coulomb has demonstrated that the resistance of hard rollers rolling over even, hard surfaces, is proportional to the pressure; that it is in the inverse ratio of the diameter of the rollers, and that it is so much the greater as the width of contact is smaller. But as roadways are not even surfaces, and wagon wheels have loose-fitting axles through their hubs, it is evident that the laws demonstrated by Coulomb cannot be expected to apply rigidly to them.

In the years 1837, 1838, 1839, and 1841, Morin, under the direction of the French Government, performed an extensive series of experiments to ascertain the laws which control the draft of vehicles, employing for the purpose all sorts of vehicles, and propelling them over all sorts of roads, muddy, rutty, and stony, as well as those of the smoothest surface.

He found that the draft of wagons over a given roadway is proportional to the load, and that it varies in the inverse ratio of the diameter of the wheels, thus showing that the laws of Coulomb, as applied to hard rollers upon even, hard surfaces, also applies to them upon rough or yielding surfaces in so far as they involve the diameter of the rollers and the load. But on the point of width it was found that the coincidence failed. Upon soft foundations the draft increases as the width of tire decreases, and on solid roads the draft is practically uninfluenced by width. For use on farms or soft earth, Morin maintains that the width of rims should be four inches.

It was further found that resistance increases with inequalities of surface, the stiffness of the wagon, and the speed upon hard roads, while upon soft bottom it does not so increase with speed.

It was further shown that the inclination of the traces has but little influence on the draft, but that it is better for all roads, and for common wagons, to make the inclination approach the horizontal so far as the construction will admit.

Wheels of large diameters and narrow tires injure roads less than those with small diameters and wide tires, and the concentration of load upon two wheels having wide rims is more injurious to roads, than the distribution of the same load upon four narrow-rimmed wheels.

Oil for Drilling.—Linseed oil should be employed in drilling carriage work, and no other oil ought ever be used for this purpose. Animal oils are penetrating, and they are so injurious to paint that when work is smeared with them, it will not adhere, and every particle will have to be removed before the carriage can be properly painted. Linseed oil does not have this effect, and can be spilled upon the woodwork without any evil consequences.

Paint Shop.

HARD-DRYING PUTTY.

To make hard-drying putty or stopper, mix pure dry lead with Japan Gold Size, and beat thoroughly. Some painters add a little wearing varnish to make it tougher. In preparing it for glazing the grain, a little tub lead may be added to cause it to leave the knife freer. For use on carriage parts, add a little spirits turpentine to make it sandpaper easily. Stopper should be kept under water, or it will quickly harden and become unfit for use.

Elasticity in Painting.—A carriage painter remarks in *The Hub:* "I do like the permanent wood filling, for it fills the pores of the wood, requires no putty glazing, is a good binder, and is tough and does not flake off. I can best compare it to *a good piece of hickory which is tough and elastic, and will not break by bending.* We want the same qualities throughout carriage materials; and particularly the rough-stuff should be elastic, and not brittle and spongy. In fact, *a perfect man is a very good model for the carriage.* He has a stiff back-bone and limb joints; not clumsy, but graceful and active, and with an elastic hide. So the rocker plate should be stiff, and the wheels strong; yet the whole must be graceful and elastic. It is for the reason of elasticity that English varnish has always been so good. It was slow drying, but tough. I want no fast-drying varnishes. *They are too much like fast young men.* They will do for a while, but they don't come out very well."

Artificial Gold.—This material is manufactured largely in the United States, and it is scarcely distinguishable from the true gold, when used in jewelry and other articles, except by its specific gravity, which is inferior. It is a fact, and a curious one, that it does not contain a single grain of the precious metal. It is made by taking 100 parts of pure copper, 17 of pure tin, 6 of magnesia, 9 of tartar of commerce, 3.6 of sal ammoniac, and 1.6 of unslacked line. The copper is first melted, and the other substances (excepting the tin) added, a little at a time, and the whole well stirred for half an hour, so as to produce a perfect mixture, when the tin is thrown in and stirred round until melted. The crucible is then covered, and the fusion kept up for twenty-five minutes, and the scum taken off, when the substance is ready for use. It is malleable and ductile, and can be worked to any form, even into gold leaf.

Varnish for Burns.—Some months ago it was accidentally discovered by a French workman, that varnish was an excellent remedy for burns; and since then some remarkable cures have been performed by its instrumentality. Recently, also, it has been ascertained that petroleum is an excellent pain-relieving application, and it is successfully used for burns and scalds. Experience has shown that crude oil is better than the distilled article; that the heaviest kinds are to be preferred; and that the crude filtered oil, which has not been heated (such as is used for lubricating purposes), is the best of all.

Trimming Shop.

REPAIRING BROKEN BOWS.

WHEN a bow is broken in a straight place, it is oftentimes economical to mend it in the following manner, which is very simple and speedy. First, rip the stitching of the leather, and push it back from the broken place. Then measure the circumference of the bow. The easiest and most accurate method of determining this is to wrap a piece of paper around the bow, and with a knife cut the paper through to the wood, when the two side pieces will fall away, and leave the exact measure of the size of the bow. Then make a tin tube exactly corresponding to the size of the bow, as shown by the tube of paper. In this tin tube run the two ends of the bow firmly until they butt each other, and then restitch the old leather, or put on a new leather, according to the class of work which is required. This obviates the necessity of removing the entire bow, it is much cheaper, of course, and quicker, and the bow will be as strong as ever. If done with care, and the bow is neatly set into the tube, the place cannot be detected. Mr. Johnson, of Henderson, Ky., writes us that he has used this method of repairing bows for many months, and that the idea has been worth a considerable sum of money to him.

New Illustrations of the Drafts.

THE American Institute is holding its 39th Annual Fair at the Rink, on Third avenue and Sixty-fourth street, in New York, its closing day being November 3d. In the department of vehicles are exhibited sixteen carriages, mostly light work, representing seven firms of this city, and two single-seat sleighs, as shown in the table which follows:

T. E. BALDWIN & Co.	California Wood-spring Wagon, Circular Front ¾ Coupé.
GEO. J. MOORE....	Square-box Top Wagon, Four-seat Extension Top Phaeton.
E. SMITH.....	Road Wagon.
JOHN C. HAM.....	Ham's Patent Circular Front Six-seat Rockway Clarence, Landaulet.
R. M. STIVERS.....	Jagger Top Wagon, Hambletonian Road Wagon, Trotting Wagon, Kimball Patent Jump-seat Wagon, Eureka Cutter, Dexter Cutter.
COE & MERRITT.....	Half Spring No-top Wagon.
J. B. BREWSTER & Co.	Dog Cart, The Dexter Road Wagon.

Whilst it must be admitted that the majority of these vehicles are well constructed and finely finished, as would naturally be expected when the character and reputation of the exhibitors are considered, it must be confessed that the Carriage Department, as a whole, is incomplete, and would impart to a stranger a very imperfect idea of the extent and importance of the carriage business in New York. A few weeks ago Paris led the world in the fashions of dress. To-day New York is the leader of carriage fashions in this country; but she has been modest about displaying this in the present exhibition. In addition to the fact that some of the leading firms of this city are never represented in these fairs, we attribute the absence of others to the increased activity of trade in some departments, which has tended to detract from their usual interest in the fair, and prevented them from making the usual preparations. Indeed, some of the work exhibited has been brought over from last year, and was evidently not built for the purpose of competition. We consider the styles of sufficient importance, however, to give cuts of several of them in the present *Magazine*, and we give below a brief description of the painting, trimming, and general construction of the six we have illustrated. In the December *Magazine* we shall give others.

TWO-WHEEL DOG CART.

Illustrated on Plate XXI.

THIS makes a stylish turnout, especially for tandem driving, and many of them are seen in Central Park now-a-days. This one is provided with apparatus for moving the body; and a correct balance may easily be obtained by moving the crank or lever, seen just above the cushions on the front seat.

Painting.—Gears are carmine, striped with a broad line of black, centered by two fine lines of canary yellow. The body is deep lake, striped with carmine and fine lines of canary yellow. The center panel of the body is made to represent slat-work; but the upper part of each slat being black, and the lower part carmine, the effect from a side view is that of a plain striped panel.

Trimming.—Drab corduroy.

LIGHT ROAD WAGON.

Illustrated on Plate XXII.

THIS wagon is exhibited by E. Smith, of White Plains, N. Y. It has a good appearance. Rocker concave; and width of body, 1 foot 9 inches.

Painting.—Gears, canary yellow, striped with one broad and two fine lines of black. Body, black.

Trimming.—Blue cloth.

SQUARE-BOX TOP WAGON.

Illustrated on Plate XXII.

THE body is cornered, seats rounded, and rocker concave. Style, plain but neat. Its builder, Mr. Moore, has taken several prizes at former exhibitions of the American Institute; and the two vehicles which he exhibits this year—this wagon and a four-seat top phaeton—are quite creditable. The wagon is finished as follows:

Painting.—Gears, vermilion, striped with one broad and two fine lines of black. Body black, and with good surface.

Trimming.—Green cloth.

DEXTER CUTTER.

Illustrated on Plate XXIII.

A very pretty pattern. It may be said of Mr. Stivers' vehicles in this fair, that they are excellent generally. His carriages are well known for their fine finish and durability, and he has given good samples of his style of work. His business, in which he is assisted by his two sons, is on the increase, and he is enlarging his factory to nearly double its former size.

The weight of this cutter is only 65 pounds, and it has a fine side sweep. The width of the seat is 2 feet 8 inches at front of cushion.

Painting.—Body, black, striped with one broad line of gold bronze, set off with a fine line of orange. Running parts vermilion, with gold stripe.

Trimming.—Purple velvet. Mountings, gold.

EUREKA CUTTER.

Illustrated on Plate XXIII.

The style of this sleigh is very rich and highly gilded. Its weight is 85 pounds.

Painting.—Body, lake, striped with gold, edged with orange, and fine line of vermilion. On upper part of body is fancy plaid work of crimson, with black diamond center. Running parts striped gold, with fine line of carmine.

Trimming.—Crimson plush, with orange plush lace.

THREE FOURTHS LANDAULET.

Illustrated on Plate XXIV.

This is a richly finished carriage, and was exhibited in the Fair with its circular front raised, as shown in the cut. It seemed to attract considerable attention, and particularly of the lady visitors, for whose use this style of vehicle is certainly well adapted. Landaulets are very popular now, and we believe their popularity will continue, for they are a standard pattern. They still offer a large field for improvements in the method of removing the top. With the exception of the demi-landau made by J. B. Brewster, we believe all the landaulets yet built have been accompanied by the disadvantage that the top, when removed, cannot be stored away in the carriage, or be taken along with it. In this respect the French are decidedly ahead of our American builders. They construct their landaulet in such manner that the driver can put the top either up or down at will, and without leaving his seat. J. B. Brewster's demi-landau appears to be a partial success, and we hope to see still further improvements in their connection.

The finish of Mr. Ham's landaulet may be described briefly as follows:

Painting.—Body, purple lake, striped with a fine line of carmine. Gears, carmine, striped with one broad and two fine lines of black.

Trimming.—Maroon leather. Mouldings, gold.

Editor's Work-bench.

PUBLIC PARKS.

THEIR INFLUENCE ON THE CARRIAGE BUSINESS.

When Central Park was laid out in 1858, its 843 acres were of little market value. Even now this is true comparatively, as is illustrated by the desolate appearance of many of the districts near it. But, if in time to come the city increases in population and extent in the same ratio that it has increased during the last fifty years, the situation of the Central Park may become the center of the city, and in such case of course its actual land value would be immense. Moreover, when we compare the Park—rich in its rounding hills and splendid lawns, its winding pathways and excellent carriage roads, its shrubberies and lakes, and that fine architectual structure called the Terrace, with the rough and uncultured grounds outside of it—we perceive at once that it must have cost millions of money to lay out this great fertile inclosure, which smiles out of its stony surroundings like a oasis in a desert. Still further, it will cost millions more to keep it in order. Constant changes and improvements are made. It was only a few weeks ago when a resolution was adopted directing that the Fifth Avenue entrance be improved, and a fountain placed there; and that the circle at the Broadway entrance be completed, and embellished with large candelabra gas lamps, &c. These are unusual expenses, of course, but the regular yearly expenses are very great, as is illustrated by this single fact taken from the report of last year: "The use of the drives and walks is so great as to demand constant attention and reparation of their surface. 10,397 cubic yards of gravel were required for this purpose during the year 1869." Of course these continual outlays become enormous in the aggregate, and many persons on seeing this are ready to ask, "To what purpose is all this outlay? Is it of any practical use? Is it not superfluous, and somewhat of an inducement even to idleness?"

It does not come within our province to answer these questions from a general utilitarian point of view. We write for the carriage builders, and at present it is our purpose only to give an idea of the extended influence exerted upon the carriage business by these great parks which have been laid out in New York, Brooklyn, Philadelphia, and Baltimore, and our other American cities. The question of parks is one of the live issues of the day, and it is well that the coach builder should examine its effects.

In the first place we will freely assert our belief that *Central Park pays nearly one-half the income of the carriage builders of this city, and one-half the salaries of their employes.* And we will go on to explain. Since 1858, when Central Park was opened, the demand for fine car

riages in New York city has about doubled. In the report by the Board of Commissioners of the Park we find facts which have enabled us to make up the following table, showing the number of carriages that have visited the park each month during the springs from 1862 to 1867. By examining this view, and comparing the figures, the reader will see that in those *five years* the number of carriages visiting the Park *was doubled*.

	1862.	1863.	1864.	1865.	1866.
April,	58,567	79,095	87,575	125,864	53,528
May,	77,974	3,618	147,344	126,789	165,363
June,	84,254	110,792	111,253	153,279	163,563

When we see this gain denoted for those five years, and consider the state of trade since 1866, will it not be fair to infer that had there been no Central Park, there would have been only one-half the present demand for fine vehicles, and but half the number of workmen needed, or if the same number of workmen had been employed, their wages would have been but half as great. The carriage-maker cannot complain, therefore, of the costliness of the Park. On the contrary, it is his *silent partner in business*, and on Thanksgiving Day, when he carves the fat turkey, he may well say to his wife, "Thank God, the Park has been very productive this year." Had we time, we could easily prove this further by comparing the number of carriages owned, as shown by the assessment of taxes for vehicles.

Moreover, the parks are not only a support to the coach-maker's trade; *they are a condition of the development of his art.* It is, indeed, easy enough to speak slightingly about show and display. Yet, it is difficult to do it with entire sincerity. We owe some of our best virtues and many of our happiest customs to the necessity of having a good appearance, and our innate love for making display is one of the most powerful agents of progress. It is quite natural that a man of refinement and taste should do his utmost to make his social position and his whole outward appearance fully accordant with his refinement and taste. Nay, it is more than natural. It is a moral necessity. If he has no instinct, no impulse toward such an end, all his mental acquirements are of much less value, and may, perhaps, prove to involve something wrong. It is natural, too, that a man if possessed of wealth and power should wish to show to the eyes of his fellow-citizens his abundant means, and it is well that he does it. Wealth and power are dangerous things, if concealed; as dangerous to the owner as to others. Concealment is to wealth and power what fire is to gunpowder, while, on the contrary, free and open display serves to enforce the equilibrium of things, because no display of wealth and power would be tolerated at all, if it did not prove trustworthy and benevolent. When a new man, who became rich yesterday, nobody knows how, rushes forth in a glowing carriage, we laugh at him as a representative of "shoddy aristocracy," but we are glad and even proud of the old man, who makes a brilliant display of his honestly-accumulated wealth, and we think about making something similar ourselves. A tasteful display of benevolent wealth or trustworthy power is, indeed, one of the noblest and strongest stimuli in the life of a community, and we should be glad whenever an occasion for such a display presents itself.

The coach-maker, at least, ought to be glad of the parks, for if there had been no such places in which the wealthy man could show his wealth and his taste, and do it by excelling others, although there might have been the same demand for useful vehicles as now, there would have been no demand at all for that which makes the coach-maker's work a work of art. There would have been the same demand for that kind of work which the machine can make and is likely to make best, but there would have been no demand for that kind of work which depends upon the workman's brain and its ideas, or upon his hand and its skill.

If it is thought that the influence of these parks does not go any further than to the business of those cities in which they are situated, it is a very great mistake. *The influence is felt far away in the country.* A man who once has seen the carriages which are driven along the Mall of Central Park will, of course, when he can afford a pleasure-carriage, long for one as stylish and elegant as they. And if the country coach-maker cannot supply such a piece of finished workmanship, the customer will be likely to send to New York. But the next day his neighbor will feel tired of his old-fashioned family-chariot. He, too, will have a new, stylish one from New York. In a little while people will learn, moreover, that these city carriages are as strong as they are light, and as solid as elegant, and that they need not half the repairs which are demanded by the country coach-maker's work, and the consequence is apparent. The country coach-maker will have to keep up with the improvements of the trade in the large cities, where the display in the parks enforces new wants and calls forth new ideas, and if he close his eyes and fail to keep well up with the times, he will very likely be compelled to close up his shop as well. Thus the parks work as a lever to the whole carriage business.

CARRIAGE LIBRARY.

A LIBRARY is a powerful educator, and we believe it would be of great value to both employer and employes if a well-selected one, consisting mostly of mechanical books, were established in each large carriage factory.

In order to illustrate how good and practical a library for carriage-makers could be made up, and to render more available the suggestion we had made, we presented

in the September Magazine a list of about twenty-five books and publications in English which related directly or indirectly to carriage-making, and in the October Magazine we continued the subject by enumerating five books in French. We do not think the lists are complete, but they show how a good beginning can be made, and we invite the co-operation of all our friends in suggesting to us all other publications of a similar nature with which they are acquainted. With their assistance we hope in a few months to present a full list of coach-making works, and we trust the show of titles will make so favorable impression on some of our readers that they will be induced to carry out our suggestion and establish a shop library.

In the present number we carry on our plan by enumerating such other foreign works as are known to us.

GERMAN.

Die Wagen und Fahrwerke der Grechen und Romer; (Wagons and Carriages of Greece and Rome). Edited by Johann Christien Ginzrot, and published in Munich in 1817. 2 volumes. Very rare.

Wagenbau-Zeitung (Carriage Building Journal). Edited by George Meitinger in Munchen (Munich) and Berlin. First number issued January 1, 1864.

ITALIAN.

Designs of Carriages. Collected and published by Van Westerhout, in Rome, in 1687, and dedicated to his Serene Highness. Very rare. This is one of the oldest books treating on carriage-making. It contains many interesting designs.

LATIN.

Vehiculus Antiquorum (The Vehicle of the Ancients). Edited by Pyrrhus Ligorius Neapolitanus, and published in Frankfort in 1700. A rare and valuable book.

De Re Vehicular Veterum (Concerning Ancient Vehicles). Edited by Johannis Schefferi, and published in Frankfort in 1671 (sixteen hundred and seventy-one). Exceedingly rare. We should not know where to look for a second copy. It is a literary curiosity.

This concludes the names of those books which are known to us now. Will our friends help us to extend the list. In the December Magazine we will republish the entire list, including English, French, German, Italian, and Latin, with such additions as we shall be able to look up, and such as shall be suggested to us by our correspondents.

PUBLIC CONVEYANCES IN THE PARK.

Experience has proved that the arrangement made by the Board of Commissioners for Central Park, for the efficient, comfortable, and economical carriage service, is an excellent one.

Ten commodious carriages, built with express reference to the accommodation of visitors, have been in use during the past year, and with the best satisfaction. They are fitted up and kept with great neatness and care, and provide for the comfort of passengers, both in sunshine and rain. The drivers are carefully selected, and all are under the control of the Park Commissioners. The rate of fare for going around the park is 25 cents, and during the skating season, when snow is on the ground, the fare from the southerly gates to the Lake is fixed at five cents.

This service was commenced on the first day of June, 1869, and has been regularly continued, affording a great public convenience, and an exemption to strangers and others from the annoyances to which they had been subject in carriages hired outside the Park.

The total number of passengers from June 1 to the close of the year 1869, was 68,557. The total receipts for fares were $17,139.25. By the terms of the agreement, the Board receives a license-fee on each of these carriages, annually. It is expected that during the coming year, other forms of carriages, suitable for one, two, or four persons, will be placed on the Park under the same management. This is a good movement.

DECLARATION OF PEACE.

In times past, this *Magazine* and the *Coach-maker's International Journal*, of Philadelphia, have been on terms which could hardly be called, when speaking with perfect accuracy, an illustration of true brotherly love. For our own part we cannot see any reason for such a course, and we beg to omit from our columns, in the future, this department of humor. We prefer violet ink to black. We offer the right hand of fellowship to our friends in Philadelphia, and invite them to reciprocate the same.

CARRIAGE BUILDERS' CONVENTION.

During a recent call upon our friends, the Valentines, we were much amused at the following circumstance: A clerk had been arranging on the shelf a long line of bottles filled with samples of varnishes, and just as he completed the line, and proceeded to dust the shelf, the head bottle toppled over, fell against the next, and with a succession of click, click, click, clicks, one by one, over went every bottle in the series. The look of amazement with which the boy, duster in hand and opened mouthed, gazed upon this unexpected downfall was very amusing.

We learn that the plan of holding the Convention of Carriage Builders was overthrown in a similar manner. Everything was in working order, and moving along in a satisfactory manner. It was a movement which had long been talked of and hoped for, and every one appeared to favor it; but the countenance and support of

some of the leading and influential members of the trade was necessary. Some of them doubted its practicability; this doubt was seconded, and like the row of bottles the convention was overthrown, and the plan has been abandoned for the present. The failure has been much regretted by those who favored the matter, and had lent their support. There were many such, and there is every reason to believe that if approved by all the leading members of the trade, it would have called together several hundreds of those engaged in carriage building, and helped to establish that feeling of friendliness and co-operation which is lacking now, and the want of which is productive of so many unpleasant consequences. It's time will come however.

Correspondence.

THE JAUNTING CAR OF IRELAND.

The Ocean Trip.—Queenstown.—Cities of Interest.—Cork.—Limerick.—Dublin.—Climate.—Drogheda.—Rostrevor.—The Jaunting Car.—A Full Description of this Singular Vehicle.—The Good Roads.—Landaus, Bretts, and Broughams.—Carriage-Building in Dublin.—Heavy Styles.

NEWRY, COUNTY DOWN, IRELAND.

MR. HOUGHTON.

Dear Sir: Your kind favor was received here in due time. To one who has never been away from his own dear home and country, it is very difficult to realise the pleasurable emotions excited in the mind by the receipt of a letter from friends at home. I simply thank you for the heartfelt pleasure afforded me by your letter, received here in this *old country*, where the people, their manners and customs, the climate, the ancient ruins and memorials of the past—where almost every thing we see and hear is so different from the youthful freshness and progress of *free and happy America.*

Our passage to Queenstown, in eleven days, was rather rough, I might say stormy, but in all other respects pleasant—not that in parting with the good ship Samaria I experienced many regrets. The harbor of Queenstown is of easy access from the sea, and almost landlocked by great hills and mountains, with several beautiful islands dotting its surface and serving as natural barriers against the encroachments of the sea. From several points the harbor appears as a great lake, without any apparent outlet. The town is situated on the side of a steep hill, the houses being on terraces, one above the other, giving a picturesque effect; and the River Dee, nine miles to Cork, forms a continuation of the harbor to that point.

We will enumerate briefly the several places of interest through which we have passed.

Cork presents many marks of commercial activity, and some signs of modern progress; but it still has many of the old landmarks indicative of its ancient origin. The next place of interest visited was the Lakes of Killarney. Of them I shall only say that, for sublimity and beauty of natural scenery, they cannot be excelled. Next in order was the city of Limerick, sometimes called by its inhabitants the "City of the violated Treaty," in commemoration of the treaty made here and violated by William the Third. Its old cathedral, its castle and city wall, built in the eleventh century, together with other memorials of the past, are exceedingly interesting to antiquarians. From Limerick to Dublin, the railway passes through a charming grazing and farming region, with many remains on either hand of abbeys and castles with their ivy-crowned turrets.

A remarkable feature in Irish scenery is that you are seldom, if ever, out of the sight of mountains. Another thing that strikes the visitor who comes from our side of the Atlantic is the length of the days here. In summer, the daylight is clear until after 10 o'clock, and the temperature considerably below that of our American summers, with only an exceptional warm day. The winters, I am informed, are much milder than ours, and the winter days much shorter. Dublin is a fine old city, with many public buildings and institutions worthy of notice, and it contains many things of interest to the student of history and antiquity. The railroad from Dublin to Newry passes north along the coast, through Drogheda, near which was fought the decisive Battle of the Boyne, between the forces of William the Third and James the Second; and farther on toward Newry is Dundalk, where one of the Scottish Bruces was crowned King of Ireland, and where he was killed a few years subsequent in a battle with the English.

Newry is situated at the head of Carlingford Bay, surrounded by beautiful valleys and mountains. About five miles lower down the bay is Rostrevor, a beautiful seaside watering-place, whose natural beauty of mountain and sea landscape cannot be excelled. A monument is erected here to the British General Ross, who, after defeating the American militia at Bladensburg and burning the Capitol, fell, mortally wounded, at the battle of North Point, nine miles from Baltimore, on the 12th of September, 1814. History and local tradition record the fact that two apprentice boys, Wells and McComas, of Baltimore, vowed that General Ross should not enter the city alive, where, it is said, he had sworn to eat his supper or in hell, and, at the sacrifice of their heroic lives, they fulfilled their oaths. What was his resting-place will be revealed hereafter. Baltimore has erected two monuments to its gallant defenders on that day, and with the record of their deeds truly stated, but this British monument records a lie, in asserting that Ross died in a successful attack on Baltimore, and I so informed the polite old veteran having charge of the monument.

The field of carriage literature in this country is very contracted, and not particularly suggestive. The inevitable jaunting car meets you at every turn, and is on hand at every call. To an American, the car and its driver are both novel and peculiar. The short, see-saw, sideways motion is not pleasant, at least to the uninitiated; but the natives, who use them habitually, appear to enjoy it with a hearty satisfaction. The drivers have a peculiar custom of soliciting a gratuity over and above the regular fare or that agreed upon, on the plea that the owner of the car gives them little or no regular wages, and that unless their patrons are generous toward them, they cannot keep soul and body together. Being annoyed on several occasions in this way, I concluded that it was more agreeable to American tastes to make a specific agreement covering all contingencies before starting. The real jaunt-

ing car has no top, and how, in this showery climate, they have become so popular is a mystery to me. The drivers try all expedients of aprons and woolen wrappings to overcome the difficulty, but the people appear to accept the situation as inevitable, and use them on all occasions.

The jaunting car carries four grown persons without crowding, exclusive of the driver, and with space in the center of the body for light parcels or baggage. This part is called the well, and is covered by a movable cushion. The body is 3 ft. 3 in. from front to back, and 4 ft. 5 in. wide. This allows 18 in. on each side for seat room, with a space in the center of 17 in. for baggage. The passengers sit sideways, with their backs toward those on the opposite seat, and facing outward; there is little or no support for the back, but the passengers, by resting their arms and a portion of their bodies on the top of the cushion covering the well, may make themselves reasonably comfortable. The driver's seat is near the front end of the body, and slightly elevated, his feet resting on a footboard attached to the shafts, and occasionally a car of fine finish has a dash. When there is not more than one or two passengers the driver sits on one of the side seats in preference to his regular seat.

Nearly all kinds of vehicles in this country, excepting a limited number of fine carriages, run on two wheels, with no fixed rule regulating the length of the axles, as every axle is made in accordance with the width of body and purpose for which it is to be used—a law in that respect to itself. Jaunting car wheels are 3 ft. 5. in. high, spoke 1⅜ in., rim 2½ in. deep, narrow on tread. The axles are sufficiently long to place the wheels a little inside of the front or outside edge of the seats, and the leg-room for the passengers is obtained by means of a jointed footboard attached to the front edge of the seat, with a joint at point of attachment, so that when not in use it may be turned up out of the way. The back part and sides of this movable footboard are covered either with leather or thin sheet-iron, and this part of the machine is intended to keep off the mud and dust. The traces are attached to hooks screwed permanently on the inner sides of the shafts near the front bar. The shafts rest on two half springs (no cross), and the body is connected with them by means of scroll irons at each of its four corners, allowing sufficient play for the springs, that is, between the bottom of the body and the tire. Many of these vehicles are built in a superior manner and very ornamental. They are used for both private and public purposes. Price, from fifteen to twenty pounds sterling, and harness from five to seven.

A remarkable feature in this country, and one intimately connected with the business of making carriages, is the uniform excellence of its roads. They are macadamized and kept in the best order. Even on mountain roads the grade is so easy that the saving in horse-power is very great. As an illustration, I saw a granite block of 4,000 lbs. hauled into town by a medium-sized horse. It had come from a quarry three miles distant, and was borne on a two-wheeled truck.

I have examined several well-finished, stylish landaus, bretts, broughams, &c., made in Dublin, but there is nowhere to be seen here the light and graceful American models. It is to be hoped that the tendency to copy in America the heavy European models will be kept within reasonable bounds, as they are neither necessary nor suitable for our country. Your friend, JOHN MCDERMOTT.

ENGLISH RUBBING STONE.

MR. EDITOR: I think it worth while to inform the carriage making fraternity that the very useful so-called English rubbing stone, commonly sold at eight cents per pound, is in no respect different from the soft, gray sandstone of Cleveland, Ohio, which is now so extensively used in the West for building purposes, and in many cases the article sold as imported is this identical Ohio sandstone, the value of which is equal only to the trouble of picking it up. LOUIS MATERN.

BLOOMINGTON, ILL., Oct. 1, 1870.

We have written to Mr. Matern, asking him to send us samples of this sandstone, that we may compare it with the imported. If equally valuable for the purpose for which we recommend it, we shall strongly advise the substitution of the American product in place of the English, which is opening a market. We Americans have an inborn love of imported articles. The feeling is natural in a young country, which so very lately had to depend upon its mother country for all its necessaries. But the United States has arrived at the dignity of trowsers, and ought, therefore, to begin to support himself.

TARGET EXCURSIONS.

THE target excursions held during the past month by the employes of Brewster & Co., and J. B. Brewster & Co., of this city, were very pleasurable. The former was held at Lion Park, on Sept. 18th, and was attended by nearly four hundred persons. Mr. J. B. Brewster's men held their festival at Grove Hill Park, in Morrisania, and were favored with good weather and a good time generally. As "the Guard" (as the Twenty-fifth street employes have been called) marched up Lexington Avenue on the morning of Sept. 25th, headed by a band, they certainly made a fine appearance. We were in company with Mr. Stratton at the time, and watched them as they passed his office. They made a mistake in not calling for a speech, as we guess Mr. Stratton had one ready. We do not make speeches.

We have received the following remarks on the subject of excursions generally, from a friend who was present on the two occasions:

To the Editor.

Dear Sir: As you handed me the card of invitation, you told me to enjoy myself and make you a good report. The former I have done with all my heart, and as for the latter—well, sir, it is not my fault if my report does not contain what it properly should contain. The card read: "Second annual *shooting festival* at Lion Park," and "Second annual excursion and *target practice* at Grove Hill Park." And there was, indeed, shooting at both places, heavy shooting, all the day. But I cannot tell you any thing about this part of the feast. At Lion Park, I could not reach the shooting gallery on account of a very heavy rain—not that well educated English rain which keeps dripping modestly for some six or seven weeks, but that rough American rain which pours down by steam-power in half a day. The sky "meant business" on that

afternoon, and I had to remain in the dancing hall. At Grove Hill Park the case was still worse. Between the shooting gallery and the dancing hall, a space of some thirty paces was parched by the dazzling sunshine. I looked at it and thought of Sahara. I looked once more and thought of purgatory. Then I gave up the idea of crossing it, and again I was confined to the dancing hall.

The only thing, therefore, I can tell you about the shooting is, that there were too many prizes. With both parties there were about half as many as there were shooters. A prize should be a thing seldom won, and won by few only. A prize should be a thing of honor; and if it be any thing more or any thing less, it ceases to be a prize at all. Properly speaking, there ought to be but one prize, for but one can be the first; and when speaking of honor, only the first has a value. But as it is impossible to find out, with absolute certainty, who is the first—and as it would be hardly fair if some slight accident should thrust back into the crowd him who really was the first—it has become the general practice, and may be considered right, to place two more prizes beside the first—one on the right hand, and one on the left. But more than three are not justifiable. And when a party offers *fifty* prizes *to a hundred shooters*, they smell like those won in an English boarding school. If the school has fifty boarders, the professor will boast that from his school fifty boys carried home prizes for eminent progress. Indeed, a good rifle-shooter might earn a nice livelihood here in New York by being a member of a hundred shooting clubs, and winning the fourth prize at each place.

If this is all I can report from the *shooting gallery*, you will ask, of course, for so much the more copious information from the *dancing hall*. I can make only two remarks, and these I dare not set forth until ushered by a few circumlocutions.

Every thing has its proper place in which it must be seen in order to be rightly understood. If you would be impressed with the popular character of the Neapolitan, you must see the lazaroni as he lies more than half naked on some marble porch, idle and fully unconscious of every thing in the world except the sunshine and the macaroni. He looks like an ancient statue just dug from the soil, where it lay buried for several thousand years, so expressive is he, so beautiful, and so exceedingly unwashed. When you pass him, he will stretch out his hand, and with a very insinuating glance, and a still more insinuating smile, he will beg: "Excellence, give me a penny." If you pass on without giving him any thing, the hand will remain resting in the same posture perhaps for hours; but if you give him a penny, you will see and hear a gratitude more passionately expressed than you ever witnessed before. Still better if you talk with him. Tell him there is somebody you hate, somebody you should like to send whence nobody returns, and ask him—"Has he a knife?" He will raise his foot, place a piece of wood between the toes, make a careless cast with the hand, and in the wood so held you will see the sparkle and shivver of a fine steel poinard. He *has* a knife. The price will soon be settled; for if you will not give him half a dollar, he will be pleased with a quarter. The bargain is all right, there lacks but the name. Tell him—Garibaldi; and if you do not feel the poinard in your own heart, you will at least see before you a man whose ancestors were citizens of the Roman republic, and you will feel that the instincts and principles of this same Roman republic are still burning under the ashes of the Roman popery.

If you would have an impression of the Hungarian, you must see him when drinking wine and dancing *Czardas* under the oak trees. Young and old cluster together around a band of gypsies, who with instruments unknown to the civilized world make a very singular music, consisting of two or three wild, dreary melodies singularly interwoven. And still more singular, yet expressive, is the dance. You remember these men rescued the European culture twice or thrice, aye, even the Christian religion from Mohammed's barbarous hordes. Through centuries they watched, sword in hand, over the dearest and noblest that the history of mankind ever contained, and such a duty, when performed with devotion and enthusiasm, ennobles a man. You can see that the Hungarian, who dances *Czardas* under the oak tree, is a soldier, and has been so through a dozen of generations, and you can see, moreover, that this soldier was defeated yesterday at Sadowa.

The German you must see at night in a public place, smoking and drinking beer, singing, making fun, and talking politics or philosophy. Every nation must be viewed in some peculiar situation as well as in some particular place, in order to reveal its true character; but the dancing-hall is not the proper show-room for American genius and American character. The American is a business man, and must be seen in his office. There he feels at home, and appears with that noble dignity and benevolent ease which suits a man so well. Outside the office, on the pleasure-ground, he seems to be a little bewildered, as if he did not know what to do. Horace Greeley, a keen, yet kind-hearted observer, says in his "Recollections of a Busy Life": "The low-born, rudely bred Englishman has but one natural fashion of enjoying himself—by getting drunk. We have modified this somewhat; but, as a rule, our thrifty, self-respecting people have hitherto allowed themselves too few holidays, and failed to make the best use of those they actually took," and he is right. To the American even his pleasure is a business.

And now, having hinted that I do not think the ball-room is the peculiar situation in which the American shows off to the best advantage, I will venture to set forth my two remarks, First. *The American mechanics cannot dance.* It was obvious that the old folks, who were Europeans, or at least stood nearer Europe by a generation, did much better than the youngsters. There were, indeed, some old spokes who whirled around and waltzed along so nicely, that I wondered what power put them in motion. The young ones, on the contrary, seemed to feel some difficulty in moving their limbs according to the tyrannical time of the music. They danced as if they were made of wood, and most of them could not dance at all. I asked one if his mother had not taught him how to dance. She had not, and he said it would be a singular business for a mother to teach her sons dancing. I thought not. There are four things which a mother must teach her son, viz.: "to pray, keep himself clean, to tell the truth, and dance." So said Martin Luther. If she teach these well, she has prepared him for many good things in the world; she has prepared him for being a happy man.

The other remark refers to the bar. *At a p'c-nic, with shooting and bowling and dancing, there ought not to be a bar.* Do not misunderstand me. A good dinner and a

liberal supply of wine seem to belong to a pic-nic. But no bar. As the prize means honor, so the wine means feast; and if so, should be served at the culminating point of the feast, at the banquet, when the gentlemen toast the ladies, the employes the employers, and the whole assemblage their country.

In your next issue I may make a few remarks on how holidays and pleasure excursions and shooting festivals are managed in different parts of Europe.

AN OLD DAUBER.

EDITORIAL CHIPS AND SHAVINGS.

TRADE NEWS.—The New York *Tribune* gives daily a brief report of the carriage business in this city, under the head of the "Horse and Carriage Market." This is a new and valuable department, which was but recently opened in the *Tribune*, and it presents a good advertising medium for the carriage-builders. It is under the management of Mr. De Wardener, who is already known to many of the trade.

SLEIGHS.—The manufacture of sleighs and carriages was begun at Biddeford, Me., in 1861 by Hanson Bros., who then employed two hands. They now employ twelve men, and have recently built a new factory sixty feet by sixty, three stories in height, with an L. They are building light trotting sleighs, weighing when finished but sixty pounds, besides round and convex back double sleighs. Carriages and sleighs made by this firm are sold in Boston by Wm. P. Sargent & Co., Sudbury street.

BOSTON has a population of 250,701, as shown by the late census, and within a radius of ten miles from the State House, there are fully half a million of inhabitants.

SHREWD FLATTERY.—In Washington every shrewd cab driver divides all well dressed people into generals and senators. Only let a middle-aged man of military appearance come out of a hotel, and he is greeted with "A carriage, general?" but if he be on the shady side of fifty, and of dignified mien, it is "A carriage, senator—to the Capitol, sir?" Now, it is not at all singular that these brevet titles, although imposed by hack drivers, secure customers, because all men of a certain grade of intellect, after they reach forty, think they either ought to be generals or senators, and are not unwilling to reward even a cabman, who is more deserving than the non-appreciative mass of their fellow citizens. The joke is told of a well known Virginian, as a case in point, that in consequence of being addressed everywhere he went as "senator," he actually spent an entire day last winter, while at Washington, in cab riding, and to the neglect of important business.

NEW FIRMS.—Since the dissolution of the firm of Corbett & Scharch, Mr. Corbett has continued business at the former factory, and Mr. Scharch has associated with Mr. Schweizen, in the firm of Scharch & Schweizen, and has opened a shop at 147 West 25th street.

SCENE IN THE KAATSKILLS.

Fine view of the Hudson on the immediate right—wholly unobstructed.

Nervous portly passenger.—"I say hold up, you driver! If you're going down here at this rate, I tell you I'll get out."

Hilarious driver.—"Can't spare yur ballast now, sir; them brakes aint no dependence."

HOW SMITH RODE.—It seems that Mr. Jones loaned Mr. Smith a horse, which died while in his (Smith's) possession. Mr. Jones brought suit to recover the value of the horse, attributing his death to bad treatment. During the course of the trial a witness (Mr. Brown) was called to the stand to testify as to how Mr. Smith treated horses.

Lawyer (with a bland and confidence-invoking smile)—"Well, sir, how does Mr. Smith generally ride a horse?"

Witness (with a merry twinkle in his eye, otherwise imperturbable)—"A-straddle, I believe, sir."

Lawyer (with a scarcely perceptible flush of vexation upon his cheek, but still speaking in his smoothest tones)—"But, sir, what gait does he ride?"

Witness—"He never rides any gate, sir. His boy rides all the gates."

Lawyer—(his bland smile gone and his voice slightly husky)—"But how does he ride when in company with others?"

Witness—"Keeps up, if his horse is able; if not, he goes behind."

Lawyer (triumphantly, and in perfect fury)—"How does he ride when he is alone, sir?"

Witness—"Don't know—never was with him when he was alone."

Lawyer—"I have done with you, sir."

TUNNELS—Between Omaha and Sacramento there are nineteen tunnels.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKERS' MAGAZINE.

New York, October 20, 1870.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅞ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Benzine, per gall., 35c.
Bolts, Philadelphia, list. 45 off.
Do. T, per 100, $3 *a* $3.50.
Borax, English, refined, per lb., 33c.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Buggy bodies, finished, $15 to $20.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

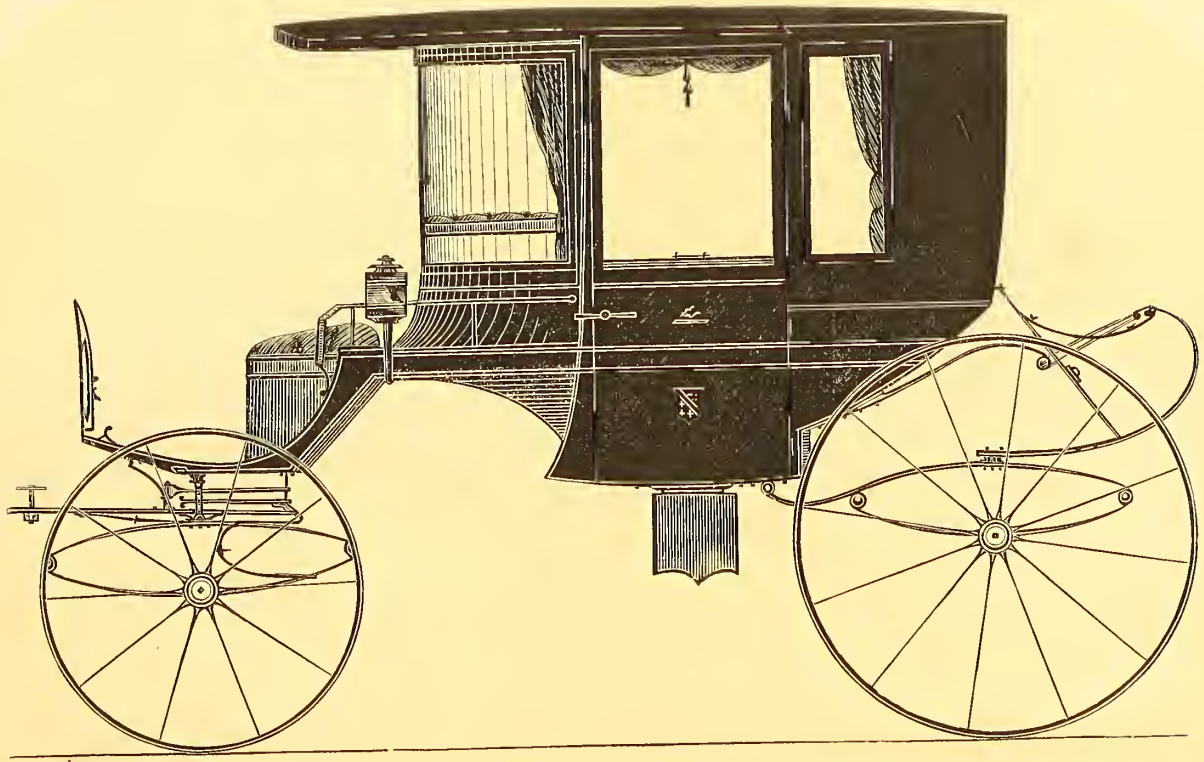
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $2.00.
Japan gold size, $4.00.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $5.00 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Pumice-stone, selected, per lb., 7 to 8c.
Putty, in bbls. and tubs, per lb., 5 to 7c.
Putty, in bladders, per lb., 6 to 8c.
Rubbing-stone, English, per lb., 9 to 10c.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shafts, finished, per pair, $3 to $4.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1 50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c.; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12: acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close-plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2. Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes, American, wearing body, $6.50; elastic gear, $5.50; hard-drying body, $5; Quick leveling, $4.50; black body, $3; enameled leather, $4.00.
Varnishes, English. Harland & Sons', wearing body, $8; Carriage, $7; Noble & Hoar's, body, $7.50; Carriage, $6.50.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Wheels, coach, $20 to $40 per set; buggy, $12 to $18.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.

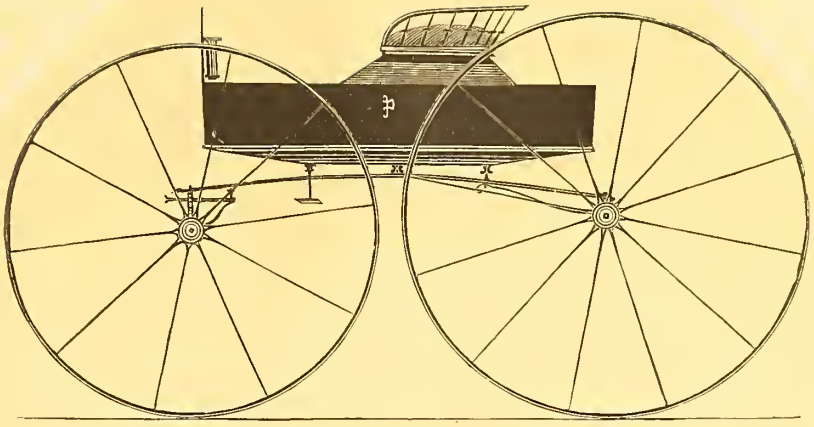


HAM'S PATENT SIX-SEAT CIRCULAR FRONT CLARENCE.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY JOHN C. HAM.

Engraved expressly for the New York Coach-maker's Magazine.

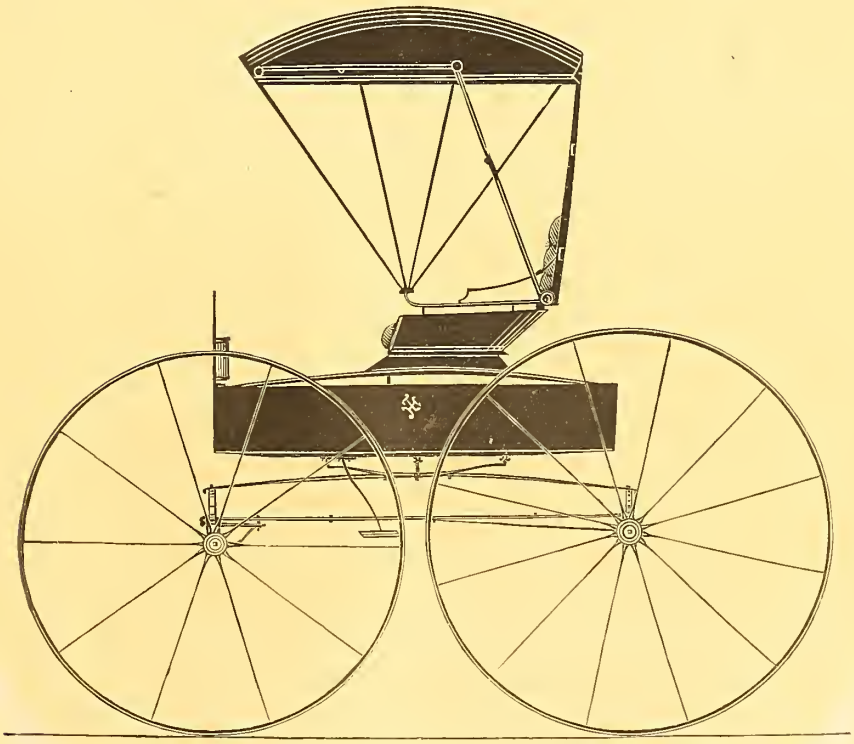
Explained on page 104.



TROTTING WAGON. — ½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY R. M. STIVERS.

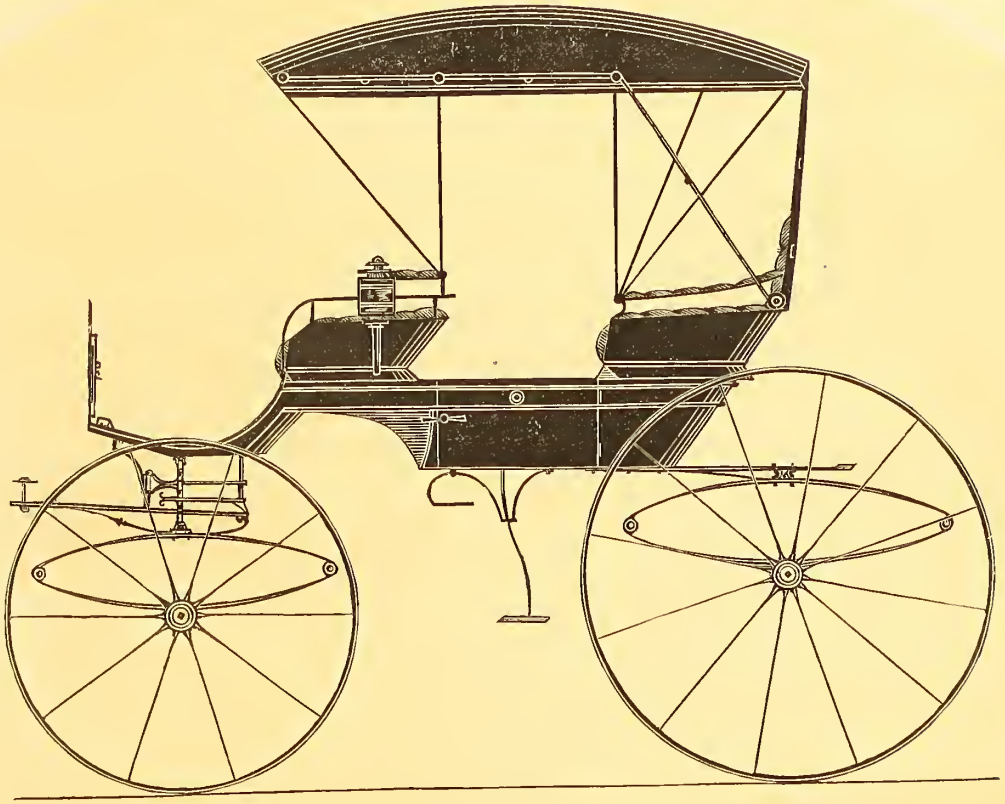
Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 104.



JAGGER TOP WAGON. — ½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY R. M. STIVERS.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 105.

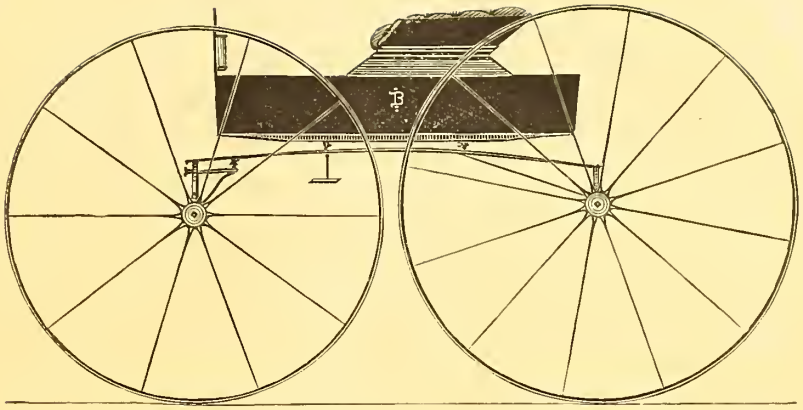


FOUR-SEAT EXTENSION-TOP PHAETON.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY GEO. J. MOORE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 105.

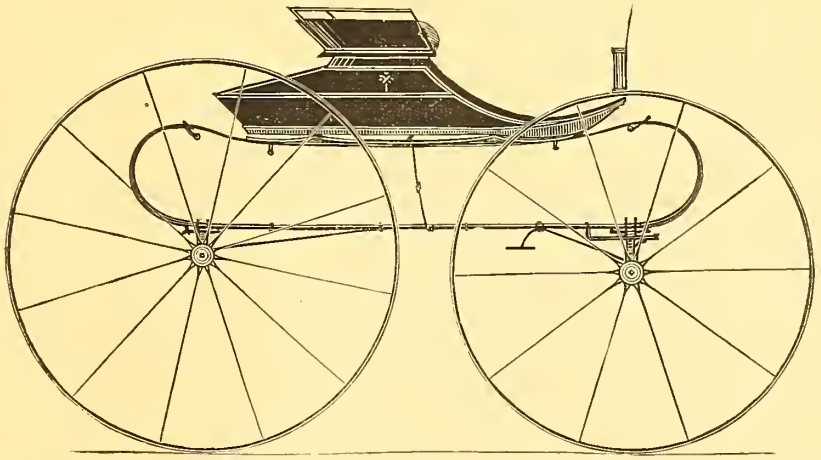


THE DEXTER WAGON.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY J. B. BREWSTER & CO.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 105.



CALIFORNIA WOOD-SPRING WAGON.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY THEO. E. BALDWIN.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 105.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, DECEMBER, 1870. No. 7

ENGLISH CARRIAGES.

It is true, that the carriage, as it is indifferently called, is a more decided thing than a chaise; it may be swifter even than the mail; it leaves the stage at a still greater distance in every respect, and (forgetting what it may come to itself) darts by the poor old lumbering hackney with immeasurable contempt. It rolls with a prouder ease than any other vehicle. It is full of cushions and comfort; elegantly colored inside and out; rich, yet neat; light and rapid, yet substantial. The horses seem proud to draw it. The fat and fair-wigged coachman "lends his sounding lash," his arm only in action, and that but little, his body well set with its own weight. The footman, in the pride of his nonchalance, holding by the straps behind, and glancing down sideway betwixt his cocked-hat and neckcloth, stands swinging from east to west upon his springy toes. The horses rush along amidst their glancing harness. Spotted dogs leap about them, barking with a princely superfluity of noise. The hammercloth trembles through all its fringe. The paint flashes in the sun. We, contemptuous of every thing less convenient, bow backward and forward with a certain indifferent air of gentility, infinitely predominant. Suddenly, with a happy mixture of turbulence and truth, the carriage dashes up by the curb-stone to the very point desired, and stops with a lordly willfulness of decision. The coachman looks as if nothing had happened. The footman is down in an instant; the knocker reverberates into the farthest corner of the house; doors, both carriage and house, are open;—we descend, casting a matter-of-course eye at the bye-standers; and the moment we touch the pavement, the vehicle, as if conscious of what it has carried, and relieved from the weight of our importance, recovers from its sidelong inclination with a jerk, tossing and panting, as it were, for very breath, like the proud heads of the horses.

All this, it must be owned, is very pretty; but it is also gouty and superfluous. It is too convenient,—too exacting,—too exclusive. We must get too much for it, and lose too much by it. It's plenty, as Ovid says, makes us poor. We neither have it in the republic of letters, nor would desire it in any less jacobinical state. Horses, as many as you please, provided men have enough to eat;—hired coaches, a reasonable number;—but health and good humor at all events.

Gigs and curricles are things less objectionable, because they cannot be so relied upon as substitutes for exercise. Our taste in them, we must confess, is not genuine. How shall we own it? We like to be driven, instead of drive;—to read or look about us, instead of keeping watch on a horse's head. We have no relish for vehicles even of this description, that are not safe. Danger is a good thing for giving a fillip to a man's ideas; but even danger, to us, must come recommended by something useful. We have no ambition to have *tandem* written on our tombstone.

The prettiest of these vehicles is the curricle, which is also the safest. There is something worth looking at in the pair of horses, with that sparkling pole of steel laid across them. It is like a bar of music, comprising their harmonious course. But to us, even gigs are but a sort of unsuccessful run at gentility. The driver, to all intents and purposes, had better be on the horse. Horse-back is the noblest way of being carried in the world. It is cheaper than any other mode of riding; it is common to all ranks; and it is manly, graceful, and healthy. The handsomest mixture of danger with dignity, in the shape of a carriage, was the tall phæton with its yellow wings. We remember looking up to it with respect in our childhood, partly for its loftiness, partly for its name, and partly for the show it makes in the prints to novels of that period. The most gallant figure which modern driving ever cut, was in the person of a late Duke of Hamilton; of whom we have read or heard somewhere, that he used to dash round the streets of Rome, with his horses panting, and his hounds barking about his phæton, to the equal fright and admiration of the masters of the world, who were accustomed to witness nothing higher than a lumbering old coach, or a cardinal on a mule.

A post-chaise involves the idea of traveling which, in the company of those we love, is home in motion. The smooth running along the road, the fresh air, the variety of scene, the leafy roads, the bursting prospects, the clatter through a town, the gaping gaze of a village, the hearty appetite, the leisure (your chaise waiting only upon your own movements), even the little contradictions to home-comfort, and the expedients upon which they set us, all put the animal spirits at work, and throw a novelty over the road of life. If any thing could grind us young again, it would be the wheels of a post-chaise; the only monotonous sight is the perpetual up-and-

down movement of the postillion, who, we wish exceedingly, could take a chair. His occasional retreat to the bar, which occupies the place of a box, and his affecting to sit upon it, only remind us of its exquisite want of accommodation. But some have given the bar, lately, a surreptitious squeeze in the middle, and flattened it a little into something obliquely resembling an inconvenient seat. If we are to believe the merry Columbus of Down-Hall, calashes, now almost obsolete for any purpose, used to be hired for traveling occasions a hundred years back, but he preferred a chariot, and neither was good. Yet see how pleasantly good-humor rides over its inconveniences:

Then answered 'Squire Morley, "Pray get a calash,
That in summer may burn, and in winter may splash;
I love dirt and dust, and 'tis always my pleasure
To take with me much of the soil that I measure."

But Matthew thought better; for Matthew thought right,
And hired a chariot so trim and so light,
That extremes both of winter and summer might pass;
For one window was canvas, the other was glass.

"Draw up," quoth friend Matthew, "Pull down," quoth friend John,
"We shall be both hotter and colder anon."
Thus talking and scolding, they forward did speed,
And Ralpho paced by under Newman the Swede.

Into an old inn did this equipage roll,
At a town they call Hodson, the sign of the Bull;
Near a nymph with an urn that divides the highway,
And into a puddle throws mother of tea.

If Prior had been living now, he would have found the greatest want of traveling accommodation in a country, for whose more serious wants we have to answer, without having her wit to help us to an excuse. There is a story told of an Irish post-chaise, the occupier of which, without quitting it, had to take to his heels. It was going down hill as fast as wind and the impossibility of stopping could make it, when the foot passengers observed a couple of legs underneath, emulating, with all their might, the rapidity of the wheels. The bottom had come out, and the gentleman was obliged to run for his life.

We must relate another anecdote of an Irish post-chaise, merely to show the natural tendencies of the people to be lawless in self-defense. A friend of ours, who was traveling among them, used to have this proposition put to him by the postillion, whenever he approached a turnpike, "Please, your honor, will I drive at the pike?" The pike hung loosely across the road. Luckily, the rider happened to be of as lawless a turn for justice as the driver, so the answer was always a cordial one, "Oh, yes—drive at the pike." The pike made way accordingly, and in a minute or two the gate people were heard and seen, screaming in voice after the illegal charioteers.

Fertur equis auriga, neque audit currus.—VIRGIL.

The driver's borne beyond their swearing,
And the post-chaise is hard of hearing.

As to following them, nobody in Ireland thinks of moving too much, legal or illegal. LEIGH HUNT.

EARLY PORTLAND SLEIGHS.—Sleighs were first made in Portland about 1819. First came what were called the "Tub" or "Half Moon" sleighs, then the "Square sleigh," and about 1837 they began to be made with dashes.

Wood Shop.

STYLE AND TASTE IN CARRIAGE BUILDING.

WHAT MAKES A CARRIAGE IN THE LATEST STYLE.

The construction of carriages in that perfection of detail, which is demanded by the advancement of taste in general, and the practical requirements of our day, renders carriage-making one of the most difficult mechanical trades. It is not intended by us to follow here into the details of the various branches represented in the carriage factory, with their many mutual relations, but in the present article we shall treat on style and taste from a general standpoint, and shall endeavor especially to show *what makes a carriage in the latest style.*

After utility, style is the first great point in a carriage. This is true with nearly all trades; but there is a vast difference between carriage-making and some others. Styles in dresse and articles of wear change from one period to another so completely that they have almost no resemblance; the bonnet of to-day is different from that of yesterday; the originators of these fashions have an unlimited field for the development of their ingenuity, but not so with carriages. The lines are changed very slowly, and sometimes the changes are hardly perceptible to even the accustomed eye; indeed, so minute are the variations in form, that carriage-makers themselves will often at the first glance overlook them as trifles, but of such trifles combined is constituted the carriage of the latest style. The reasons for this slowness of change is easily explained. It is not only the cost and long wear of a vehicle, and the time it takes to build it, or the risk of finding a buyer, but mainly the fact that we have to work inside of given and standing rules, binding us to dimensions of height, width, and length, and exacting the observation of other important points, such as hanging up, draught, weight, and convenience under given circumstances.

But, nevertheless, many carriage-makers living outside of the centers of fashion, which are the larger cities, and New York especially, are often mistaken in this question. They come from East and West to New York with the laudable desire to improve themselves by inspecting the styles. They go to the Repositories, and visit the fashionable drives in Central Park, Harlem Lane, and others, but frequently they are surprised to see so few new styles. Here is a coal-box wagon, there an extension-top phaeton. They say they made *nearly* the same patterns three or four years ago, and no doubt they did. But to any one who is posted, there are, perhaps, many striking novelties in these two vehicles. The square cut-under on a dicky seat, with the other lines as usual, may be the new thing; or the leaving off of a body moulding, a different shape of a light in the quarters, a new shade of painting with appropriate striping, or perhaps an additional trimming with new laces, will, to an expert eye, show quite new styles.

There is some change always, little as it may be, and whether good or bad. It was about three years ago when the principle of straight lines was brought over from France to the United States. It commenced with straight joints, and, by and by, extended to the lines of the body; yet, to this day, straight lines on carriages are fashionable, and they certainly will continue to be for a long time to come; but this is not slow progress. We found the change from

the old-fashioned sweeps and curves was universally approved; and, therefore, we hold to straight lines as expressing shortness and simplicity, and we still have ample room for the working of our taste inside of these limits.

The question will now arise, why do carriages made in the larger cities bring so much higher prices, comparatively, than those manufactured in smaller places, their styles have apparently very little difference. Country makers can procure just as good, and sometimes even better, timber than city makers, and they may also use other materials of the best quality. Still, purchasers prefer going to the larger cities, and paying often what is considered exorbitant prices.

The answer simply is, they pay for the taste, and for these trifles, sometimes hardly visible, but which have built up for the respective maker a reputation worth to him thirty or more per cent. on every sale. Of course not all have the same class of customers, but that such buyers are to be found almost everywhere is demonstrated by the fact, that in every locality where some carriage-makers exist, one or the other of them will command high prices, and not only make what is called a better class of work on account of his custom, but has his custom on account of his work. Therefore, besides the outlines of the body, which in no instance need be at great variance from the ruling styles, it is the general taste applied in the completion of a job, down to the smallest items, which makes a *new and stylish* vehicle; a shape of body whose difference is almost imperceptible; a tasteful painting; a perfect matching of striping with ground color; a trimming of corresponding color; close attention to minor parts and a display of good judgment in every particular. These are the requirements of a vehicle of the newest style; and to attain perfection in the art of producing this class of work, we can never see, read, or hear too much of the experience and doing of others, from which to select for our own use such points as our own trade requires.

A. MULLER.

THE GROWTH OF TREES.

I HAVE something to say about trees. I have brought down this slice of hemlock to show you. Tree blew down in my woods (that were) in 1852. Twelve feet and a half round, fair girth; nine feet, where I got my section, higher up. This is a wedge, going to the center, of the general shape of a slice of apple-pie in a large and not opulent family. Length, about eighteen inches. I have studied the growth of this tree by its rings, and it is curious. Three hundred and forty-two rings. Started, therefore, about 1510. The thickness of the rings tells the rate at which it grew. For five or six years the rate was slow, then rapid for twenty years. A little before the year 1550 it began to grow very slowly, and so continued for about seventy years. In 1620 it took a new start and grew fast until 1714; then for the most part slowly until 1786, when it started again and grew pretty well and uniformly until within the last dozen years, when it seems to have got on sluggishly.

Look here. Here are some human lives laid down against the periods of its growth, to which they corresponded. This is Shakspeare's. The tree was seven inches in diameter when he was born; ten inches when he died. A little less than ten inches when Milton was born; seventeen when he died. Then comes a long interval, and this thread marks out Johnson's life, during which the tree increased from twenty-two to twenty-nine inches in diameter. Here is the space of Napoleon's career; the tree doesn't seem to have minded it.

I never saw the man yet who was not startled at looking on this section. I have seen many wooden preachers, —never one like this. How much more striking would be the calendar counted on the rings of one of these awful trees which were standing when Christ was on earth, and where that brief mortal life is chronicled with the stolid apathy of vegetable being, which remembers all human history as a thing of yesterday in its own dateless existence.

O. W. HOLMES.

Smith Shop.

THE JOURNEYMAN SMITH.

What is a journeyman smith?

The first time that I remember hearing the term *journeyman* applied to any particular trade was about twenty-nine years ago, at which time I was quite a youth. The word was employed at the end of every verse of a somewhat lengthy song, called the "Journeyman Tailor."

The real meaning of the word, or why it was applied to trades, became to me a vast and not over lucid problem.

Feeling anxious to learn its exact meaning, I applied to my maternal author for a definition of the term. After receiving the answer, that it applied to all tradesmen or mechanics that had finished their apprenticeship, I felt as much enlightened as before.

The word journey, I knew, related to travel; the combination only, was the puzzle. How a carpenter, or smith, or tailor, with steady employment and a permanent domicil, should be styled or called a traveling mechanic, was more than my comprehension could fathom. To arrive at the solution of this problem was ever my great aim. Numberless times have I asked of master mechanics its true meaning, and in the end invariably found myself no wiser than before.

In 1852, after having entered upon the third year of my apprenticeship, it became my duty to help a German smith, an excellent mechanic, but unable to utter a word of English, or to comprehend anything mentioned to him in the same language.

In order to be able to understand each other, we commenced the task of teaching each other our native languages, and in a measure we succeeded.

While conversing with him in German, upon the German method of constructing vehicles, the German apprenticeship system, and other matters relating to the trade, I was successful in finding a clue which I felt quite certain would lead me to the proper solution of the great apprenticeship problem.

He mentioned that, while he was a "*Handwerks-Bursch*," of having stopped a certain length of time in Berlin. *Handwerks-Bursch* was to me as so much Greek. After giving my friend to understand that I would like to know the literal meaning of the term, he told me that it meant a *traveling mechanic*. Following up my clue, I finally came to the solution of the problem that had

troubled my brain for the preceding eleven years, which is about as follows:

Until within the last few years, it was imperative, in all German countries, and in a majority of other European countries, upon every person, after he had finished his apprenticeship and before entering into business on his own account, to spend a certain number of years in traveling in other countries, or in the different sections of his own country, that he might become acquainted with the different methods of working, and thereby perfect himself and become competent to enter into business on his own account.

The term applies to single men only, working for other persons. As soon as he enters into business he is termed (in German parlance) "*Meister*," or "*Werke-Meister*." If he becomes married and does not establish himself in business, but works for another person, the term "*Handwerks-Bursch*," or traveling mechanic, does not apply to his calling any longer. He is looked upon as an inferior workman, and is termed a "*Sack-Reise*" [the literal translation of "*sack*" in this case applies to household effects], or in English, "a botch," a man that is encumbered, etc. The meaning of the term may be measurably altered by emphasizing or taking from.

The foregoing system, once in vogue throughout all European countries, is fast dying out, and at present exists in but one or two German Provinces. The old terms are falling into disuse, and in some of the German States have become obsolete—the terms used at present signifying a learned smith, carpenter, or tailor, having a greater amount of significance, and are in the ascendency. In conclusion, your humble servant would say, that until the term "journeyman" becomes obsolete (that is, so far as relates to the mechanic of this enlightened country), and the proper term, MASTER MECHANIC, supersedes it, that the writer will remain as equally dissatisfied as he was prior to his learning the exact or literal meaning of the word journeyman in its present application.

J. L. H. M.

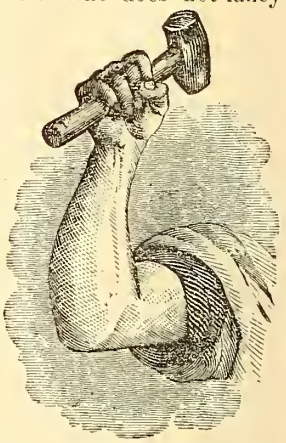
NEW YORK, Oct. 31, 1870.

We were glad to receive this article, because it contains some interesting remarks about the life of European mechanics, and we wish that our contributor would tell us something more about it. But we cannot agree with him in his explanations of the origin of the word *journeyman*. According to Webster, *journeyman* signifies *a man hired to work by the day*, a day-laborer, and this is, no doubt, the correct meaning. The common word *journey*, from the French word *jour*, a day, signified, originally, not *travel*, but *the travel of a day*, or *all that was done in one day*, and thus *journeyman* has nothing to do with the the modern signification of *journey*, travel, but only with the primitive one, *day-work*. Originally, therefore, a journeyman smith was one who labored, and was paid, by the day.

ED.

THE BLACKSMITH'S CAPITAL.

IN an old ballad a mother asks her daughter whom she would like best to marry—a barber, a shoemaker, a tailor, a painter, a carpenter, or a blacksmith? The daughter flatly rejects the barber. She does not fancy the shoemaker or the tailor; and though she thinks the painter or the carpenter might make a very good match, yet she selects the blacksmith as the best.



This ballad gives, in its own way, the general opinion of the value and consequence of the different professions. It prefers the painter, the carpenter, and the blacksmith, to the barber, the shoemaker, and the tailor, and most people do so. There is, indeed, a close connection between science and the three former professions, which ennobles them in the eyes of mankind. The painter, the wood-worker, and the blacksmith have every day new questions for science to answer, and all results of scientific speculation have to be tested by the practical man before being acknowledged as true. The shoemaker and the tailor, on the contrary, have nothing to do with science. What they need beside manual skill, and some knowledge of material, is merely a small bit of taste. They must not have too much. A tailor who has more taste than fashion is most likely to get very few customers. And as for the barber—neither science nor art, neither philosophy nor taste, has ever heard his name.

The reasons why the blacksmith is generally preferred to the painter and the wood-worker, seem to be, first, his art is the oldest and most indispensable of trades; and second, it requires and imparts a high degree of physical strength, which always makes a good impression upon people. A young blacksmith lately crossed the ocean from Hamburgh to New York, with only half a dollar in his pocket. He knew nobody in America, and understood neither English nor German. A friend asked him if he were not afraid of starving to death in New York, destitute as he seemed of any resource; but he smiled, quickly drew up his sleeve, showing his naked right arm, and answered, "Do you think, sir, that a man with an arm like this is likely to die of starvation?" Indeed, he had something more reliable than his rich friend had.

O ho! ye stalwart arms and hearts,
Ye nerves of well-skilled might,
Our country's honor still is safe
While ye protect the right.

In peace or war we see with joy
Thy smoke and belching light;
Our pillared cloud by day they seem,
Our pillar of fire by night.

Paint Shop.

ANTIDOTE FOR LEAD POISONING.

MR. DIDIERJEAN, a litharge and red lead manufacturer of France, having taken all possible precautions to keep his workmen in a healthy state, could not succeed in entirely preventing lead colic and paralysis, until, by a mere

accident, it was discovered that two of the men were never affected at all. On inquiry being made, it was found that they were in the habit of drinking milk with their dinners. After some satisfactory trials of this harmless preventive, a supply of milk was provided for the factory, and each man was obliged to drink a quart every day. By this means all symptoms of lead disease have disappeared, and the health of the workmen has been perfect for the past eighteen months. We have great confidence in this remedy. The action of the milk is due to the 3 per cent. of caseine it contains, which unites with the oxide of lead, forming an insoluble and harmless compound. Let some of our readers who are troubled by the affects of lead try this and give us their experience. We are aware of the popular delusion that the milk of cities is a dangerous mixture of pulverized calves' brains, chalk, and linseed meal, and that whiskey is the only pure and wholesome drink, but Dr. Chandler, chemist of the N. Y. Board of Health, says that although a systematic fraud is perpetrated in the dilution of milk with an average of one third of water, the milk of New York is generally free from injurious adulterations and untainted by disease.

Since writing the above, we learn that in some parts of Germany, workmen in lead factories are in the habit of drinking water acidulated with a few drops of oil of vitriol, as a prevention of cholic and with good results. This, certainly, is a well grounded scientific theory, as the sulphate of lead which would be formed is not injurious, and if the human viscera were composed of cast iron, we would pronounce in favor of this beverage; but its effect is to congest the bowels, and a slight excess of it may give rise to dangerous complications.

PRESENT STATE OF VARNISH MANUFACTURE IN THE UNITED STATES.

The manufacture of varnish has grown to be a business of such magnitude and importance that a few notes concerning it may perhaps prove to be not uninteresting. Before the late war, it was comparatively an insignificant branch of industry, but the many different manufactories springing up since that time, especially in the Western States, has given it a prominent position. The number of articles upon which it is used would astonish one not in the business. Almost every article of furniture—the different kinds of carriages, coaches, and wagons, agricultural implements, pianos, iron-work, safes, refrigerators, brooms, pictures, and a thousand other articles require to have varnish applied before they are completed and ready for sale.

The largest quantity is probably applied on furniture, and Cincinnati is the head depot, being the largest furniture mart in the world. Being used upon so many articles, there are, of course, many varieties and grades of varnish, the principal kinds being called copal, Damar, shellac, asphaltum, Japan, and coach.

Copal, or furniture varnish, derives its name from the gum used in its manufacture. This gum is an African product, and the leading grades are known by the names of Zanzibar, Benguela, and Angola. Zanzibar is a port on the eastern coast of Africa, and from this place the best quality of gum is obtained. Benguela and Angola are on the western coast, opposite Zanzibar, about six degrees below the equator, in the latitude of Central Brazil, and distant about 3,300 miles. The gum is found imbedded in the sand, the tree from which it exuded being now extinct, and, consequently, there being no new supply and a constantly increasing demand, the time will come when varnish makers will have to look for a substitute for gum copal. The natives are sent from the larger ports up the smaller streams to pick this gum, and carrying a basket upon their backs, go inland sometimes as far as twenty miles, fill the smaller boats, and so continue until the larger vessels are laden. The gum, when found, is quite dirty and sandy. It is sometimes cleaned on the coast, but oftener in this country, in a solution of potash. After the gums are well cleaned, they are assorted and graded according to size and color, and then packed in cases, weighing from two to three hundred pounds.

The furniture varnish is made by taking a certain amount of gum, which is carefully selected, placed in a copper kettle over the furnace, and when thoroughly melted, is incorporated with linseed oil, previously prepared with dryers. It is then taken from the fire and turned out into a "cooler," and when at a low enough temperature, is reduced to a proper consistency with spirits of turpentine. Then comes the straining process, to render it perfectly free from all impurites, and lastly, it is run into large tanks, where it is allowed to settle and get age. Age improves varnish greatly, and, in fact, is almost indispensable—old varnish becomes more brilliant and transparent in color, keeps its gloss longer, is more durable and elastic, and works freer under the brush. The melting is an important part of the business, and requires a person of much experience to successfully accomplish it.

Gum kowrie, or New Zealand gum, is found in large quantities in Australia, and is a substitute for the copal, on account of its price, and at the present time it is used largely in furniture varnishes. It has not the hardness nor brilliancy of the copal, but nevertheless, makes an excellent varnish. The amount of gum daily melted is suprising; we know of one firm in Chicago who fuse two thousand pounds of kowrie daily, besides making Japan, Damar, asphaltum, and the other kinds of varnish requisite for their trade.

In the manufacture of coach varnish, nothing but the hardest gums should be used, such as Zanzibar, Benguela, or Angola. The preparation of the oil for this varnish is quite a science, and varnish makers are very careful not to let their *modus operandi* be exposed to the public. The oil, which should be old and well settled before using, is then bleached, and layers of different kinds put into it before it is incorporated with the gum. Oil is best bleached in the sun, but oftener with the aid of chemicals or acids; the latter, however, are hurtful, destroying the oil.

The finishing or varnishing of a piece of furniture is quite an art, and few workmen who handle a brush understand it theoretically or practically. The grain or pores of the wood are first filled with a heavy-bodied, quick-drying varnish, or shellac, then sand papered, or scraped, to a level with the wood; two or three additional coats of rubbing varnish are then applied, which is rubbed down

smoothly with pulverized pumice-stone and water, afterward nicely cleaned and washed, then dried with a chamois skin. A finishing coat of varnish is given, rendering the surface of the wood as smooth and bright as a piece of polished marble. Each coat must have time to dry hard before the application of another.

Damar varnish is perfectly white, and transparent as spring water, and is used in white paint for glossing on painted and papered walls, and on pictures and maps. The best Damar gum comes from Batavia, in the island of Java, and an inferior grade from Singapore.

Asphaltum varnish is black, and applied on all kinds of iron-work. The ashpaltum is found in great quantities in Cuba, Mexico, and on the Pacific coast, but the finest quality is the Egyptain. In appearance it resembles a piece of ordinary coal, having a strong, pungent odor, and is soluble in turpentine. The varnish is a quick and hard dryer, with a brilliant gloss.

Shellac varnish is used on furniture for the first coating, in the finishing of canes and umbrella handles, on patterns for casting, and by painters to varnish over knots in the wood, so as to form a coating through which the sap in the knot can not penetrate, and by the trade is known by the name of "knotting." Gum shellac is found in the East Indies, and is soluble in alcohol.

Japan is used as a dryer for paints, and is made from gum shellac, red lead, litharge, linseed oil, and turpentine. English coach varnish, until recently, has had a decided preference over the American on account of its durability and elasticity, but at the present time the American wearing body varnish is made so perfectly that it is used in our best carriage and railroad shops, and the time is near at hand when the foreign article will be entirely superseded. A very laudable strife among our varnish makers has been to see who shall make the most durable varnish for coach work, and to produce a better article than that made abroad. Yankee ingenuity and perseverance is obtaining its reward, and consumers feel that it is their duty, as well as their interest, to use home products in place of foreign, and this cordial and hearty support has given increased incentive to American manufacturers to bring the article up to the required standard.

Our manufacturers labor under certain disadvantages in respect to price, in competition with English manufacturers. In the first place, there is the extra freight on the gums, and, in giving varnish requisite age, the interest on their money is more than double, notwithstanding varnish is produced here at less price than abroad. Probably no business is carried on with more competition than this one. In the city of New York there are fully forty varnish factories, while a dozen are found in Boston, and half a dozen in Philadelphia. Newark, N. J., seems filled with them, Cincinnati has four, Chicago four, St. Louis three, Indianapolis one, Dayton, O., four, Baltimore three, Pittsburg three, and, in fact, every city of any importance has its varnish factory. Every concern thinks it necessary to have its representative in the shape of a commercial traveler, and the country is covered from Maine to California, from Minnesota to Louisiana. To such an extent has the trade been solicited, that it is no uncommon sight to see, in a furniture or coach factory a placard, reading, "No Varnish Wanted," and in many railroad shops varnish agents are politely notified, by a card conspicuously displayed, that they will not be admitted into the premises. No class of men, however, are more persistent and indefatigable in search for customers. Knowing the opposition they have to encounter, they brace themselves for the contest, and their pleasant and agreeable manner, soft and oily speeches, tempting inducements, and unanswerable arguments, generally bring them off the victors, with an order in their pockets. The business has fallen into the credit system, unfortunately, and six months, and even more, is now granted to any party worthy of credit. The profits were formerly large, but competition has so reduced them that at the present time no manufacturing business pays a less percentage, and it is only by the volume of sales that a manufacturer can now realize any thing beyond his expenses.

Varnish, during the war, was much adulterated with rosin and benzine, but now the demand is for quality, not quantity, and it is to be hoped the trade will support those manufacturers who have uniformly made trustworthy goods, even though they could have no other reward than the sustaining of their reputation.—*Technologist.*

TREATMENT OF ZINC WHITE.

THE practice of mixing zinc white with any preparation of lead as a paint is condemned by a recent author as unadvisable. He recommends the preparation of zinc-white paint with an oil treated in the following manner: Instead of mixing it with the ordinary boiled linseed oil, two hundred pounds of linseed oil are to be boiled moderately, first for five or six hours alone, and then for at least twelve hours with twenty-four pounds of coarsely broken peroxide of manganese. By this method an oil is obtained which dries very quickly, and is especially adapted to mixing with zinc colors. This oil is to be kept excluded from the air, to prevent its becoming too thick. When used, from three to five per cent. of it is to be added to paint prepared in the ordinary manner with raw linseed oil.

PAINTING, HUMAN AND DIVINE.

HERE, morning is a season far too rare
To waste in sleep, and with a lover's eye
I rise and watch the coming of each day,
That launches daily in the eastern sky
And rides with majesty the sea of mist;
More glorious are the trappings of his state
Than any canvas ever glowed withal.
God's pictures are the masterpiece of light,
Before which pigmy man displays his chalk
And strives with trembling hand to imitate.
God is creative, and in that great thought—
So high above man's vision, that he looks
And sees a cloud alone, when seeking it—
In that great ideality, is fixed
The crown of his divinity and power.
The man is weak in all his base estate,
And ne'er so strong or wise as when with eyes
Unsealed, and he perceives his nothingness.
Here looms, 'twixt human means and God's, the gulf,
The great impenetrable wall of cloud,
That dark and terror-pregnant lifts its veil,
As the green ocean lifts its armed wall
Against the sceptre of the red-lit West.
The human mind discerns, and when the wild
And fire-fed iron horse goes pulsing by,
A mighty emblem of his sovereignty,
He slings his cap and shouts a note of pride;
But when the engines of the Lord ride by
With thunder tread and dripping lightning breath,
He bows, like a smitten reed, prone in the dust.

In one he sees the power of his kind,
And feels the hot blood course his swelling veins,
For he is also man. But in the storm
He sees the gulf, and through the rended veil
Perceives the contrast of those thoughts most vast,
Creator and created, and in awe
And reverence bows before the great unknown,
The more displayed, the more intense involved.
Man delves and mixes all his brightest tints
From of the dust, and with a wisp of hair
He paints, upon stray remnants of the past,
The slough of some thing beautiful that was.
But all God's colors are the natural birth
Of living sunlight and his radiant smile,
And when he makes a picture to refresh
The weary eyes of us who watch and wait,
He makes its beauties all so beautiful
They tell us only of our other home.
His easel is the vaulted sky, his cloth,
The drifting clouds, the great and mighty hills
That mock the clouds in grandeur, rocks and fields,
And tiny flowers, the microcosm of all.

Trimming Shop.

COLORS IN TRIMMING.

The Rule of Bright Colors on Dark.—Color in Trimming.—Luster in Trimming.—Ground with Colors.—Leather Cushions.—Their Objectionable Features.—Silks and Satins.—Second Proposition; the Groundwork should be Lusterless and Dark.—The Reasons Illuminated.—Conclusion.

In an article about trimming, which appeared in the October number of The Magazine, we gave as a good rule for the guidance of the trimmer, the following: *the minor trimmings, such as the ribbons, laces, welts, and buttons, used inside a carriage, should always be of a brighter color or a lighter shade than the groundwork.* As this rule was inferred by us from merely theoretical premises, we have been puzzled not a little, as we find by further examination that quite the opposite rule has been established by practice. We have since visited quite a number of the most prominent carriage-repositories in this city, giving particular attention to the styles of the trimmings, and have found, that in most cases, if not in all, the rule is reversed, and darker colors and deeper shades are used in the ribbons, laces, welts, buttons, etc., than in the ground-work. We are unable, however, to find any good reasons, why practice is right and our rule wrong. On the contrary, however ready we are to learn from practice and custom, in this case we feel it our duty to oppose them, and we have made up our minds to fight the dark laces.

In most cases it is necessary for the trimmer to use some lusterless and relatively dark color as a groundwork. We observe, however, that at present, leather and silk are becoming very fashionable in trimming, and both of them are often possessed of a brilliant luster. Yet we feel sure that this fashion will be of short duration. Leather possesses several serious objections. Many persons cannot sit on a seat covered with it. After sitting for an hour or so on such a cushion, they feel ill, and the seat becomes damp. It is, indeed, the first rule of a good hygiene to keep up a steady and live communication between the skin and the surrounding air. Through the pores of the skin a process is continually carried on, whose effect on the blood is similar to that of breathing, and when this process is stopped, one is likely to become feverish. With many persons, however, the process is concentrated on some particular part, which is indicated by a ready perspiration, and to stop this perspiration is often very dangerous. Thus many people are affected with headache when using rubber shoes; others have a cough after wearing a rubber coat; others are affected in some other way when sitting on a leather seat, and to nobody who has to sit for hours in the same position is a leather seat wholesome. It ought, at all events, to be avoided in railroad cars and stage-coaches.

It may not be known to our readers that this matter has already been made the subject of discussion in Europe between some of the railway companies and the medical authorities. It is contended by the latter that it is very deleterious, and that its use in public conveyances of all kinds should be strictly prohibited by law as a sanitary precaution.

There is still another annoyance connected with these leather seats, and of a kind more likely to affect people generally. One is always sliding on them, and even if the trimmer, with special regard to this point, has moulded the seat in such a way that the passenger does not slip down to the bottom of the coach, it is often impossible for one to get a firm hold of the seat, and make one's self quite comfortable. How many pleasant dreams have been spoiled, by the dreamer suddenly sliding down from the seat. And if he succeeds in mooring himself solidly thereon, what a singular sound when he rises. One is often afraid that his pants will retain the leather covering, or still worse, that the leather-covering will elope with his pants, such a cracking and chirping accompanies the parting of them.

And even if these inconveniences could be prevented,—and to some degree they certainly can be,—trimming in leather would never become fashionable with first-class carriages, even with open ones. It looks too penurious. It is a poor household, says an ancient poet, in which nothing can be stolen. And in the same way an article of luxury is a poor thing when made to last for eternity. It is a charm with a ball-dress, that it will last only one night and never be used any more, as it is a charm with the butterfly, that it lives only for one month. Luxury is a short-lived race. Momentary splendor is its nature and its charm, and we consider it questionable taste to trim the seats of a pleasure-carriage with everlasting leather.

Luxury does not demand durability. It scorns it, and however well suited for the cheaper class of open carriages, where leather presents a partial protection from the inconvenience of dust, it is entirely unsuited for the Beau Brummel style of carriage which the Frenchman calls the "*equipage de Jean de Paris.*"

Silk and satin have the virtue of short duration, if such it may be called. They are not likely to last too long. Yet, as leather looks too hard and too durable, so silk and satin often look too soft and too unsubstantial. We have seen only a few carriages trimmed with satin, and they always appear to us as if they were a peculiar kind of vehicles fitted alone for sick folks. Satin, moreover, does not appear well when connected with wood. It always has a somewhat metallic glitter, which adapts it admirably for combinations with glass and metals, but it does not harmonize with wood, unless this is gilded. Even when wood is painted and varnished with the ut-

most splendor, its appearance remains soft and plastic, and shows best when juxtaposed to cloth or velvet. We do not doubt, therefore, that in this country cloth will always be applied in carriage-trimming more than any other material, and in Europe velvet trimmings are quite common. But both of them are lusterless. Furthermore, we doubt not that the trimmer will most often have to use the deep shades for groundwork, even if he prefers a light color, because a carriage is always liable to much exposure, and this does not allow of very delicate tints. And thus we have reached our first proposition, which is this: *the groundwork in trimming must generally be a lusterless and deep-toned color.*

It follows from this, that the trimmer will generally find it necessary to enliven and brighten the groundwork, but this he cannot do by using laces, welts, and buttons of a darker color or a deeper shade than that of the groundwork. Dark color on bright gives a soft effect; bright color on dark enlivens the effect. Dark on bright suppresses the glowing colors and tones down the dazzling ones. Bright on dark purifies the mixed colors and strengthens the weak ones. In a word, light makes darkness visible, but darkness quenches light, and this plain and unquestionable relation between light and darkness rules over all relations between dark and bright colors. The trimmer, therefore, who uses a darker shade for the ribbons and laces than for the groundwork spoils the latter. If this groundwork is of a mixed color, he makes it dingy. If it is of a chaste and subdued color, he makes it weak and faded. We will show this by an example:

Let yellow be the main color, which shall be set off by application of other colors or different shades. In this example we do not speak in particular of carriages. We have seen only one coach trimmed with yellow, and as we opened the door and jumped in, we felt as if we were plunging into an egg, and into the very midst of the yolk. Although we hope never to meet again with any trimming in yolk color, we choose yellow for our example, because it is a very striking color, and most likely to furnish us with striking applications. If yellow is very pure and soft and lusterless, it may be given a still more delicate appearance by adding some lustrous white in very small quantities. White silk-buttons, for instance, on yellow muslin will sometimes look very pleasing. Yet, generally, white makes yellow look greyish, and yellow makes white look dead. The reason is this: yellow is so bright a color itself that it is hardly possible to give it any additional brightness, and as white, when juxtaposed to other colors, can do nothing but brighten them, white and yellow are most likely to kill each other. If, moreover, the yellow is not perfectly pure, yet still lusterless, it shows very well when combined according to the laws of complementary contrast with some darker colors, for instance, with red or blue; with the former, when the yellow has a greenish cast; with the blue, when it is grayish. But this combination of yellow with red or blue, and its vigorous effect, prove that it is not the dark color which enlivens and shows off the light one, but quite the opposite; it is the light color which enlivens and shows off the dark one. Namely, if the dark color is applied in so small quantities as to be drowned nearly in the mass of the light one, the red or blue will by no means enliven or set off the yellow. On the contrary, when unable to appear distinct, it throws off an indistinct shade that makes the yellow look gray. As soon, however, as the red or blue is applied in sufficient quantity, to be distinctly perceived as the red or blue, the combination becomes a pleasing one, because the yellow sets off the blue as the light color always sets off the dark one, and the blue, indicating itself beside the yellow, sets off the contrast and the harmony of complementary colors.

Thus we have reached our second proposition of the rule, namely: *the minor trimmings of a carriage, such as the ribbons, laces, welts, buttons, etc., should be of a brighter color or lighter shade, than the groundwork, in order to enliven the latter and give it its due effect.*

We hope our readers will dwell upon this rule, and study its applications. If they consider it carefully, we believe they will not fail to find that our propositions are not wanting the support of many good and substantial reasons; and there is a general principle that underlies, which cannot but be valuable to the coach builder, the trimmer, and the customer, in determining many questions of taste in the selection and arrangement of colors in trimming. Our confidence in the truth of our theory has been confirmed in a striking manner since our pronunciation of it. We were invited to examine two carriages in a repository in this city, whose style of trimming was represented as being particularly tasteful and elegant. We examined them, and the representation was correct. Both of them were in perfect accordance with our rule. One was lined with black silk, and trimmed with yellow laces and buttons, and the other in bottle-green cloth, with apple-green trimmings. That is to say, in both of them the ribbons, laces, buttons, and welts were of a brighter color or a lighter shade than the groundwork.

Pen Illustrations of the Drafts.

HAM'S PATENT SIX-SEAT CIRCULAR-FRONT CLARENCE.

Illustrated on Plate XXV.

THIS is an excellent family carriage, being substantial, convenient, and fine looking, and Mr. Ham assures us that he finds ready sales for this class of work. Its capacity, moreover, is equal to its name, but we trust it is more manageable. He deserves credit for his efforts in the way of making improvements in the details of carriage building. In the vehicle before us there are two features which are noticable: the patent inside and the pull-to handles, which combine beauty with durability.

Painting.—Body, deep brown, striped with fine line of carmine. Carriage parts, very deep brown, or black, striped with one broad and two fine lines of umber, and down the center of the broad stripe is drawn a fine line of carmine, which relieves the rest, and gives a very neat and beautiful effect.

Trimming.—Crimson satin. Lamps lined with gold, and hubs trimmed with same.

TROTTING WAGON.

Illustrated on Plate XXVI.

THIS vehicle is representative of the quality of R. M. Stivers' road wagons. It has stick seat, and its weight is 110 pounds.

Painting.—Body, black, striped with gold line in lower moulding and seat rail. Carriage parts, black, with simple quarter-inch stripe of gold.

Trimming.—Cushion, leather.

JAGGER TOP WAGON.

Illustrated on Plate XXVI.

Another specimen of the Stivers wagon, and of a style which is much called for. Its weight is 215 pounds.

Painting.—Body, black; carriage parts, carmine, with line of gold and two fine lines of black. Surface and finish exceedingly good. This is one of the several vehicles in this Exhibition which was finished with Valentine's varnish. It afforded an excellent means for comparing the American article with the imported, and it must be acknowledged in this case, at least, that the comparison is by no means to the disadvantage of the former.

Trimming.—Blue cloth.

FOUR-SEAT EXTENSION-TOP PHÆTON.

Illustrated on Plate XXVII.

This is a handsome pattern, and well proportioned.

Painting.—Body, black, with gold mouldings. Carriage parts, black, lined with gold.

Trimming.—Deep blue cloth.

THE DEXTER WAGON.

Illustrated on Plate XXVIII.

This style of vehicle, which has become a standard one with J. B. Brewster, is famous for its lightness. The one on exhibition at the American Institute weighed only 99 pounds, including shafts. He is aided in maintaining this extreme lightness without sacrificing durability by the use of the Brewster patent supporting bars, in which steel is inserted. It is, without doubt, a valuable achievement in modern carriage-building to produce very light work, accompanied with strength and durability, and further efforts will probably be made to still cut under the present light weights. Whether this is compatible with the safety of life and limb ought to be considered carefully by those aiming at lightness. To us it seems that the results already obtained border very close to the limits of possibility.

Dimensions.—The width of the body of this wagon is 1 foot 7½ inches on top, and 1 foot 6¾ inches at bottom.

Painting.—Body, black, with fine line of bronze round edge of seat. Carriage parts of carmine, striped with one-fourth-inch line of black round felloe. No lines on the spokes.

Trimming.—Cushion, green cloth, trimmed with patent leather.

CALIFORNIA WOOD-SPRING WAGON.

Illustrated on Plate XXVIII.

This style of vehicle, hung on thorough-braces, and called the wood-spring wagon, is very popular in California and the other Pacific States, for which it is particularly well adapted. The pattern was invented by the Kimball Manufacturing Company of San Francisco, and we understand this firm have sold, within the past two years and a half, not less than 850 vehicles of this style, including many four-seated ones. They are light, and the price is very moderate. The weight of those holding from four to six passengers is only 400 pounds, and they cost from $400 to $500. A gentleman of San Francisco, Mr. Read, connected with the Kimball Manufacturing Company, is now engaged in introducing them in the East, and they are seen occasionally in the streets of New York and vicinity, but we are inclined to doubt whether they are destined to become popular in this part of the country. They are attended with some disadvantages, one of which is said to be the jolting of the body on heavy roads, and the liability of the disarrangement of the suspension.

The appearance of the one before us is rather heavy, although the probability is that it weighs only a very little over 100 pounds. We recently examined a two-seated one at R. M. Stivers' factory, which weighed 96 pounds with shafts, and was said to be capable of carrying a man weighing 220 pounds. The body is hung on leather straps, which are made adjustable by screws, by the accustomed method.

Painting.—Body, black, with gilt mouldings. Carriage parts, deep lake, striped with two fine lines of gold.

Trimming.—Brown.

Editor's Work-bench.

THE PROSPECT PARK FAIR.

The first Annual Fair of the new Agricultural and Horticultural Association was held in October, on the Prospect Park Fair Grounds, in Kings county, Long Island, beginning with October 11th, and closing on the 14th.

We visited the fair on Friday, the last day. Leaving our office at one o'clock, we took the horse cars, and three hours later we reached the grounds. The show was exceedingly interesting, however, and well repaid our long and tiresome journey. We have not space to speak of the races. The exhibition of carriages was, without exception, the finest we have ever seen. It comprised sixty-five vehicles, representing the majority of the leading coach-builders in New York, besides a number of sleighs. A long and spacious building with open sides had been prepared especially for the reception of these

vehicles, which were arranged in three long lines, between which were ample walks by which access was given for the spectator to take a full view of the whole. The facilities were, of course, much more satisfactory than at the American Institute Fair, where the space is so limited. Indeed, those sixty-five vehicles would have occupied nearly the entire floor of the Skating Rink in which the latter is held. In the list following are shown the names of the leading exhibitors, and the carriages by which they were represented :

DEMAREST & WOODRUFF, 628 Broadway, New York...	Clarence. Landaulet. Extension-top Carryall. C. Spring Brett. Brett. 2 Landaus. Coupe. Coupe Carryall. 6 seat Phaeton. 6 seat Roekaway.
A. S. FLANDREAU, 18 E. 18th St., New York	The Coming Carriage. The Carriage of the Period. Turn-out-seat Phaeton. Jump-seat. Wagonnette. Rockaway.
H. B. WITTY & Co.	Piano-box Buggy. Half-top Cut-under. Extension-top Carryall. Rockaway. Open-seated Pony Wagon. 6 seat Rockaway. Extension-top Phaeton. 2 Road Wagons.
R. M. STIVERS, 138 E. 31st St., New York.....	Coupe Rockaway. Jump-seat Carryall. Phaeton. Road Wagon.
BREWSTER & Co., of Broome St., New York.....	Trotting Wagon. Unfinished Road Wagon, weighing 65 pounds, and calculated to weigh only 81 pounds when completed.
THEO. E. BALDWIN, 786 B'dway, New York.....	Box Buggy. Phaeton, with front seat and on platform springs.
DUSENBURY & VAN DUSER.....	Road Wagon. Open Phaeton.
CORBETT & Co., 125 W. 25th St., New York.....	2 Road Wagons.
JOHN C. HAM, 20 E. 4th St., New York.	Trotting Wagon. Clarence. Landaulet. Trotting Wagon, weighing 67 pounds, with pole and shafts.
MINER, STEVENS & Co., 656 B'dway, New York.	Road Wagon, weighing 185 pounds.
DAY & SON, 148 Eldridge St., New York	Road Wagon.
FRANK CORSA & Co., 1147 Atlantic Ave., Brooklyn..	Top Wagon, weighing 260 pounds. Road Wagon, " 110 " Trotting Sulky.
TITUS & SHEPARD, Brooklyn, E. D..	Open Wagon. Top Wagon.
H. BOWEN, 35 Boerum St., Brooklyn.	Trotting Wagon.
S. B. CROSSMAN, Jamaica.....	Pony Phaeton.
H. G. POWERS & Co., Brooklyn ..	Road Wagon, two-seated. Road Wagon, single-seated.
COE & MERRIT....	Road Wagon.

On the day we visited, there was considerable misunderstanding and ill-feeling in regard to the disposal of the premiums, and in accordance with the many urgent expressions the matter was reconsidered, and after a more careful examination of the claims of the contestants, a number of changes were made. It was on account of this misunderstanding, probably, that the "Philadelphia Coachmaker" was led into the many errors which occur in its report of the fair, and the distribution of the prizes.

The following is the official record of the premiums as finally awarded in the Department of Carriages :

PREMIUMS.

Class No. 1.—Best display of carriages, gold medal or $50, to Demarest & Woodruff, New York. Second best display, silver medal or $20, to A. S. Flandreau, New York. Best carriage for general use, silver medal or $20, to Demarest & Woodruff, New York.

Class No. 3.—Best top-wagon for road use, silver medal or $20, to Miner & Stevens, New York. Best open-wagon for road use, silver medal or $15, to H. B. Witty & Co., of Brooklyn.

Class No. 4.—Best two sleighs, single and double, silver medal or $10, to R. M. Stivers, New York.

Class No. 5.—Best sulky for track use, diploma or $5, to Frank Corsa, Brooklyn.

In addition to the foregoing, several special premiums were given, as follows :

SPECIAL PREMIUMS.

1. To Brewster & Co., of Broome St., New York, for unfinished Road Wagon.
2. To J. C. Ham & Co., of New York, for Clarence.
3. To S. B. Crossman, of Jamaica, for Pony Phaeton.
4. To Brewster & Co., of Broome St., New York, for Double-team Skeleton Wagon.
5. To Corbett & Co., of New York, for Jagger Wagon.
6. To Dusenbury & Van Duser, of New York, for Dog Cart.
7. To Theo. E. Baldwin, of New York, for Victoria.
8. To R. M. Stivers, of New York, for Coupe Rockaway.

Among the other similar fairs, which have been held during the past two months, are the Cincinnati Industrial Exposition, the Burlington County Fair, held at Mount Holly, N. J., and the State Fairs held in Milwaukee, Wis., Cleveland, O., Decatur, Ill., Henderson, Ky., and Indianapolis, Ind. We have received full reports of several of them, but are obliged to omit them to give room for matters of more general interest.

THE AMERICAN INSTITUTE FAIR.

The distribution of prizes and "honorable mentions" to exhibitors in the American Institute Fair, was made shortly after the issue of our last Magazine. The names of the carriage-makers to whom awards were given are as follows:

For a Eureka Cutter, a Dexter Cutter, an Adjustable-Seat Wagon, a Jaeger Top Wagon, a Hambletonian Road Wagon, and a Side-Bar Road Wagon—Rufus M. Stivers, Nos. 144 to 152 East Thirty-first street, first premium.

For a Road Wagon—J. B. Brewster & Co., No. 65 East Twenty-fifth street, second premium.

For a Dog Cart—J. B. Brewster & Co., No. 65 East Twenty-fifth street, honorable mention.

For a Six-Seat, Circular, Clarence-Front, Rockaway Carriage, and an Improved Pattern Landaulette—John C. Ham, No. 20 East Fourth street, honorable mention.

For a Carriage (Coupé)—Theodore E. Baldwin & Co., No. 786 Broadway, honorable mention.

For a light Road Wagon—Edward Smith, White Plains, N. Y. (Joseph L. Smith, Agent, No. 28 East Twenty-ninth street), honorable mention.

Much has been said by the press about this great exhibition. Indeed, during the past two months, New York has had no other attraction which has drawn so large and steady a throng of spectators.

The great success of this exhibition suggests that the metropolis has now arrived at a point of growth where a permanent "Palace of Industry" becomes a manifest need of the times. If the Fairs of the American Institute are so continuously thronged, year after year, it is certain that an exhibition of larger scope, and in more spacious and suitable quarters, would prove a permanent and paying attraction. A movement to secure such an exhibition as one of the features of New York is already so well under way that its realization within a year or two seems very probable. A large capital has been subscribed already; the enterprise is in the hands of enterprising men, and before long the public will be made acquainted with the details of the exhibition of the future which bids fair to rival in interest, and far surpass as a business investment, the famous Crystal Palace Exhibition at Sydenham.

THE HAND AND THE BRAIN.

With some people we find an electric sympathy between their hands and their brains, which enables them to execute their every design with the utmost exactness, and yet without any painstaking. When drawing, they hit the most minute niceties of proportion, and sweep the most graceful curves, and all they do is done with ease and even with carelessness, as if it were quite impossible for them to do any thing not accurate and beautiful. When handling an instrument, they elicit from it tones so sweet and fairy-like that the music seems like a dream rather than actual sounds. When sharpening a lead pencil, folding a paper, wrapping up a package, or placing books on a shelf, even in such trifles, they make an impression upon us of having the rules of fitness and beauty inborn in their fingers. We say of these people that they have *talent.*

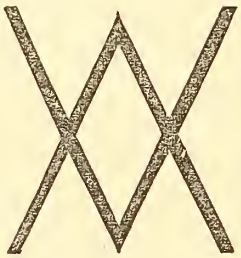
With other people we find quite a ridiculous contrast between their designs, which may be ingenious and beautiful, and the execution, which is awkward and clumsy. Many a lady, who has a very delicate taste for dress, and understands perfectly how to criticise her friends, dresses herself as no human being ought to be dressed. Many a gentleman, who in social intercourse has a keen eye for what is becoming or unbecoming in others, cannot see for himself the line which separates shyness from obtrusiveness. Many people, who are not hot-blooded at all, cannot lower the gas without putting it out, nor shut a door without making an unusual slam, nor raise a glass without spilling its contents, nor do any thing without doing it wrong. We say of these that they are *ill-trained.*

With no people, however, have the questions of talent and of training so many applications as with the mechanics, and nowhere, perhaps, are these questions so often misunderstood. The mechanic's skill is admired as a natural talent in many cases in which it is actually the product of long and very careful training, and, in other cases, lack of skill is lamented by the mechanic himself as lack of natural talent, though it is in reality the direct result of bad or insufficient training. Nay, often a mechanic will tell you that his few and unimportant acquirements and his poor social position are due partly to lack of natural talent for that trade in which he was set to work, and partly to an improper training given him when an apprentice, while, as a matter of fact, the fault is due to some moral deficiency.

It may sound somewhat singular to say that the blacksmith needs a good morality to forge a horse-shoe, and that the trimmer needs the same to stuff a cushion, yet it is true. As a man may be born with hands wonderfully adapted to play the piano, so another may be given by nature a hand peculiarly adapted to the nice work of striping a panel, and this adaptation, if established by nature itself, between the work to be done and the organ by which it is done, is a part of what we term talent. Lack of talent, however, can be made up in part by training. Nature is flexible. It can be moulded for very special purposes. As after the lapse of two or three years the Danish horse, when carried to Iceland, is covered with wool instead of hair, thereby obtaining a much better protection from the intense cold of the country, so man can acquire, at least to some degree, adaptation to circumstances by due exercise and good training. But neither exercise nor training, if only mechanical, will ever give a satisfactory result. If the hand would be adapted perfectly to its work, it must be commanded every moment by the brain. It is not enough that it be guided by

habit. An electric sympathy between hand and brain is the condition not only of all good workmanship, but of all good training, too. The establishment of this sympathy is a moral action.

It is impossible to plane wood when sleeping. It is not less impossible to plane wood well when sleepy. The plane will run down in the wood, or go astray otherwise, and the fault is not that of the hand but of the brain. It is impossible to forge a bolt, to stripe a panel, to varnish a body, when all the attention is distracted by remembrances of a night of dissipation. The brain will give no commands, and the hand without a brain is not worth much more than the brush without a hand. But this electric sympathy between the hand and the brain is not attainable without keeping the brain itself clear and energetic. And as it is a question of health and neatness to keep the hands pure, it is a question of morality to keep the brain pure,—pure from all clouds of drowsiness, pure from all winds of dissipation, pure as a sunbeam.



THE CELEBRATED A. V. MONOGRAM.

His name was Axel; Valborg was hers. They were brought up together at the Norwegian court, she among the Queen's maidens, and he as a playmate to the young King. Early they learned to love each other, and in after years they never forgot this youthful love. But husband and wife they could not be, because they were second cousins, and the Catholic Church did not allow marriage between relatives so closely allied. There were, however, two ways to escape from this law. One was to elope and get married in a foreign country, but neither of them would do this. Their love was the bliss of their lives; yet, as as good and true Christians, they would give up all the happiness the world could bestow rather than obtain it and oppose the law. The second way was to go to the Pope and implore a dispensation from the law. So Axel went to Rome.

The distance to Rome from Axel's homestead in Trondhjem, the old metropolis of Norway, is almost the entire length of Europe. In our time, a young man traveling by steamboat and rail, and burdened only with a satchel and an umbrella and box of cigars, can make the trip in a week; but in the twelfth century, when the knight and his steed were clad cap-a-pie in steel and iron, and he was obliged to make his way through dense forests where there were no roads, and across deep rivers with neither bridges nor ferries, the journey could not be accomplished in less than a year or two. All Europe was at that time one vast camping ground, and every man was in warfare with every other man. A traveling knight had to fight a duel once a day, and lie on the shelf once a month with some serious wound. All life was adventure, and every adventure a danger. The traveling knight had for guides on the road only the swineherds and the hermits, and he often had to give a large compensation in order to obtain knowledge of the road. He must deliver some other knight who was held a prisoner in the dungeon of his neighbor's castle. He must accompany merchants, Jews, or other persons traveling on business, often two or three days out of his way, in order to protect them from plunder and death. He must fight dragons in order to save princesses, and make crusades in order to do penance. Axel was absent seven years.

The morning he set out for Rome, he met with Valborg in the cathedral of Trondhjem to take his farewell. On a wooden pillar he carved with his dagger the initial of her name and that of his own, interwoven in a plain yet mysterious monogram, which was not likely to be understood by any stranger, although it shone out brightly from the pillar as the pledge of their covenant and the symbol of their love. Seven years passed away. When Axel then returned with the dispensation, he went early in the morning to the cathedral, where he knew that Valborg would go with the other girls and the Queen to the morning prayer in the chapel. From behind the pillar he saw her, and when the prayer was over, and the girls with the Queen went away, she approached the pillar, took down from the monogram the wreath of yesterday, and replaced it with a new, fresh one.

"Hail thee, my love! I bid thee good morning."

Home Department.

PIC-NICS IN COPENHAGEN.

We promised in the last Magazine to tell the coach-makers something about how the merry-makings are carried on by the mechanics in Denmark.

In Denmark the winter is much longer than in New York, and during winter the days are much shorter. The sun sets at four o'clock, and lamps are lighted in the shops sometimes before three o'clock.

In September all work stops at dusk, but later in the fall it is carried on by lamp light till eight, or even nine o'clock. The day on which the lamps are lighted for the first time in the season is celebrated as a feast-day. The work of the long winter evenings is initiated by merry-making and amusements, and the employer, or master,

who does not give his employes or servants a feast on this occasion, is considered a mean fellow.

At noon all work ceases in the factory, and the mechanics go home to dress for the feast. In the afternoon they return with wives and children, sisters and sweet-hearts, and meet with the employer and his family and his friends. The ladies hang wreaths on the lamps before which their husbands and brothers and sweet-hearts will work during the long winter; the band plays the national hymn; the mechanics light the lamps; the employer makes a speech and is cheered, and then the whole crowd, consisting of some three or four hundred persons, walk in a procession from the factory to the place in which the ball is to be held.

It rains. Of course; it rains every day in Denmark. A Dane is born with a segar in his mouth to keep his throat dry, and an umbrella in his hand to keep his segar dry. A procession of Danes is a procession of open umbrellas. It is dark, too, and the elderly ladies carry small lanterns to examine the pits into which they have stepped. It is still a comfort, they think, to see that one has not fallen without proper cause. Such a procession looks, of course, somewhat singular when seen at a distance. Yet, when going along with it, one is most likely to forget both the rain and the pits, so merry and jolly are the people. The people, indeed, are the best part of the feast, better than the music, the dancing-hall, or even the supper.

An American mechanic, when entering the dancing-room, would perhaps not think much of the amusement. The hall is large but low. To dance immediately below the chandelier may be dangerous. A tall man would run the risk of setting his hair on fire. A foreigner would feel strange, moreover, at the strong smell of pine-trees. The hall is decorated all over with wreaths of pine twigs interwoven with the scarce flowers of the fall, and these wreaths fill the whole atmosphere with fragrance, which, to the nose of a foreigner, may be very strange; yet, to the heart of a Dane, it is a promise of joy and amusement. From earliest childhood he is accustomed to connect this smell with ideas of music and dance, many lights and fine dresses, excellent meals and funny enjoyment, and whenever he meets with it, it comes home to his heart as a feast of his youth.

At one end of the hall is the orchestra, and above it on the wall is placed the employer's monogram, worked in evergreen and asters. The opposite wall is decorated with flags and a bust of the King; that is to say, of King Frederick the Seventh, who died in the year 1864. The Danes are not proud of him; for, indeed, there was nothing connected with him to exalt; yet, they liked him very much while he lived, and since his death they still hold him dear in their remembrance. When he became king, in the year 1848, the best citizens in Copenhagen marched in a solemn procession to his palace and asked for a new and more liberal constitution. "Well, boys," he answered, "if you want it, you shall have it." And then he gave the first monarchical constitution ever made. After reigning for some ten years, he once uttered: "I don't see any reason why the Danes should have a king. I often think it would be better if I went down in the streets and declared a republic." The bust of this king is seen at every feast, and at every large meeting, and over it wave the Danish colors, together with the Norwegian and the Swedish. The Danes know very well that they are too small a nation to maintain themselves forever as a separate and independent people. Even if Prussia, or any other judge of the European "balance of powers," should feel no appetite for robbing a province of Denmark every ten years, a people like the Danish kingdom, which numbers only two millions, cannot stand the competition of modern industry. There needs a greater and stronger association to keep up with this age. A people of two millions who cannot adapt themselves to some greater corporation will surely drop out of history. It is, therefore, a cherished idea with all Danes to form a confederate republic with Norway and Sweden, and this is shown by always placing the colors of the three nations together.

But to the feast. Before supper it is only the young folks who dance. The elderly ladies sit gravely about, like wall flowers, watching the dance, and making small studies of mental philosophy, while their husbands enjoy a little smoke and some good anecdotes in the ante-rooms. It is generally said that such a company of elderly Danish ladies bears a certain resemblance to Goldsmith's "School for Scandal," and it is true that oftentimes their talk is well stored with what wrong other people have done, or are doing.

"Have you observed," one whispers, "that Mary Ann dances all the time with Thin-Peter's Jens?"

"Yes, I have."

"Well, I tell you, there is something between them two which I do not like. Some time ago Mad'm Housen told me something which must be true, since her maid-servant saw it with her own eyes. Mary Ann sat one Saturday noon on the door-steps and knit. Well! what do you think about that? To sit out-doors and knit a Saturday noon when all people are busy in-doors with cleaning the rooms—such things are likely to have some reasons of their own. And it had, indeed; for just in the same moment came Thin-Peter's Jens walking home from the shop. He was eating cherries, and when passing her, he put one cherry with the stem between his teeth and the fruit on his lips, and told her that she could have the cherry if she would take it with her mouth."

"Gracious! and she took it?"

"Beware! no. Her mother is a Christian woman, and has brought up her daughter in modesty. She did not take it. But he dropped all the fruit down in her lap and on the door-steps, and when she moved to gather them, he kissed her."

"Yes, I imagined it would turn out so. But I tell you, I would not allow my daughters to dance with him."

"Neither would I, if I had any. And it is still worse, for I saw, when he came to the factory to-day, he went straight to her, and, in the very midst of the crowd, she dressed his neck-cloth."

"Well, if so, I guess they are betrothed."

"Of course they are. Yet I myself should never consent to dress anybody's neck-cloth, if not married to him."

Meantime, Thin-Peter is telling the story of the battle of Fridercia to his friends in the ante-room.

"It was the sixth of July, in the year 1850. It was nearly midnight, and it was so dark that we could not see a hand's breadth before us. Neither could we hear any thing, for the streets were strewed thickly with hay; and the colonel told us to be quiet. 'Be silent, boys,' he said; 'no noise, children; not a word, my babies.' We stood arrayed in a gap of the wall, and it is so, when one

is not allowed to talk, one will always think. I thought of my wife and our children, and singularly enough, I felt as if it were they who were in danger, and not I. Suddenly came a dragoon galloping into the gap, with linen and rags tied around the hoofs of his horse. He came like a ghost; he only waved his hand and disappeared in the darkness. Then the colonel turned upon us and made the following speech: 'My boys, we shall go out now and take the enemies' intrenchments. We *shall* take them; and we shall take them *now*. But as they are twenty-one thousand and we only twelve thousand, it is best for us to make no noise. Well, then, boys, you understand me. When I advance, follow me; when I retreat, shoot me. March!' And on we went. As we marched through the streets, they were silent and dark as graves. The townsfolk slept, and when now and then a slow 'God bless you' dropped down among us, nobody could tell from whence it came. And still more dark and more silent it was outside the walls, on the meadows between our fortifications and the intrenchments of the enemy. I could hear the sea roar afar off, and I became very glad. The sea is a holy thing. It may be that the ocean would not suffice to wash away the sins of mankind, but I think it would do away with a good deal of them if properly used. The sea is a good thing. It speaks so well about things to come. I like better to hear it than to hear the bells from the steeple of the Holy Ghost. Yet I was mistaken then. It was not the sea I heard. It was our folks who marched over the meadows. We halted for a moment. The colonel bent his ear to the ground. 'All right, boys,' he whispered, 'go on.' We proceeded again for half an hour. The meadow became every moment more alive. Though I could not see anything, it seemed to my ears as if the whole region was crowded with ghosts. Suddenly boomed a cannon, and a moment after a crash of musketry rattled along the whole line. I do not know exactly if it was in this moment we first got sight of the enemy's ramparts, but I know that we all at once saw his colors and the mouths of his guns. Neither can I remember what the colonel said as the bullet pierced his heart, and he turned his face to the ground, but I remember that we all understood him very well. Twice we stood on the parapet, and twice were driven back, but the colonel had said that we *should* take it, and take it *now*; and consequently we took it. The Germans said we were drunk or had run mad. Well, none of us had tasted brandy for twenty-four hours, and as to madness—if that was madness, I am sorry that I have not remained mad my whole life. For I tell you, never before and never since knew I my duty so well, or was so able to do it, as in that very moment; and when morning came and showed our colors along the whole line, what do you think we saw afar off?"

"Supper!" "Supper!" says the host.

The young men place a long table in the dancing hall; the young ladies spread it, then the old ladies bring forth large plates with huge piles of sandwiches and cakes, and the old gentlemen bring big bowls with flaming punch. For an hour or two eating and drinking ensues, alternated with toasting and pleasant speeches. First, the employer toasts his employes. The speech is long, and there is a singular mixture of the throne-speech, opening a parliament, and the gossip at the fireside. It contains some sober facts and lessons to be spoken of when at home, and some humorous puns and delicate criticism. The speaker confesses that he is very much pleased with the mechanics as far as the increase of business and prices, but he must confess that he is not so pleased with them for drinking beer when they grow warm, and for swearing when they grow hot. Nevertheless, he wishes them a good winter, and begs them to drink to the bottom of their glasses, which they do. Next comes the blacksmith. He is a famous fellow. Some people tell of him that he once drank "a fan;" that is to say, twenty-one small glasses filled with strong liquor and arranged in the form of a fan, first one glass, next two, next three, and so on, and that after drinking the fan he swept a public dancing room in Sea street swarming with Russian sailors. Other people tell that, when only eighteen years old, he happened to fall in love with twenty-one young ladies at once, and thereafter married the twenty-second. People, however, often tell more than the wind can carry, and the blacksmith stands his fame very well. He is considered the finest fellow in the whole company, and was unanimously elected to make the speech to the employer, and also to direct the song, which was composed in honor of the employer and his family, by some unknown poet among the mechanics. A feast without a new song is a thing never heard of in Denmark. Often there happen to be two or three songs, and whenever a song has a good idea, strikingly worded and well put, the whole assemblage applauds. Among the toasts, therefore, is always one for the unknown poet, at which some young fellow may be blushing all over.

After supper the old folks begin to dance, and when at last, Thin-Peter, in a waltz with Mary Ann, whistles through the hall like a musket bullet, and the old, sharp lady, with the yellow ribbons and black silk gloves, elopes in a "gallopade" with the blacksmith, the merriment is culminating. The whole company has become high-spirited, but no one can be pointed out as drunk. All is gladness and mirth, but all is decent and orderly. The worst that is liable to happen is where two young fellows tell each other—"I do not like to see you dance so much with that young lady." "Well, then you will have to go out doors, or shut up your eyes." But though this may become a strife of many years between them, there is no fighting—never.

When, at three o'clock, the feast is over, and the employer and his family have bid good-night and left, all the guests, gentlemen and ladies, young and old, walk together to the city, arm in arm, ten or twelve in every row. And now the procession looks much better. As there is no more rain from the sky, and no more pits in the road, there are no more umbrellas and no more lanterns in the procession. The company can hardly be seen at all. It indicates itself only with some good old songs and some good young laughter, which sounds clearly in the morning air.

Your readers will see by the above description that the feast in Denmark is by no means so splendid as those given in this country. For instance, no Danish mechanic ever sees so elegant and bounteous a supper as was given at Grove Hill Park, or Lion Park, at the recent excursions of the carriage builders. He never partakes of such a feast, not even on his wedding day. But it may be that he has more talent for enjoying what has been given him than the American has, and at any rate these occasions are always distinguished for gayety and good humor, and the exercises are so arranged that they are likely to be more profitable in some respects.

Correspondence.

GOLDEN RULE OF PROPORTION.

SPRINGFIELD, Nov. 3, 1870.

MR. EDITOR.

Dear Sir: I received my Coach-Maker's Magazine last night, just as I was going to take a little smoke after my supper. It came as if it had been called. It was the very thing I wished at the moment, and I determined to read it line for line until—well, the night was not given us for reading only. But great was my astonishment when I opened the magazine and found, instead of some sober rockaways and buggies, a nice face looking out from behind some singular lines and curves, and below it a hand shackled in the same way. I thought at first that it was a copy of some phrenological journal which had been miscarried, and even after convincing myself that it was my own old Magazine, I doubted if that hand and that face could have any thing to do with my business, unless the article should turn out an introduction to the phrenology of rockaways.

Well, I read the article. It was a little hard to understand, and I must confess that I like reading-matters best when they are easy. Nevertheless, the article was a good one. As I got hold of its ideas I was quite interested with their simplicity and universality, though I wondered how the world had been able to grow and move according to this rule for some thousand years and nobody had told me any thing about it.* I determined to test the rule. I went out in my back yard and cut off the top of a young pine-tree comprising a dozen branchings. I brought them in, much to the astonishment of my wife, and after some deliberation I accomplished the test in the following manner: I fastened a black thread at the top of the tree, drew it tight and straight along the stem, without stretching it, however, and marked the thread with chalk wherever it crossed the branchings. Next I placed the thread on a large sheet of paper, set off a line from the first to the third branching, divided the line into mean and extreme ratio, and the division did coincide exactly with the second branching, just as you said it did. This was very interesting. I continued the examination and still found the rule correct. Only in one instance the interval between two set of branches was a little too short. I counted the intervals and found that it was grown in the year 1864, which was an uncommonly dry summer. The poor tree did not have power that season to accomplish the rule. I almost pitied it. It told so modestly, yet so impressively, of its hardships.†

Of course, I could not stop the examination at this point. I was satisfied as to the correctness of the rule as applied to pine trees, but I wished to have some proofs of its universality too. I called for the children. My eldest son, a lad of fifteen years, seems to have no talent as a business-man, but he has worked already for two years very steadily, and to my full gratification, in the wood-shop. I expected, therefore, to find his hand more accordant to the rule than his forehead. In this, however, I was mistaken. His fingers were somewhat too short, especially the extreme parts of them, and when I looked at the two younger boys, who have not yet begun working, and saw their hands and fingers moulded as perfectly as if the golden rule of proportion was growing in their very bones, I could not help thinking of the dry summer of the year 1864, and the small interval between the branchings of the pine-tree. I became, indeed, inclined to believe that this kind of work in so early an age had been a hardship rather than a development to my boy. My eyes had become so impregnated with the rule that they sought after it in all places—in the height and breadth of the windows, in length, breadth, and height of the room, etc. I was, indeed, so delighted with the rule, that I told my wife, what I have had occasion to tell her sometimes before, that God is much wiser in His work than I or she can imagine.

But now, sir, comes another point. There are two kinds of carriages of genuine American style, viz: the six-seat rockaway and the buggy. The laudau, the clarence, the brougham, etc., are imported to us from Europe. The rockaway and the buggy, on the contrary, were invented and planned here in this country, and I was glad to learn from your paper that one of them, the buggy, already has reached Vienna. Of these two kinds of carriages, the rockaway presents many applications of the rule, as the length and the height of the vehicle, the height of the whole vehicle and the height of the wheels, the moulding of the door, etc., but how about the buggy? Well, sir, the buggy does not apply at all to the rule, and here I notice the point.

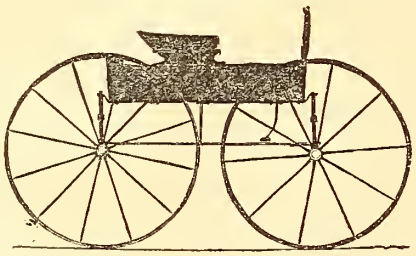
You tell us: "We" (not I, but you) "next chose a number of heavy carriages which were ungraceful, and examined them, seeking for some infringement of the foregoing rules, and such were manifest in nearly every instance." By these words you insinuate that every "infringement of the rule" will make a carriage "ungraceful." But, I tell you, sir, that no thief, murderer, or traitor has ever made a more gross infringement of the laws than the buggy has infringed on your rule, and I tell you in addition, sir, that the buggy is the nicest and most graceful thing in the world. The buggy not graceful! The buggy, the pride and love of every true American coach-maker! I will speak plainly to you. If I had your rule, which I certainly admire very much, in my one hand, and my last-finished buggy, of which I hereby send you a drawing, in the other hand, and had to make a choice between them, dear sir, I would drop your rule and stick to my buggy. Therefore, I ask you if it is really your idea, that everything which is not governed by this all-governing rule is not graceful?

If you choose to answer the question in your Magazine, you would perhaps like to publish this letter also. I have no objection to that, if you will only dress it a little and omit my name, for, though nobody can say any thing mean of Peter Jones & Co., yet I do not like to

* To this we would say that the rule has been known for a long time, though not generally. Plato, the Greek philosopher, speaks of it in his Timaios, about 400 before Christ; and in our time A. Zeizing, a German, has treated upon it largely and very ingeniously. In the English literature, however, the rule has never been mentioned before.—ED.

† We give on page 99 another interesting account of what a tree can tell.—ED.

have my name connected with any authorships. You can sign me as Yours truly,



In reply to this excellent letter, we would make the following statement:

Proportionality is a part of beauty. All disproportionality is, if considered by itself, unpleasing.

But proportionality is not the whole beauty. Beauty contains other elements, and higher ones, which, when powerful and prominent, can overshadow even a high degree of disproportionality.

One of the most essential constituents of beauty is exact correlation between idea and form. If the form is moulded in perfect harmony with the demands of the idea, the appearance is pleasing to every one who understands the idea.

The idea of a carriage is the idea of a thing of utility. If a carriage is built in its minutest details with strict regard to usefulness, it will look pleasing to every one who understands what a carriage is to be used for.

And now for the buggy.

We have a friend, a foreigner, who lives in a perpetual warfare with the buggy. Though he admires very much the eminent skill which the American coach-makers display in building this vehicle, he always calls it "the carriage-insect," or the "much-ado-about-nothing." His argument against it is this: When a man, in order to have a vehicle specially adapted for rapidity, is led to renounce so much comfort of seat as is really renounced in the buggy, it would seem wiser to leave the vehicle and ride on horseback; and it is a sign of a more chivalrous and romantic mind when the European prefers to plant himself on the back of his horse and to gallop along, instead of curling himself up on the poor platform of a buggy, after the fashion of the business-like American. There may be a grain of truth in this, yet in the main point our friend is mistaken. The horse is made to draw, and not to bear. He can carry only a relatively small burden on his back, but he can *draw* an immense one. The camel and the elephant are made to bear, but not so with the horse. On the contrary, we believe that the American who harnesses the horse to the buggy, instead of mounting him, uses the horse just as he ought to be used, and makes him display his natural strength and beauty in the very best manner.

We have, therefore, no objection to call the buggy "the nicest thing in the world," even if it be in utter opposition to the golden rule of proportion. It is something intended for special use, and it is useful in this respect. Its appearance shows perfect correlation between its idea, the purpose for which it is intended, and its form, the means by which the purpose is fulfilled, and this is one of the most essential constituents of beauty. We are, however, by no means sure that it defies the golden rule of proportion so utterly as our correspondent thinks.

CHIPS AND SHAVINGS.

Maine Work.—Last year the firm of Wingate, Simmons & Co., of Union, Me., turned out at their carriage and sleigh manufactory 100 sleighs, 75 top buggies, and 75 open buggies and wagons. They make carriages of every description, and have a force of 25 workmen. They have been established 20 years, have doubled their capacity the past year, and propose to increase it to 50 hands. The members of the firm are practical manufacturers, the work being all made and sold under the superintendence of Z. Simmons, of the firm.

Changes in Philadelphia.—Gardner & Wright have sold out the business of G. W. Watson, which they have carried on since the death of the latter. D. M. Lane will take the repository, which is on Chestnut street, near Concert Hall, on the first of next year. This will give him greatly increased facilities for the sale of work, for as the city now lies, his factory is rather far up on Market street. W. D. Rogers has bought the Watson factory at 825 North 13th street. We understand that Mr. Wright will continue as superintendent of the shop.

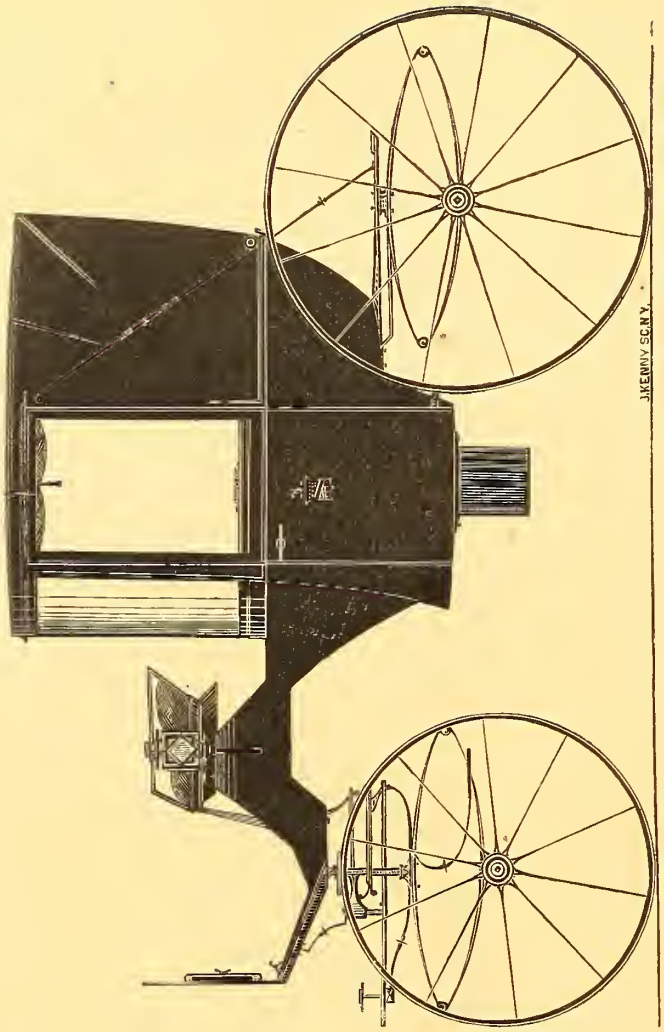
Napoleon's Carriage.—The military carriage of Napoleon, in which he made the campaign to Russia, has been on exhibition in London. It was captured on the evening of the battle of Waterloo. A London paper reports that nearly 100,000 people paid their money to take a look at it.

The Stable and Coach-House of Wm. M. Tweed, of New York, cost about $125,000, including fixtures. An exchange enumerates the carriages as follows:

Satin-lined Clarence, which cost	$2,800
Two-horse Caleche	1,500
Buggy	500
Coupe	2,000
Lady's Pony Wagon	2,800
Buggy	600
Single Road Wagon	200

A Steam Omnibus.—A company has been organized in Montreal to introduce a steam omnibus. If we may believe the detailed reports of the excellent workings of the machine in Scotland, it is adapted alike for crowded cities and for country roads, is perpetually under control, and neither frightens horses or endangers human lives. The ease and rapidity with which it draws immense loads have been frequently described. It requires no rails, its wheels having tires of fifteen inches width, covered with four inches of vulcanized rubber.

Taylor & Bradley, of Decatur, Ill., employ twenty men, and build light buggies mostly. They took a prize for the best display of carriages at the late Illinois State Fair.



J.K.ENNIS SC.N.Y.

THREE-QUARTERS LANDAULET.—½ IN. SCALE.

Designed and engraved expressly for the New York Coach-maker's Magazine.

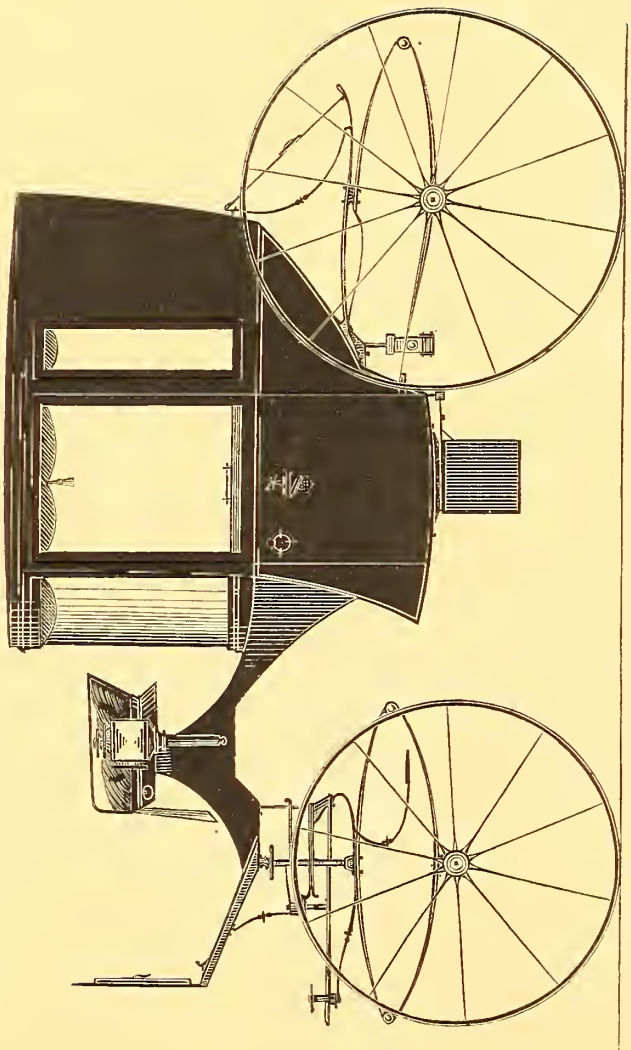
Explained on page 122.

KIMBALL PATENT JUMP-SEAT.—½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY R. M. STIVERS.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 122.

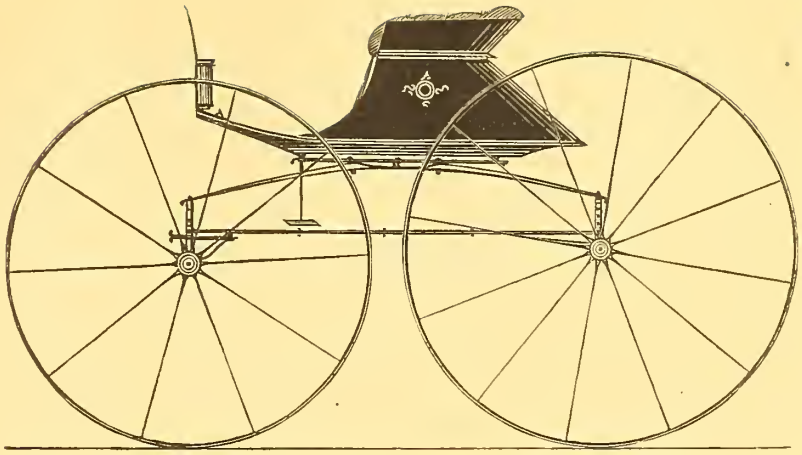


CIRCULAR FRONT, THREE-FOURTHS COUPE. — ½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY T. E. BALDWIN & CO.

Engraved expressly for the New York Coach-maker's Magazine.

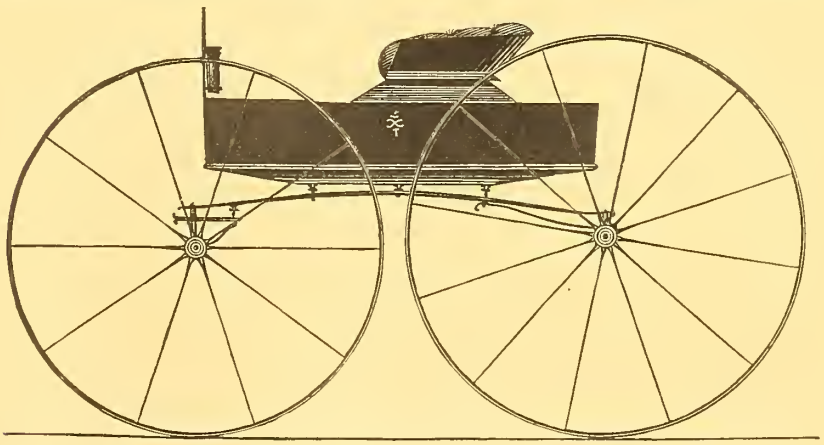
Explained on page 122.



ONE-HALF SPRING NO-TOP WAGON. — ½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY COE & MERRITT.

Engraved expressly for the New York Coach-maker's Magazine.—Explained on page 122.

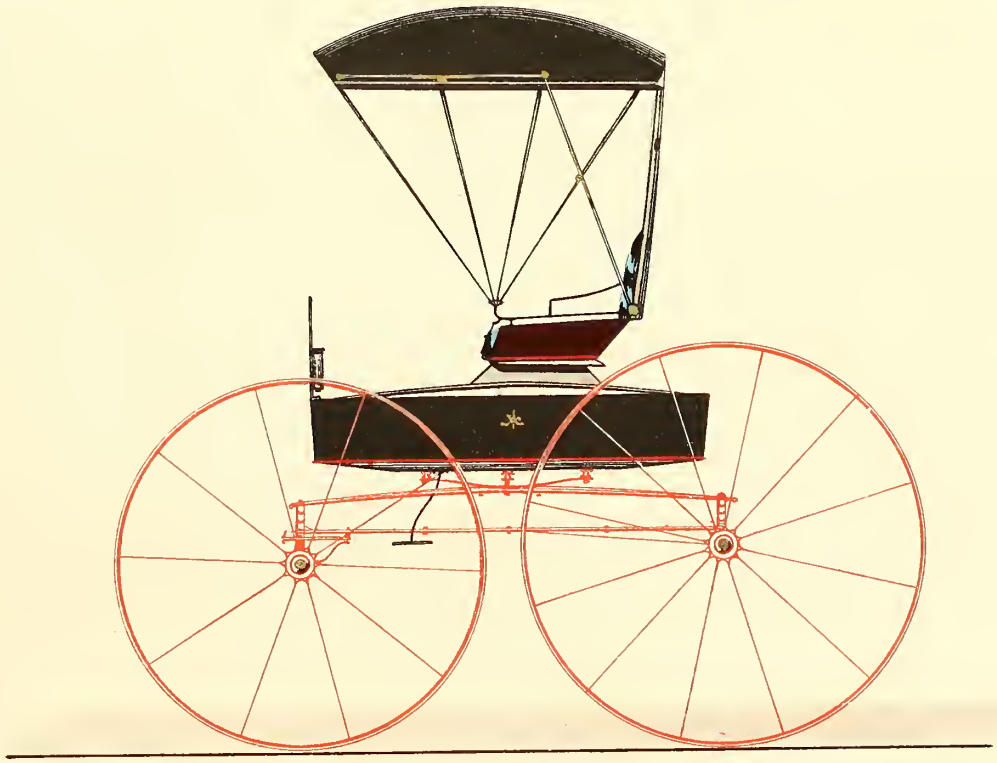


HAMBLETONIAN ROAD WAGON. — ½ IN. SCALE.

EXHIBITED AT THE AMERICAN INSTITUTE FAIR, BY R. M. STIVERS.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 122.



OPEN-TOP JAGGER WAGON.

One-half inch Scale

Lithographed & colored expressly for the New-York Coachmaker's Magazine.

THE NEW YORK
Engineering Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, JANUARY 1871. No. 8

ENGLISH CARRIAGES.

BY LEIGH HUNT.

[*Continued from the December Magazine.*]

Of the hackney-coach we cannot make as short work as many persons like to make of it in reality. Perhaps it is partly by sense of the contempt it undergoes, which induces us to endeavor to make the best of it. But it has its merits, as we shall show presently.

One of the greatest helps to a sense of merit in other things is a consciousness of one's own wants. Do you despise a hackney-coach? Get tired; get old; get young again. Lay down in your carriage, or make it less uneasily too easy. Have to stand up half an hour, out of a storm, under a gateway. Be ill, and wish to visit a friend who is worse. Fall in love, and want to sit next your mistress. Or, if all this will not do, fall in a cellar.

Ben Johnson, in a fit of indignation at the niggardliness of James the First, exclaimed, "He despises me, I suppose, because I live in an alley:—tell him his soul lives in an alley." We think we see a hackney-coach moved out of its ordinary patience, and hear it say, "You there, who sit looking so scornfully at me out of your carriage, are yourself the thing you take me for. Your understanding is a hackney-coach. It is lumbering, rickety, and at a stand. Where it moves, it is drawn by things like itself. It is at once the most stationary and the most servile of common-places. And when a good thing is put into it, it does not know it. But it is difficult to imagine a hackney-coach under so irritable an aspect. Hogarth has drawn a set of hats or wigs with countenances of their own. We have noticed the same thing in the faces of houses; and it sometimes gets in one's way in a landscape-painting, with the outlines of the rocks and trees. A friend tells us that the hackney-coach has its countenance, with gesticulations besides: and now he has pointed it out, we can easily fancy it. Some of them look chucked under the chin, some nodding, some coming at you sideways. We shall never find it easy, however, to fancy the irritable aspect above mentioned. A hackney-coach always appeared to us the most quiescent of moveables. Its horses and it, slumbering on a stand, are an emblem of all the patience in creation, animate and inanimate. The submission with which the coach takes every variety of the weather, dust, rain, and wind, never moving but when some eddying blast makes its old body shiver, is only surpassed by the vital patience of the horses. Can any thing better illustrate the poet's line about

"Years that bring the philosophic mind,"

than the still-hung head, the dim, indifferent eye, the dragged and blunt-cornered mouth, and the gaunt imbecility of body dropping its weight on three tired legs in order to give repose to the lame one? When it has blinkers on, they seem to be shutting up its eyes for death, like the windows of a house. Fatigue and the habit of suffering have become as natural to the creature as the bit to its mouth. Once in half an hour it moves the position of its leg, or shakes its drooping ears. The whip makes it go, more from habit than from pain. Its coat has become almost callous to minor stings. One blind and staggering fly in autumn might come to die against its cheek.

Of a pair of hackney-coach horses, one so much resembles the other that it seems unnecessary for them to compare notes. They have that within them which is beyond the comparative. They no longer bend their heads toward each other as they go. They stand together as if unconscious of one another's company. But they are not. An old horse misses his companion, like an old man. The presence of an associate, who has gone through pain and suffering with us, need not say any thing. It is talk, and memory, and everything. Something of this it may be to our old friends in harness. What are they thinking of while they stand motionless in the rain? Do they remember? Do they dream? Do they still, unperplexed as their old blood is by too many foods, receive a pleasure from the elements; a dull refreshment from the air and sun? Have they yet a palate for the hay which they pull so feebly? or for the rarer grain, which induces them to perform their only voluntary gesture of any vivacity, and toss up the bags that are fastened on their mouths, to get at its shallow feast?

If the old horse were gifted with memory (and who shall say he is not, in one thing as well as another?) it might be at once the most melancholy and pleasantest faculty he has; for the commonest hack has probably been a hunter or racer; has had his days of luster and enjoyment; has darted along the course, and scoured the pasture; has carried his master proudly, or his lady gently; has pranced, has galloped, has neighed aloud, has

dared, has forded, has spurned at mastery, has graced it and made it proud, has rejoiced the eye, has been crowded to as an actor, has been all instinct with life and quickness, has had his very fear admired as courage, and been set upon by valor as its chosen seat.

We wish the hackney-coachman were as interesting a machine as either his coach or horses; but it must be owned that of all the driving species he is the least agreeable specimen. This is partly to be attributed to the life which has most probably put him into his situation; partly to his want of outside passengers to cultivate his gentility; and partly to the disputable nature of his fare, which always leads him to be lying and cheating. The waterman of the stand, who beats him in sordidness of appearance, is more respectable. He is less of a vagabond, and cannot cheat you. Nor is the hackney-coachman only disagreeable in himself, but, like Falstaff reversed, the cause of disagreeableness in others; for he sets people upon disputing with him in pettiness and ill-temper. He induces the mercenary to be violent, and the violent to seem mercenary. A man whom you took for a pleasant, laughing fellow, shall all of a sudden put on an irritable look of calculation, and vow that he will be charged with a constable rather than pay the sixpence. Even fair woman shall waive her all-conquering softness, and sound a shrill trumpet in reprobation of the extortionate charioteer, whom, if she were a man, she says, she would expose. Being a woman, then, let her not expose herself. Oh, but it is intolerable to be imposed upon! Let the lady, then, get a pocket-book, if she must, with the hackney-coach fares in it; or a pain in the legs rather than the temper; or, above all, let her get wiser, and have an understanding that can dispense with the good opinion of the hackney-coachman. Does she think that her rosy lips were made to grow pale about two-and-sixpence; or that the expression of them will ever be like her cousin Fanny's, if she goes on?

The stage-coachman likes the boys on the road, because he knows they admire him. The hackney-coachman knows that they cannot admire him, and that they can get up behind his coach, which makes him very savage. The cry of "Cut behind!" from the malicious urchins on the pavement wounds at once his self-love and his interest. He would not mind overloading his master's horses for another sixpence, but to do it for nothing is what shocks his humanity. He hates the boy for imposing upon him, and the boys for reminding him that he has been imposed upon; and he would willingly twinge the cheeks of all nine. The cut of his whip over the coach is malignant. He has a constant eye to the road behind. He has also an eye to what may be left in the coach. He will undertake to search the straw for you, and miss the half-crown on purpose. He speculates on what he may get above his fare, according to your manners or company; and knows how much to ask for driving faster or slower than usual. He does not like wet weather so much as people suppose; for he says it rots both his horses and harness, and he takes parties out of town when the weather is fine, which produces good payments in a lump. Lovers, late supper-eaters, and girls going home from boarding-school, are his best pay. He has a rascally air of remonstrance when you dispute half the over-charge; and, according to the temper he is in, begs you to consider his bread, hopes you will not make such a fuss about a trifle, or tell you you may take his number, or sit in the coach all night.

A great number of ridiculous adventures must have taken place, in which hackney-coaches were concerned. The story of the celebrated harlequin, Lunn, who secretly pitched himself out of one into a tavern window, and, when the coachman was about to submit to the loss of his fare, astonished him by calling out again from the inside, is too well-known for repetition. There is one of Swift, not perhaps so common. He was going, one dark evening, to dine with some great man, and was accompanied by some other clergymen, to whom he gave their cue. They were all in their canonicals. When they arrive at the house, the coachman opens the door, and lets down the steps. Down steps the Dean very reverend, in his black robes; after him comes another personage, equally black and dignified; then another; then a fourth. The coachman, who recollects taking up no greater number, is about to put up the steps, when another clergyman descends. After giving way to this other he proceeds with great confidence to toss them up, when lo! another comes. Well, there cannot, he thinks, be more than six. He is mistaken. Down comes a seventh; then an eighth; then a ninth; all with decent intervals; the coach, in the mean time, rocking as if it were giving birth to so many demons. The coachman can conclude no less. He cries out, "The devil! the devil!" and is preparing to run away, when they all burst into laughter. They had gone round as they descended, and got in at the other door.

We remember in our boyhood an edifying comment on the proverb of "all is not gold that glistens." The spectacle made such an impression upon us that we recollect the very spot, which was at the corner of a road in the way from Westminster to Kennington, near a stone-mason's. It was a severe winter, and we were out on a holiday, thinking, perhaps, of the gallant hardships to which the ancient soldiers accustomed themselves, when we suddenly beheld a group of hackney-coachmen, not, as Spencer says of his witch,

"Busy, as *seemed*, about some wicked gin,"

but pledging each other in what appeared to us to be little glasses of cold water. What temperance! thought we. What extraordinary and noble content! What more than Roman simplicity! Here are a set of poor Englishmen, of the homeliest order, in the very depth of winter, quenching their patient and honorable thirst with modicums of cold water! O true virtue and courage! O, sight worthy of the Timoleons and Epaminondases! We know not how long we remained in this error; but the first time we recognized the white devil for what it was—the first time we saw through the crystal purity of its appearance—was a great blow to us. We did not know what the drinkers went through; and this reminds us that we have omitted one great redemption of the hackney-coachman's character—his being at the mercy of all chances and weathers. Other drivers have their settled hours and pay. He only is at the mercy of every call and every casualty; he only is dragged, without notice, like the damned in Milton, into the extremities of wet and cold, from his ale-house fire to the freezing rain; he only must go anywhere, at what hour and to whatever place you choose, his old rheumatic limbs shaking under his weight of rags, and the snow and sleet beating into his puckered face, through streets which the wind scours like a channel.

THRICE BUILDED.

The writer assures us that the following incident is a true one, and that the description of the sleigh is correct in every particular. This story illustrates and verifies the proverb that "the third time never fails."—Ed.

Dear Editor: While reading your description of the sleighs on exhibition at the American Institute, it occurred to me that a few remarks, on one that was *not* on exhibition there, might be interesting to you, if you wish to keep fully posted on the different styles in use in various sections of the country, as I believe you have expressed.

A few days since I was startled by a severe pounding on the varnish-room door, and cries of "Hello, Mister! I say, Boss! come eout here."

I came out in a hurry, and was confronted by the author of the noise with, "I say, yeou boss, got a sleigh to paint; heered you could du it up pretty slick, 'cause yeou larnt how in York, so I've cum a good ways to git yeou to du it. Want yu to go and look at it."

I went and *looked* at it, and it needed but to be seen to be appreciated. The "style of 1816," published in *The Hub* supplement, could not approach it. To say it was heavy would be no name for the weight. It was built originally for one horse, but would weigh as it stood from 375 to 400 pounds.

My friend said: "I made that 'ere cutter myself."

I could not dispute it. The back panel was nearly one inch pine board, and an attempt to bend it had resulted in several cracks nearly across the back, which had been caulked in a manner similar to the seams in a ship's deck; that is, wedged full of oakum and tarred over. How is that for hard stopper?

I remarked there seemed to be an unusual number of nail holes in the job; in fact, more holes than nails.

"Waal, yeas, there du seem to be a few mor'n wanted. But yeou see, Mister, when I made that sleigh I was jest gittin over the measles and cud'dent go eout door, so I *built her up garrit,* and when she was dun it wud'dent go down stairs. *So I pulled her apart and sot her up in the kitchen agin,* and then, darn it, she wud'dent go eout the kitchen door, so blamed ef I did'ent have to *pull her to pieces again* and set her up in the yard, and—blast ye, wat yer laffin at?"

"Nothing but to see that man's hat blow off."

"Beg yer parden, thought you was laffin at me. I think its a pretty good un, seeing I tore her to pieces twice, and had the measles when I was doing it."

I agreed with him, but dared not question him on the trimming, which consisted of a piece of unbleached muslin, drawn over the back seat and stuffed with hay, tacked on to the back with carpet tacks, without any binding or hemming, and the hay sticking through between the tacks. The whole was primed with fish oil and whiting, which resembled the P. W. F. in one point only, being *decidedly tacky.*

The painting, when finished by us to his order, was a beautiful brown, composed of lamp black and venetian red, with a somewhat irregular and very heavy stripe of chrome yellow on the body. A splendid buff of yellow ochre and white lead was put on the gear, with meandering black stripe ornaments. Moreover, there were two goats on the side panels, eagles on back, besides pastoral scene on dash-board, scrolls, &c.—put on, in an indescribable manner, by our youngest "cub," who has a decided taste for the fine arts. For this remarkable specimen of his taste and skill, he charged the old fellow the exorbitant price of $5, which was finally reduced (after much discussion) to $4.50 and a half gallon of cider.

Long Island, Oct. 19, 1870. C. S. H.

Wood Shop.

DISTINCTION OF FORM.

Regularity.—Symmetry.—Proportionality.—Harmony.

Regularity, as generally defined, is a construction of equal sides and equal angles. The equilateral triangle is a regular figure, and the tetrahedon a regular body, because all their angles and all their sides are equal. And so with the square and the cube. But thus defined, the idea is applicable only to geometry. It is too narrow for general use. The circle, for instance, though it has no angles and no sides, is a perfectly regular figure, and the ball a perfectly regular body. For æsthetics, therefore, the definition ought to be made more comprehensive, so as to include not only the regular polygons and the platonic bodies, but also the circle and the ball.

Regularity is of all forms the first and the simplest. It is the foundation and the beginning of form; below it is chaos. But of all forms it is the least capable of expression. The inorganic sphere is its domain. It is grand in the circuit of the planet, and exceedingly interesting in the moulding of the crystal. Yet, as soon as it reaches the organic sphere, the vegetable and the animal kingdoms, it becomes inferior. It is only the lowest plants, for instance the toadstools and the lowest animals, as the star fish, which are regular. With the higher plants and animals, regularity is rare and insignificant. The actual source of the beauty of the eye is its color and its look, not the regularity of the pupil. And so with the flower, the eye of the plant. Its beauty is its color and its fragrance, not the regularity of the arrangement of its leaves. In these cases regularity may be called an indispensable condition of beauty; irregularity would give offense. Yet, as eating and drinking are indispensable conditions of life, though life itself is something quite different from eating and drinking, so regularity is often an indispensable condition of beauty, though it is by no means a constituent of the beauty. Many of our readers, although they may have a very quick sense for the beauty of eyes, and would be aware of the slightest irregularity therein, may, perhaps, never have noticed that the pupil is the only instance of regularity to be found in the human body.

In the fine arts, regularity is used exactly in the same manner as nature has used it in the organic sphere. It is a condition, but never a constituent, of the beauty. It makes the outworks of the beauty: the frame of the picture, the pedestal of the statue, the ground plan of the building; and, so used, it is indispensable. Irregularity would spoil the beauty. Cooper's Institute in New York, for instance, is a splendid building in all its details, but as a whole it presents, when seen from the Bowery, quite an unpleasing aspect, on account of its irregular ground plan. However indispensable regularity is in such cases, nevertheless its effect as a constituent of

beauty is stiff to the eye, monotonous to the ear, and barren to the mind.

In the mechanical arts, on the contrary, as in our furniture, utensils, carriages, machinery, etc., regularity seems to be the true principle of form. At least, it is the tendency of the taste of our time, and we think the tendency is a good one. At the age of Louis the Fourteenth (1643–1715), who conquered the whole civilized world with his taste, if not with his sword, the old-fashioned regularity, with its straight lines and plain circles, disappeared, and gave way to wide sweeps and all sorts of fanciful curves. Tables were supported by a frame of hanging garlands, and by legs of drooping wreaths, swelling with fantastic foliage, and—to consummate the absurdity—these often ended in an eagle's claw or a lion's paw. The ceilings were studded with grapes, lianthus leaves, mermaids, and bouncing angels with fish-tails and trumpets. Door-posts, window-frames, and all straight lines were curved and bent, and the corners were stuffed with clustering ornaments. It was a singular taste. At Versailles, the trees in the garden were constrained into architectural forms, while the stone-walls of the palaces were forced into the shapes of organic nature. The trees were cut in the form of pyramids, obelisks, minarets, and arcades, and the walls abounded, from the roof to the ground, with fruits and flowers and foliage combined in wreaths and garlands. And so extended was this taste that the butter-plate on the farmer's breakfast-table was often cut as a vine-leaf and painted green, while the butter was cast in the form of a cluster of grapes. Our age has turned away from this error. We laugh at all superfluous, meaningless curves. We will have a simple thing simply done, because it is the only way to do it well. In our furniture, utensils, carriages, machinery, etc., we are returning to the straight lines, the equal angles, the plain circles, and to the general forms of regularity.

Some of our readers may perhaps think that this statement is a little too hasty as far as carriage-building is concerned. It is apparent that, in the carriages of our time, straight lines are greatly outnumbered by the curved ones, and though there are several sorts of carriages, for instance, the dog-cart and the char-a-bancs, whose bodies are made exclusively of straight lines, these are generally built so on account of special purposes. Yet, take a series of drawings of carriages, extending from the middle of the seventeenth century, when coaches came first into general use, up to our own time, and a glance will show that there is a tendency toward the straight line prevailing throughout the whole history of carriage-building. The development of the art of carriage-building, may be called a struggle to get rid of the curves and to reach the straight line. Compare the two species of carriages latest invented, namely, the buggy and the six-seat rockaway, with the two that were invented next previously, namely, the berlin and the landau; or look at the branching-out of some sub-species of carriages, for instance, the phaeton proper, into the park phaeton, the excelsior park phaeton, the Beaufort phaeton, the Phœnix phaeton, and all other such unmentionables; and it will become evident that the straight line is growing upon the taste of our time, just as it is an individual idea with us that the "carriage of the future" will have as few curves as possible, if any at all.

The forms, however, which are generally used in the mechanical arts are not strictly regular, but belong to two groups of forms intermediate between regularity and symmetry. *Regularity is sameness. Symmetry is the same on both sides of some other thing.* When all parts are equal and all relations are the same, the whole is regular. When two parts are equal, and placed in the same relation to an interposed, different, third part, the whole is symmetrical. But between regularity and symmetry are two intermediate groups of forms, which in the English language have received their names, *uniform symmetry* and *respective symmetry*, from that order to which they are tending, while in other languages, they are named after that point from which they started, namely, *regularity in repetition* and *regularity in opposition*. To these two groups belong the forms which are generally used in the mechanical arts.

Respective symmetry, corresponding with regularity in opposition, has advanced beyond regularity proper, because only the opposite sides are equal, yet still it does not reach symmetry proper, for it lacks the different third part, which should be interposed. It is the ground-form in the organic sphere. Leaves are respectively symmetrical, and some trees, as the pine, the linden, and the beech. The human and the animal body are respectively symmetrical when seen face to face or from behind; but when seen sidewise, their forms belong to another class. And in the same manner almost all the products of mechanical art are respectively symmetrical, as the chair, the table, the spoon, most vessels, the carriage, etc. Even a new carriage would look old and worn out or broken down if inaccurately hung, so that its respective symmetry were infringed upon. And no one would buy a carriage whose curves to the right and left side were apparently unequal. It has sometimes occurred to the carriage-makers that it would be an improvement to introduce the respective symmetry also in the side-view of the carriage, and to this end the seat for the footman was arranged in exact symmetry with the seat of the driver, so that it was impossible to tell, when the carriage was unharnessed, which was the front of it and which the back. But this arrangement is an error. As the common carriage is intended to be drawn only from one end, it should be planned so that this purpose is shown. Its side-view has nothing to do with regularity or symmetry. Every irregularity is admissible if the form is expressive of the true design, namely, that the carriage shall be drawn from one end only.

Uniform symmetry, or regularity in repetitions, is produced by repeating the same ordonnance throughout the whole. This form is very seldom used except by the architect. In nature some caterpillars are moulded in this shape, and they are very ugly. In architecture, however, this form is often very pleasant, and it is often the only one which is proper; for instance, in the building of a warehouse, a casern, a hospital, or an insane asylum. A. T. Stewart's establishment in this city, between Ninth and Tenth streets, is built on this principle.

Uniform symmetry is, like symmetry proper, of very small consequence to the coach-maker. Its use in the department of vehicles is confined exclusively to the building of railway cars, and nothing shows so well the difference between car-building and coach-building as the difference between the forms which are applied in these two arts. The car-builder uses uniform symmetry and sometimes symmetry proper, and uses these *and nothing else*

in the side-view of his workmanship, while the coach-maker builds a quite irregular side, with a respectively symmetrical front.

Upon the next group of forms we have treated in a former article, entitled "The Golden Rule of Proportion." We therefore pass over it now, and close our article with some remarks on *harmony*. Proportionality is often called harmony, and not without some propriety, as good proportions always make the parts of a whole harmonious. Still, it is better to call this *harmony of the parts* proportionality, as good proportion is its true originator, and to thus limit the word harmony to its proper sense, namely, *correlation between idea and form.* That this is the true signification of the word is easily understood, and we are sure that the reason for its being overlooked so commonly can be only a certain indifference and carelessness of imagination very prevalent now-a-days. We have seen, for instance, a house built of white marble and decorated with pillars and columns and a whole swarm of sweeping ornaments from the style of the later renaissance. It bears exactly the expression of the refinement and voluptuousness of a courtesan's life in the age of Louis XIV., and conveys the idea that some young marquis, with his still younger marquise, had built the house in which to give splendid dinner-parties, elegant balls, and receptions. But when this house contains nothing but offices and desk-rooms, and has all its windows crowded with advertisements of life-insurance and railway-ticket offices, is not the whole art of the architect a mockery? Or when a public auctioneering house is built in imitation of the famous Theseus' temple at Athens, with doric columns and large flights of steps, is not that a mockery? Of course it is. The highest form is that one which expresses the idea *exactly*—nothing more and nothing less. The first constituent of beauty is that the purpose, the use, the idea, be clearly yet gracefully apparent in the form, and this correlation between inward and outward is the true harmony.

We have often had occasion to mention this as the true principle of carriage-building. Yet a good word cannot be spoken too often, and, in concluding our remarks on forms, we repeat once more the leading thought which we have in this connection, namely: *the form of a carriage should be determined solely by its purpose, and the beauty of its form should consist in making the purpose gracefully apparent.*

OAKS AND ELMS.

THERE is a mother-idea in each particular kind of tree, which, if well marked, is probably embodied in the poetry of every language. Take the oak, for instance, and we find it always standing as a type of strength and endurance. I wonder if you ever thought of the single mark of supremacy which distinguishes this tree from all our other forest-trees? All the rest of them shirk the work of resisting gravity; the oak alone defies it. It chooses the horizontal direction for its limbs, so that their whole weight may tell, and then stretches them out fifty or sixty feet, so that the strain may be mighty enough to be worth resisting. You will find, that, in passing from the extreme downward droops of the branches of the weeping-willow to the extreme upward inclination of those of the poplar, they sweep nearly half a circle. At 90° the oak stops short; to start upward another degree would mark infirmity of purpose; to bend downward, weakness of organization. The American elm betrays something of both; yet, sometimes, as we shall see, puts on a certain resemblance to its sturdier neighbor.

I must tell you about some of my tree-wives. I was at one period of my life much devoted to the young-lady population of Rhode Island, a small but delightful State in the neighborhood of Pawtucket. The number of inhabitants being not very large, I had leisure, during my visits to the Providence Plantations, to inspect the face of the country in the intervals of more fascinating studies of physiognomy. I heard some talk of a great elm a short distance from the locality just mentioned. "Let us see the great elm"—I said, and proceeded to find it,—knowing that it was on a certain farm in a place called Johnston, if I remember rightly. I shall never forget my ride and my introduction to the great Johnston elm.

I always tremble for a celebrated tree when I approach it for the first time. Provincialism has no scale of excellence in man or vegetable; it never knows a first-rate article of either kind when it has it, and is constantly taking second and third-rate one's for Nature's best. I have often fancied this tree was afraid of me, and that a sort of shiver came of it, as over a betrothed maiden when she first stands before the unknown to whom she has been plighted. Before the measuring-tape the proudest tree of them all quails and shrinks into itself. All those stories of four or five men stretching their arms around it and not touching each other's fingers, of one's pacing the shadow at noon and making it so many hundred feet, die upon its leafy lips in the presence of the awful ribbon which has strangled so many false pretensions.

As I rode along the pleasant way, watching eagerly for the object of my journey, the rounded tops of the elms rose from time to time at the roadside. Whenever one looked taller and fuller than the rest, I asked myself,—"Is this it?" But as I drew nearer, they grew smaller,—or it proved, perhaps, that two standing in a line had looked like one, and so deceived me. At last, all at once, when I was not thinking of it,—I declare to you it makes my flesh creep when I think of it now,—all at once I saw a great, green cloud swelling in the horizon, so vast, so symmetrical, of such Olympian majesty and imperial supremacy among the lesser forest-growths, that my heart stopped short, then jumped at my ribs as a hunter springs at a five-barred gate, and I felt all through me, without need of uttering the words—"This is it!"

You will find this tree described, with many others, in the excellent Report upon the Trees and Shrubs of Massachusetts. The author has given my friend the Professor credit for some of his measurements, but measured this tree himself, carefully. It is a grand elm for size of trunk, spread of limbs, and muscular development,—one of the first, perhaps the first, of the first-class of New England elms.

What makes a first-class elm? Why, size, in the first place and chiefly. Anything over twenty feet of clear girth, five feet above the ground, and with a spread of branches a hundred feet across, may claim that title, according to my scale. All of them, with the questionable exception of the Springfield tree above referred to, stop, so far as my experience goes, at about twenty-two or

twenty-three feet of girth and a hundred and twenty of spread.

Elms of the second class, generally ranging from fourteen to eighteen feet, are comparatively common.

O. W. HOLMES.

THE STATE COACH of George the Third, built in the year 1762, cost £7,662, divided on his bill into the following items. The charge for carving will probably attract the particular notice of those of our readers who are wood workers:

	£	s.	d.
To the Coach-maker was paid.....	1,763	15	
" " Carver, "	2,500		
" " Gilder, "	933	14	
" " Painter, "	315		
" " Laceman, "	737	10	7
" " Chaser, "	665	4	6
" " Harness-maker, "	385	15	
" " Mercer, "	202	5	10½
" " Bit-maker, "	99	9	6
" " Milliner, "	31	3	4
" " Saddler, "	10	6	6
" " Woolen-draper, "	4	2	6
" " Cover-maker, "	3	9	6
Total,	7,662	4	3½

Smith Shop.

SAW-DUST IN THE SMITH-SHOP.

SAW-DUST is a grease neutralizer and annihilator and a file saver.

No well regulated smith shop should be without a well filled box of saw-dust at each drilling machine. The box should be large enough to place the rim, when it is drilled, inside.

Give the iron a thorough rubbing with the saw-dust, which, from its great power of absorption, will remove all the grease or oil, or so nearly so that but a light rubbing with waste is necessary to make the iron quite clean. This rule applies to the screwing and nutting of clips and bolts, or to other purposes where oil is used about iron.

Oak or ash saw-dust is the best. Pine saw-dust has greater absorptive power, but leaves a resinous surface on the iron that is more destructive to the file than iron. My average weekly consumption for twenty-five files, using eight drills, is about three bushels per week.

NEW YORK, December, 1870. J. L. H. M.

USES OF THE BESSEMER METAL.

IN this country but little use has been made of the Bessemer metal, save for the manufacture of rails, while in Europe it has been successfully applied to many other purposes, among which we may mention boiler-making, and the construction of many running parts of machinery.

It has generally replaced wrought-iron, and not steel. The use of the misnomer steel has doubtless been the reason that this metal has not been applied to many purposes for which it appears to be better adapted than either cast-iron, wrought-iron, or steel. Cast-iron and crucible steel, though they are harder than wrought-iron, possess less tenacity; hence, for constructions intended to resist jars or strains, neither of these metals has of late years found any extended use. The only other metal formerly known possessed of sufficient tenacity for such purposes was wrought-iron, which, in the course of time, has gained for itself so high a reputation that much prejudice has to be overcome before people will use any thing else. In fact, iron-men are noted for their conservatism, and we readily admit that they ought to be conservative, when we consider the vast interests committed to their charge, often involving numerous human lives, as well as large amounts of money.

By the pneumatic or Bessemer process it is doubtless possible to make a metal resembling steel so closely that for many purposes it could be substituted for it. But in practice we find that what is actually made differs very widely from steel, and comes into competition rather with wrought-iron. Let us keep this point fully in view, while we compare the relative merits of wrought-iron and Bessemer metal. Every body knows that it is impossible to handle very large masses of iron at once in a puddling furnace; and hence, if we want a heavy piece of wrought-iron, it is necessary to weld together two or more blooms in order to get it. It is also notorious that blooms are too likely to contain slag and other impurities, to be directly used in the manufacture of wrought-iron articles. They must first be subjected to the process of hammering, drawing out, and welding.

However carefully the process of welding is conducted, there is always a possibility of leaving the welds imperfect, and hence the product, though externally perfect, is subject to flaws in the interior, which render it liable to fracture under strains which it ought to resist with ease. Bessemer metal, however, can be cast in ingots of five tons each, free from slag, and capable of being used directly for the manufacture of heavy articles. In this case, instead of flaws from imperfect welding, such as occur in wrought-iron, we are liable to find defects in the form of bubbles. Practically, it has been found that bubbles are much more frequent close to the periphery of the ingot than nearer the center, so that the external appearance of a Bessemer ingot furnishes us with a correct idea of its internal condition. It is, moreover, asserted that when bubbles occur in the interior, they are free from rust, and present clean metallic surfaces, which weld together perfectly when the ingot comes to be drawn out.

A correspondent of the *Maschinen Constructeur* says that he has seen Bessemer metal used with great advantage for making the piston-rods of steam hammers which were used for hammering steel. Wrought-iron pistons and piston-rods of the same dimensions were used up in a short time, by the change of the iron from a fibrous to a granular structure, in consequence of the repeated concussions to which they were subjected. Bessemer metal has also been used for locomotive axles with excellent results. Its use for this purpose, as well as for boiler plates, is continually increasing in Europe, though we have not yet heard of its application to either purpose in this country. The fact that it resists the oxidizing effects of a flame much better than wrought-iron is a strong argument for its use in boilers. It is only about thirteen years since the first introduction of Bessemer metal, and though its adoption for rail-making has been contested, step by

step, until it proved itself far superior to other iron, it is now almost universally commended for that purpose.

It is scarcely to be expected, however, that because its merits for rail-making has been recognized, its other uses will meet with no opposition. Boiler-makers, for example, who have been all their lives accustomed to the employment of wrought-iron, will not discontinue to use it at once—though in the long run a superior material is certain of adoption. A large number of the boiler explosions of which we hear so often are doubtless due to the partial destruction of the iron, by oxidation, in boilers which were originally equal to the task imposed upon them. This fact was fully proved in England, by evidence recently given before the committee appointed by Parliament to inquire into the cause of the alarming number of boiler explosions occurring annually in that country, and to suggest remedies. The sulphur contained in the soft coal, which is used almost universally in England, may cause the destruction of the iron to take place more rapidly there than it would in this country, where so much anthracite and wood are used. Still, this destruction is, in a great measure, due to the oxidizing effects of the flame, which Bessemer metal resists much better than wrought-iron. So that the conclusions of the English committee are almost equally applicable to this country. This, in connection with its greater tenacity, would seem to recommend especially the use of Bessemer metal for boilers, and will doubtless lead, before long, to its experimental adoption for that purpose in this country.—*Engineering and Mining Journal.*

Paint Shop.

OIL FOR WHITE STRIPING.

To make a drying oil for use in white and other delicate colors used in striping, pulverize sugar of lead, very fine; put about half an ounce into a pint of linseed oil, shake up, and place in the sun to settle and bleach. In about two weeks it will become perfectly colorless, and can be used without detriment in mixing the most delicate tints. The best painters, who stripe in oil, always keep a small quantity of this on hand for the purpose. A carriage-painter of *this city*, and formerly of London, hands us this receipt, and hopes some of the painters will give it a trial, and write their opinion of it. He says it is in common use in London.

COACH-PAINTING IN LEEDS, ENGLAND.

The following letter comes from a practical coach-painter of Leeds, Eng., who has had an experience of over thirty years; and he is therefore well calculated to talk with the painters in detail upon every point connected with painting as practiced in that city. It contains facts which will be of interest to every practical painter.

THE BODY.

In the first place, Mr. Editor, it will be necessary for me to explain to your readers that the English coach differs somewhat from the American coach when it comes from the wood-room into the paint-shop. *All the panels of the body are of mahogany*, which I do not think is often employed in the United States for this purpose. Moreover, the roof and quarters of the coach are covered with a *raw hide of leather*, which is nicely stretched and rubbed down, and presents a fine and even surface. The leather-coated parts are first primed with two thin coats of Black Japan (corresponding to the Black Body Varnish used in America), reduced with a little turpentine. The remaining portions of the body are primed with light lead color, mixed with a little raw oil and turpentine, and a small quantity of sugar of lead to help its drying. This drier is necessary from the fact that *in England the paint-shops are kept much cooler than in America*, and the atmosphere is moister and less calculated to assist the drying process.

The body receives, in the next place, two thin coats of color, and the nail holes, etc., are stopped up with hard-stopper, made of dry lead mixed with Japan Gold Size. Five coats of English filling-up are next added, being mixed as follows:

2 parts of English filling-up,
1 " " tub lead,
2 " " turpentine,
1 " " Japan Gold Size,
½ " " bottoms of Wearing Varnish.

These five coats of rough-stuff must be laid in, in the same manner as heavy coats of varnish, one coat per day; and three additional coats of the same are generally added to the parts covered with leather. Throughout all this process, great care is used to keep water from the leather, to which it is very injurious; and this is one reason why it is covered with so many coats of rough-stuff. The receipt which I have given, is a standard one, and is guaranteed to rub well, and to a smooth surface. A staining coat follows, and the body is then well rubbed down, and cleaned off. Two coats of dark lead color are next given, being mixed of tub lead, lamp-black, raw oil, and a small quantity of sugar of lead, and reduced to the proper consistency with Japan Gold Size and turpentine, and applied one coat per day, and sand-papered after each coat. This dark surface gives the painter a chance to see any scratch or imperfection that may be left in the surface, and which requires stopping up. When this is attended to, the body is carefully faced down, which produces a very fine and even surface. Another coat of dark lead color, same as those last spoken of, is then applied, and the body is ready for color. Below we give a synopsis of the foregoing, that the painter may have a concise view of the entire process:

PREPARATION OF BODY FOR COLOR.

1 priming coat of lead (on leather parts 2 coats of black varnish instead),
2 thin coats of color,
stoppered up,
5 coats English filling-up (8 coats on leather parts),
1 staining coat,
rubbed down and cleaned off,
2 coats dark lead,
stoppered up,
rubbed down carefully,
1 coat dark lead,
—
12 coats, and ready for color.

FINISHING THE BODY.

If the body is to be black, we proceed as follows: Grind drop black in raw oil, stiff, and add a little sugar of lead, very fine, for a drier, and thin to the required consistency with Black Japan (Black Body Varnish) and turpentine. Apply two coats of this, and then give two coats of Black Japan (Black Varnish), and rub it down. Then face off the mouldings, and give a thin coat of dead black, and then apply a second coat of Black Japan, and flat again. The whole is then varnished with Hard-drying Varnish, and after the fine striping and coat of arms are painted, the whole is finished with Wearing Body Varnish.

If the body is to be blue, mix ultramarine blue with one-half raw oil and turpentine, stiff, and make of the proper working quality by thinning with Hard-drying Body Varnish. Two coats are applied, and after each coat a slight flatting is necessary, and then two additional coats of the same are applied with varnish added. When Prussian Blue is used, two coats are applied, and white is added if necessary for the purpose of producing the shade required. The blues will dry sufficiently well when merely ground in raw oil, stiff, and reduced with turpentine, and it is better not to add any drier. Over blues only one coat of Hard-drying Varnish is given, and one finishing coat.

If the body is to be lake, the lake should be ground in raw oil, stiff, and reduced with turpentine and Hard-drying Varnish. The same with drop black and Indian red. Over lakes and greens, two coats of Hard-drying Varnish are applied, and one coat of finishing.

The painter must in no case allow his oil colors to dry with a gloss, but he must always flat them, and give them the appearance of dead color. This is particularly important in case rough-stuff or quick-drying color is to be used over it.

Below we give a synopsis of the painting and varnishing of a black body.

2 coats drop black,
1 " black varnish,
rubbed down and mouldings faced off,
1 thin coat of dead black,
1 coat black varnish,
rubbed down,
1 coat Hard-drying Varnish,
striped and ornamented,
1 coat Wearing Body Varnish,

7 coats, from beginning of color,
12 " in preparation for color,

19 coats in all, upon bodies.

CARRIAGE PARTS.

Two priming coats are first applied, being mixed the same as that used in priming the body. The cavities are then stopped with hard-stopper, to which a little turpentine is added, in order to make it sand-paper easily. The wood parts then receive two coats of quick drying lead color, mixed of dry lead and lamp black ground in Japan Gold Size, and thinned with turpentine. The whole is then sand-papered down thoroughly, and the grain will be found to be well filled and perfectly smooth. A thin coat of oil lead color is then added, and well sand-papered, and any joints or open parts between the tire and felloe are carefully puttied up with oil putty. The carriage parts are then ready for color. Below is a synopsis:

PREPARATION OF CARRIAGE PARTS FOR COLOR.

2 coats of lead priming,
stoppered up,
2 coats of lead,
sand-papered thoroughly,
1 thin coat of lead color,
sand-papered, and puttied up,

5 coats, and ready for color.

FINISHING THE CARRIAGE PARTS.

Two coats of lead color are first given, made the same as those last given to the body before the application of color. Then stopper up with hard stopper, to which a little turpentine is added, to make it sand-paper easily. Then give the wood parts two coats of quick lead, mixed of dry lead and lamp-black ground in gold size, and thinned with turpentine. The whole is next sand-papered thoroughly, when the grain will be found well filled and perfectly smooth. A thin coat of oil lead color is next applied, and finely sand-papered, and at this point any joints or open parts between the tire and felloes should be carefully puttied up with oil putty. A coat of color-varnish follows, and a second coat of same to which more varnish is added. The gears are then flatted and striped, another light coat of clear varnish is given, flatted, and the fine lines given, and the whole is then finished with wearing varnish:—

Below is the synopsis of the foregoing,
2 coats lead color,
stoppered up,
2 coats quick-drying lead,
sand-papered thoroughly,
1 thin coat of oil lead,
sand-papered, and puttied up,
2 coats color-varnish,
flatted and striped,
1 thin coat clear varnish,
fine lines given,
1 coat finishing varnish,

9 coats from beginning of color,
5 " in preparation for color,

14 coats in all, upon carriage parts.

In conclusion, Mr. Editor, I will say that I have used the process which I have described in detail for twenty years, and never knew the rough-stuff to crack. It is a long job, but it is a sure one. By allowing each coat sufficient time to dry thoroughly, the quality of durability is insured, and I think this is the reason why our English painted carriages generally stand so well. Burning off a a job for repainting is a very exceptional case in England. Indeed, during an experience of thirty years, I have never had more than three or four jobs to burn off; and in cases where it becomes necessary, it is where a carriage has had very bad usage, or has been exposed to the action of ammonia. Generally, we merely rub down to the rough-stuff; and in most cases we find that sound and firm, and a good foundation on which to paint over. I will try and write you again some time.

Yours, truly, W. H.

LEEDS, YORKSHIRE, England.

THE PICTURE AND THE PAINTING.

There is a difference between painting as an *art* and painting as a *fine art*. Each of them demands a considerable scientific knowledge to produce and prepare the colors, and manual skill to apply them. But while the painting of a carriage is an adornment only, the picture of a battle is expressive of an idea. Painting as an art is the finish of a work; painting as a fine art is a medium to convey thought. Painting as an art is the work of taste; painting as a fine art is the work of genius. This difference is indicated by a difference of origin.

It is generally imagined that painting as a fine art is a direct development of painting as an art, and that the development took place in the following manner: When it became necessary to find out a covering by which to make water-proof the surfaces of ships, walls, and wooden utensils, painting was invented. Noah's ark and the Homeric ships were painted in this sense of the word; that is to say, they were protected from the influence of water and dampness, by a covering of some glutinous substance. Next, when necessity was satisfied, it was quite natural that men should wish to make this protection ornamental by mixing with it some colored pigment prepared by the hands of Nature; and as this decoration demanded not only skill and knowledge, but also taste, painting grew by degrees into an art. At last, when this adornment was found pleasing, it was no wonder that men tried to make it still more pleasant by adding signification to color, and making the colors express ideas. Utensils, walls, and even ships were covered with colored imitations of men, animals, trees, &c., and thus the art of painting, by degrees, became a fine art; that is to say, a means by which to convey ideas.

This account of the origin and development of the art of painting reads well. Yet, it contains some mistakes. History proves that painting as an art, and painting as a fine art, originated quite independent of each other. We find with every people that, from the very beginning, there was one kind of painting which colored surfaces in order to adorn them, and another one which imitated natural objects in order to convey thoughts; and the former is so far from being the progenitor of the latter, that the craft is indebted to the art for many of its most important impulses. We will mention Greece as an example.

The Greeks, when convinced of a truth, yet not possessed of any historical or logical evidence of it, were accustomed to tell some fanciful story in order to introduce the truth to the imagination. Thus they told how a young girl, when parting from her lover, and watching the shadow of his features while he sat silent in sorrow, traced the outlines with chalk on the wall, and showed him how mercifully the gods had permitted a part of his soul to remain with her while he himself was absent. And they told this story as the origin of painting as a fine art. They believed that painting as a fine art had originated from drawing, from the imitation of natural objects, and not from the covering and coloring of surfaces.

In the Greek language, furthermore, the same word, *graphein*, is used to signify both writing and drawing, and the two kinds of pictures first invented are defined by their very names as a sort of writing; that is to say, as a means of conveying thoughts. The Greek drew, not as we do, with a lead-pencil on paper, but with a metallic pen called *stylus*, on tablets of wood covered with wax, and such a picture was called a monogram, from *monos*, *only*, and *gramma*, *letter*, because it consisted only of outlines. These outlines of the monogram were, in early times, produced by simply inscribing with the metallic point of the *stylus* in the wax; but, afterward, the outlines were filled in with black. This improvement was admired as a great invention, and the picture thus formed was called a skiagram, from *skia*, *shade*, and *gramma*, *letter*.

Thus we see that the difference between painting as an art and painting as a fine art was, with the Greeks, not only a difference of ideas, but also a difference of origin and history. Painting, as a fine art, was, from the day it was baptized and given a name, a means by which to convey ideas, and not an adornment; and it originated from a wish to imitate natural objects, and not from a necessity of covering surfaces to protect them from dampness. And it can be proved that the same distinction existed in early times with all people who knew painting both as an art and as a fine art.

Trimming Shop.

THE FASHIONABLE TRIMMINGS.

In visiting, during the past months, some of the leading carriage repositories in New York, we have observed that leather and silk are becoming more and more fashionable, and that in trimming they are even taking the place of cloth to a great extent. Leather is used in all classes of open carriages, and somewhat in coupés; silk only in the most elegant closed vehicles. The color of the leather is generally brown, sometimes green, but the latter is less pleasant, as green when applied to leather easily takes a dull and greyish hue. The color of the silk is generally blue or crimson. We have seen two coupés trimmed in black silk, one having yellow and the other with black minor trimmings. Both of them were elegant. The most popular color in trimming with silk seems to be crimson, to which is applied minor trimmings of black lace and buttons, which suits it very well, as crimson silk is so lustrous that it would be glowing if not softened and subdued by application of darker colors. In cloth, on the contrary, we still consider the fashion of trimming with

black on a brown ground very improper, because brown cloth is lustreless, and ought to be enlivened and brightened by application of light colors.

Pen Illustrations of the Drafts.

We present our subscribers, this month, with an unusually valuable series of carriage drafts, in which we believe they will all take an interest.

THREE-QUARTER LANDAULET.

Illustrated on Plate XXIX.

An English pattern. In one of our late numbers we had occasion to refer to the "Carriage of the Period," the Landaulet, and in giving this draft we feel assured that in its general outlines it is one of the finest drafts of this pattern ever published. It was selected by us at the request of a carriage builder in Washington. Much has been said of the many improvements which have been introduced into carriage building during the past ten years, and we could scarcely find a better illustration of the truth of this fact than by comparing patterns like this one with similar styles made fifteen years ago. Several clumsy details, that were once thought indispensable, have now given place to the more natural and graceful lines. Our plate certainly gives a fair specimen of these improvements.

Dimensions.—Wheels, 3 feet 3 inches, and 4 feet. Body; length at arm-rails, 4 feet 2 inches; width, 48 inches all over at door. No mouldings on body. Width of toe-board in front, 2 feet 4 inches. Rocker plates, $2\frac{1}{8}$ inches wide, $\frac{1}{2}$ inch thick. Track, 4 feet 6 inches. Springs; 4 leaves, steel, Nos. 3 and 4, $1\frac{1}{2}$ inch wide.

Trimming.—Brown cloth is still popular with this class of work. If dark brown be used, black trimmings generally accompany it, but trimmings of light brown would be much preferable when used on the dark ground, as we explained in the December magazine. Silk is used for the more expensive class of work, and the deep shades of blue and green are popular.

Painting.—The upper quarters may be painted dark lake, and the lower quarters black. No striping on body. Broad stripes on the sides of the spokes seem to be coming into fashion with some New York houses, but we much prefer the more delicate ones.

Mountings.—Gold is fashionable, but silver mountings and silver-lined lamps are preferred on many of the richest carriages, as being less showy.

KIMBALL PATENT JUMP-SEAT.

Illustrated on Plate XXX.

This is a well-known and very convenient style of vehicle, for which Mr. Stivers has a manufacturer's shop-right. This specimen, exhibited at the American Institute Fair, weighed 402 pounds.

Painting.—Running parts, carmine, striped with one broad and two fine lines of black. Body, black, striped with gold.

Trimming.—Blue cloth.

CIRCULAR FRONT, THREE-FOURTHS COUPÉ.

Illustrated on Plate XXXI.

The body has the usual cut-down door, and the lines of the dickey-seat, forming a square cut-under, are fashionable at the present time. The light in the back quarter is stationary, and six inches wide. This light is not only a great convenience to the occupant of the carriage, but it serves to lighten the appearance of the vehicle.

Painting.—Running parts, deep crimson lake, striped with black, and edged with two fine lines of glazed carmine, giving a beautiful effect. Body; upper-quarters, black; below the arm-rail, deep crimson lake, striped, like the carriage parts, with fine line of glazed carmine.

Trimming.—Brown satin lining, brown lace, with crimson ornament. Mountings of gold.

This coupé was exhibited at the American Institute, by Theodore E. Baldwin & Co., and is very graceful, although we think there are some combinations of lines which are improved upon in the Landaulet, given on the first plate. We beg our readers to please compare the two. Mr. Baldwin's coupé looks lighter than the other, but this is due mainly to the light in the back quarter, and to the lightness of the dickey-seat. On the other hand, we think the lines of the dickey-seat and body, in the Landaulet, are better proportioned, and that it appears to ride firmer. We were never in favor of the projection in front of the door, which breaks the line of connection between the seat and body, until experience taught us what a very comfortable refuge it gave for the feet. This coupé is intended for either one or two horses.

ONE-HALF SPRING NO-TOP WAGON.

Illustrated on Plate XXXII.

This pattern is rather old. Width of body at front of seat, 1 foot 7 inches.

Painting.—Carriage parts, straw color, striped with two fine and one broad line of gold, the effect of which is tame. A better striping would have been thus: two fine lines of light emerald green, with fine line of white between them. We saw the latter in a Broadway repository the other day.

HAMBLETONIAN ROAD WAGON.

Illustrated on Plate XXXII.

This wagon is of very light and graceful pattern, and is well painted and carefully finished. It is a good representation of the class of light work built by Mr. Stivers. This concludes our series of American Institute drafts.

Painting.—Carriage parts, snuff-color brown, with broad black stripe and two fine lines of gold. Body,

black, striped with gold in the lower mouldings, and on the seat-rail.

Trimming.—Leather, of light snuff-color, with black borders.

OPEN-TOP JAGGER WAGON.

Illustrated on Colored Plate.

We believe this is the *first colored draft of a carriage* that was ever issued by any American publication. This jagger wagon was lithographed, and then each plate was colored by hand by Mr. A. Muller of this city. The design was selected with care, and, presented in this manner, we trust it will be valuable to every one of our subscribers. It may be deemed worthy of a frame.

This style of wagon is very popular in New York, being admired not only for its tasteful and jaunty appearance, but more particularly from the fact that it is considered more easy riding than the end-spring wagon. This is undoubtedly true, as the body is supported, not only by the half springs, but also by the two wooden bars and spring plates, and, moreover, the seat rests on wooden bars.

Dimensions.—The width of the body is usually 26 inches, and the three cross-bars are made to project about 1½ inch over the sides of the rocker, to give ½ inch between the bolts and body. These cross-bars are ⅞ inch by 1⅛ inch middle, lightened toward the ends, and the center one is fastened by collars to the side-bars. The side-bars of gearing are 1¼ inch by 1⅝ inch, and the body is set forward of center ⅝ inch. These wagons have mostly two reaches (or perches) with or without stays. The seat-bars and riser are of *one* piece, and they rest on four corner blocks, held down by leather straps.

Half-springs, 3 plates, 1¼ inch.

Axle, ¾ inch.

Trimming.—Blue cloth.

Painting.—Body, dark lake. Carriage parts, vermilion, striped black.

Editor's Work-bench.

OUR CARRIAGE DRAFTS.

A subscriber withdraws his subscription and writes us as follows:

"Mr. Editor. *Dear Sir*—I have taken the New York Coach-maker for the last year and a half, and I have never used a single carriage drawing contained therein. I therefore think it unnecessary to take it longer.

Yours, truly, New Jersey."

In reply, we cannot agree with our subscriber in his reason for not taking the magazine any longer. It may be that he has not used any carriage draft contained in it, but that does not prove that the drawings were poor, or that they have not been useful to him. The American carriage trade would be in a very imperfect and primitive state if it renounced all individual ideas, and fed only on those which were given it by the trade papers. We take a great deal of care in selecting the drafts for the Coach-maker's Magazine, but as a general thing they are intended as suggestions only, or for giving a general view of the present fashions and the prevailing taste. In this respect they have been chosen with such attention that we are led to believe the fault is not wholly theirs, if they have been of no use.

For instance, were not the drafts of the carriages exhibited at the American Institute Fair of considerable interest? We heard the wish expressed by many carriage-builders that they could visit the fair in New York and see the styles, and it was from this wish that we conceived the idea of sending the styles *to them*. We know these syles were of value. Perhaps none of our subscribers will use them, but to know *what is not* is often as valuable as to know *what is*. And even if the drawings were not satisfactory, is the reading ma ter in the magazine *nothing?* We should be sorry to hear so.

In this connection, a word as to our plans for the year 1871 may not be out of place. We are rapidly making our arrangements to combine the Coach-maker's Magazine with "The Hub," and with the combined forces of these two papers—the youth and energy and correspondence and paint of "The Hub," and the experience and the cuts and the additional departments of the magazine—we shall endeavor to make a magazine worthy of the trade which it represents. We believe we have the means at our command by which to accomplish this intention. We invite all our subscribers to come forward and assist us, and in a few months we shall be ready to begin to assist them in every means within our power.

PEACE DECLARED.

Our offer of peace to the "Philadelphia Coach-maker" has been accepted by them in the same spirit in which it was tendered. We thank them for the kind wishes expressed in the following:

"In the November number of the Coach-maker's Magazine of New York, the present editor offers the right hand of fellowship, and asks that 'violet instead of black ink be hereafter used.' He sees no reason why there should be any enmity between us, and we in return heartily agree with him. When our journal was first started, we remember sending a similar friendly greeting to the New York Magazine; it was then in other hands—but the response was quite different from that which we now tender to the present editor, in reply to his offering, as he assumes the responsible and onerous duties of his new position. We are not partial to strife of any kind, but when the gauntlet is thrown at our feet, we are not so cowardly as to fear to take it up. The history of the past, in this connection, will prove who was the victor in that tournament of words, and on that we rest satisfied. Being per-

sonally acquainted with Messrs. Valentine & Co., the publishers, and Geo. W. W. Houghton, the editor of the magazine, we can in all sincerity grasp their proffered hand, and wish them well in their new enterprise."

THE LATEST AND MOST FASHIONABLE CARRIAGES.

THE "Evening Mail" gives a review of the latest and most fashionable styles in New York, from which we select part of that which follows:

WHETHER the French war has driven a greater number of our wealthy citizens home, or our people are becoming more wealthy and luxurious than formerly, or both, it is certain that Broadway and Fifth Avenue never appeared more resplendent with gay and costly turnouts than now. All who are able to afford it, and many who are not, are expected to own their equipages. Carriages of some kind are the rule in society, and it is to be expected that no less skill and taste is expended in designing and furnishing these luxurious marks of wealth and refinement than in other departments of human custom. The skilled eye, while watching the ebb and flow of the gorgeous tide up and down Fifth Avenue and Broadway, can detect unerringly the real aristocracy from the shoddy, the *parvenu* from the old family, the professional man, the sport, the jockey, or the man about town.

The lady in the rich carriage costume for November, accompanied by her dashing daughter, in full dress, and driven by a coachman in livery, rides in

A LANDAU,

made to open or close, according to the season. The upholstery for fall is satin of rich garnet, azure blue, russet brown, and maroon color. On the right door is the card case, curtains looped, lace trimmings to correspond with the upholstery. To communicate with the coachman the bell is abandoned, and the speaking-tube and whistle substituted. A handsome tube is attached to the left side and passes out to the coachman. At either end is a trumpet, and at the outer one, which is looped over the arm of the coachman by a ribbon, is a whistle. A breath from the inside warns the coachman, who applies the trumpet to his ear and receives his orders. The body of the Landau sits very low on C springs. Opening the door discovers the steps. The cost of a fashionable establishment of this kind is $1,900. Match horses are the mode with the Landau. It is not in vogue with shoddy people, as, in consequence of the high sides, the dress is not exhibited—the Victoria, or summer style, remaining in use by *parvenus*.

A fine family carriage, with wide, roomy seats, is

THE CLARENCE,

close in winter; front open in summer; body low on C springs; coach-box quite high; no rumble. The footman sits with the coachman, and the top is made of enamelled leather. Black is the style for the body; running gear, dark colors, striped with red, yellow, or brown. The upholstering is satin, and the prevailing colors are garnet, scarlet, magenta and maroon. The lining is tastefully arranged in folds, diamonds and triangles, fastened by satin buttons, and trimmings and lace garniture to correspond. A very proper family turnout can be had for $1,600.

A FAMILY COUPE

is a snug, convenient little affair used by ladies for shopping, also by aristocratic physicians and down-town merchants. The body is compact, hung low, one seat, with a small one for children. The front is entirely plate glass, and can be removed; driver's seat is low. The upholstering for business purposes is plain, but for ladies' use plum, garnet and mauve satins are in style. The inside is conveniently fitted with card-cases, reticules, portfolios, mirrors, etc. A very handsome coupé can be had for $1,300.

THE PONY PHAETON

is a handsome little convience for ladies' driving. The groom sits in the rumble, and the lady, in suitable driving dress, hat and gloves, handles the ribbons herself. The body is low, and easy to get in and out without the assistance of the groom. The hind wheels are covered with a broad apron, and dashboard of medium height. The expression of the whole is graceful, roomy and jaunty. Rich brown or navy blue cloth is the style for upholstering; lace and trimmings to match, with jet buttons.

BUGGIES

can scarcely be considered the subject for fashion's delicate attentions, as they are a business and useful article merely, yet the styles are constantly new, and some of the later ones decidedly handsome; but

THE TROTTING WAGON

is a fashionable appurtenance to the *elegante*, and the *box wagon*, weighing from 100 to 130 pounds, the latest word from the designers. In shape it is severely plain, being a box literally, about eight inches high, of glossy black, with a seat in the middle. It is nobby to have the wheels yellow or red, striped with black. Another road wagon might be called the cobweb style, weighing only 100 pounds, and consists of running gears and skeleton seat without a box.

ROBES.

The mode for robes is bearskin, although buffalo and lion are in use. A fine bear is worth $100. For inside lap robes imitation Astrachan lined with bright flannels are the style. Zephyr wool, woven in stripes of different colors and delicately blended shades, are much in vogue.

HORSE BLANKETS,

for dress, are dark colors—gray the favorite, trimmed with bottle green cloth, chain stitched with white silk.

LIVERY

is, of course, the last consequence. In Europe it designates the family and rank and is an heir-loom, but in more modern America it is adopted and altered at the fancy or caprice of the parties who use it. Nevertheless, fashion has a word to say in regard to the propriety and taste of livery. Capes are not in mode. The coat is drab; cut below the knee; double breasted, buttoned close with five silver buttons on each side; six buttons, nine inches apart, on the back; four buttons, latterally, on the sleeves; corduroy breeches. Footman and coach-

man dressed alike; gloves of buckskin, with fur cuffs; silk hat with a cockade.

FOR GENTLEMEN'S DRIVING GLOVES,

white buckskin, fleece-lined, plain cuffs, is the style, although drab may be worn; for the drive, of course, all *elegantes* understand that velveteen suits is the mode.

EXCHANGES.

We are favored with a great number of exchanges, including many in which we take special interest. We would be glad to give detailed reviews of some of them, but our space allows us to make only a mention of the most prominent and those which pertain most closely to the departments which we represent.

"THE HUB" occupies one-half our office and one-half our attentions. We, of course, regard it with feelings of most brotherly—not to say fatherly—interest, and its friends report that *each successive number is better than the last.* We cannot ask more. Most of our readers are probably aware of the fact that an engagement exists between the Magazine and this younger publication, and that it is expected the marriage will take place in March. Congratulations arrive daily.

THE PHILADELPHIA COACHMAKER comes to New York monthly, and its editor, Mr. Ware, came last month, but we were disappointed in not being in the city when he called upon us. This paper has accepted our offer of peace, and the magazine and the journal are to-day fast friends.

THE HARNESS JOURNAL is published in New York, not far from the Magazine, and it contains many articles of interest to the carriage maker. Its editor, Mr. Fitzgerald, was formerly engaged in the carriage business in Newark, N. J.

THE CABINET-MAKER, published in Boston, often has good articles on the different varieties of wood and the methods of working it, which would help the wood-worker. Its price is $2.50 per year.

SCIENTIFIC AMERICAN.—From time to time we have selected articles from this valuable exchange, which illustrate its practical character. Beside those which refer to our specialties, it contains many articles of the highest general interest; for instance, Prof. Tindall's lectures about the "Scientific use of the Imagination."

THE AMERICAN ARTIZAN contains an occasional article of special interest to our readers.

ARCHITECTURAL REVIEW.—We intend giving in the next magazine a valuable article on the formation of woods taken from this journal, which we know will interest every carriage wood worker.

THE TECHNOLOGIST is devoted to engineering, manufacturing, and building. Its price per year is $2.

BOSTON JOURNAL OF CHEMISTRY treats upon the subject which it represents, in a manner which brings it home to every reader. Its cost is $1 per year, and every number contains articles of general interest. We wish it might touch more upon paint questions than it has done.

ATLANTIC MONTHLY.—Though not connected with carriage building, we must, in conclusion, mention this most high toned monthly, which has for so many years been a standard authority on questions of literature, science, and art. We always read it with interest, and have occasionally clipped from it.

INDUSTRIAL ASSOCIATION.

IN reply to requests received from various quarters, we publish, in full, the Constitution of the Brewster & Co. Industrial Association, which is an experiment that will be watched with interest by many of our readers. The arrangement was entered into with a view of making every employe directly interested in the quality of their productions. It will be seen by an examination of the agreement that, in addition to their wages, the employes are allowed a half yearly dividend of one-tenth of the net profits of the firm, to be divided among them according to the greater or less amount of work performed by each. On the first of July last, the first dividend was declared, giving three and a half per cent. on the earnings of each man. We learn that some of them thus received from $32 to $52; and others, from $5 to $10.

CONSTITUTION.

WHEREAS, Messrs. Brewster & Co., of Broome Street, New York City, Carriage Builders, have proposed to their employes that at the end of each fiscal year, viz.: on the first day of July, said firm will divide a sum of money equal to ten per cent. of their net profits in their Broome Street factory and Fifth Avenue warerooms, during the year then ending, among certain of their employes, in proportion to the wages earned by them respectively, and in addition to such wages (the persons so to share in said sum to be determined by the employes of said firm); and have also proposed that, in determining the amount to be thus divided, the members of said firm shall make no charge for their services, nor for interest upon the capital invested in their business, and that the business of each year shall stand by itself and be independent of that of any other year;

And whereas, the next fiscal year of said firm does not begin until July 1, 1870, but said firm have proposed to inaugurate the above plan as of the date of Jan. 1, 1870, and in July, 1870, to divide a sum of money equal to ten per cent. on one-half of their net profits in said Broome Street factory and Fifth Avenue warerooms (to be determined as above mentioned), for the year then ending:

Now, we, the delegates elected by said employes to confer with the members of said firm, with a view to adopting measures suited to the above proposals, and calculated to promote the general interests of said employes, and to insure greater harmony among them, *do, on behalf* of said employes, *ordain and establish* this Constitution for the

"BREWSTER & CO. INDUSTRIAL ASSOCIATION."

ARTICLE I.

There shall be a "*Board of Governors*" for the shop at large, and a "*Board of Control*" for each department.

ARTICLE II.

Said employes shall be divided into seven Departments, as follows, viz.:

Department Number One shall consist of the Heavy Smiths, Light Smiths, and Finishers, each calling to be represented by one of its own members in the Board of Control.

Department Number Two shall consist of Wheelwrights and Carriage-makers, each to be represented by at least one of its own members in the Board of Control.

Department Number Three shall consist of the Jobbers, Cleaners-off, Filers, and Platers, and the first and second floors shall have two representatives, and the third and fourth floors one representative, in the Board of Control.

Department Number Four shall consist of the Heavy Trimmers, Light Trimmers, and Stitchers, and each shall be represented by one of its own members in the Board of Control.

Deparment Number Five shall consist of Heavy Body-makers and Light Body-makers, and each shall be represented by at least one of its own members in the Board of Control.

Department Number Six shall comprise the Body Painters alone.

Department Number Seven shall comprise the Carriage-part Painters alone.

ARTICLE III.

The Boards of Control shall have three members each, who shall be chosen by the members of their respective Departments, one of whom shall be designated by the President of the Association as Chairman, who shall serve one year (but the persons who shall serve as Chairmen of the several Boards of Control, and as *ex officio* members of the Board of Governors for the year beginning on Jan. 1, 1870, shall be designated by the Chairman of the Delegates who have ordained and established this Constitution); the remaining members of the Board of Control shall determine by lot the duration of their respective terms of office—one shall serve three months and the other six months. In case of a vacancy, an election for the unexpired term shall be held within a week after its occurrence, on the order of the Chairman of the Board of Governors.

ARTICLE IV.

The Boards of Control shall carry out and enforce in their respective Departments all rules and regulations made by the Board of Governors; and at each monthly meeting of the latter, the Chairmen of the Boards of Control shall report, in writing, the working condition of their respective departments.

ARTICLE V.

The Board of Governors shall be composed of the Chairmen of the Boards of Control and the Representative of the Shop at Large, in Article VIII. mentioned, and within one week after the members of the Board of Governors have been designated, as provided for in Article III., they shall elect one of their number as their Chairman, who shall serve six months as such, and while acting as Chairman shall have no vote except in case of a tie; and they shall choose their other officers, whose term of office shall be six months, also a Chairman *pro tempore* in the absence of their Chairman. They shall, also, within one week after their organization, elect a President of the Association from among the members of the firm of Brewster & Co., and he shall serve one year and until his successor is chosen.

ARTICLE VI.

The Board of Governors shall assemble once in each month, or oftener, if the President of the Association or its Chairman shall so direct, or a majority of its members request it. Five shall constitute a quorum for the transaction of business. The Secretary of the Board shall receive a salary, the amount of which shall be fixed by the President and by him be paid quarterly.

ARTICLE VII.

The Board of Governors shall have power to make rules and regulations for the shop.

Every resolution or measure of any kind which shall have passed the Board shall, before it becomes binding upon the Association, be presented to the President; if he approve he shall sign it, if not he shall return it with his objections, in writing, or with a verbal statement to the Board, at its next monthly meeting, and the Board shall then proceed to reconsider it; if, after such reconsideration, two-thirds of all its members shall vote to pass it, it shall become binding, notwithstanding the objections of the President; but in all such cases the vote shall be determined by yeas and nays, and the names of the members voting for, as well as those voting against it, shall be recorded in the journal.

ARTICLE VIII.

The Board of Governors shall, within one week after its organization, elect, as a Representative of the Shop at Large, a member of the Association having a general knowledge of the business of the several departments, who shall serve six months as a member of the Board, and have all the rights and privileges of any other member of the Board.

ARTICLE IX.

All persons employed in the Factory shall have the right to vote, except clerks, salesmen, boys, porters, apprentices, cartmen, and persons under instruction in any of the Departments; and all questions as to the status of any person or persons not directly employed in mechanical labor shall be referred to the firm of Brewster & Co., whose decision shall be binding on the Association, and on all the Boards.

ARTICLE X.

A member of the Association to be eligible to any office therein, must be twenty-one years old, a skilled mechanic, and have worked in the Factory not less than six months; and any question as to whether an employe shall be ranked as a skilled mechanic, or a laborer, shall be decided by Brewster & Co.

ARTICLE XI.

Neither this Association, nor any member thereof other than its President, shall have any voice or authority in the management of the business of Brewster & Co.; nor shall this Association, nor any member thereof, have the right to bring suit against the firm of Brewster & Co., or

any member of said firm in any court of law or equity, to determine or recover the amount of any share or shares in the moneys mentioned in the preamble of this Constituton; *and it is expressly understood* that the wages agreed to be paid by Brewster & Co. shall be full compensation for all services rendered by any member of this Association while in the employ of Brewster & Co.

ARTICLE XII.

Any member who shall voluntarily leave the employment of Brewster & Co. (when full employment is offered by them) before the close of any fiscal year, without the written consent of said Brewster & Co., shall receive no share or portion of the moneys mentioned in the preamble of this Constitution, but the share of such moneys proportioned to the wages earned by said member during said fiscal year shall be paid into the Treasury of the Benevolent Fund to be hereafter established by the members of this Association.

ARTICLE XIII.

Any member who may be discharged from the employment of the firm shall, notwithstanding such discharge, at the end of the fiscal year, receive the share of the moneys in said preamble mentioned, proportioned to the wages earned by him during said fiscal year, provided such wages amount to the sum of two hundred (200) dollars; and all the shares in the moneys, in said preamble mentioned, not called for within six months after they are declared shall be forfeited, and paid over to the Benevolent Fund.

ARTICLE XIV.

This Association may be dissolved at the close of the fiscal year after July, 1870, or within thirty days after such close, either by Brewster & Co. or by a two-thirds vote of the members thereof taken by tellers appointed by the Board of Governors.

ARTICLE XV.

All persons employed in the factory and sales rooms of Messrs. Brewster & Co. shall share in the moneys mentioned in said preamble ratably, in proportion to the wages earned by them respectively, except heads of departments and contractors who realize a profit on other labor than their own, and such other persons as shall have an interest in their business through private contract with the firm; but these exceptions do not include smiths who employ helpers and finishers to aid in the work of one firm; in such cases, the wages earned by their employes shall be deducted from the amount paid to them by the firm, and the balance shall be considered the wages of their individual labor.

ARTICLE XVI.

All fines imposed and collected under the By-Laws of this Association shall be paid over to the Benevolent Fund in Article XII. mentioned.

ARTICLE XVII.

All complaints against the working management of any department shall be made by the President to the Chairman of its Board of Control, and, if such complaints are not properly heeded, and a remedy applied, he shall then report the matter, in writing, to the Board of Governors for action.

ARTICLE XVIII.

All charges against officers of this associaton (except the President), of neglect of duty, or violation of any of the laws or regulations, must be made in writing to the President, who shall lay them before the Board of Governors, and within ten days thereafter (unless a regular meeting is to take place within fifteen days) the Chairman shall order a special meeting of the Board to investigate the charges, and the accused shall be summoned to appear before them in his defense. If adjudged guilty, the Board may remove him from office, or inflict such fine as in their opinion would be just.

ARTICLE XIX.

Any member of this Association, other than officers, who may violate any of the laws or regulations of the shop, shall be complained of to the Chairman of the Board of Control of his Department, who shall investigate and report the fact as ascertained to the President, who shall take such action as the case may seem to demand, or refer it to the Board of Governors, as he may elect.

ARTICLE XX.

Any member of this Association who shall make a false and malignant charge against a fellow-member, affecting his standing as an employe of Brewster & Co., shall, upon good and sufficient proof, be fined, or dismissed from employment by a vote of the Board of Governors.

ARTICLE XXI.

The terms of office of those first elected as officers either of this Association or of any of its Boards, and the official terms of the members of said Boards, shall be deemed as beginning on the first day of January, one thousand eight hundred and seventy—and all officers and members of the Board of Governors, and of the several Boards of Control, shall hold over and continue to serve as such officers and members until their successors are respectively appointed or chosen.

ARTICLE XXII.

The foremen shall exercise authority in their respective Departments, in behalf of the firm, when no member of the firm is personally present.

ARTICLE XXIII.

A proposition to amend this Constitution must be presented by the Board of Governors to the President; and, if he approves, a copy of the proposed article or articles shall be posted in each Department for a period of ten (10) days, after which the Board shall proceed to vote upon it; and, if two-thirds of all the members thereof shall vote in favor of it, it shall then become a part of this instrument.

JOHN D. GIBBON,	THOS. SEDGWICK,
ALPHEUS E. FERRIS,	SAMUEL LYON,
EDWARD ROWE,	HENRY S. WHITNEY,
JOSEPH F. SCANLON,	RICHARD COLEMAN,
JAMES HAGGERTY,	JACOB KRUMMENAUER.

ERRATA.—In the November Magazine, the design of the Square-box Top Wagon was in the plate credited to Mr. E. Smith instead of Mr. G. J. Moore. It was referred to under the "Pen Illustrations" as Mr. Moore's, and this was correct.

Correspondence.

GOLDEN RULE OF PROPORTION.

SPRINGFIELD, Dec. 3, 1870.

MR. EDITOR. *Dear Sir*—I was at first very much pleased with your answer to my letter. "Proportionality," you said, "is one part of beauty, and correlation between idea and form is another." That I understand. Next you said, "as correlation between idea and form is a more essential part of beauty than proportionality, it may happen, that something which possesses the former may be found beautiful, though it falls short of the latter." That I understand too, and I was very much pleased with the conclusion, that "the buggy is the nicest thing in the world, though it does not agree with the Golden Rule of Proportion."

I sat meditating on what a singular thing beauty is since it can be produced in so many different ways, and I wondered whether there could be found anything that was beautiful in all respects. I was always fond of a little philosophy, and like very much to know the reason for everything. Thus, I was just going to write you a letter, and ask why you called *Correlation between idea and form* a more essential part of beauty than *proportionality*, when I remembered that I had not finished reading the article. I took up the magazine once more and read the article through, but when I reached the last sentence and read: "We are, however, by no means sure that it (the buggy) defies the golden rule of proportion so utterly as our correspondent thinks." I said to myself what I now say to you: Mr. Editor, you will swim under the water, but I will catch you. I read newspapers before you were born. I know the tricks of the editors. When they do not wish to tell the truth and dare not tell a lie, they always begin so: "We are, however, not sure"—and then go on swimming under the water. I know them.

Therefore, I ask you directly: Is the buggy not in every respect an infringement of the golden rule of proportion, and is it not, in spite of this, the nicest thing in the world? No or yes?

Yours, truly,
P. JONES.

In reply to this letter we would give the following explanation:

The top-buggy is, without doubt, an infringement on the golden rule of proportion. It is three or four inches too high in proportion to its length, and the reason why many persons do not feel this infringement of the rule as a real disproportion is, that they have become so used to it that their eyes have ceased to give any judgment upon it, just as now-a-days we have become so used to ladies' waterfalls that our eyes have ceased to notice that this immense bulk of hair must necessarily be false.

The infringement is not accidental however. It was planned deliberately, and has been accepted as proper, from a regard to usefulness. The top is made three or four inches higher than it otherwise would be, in order to give sufficient room to accommodate the chimney-pot hat. If we were in the habit of riding and walking bare-headed as were the ancient Greeks and Romans, or if we wore small caps as our Anglo-Saxon ancestors, the tops of our buggies undoubtedly would then be made several inches shorter, and would then accord with the golden rule of proportion. We wear stove-pipe hats, and thus the buggy-top is thrown out of proportion for three or four inches.

This hat, like the waterfall, is only a fashion, and fashion is often only a kind name for foolishness of fancy. We will not preach a crusade against the chimney-pot hat. We do not consider it worth while. But we think it sufficient when these monstrosities have been allowed to deform our heads, and too much when they are allowed to disproportion our carriages. Yes, we feel sure that when the stove-pipe hat once takes its leave and returns to that garret of folly from which it came forth, the top-buggy will submit to the golden rule of proportion, from which it was deviated—only by your hat, sir.

Home Department.

Written for The Coach-maker's Magazine.

THE ALARM.

The winds were fair, our hearts were proud;
  Like bird that skims the blue,
Our good ship winged the ruffled main,
  And spurned it as she flew.

The bellying sails good courage lent,
  The sheets and shrouds were taut,
And the only sounds that thrilled the ear
  Were those the heart most sought:

The whistle of the favoring gale,
  The foam that spouted before,
And the laugh of the voyageurs as they longed
  For sight of the far-off shore.

Around the evening board we sat,
  A merry set were we,
As we quaffed the wine and toasted our wives
  And our homes across the sea.

All suddenly a loud voice cried:
  "Fire! fire! the ship's on fire!"
And on us clapped the cabin doors,—
  "Fire! fire! the ship's on fire!"

In terror gazed we, each on each,
  With fear-protruding eyes,
Down dropped the blade—all white
  We stood, with horrified surprise.

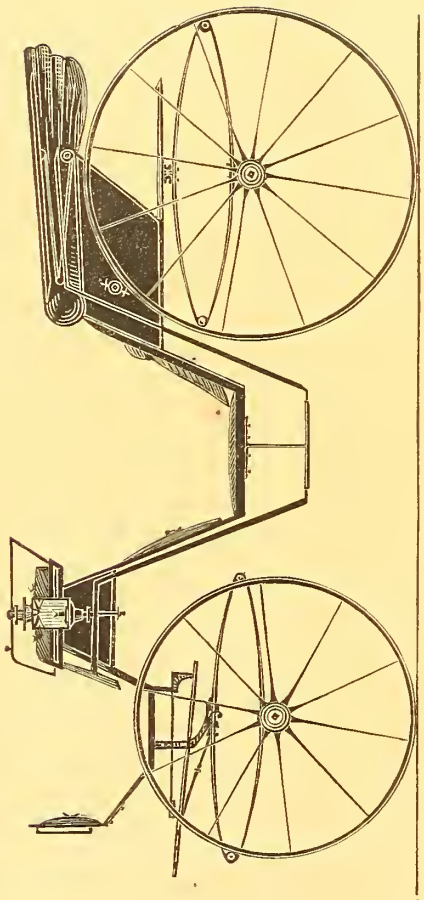
Sound died in awe—our blood ran hot—
  Each rustle took a part,
Became the crackle of the flame
  That gnawed into our heart.

An awful pause—the door undid,
  The captain, entered he,
His lips were pale, but not with fear—
  "It is not so," said he.

Each wended to his cot alone,—
  And many a swarthy cheek
Disclosed a tear, that told the prayer,
  The lips forbade to speak.

JUNIUS.

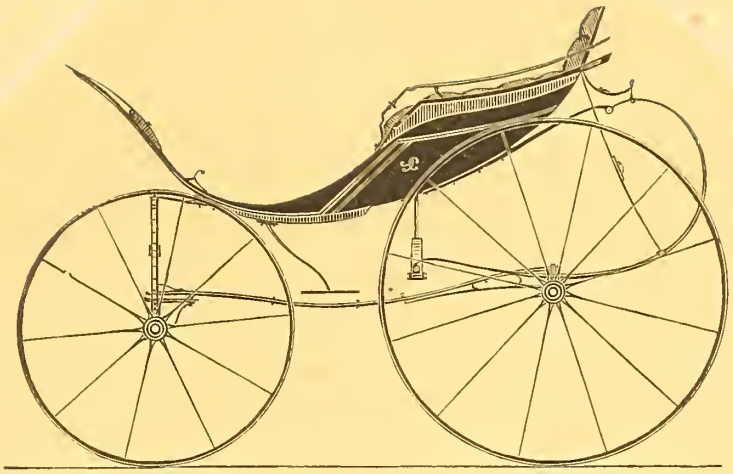
WEST INDIAN CARRIAGES.—In a paper on "Timber," read before the London Society of Arts in 1858, by Leonard Wray, he mentions the varieties of wood used in the construction of a West Indian buggy, as follows: Calabash for the naves of wheels, brazilletta for spokes, acacia for felloes, cedar for body, and lancewood for the shafts.



ENGLISH VICTORIA PHAETON.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

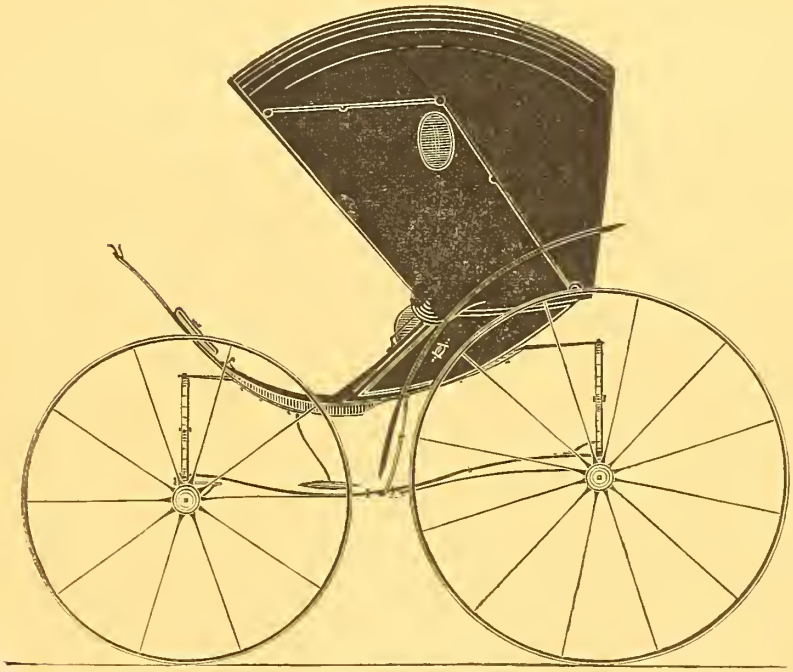
Explained on page 151.



C-SPRING PONY PHAETON.—½ IN. SCALE.

Designed and engraved expressly for the New York Coach-maker's Magazine.

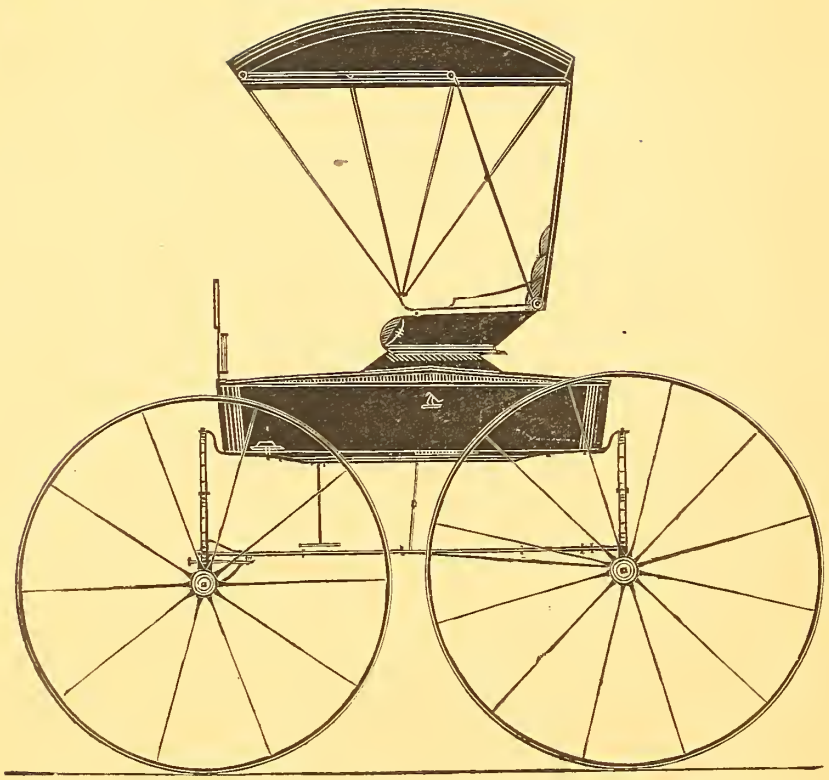
Explained on page 151.



CLOSE-TOP PHYSICIAN'S PHAETON.—½ IN. SCALE.

Designed and engraved expressly for the New York Coach-maker's Magazine.

Explained on page 152.



PIANO-BOX TOP WAGON.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 152.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. XII. NEW YORK, FEBRUARY, 1871. No. 9.

THE NEW VOLUME.

On March 15th, 1871, the "New York Coachmaker" will be combined with The Hub, forming a Monthly Magazine of twenty-four pages, with cover. It will be printed in the best manner by the "Aldine Press" of New York, and we intend that in mechanical appearance it shall be unsurpassed. This new Magazine will embrace all the leading features which are now found in the "New York Coachmaker" and the Hub. It will retain the *fine carriage drafts*, the *numerous illustrations*, and the *additional departments*, viz: *woodworking*, *blacksmithing and trimming*— which are found in the Magazine; and itwill retain the *name*, *the form*, the *correspondence*, the *trade news*, and the *varnish and paint specialities*—which now characterize The Hub. Beside the foregoing, a new department will be introduced entitled "The Office," which will include all matters relating to business and the repository. Its general arrangement will be best understood by its seven leading departments, which are as follows:

1. "Wood-shop."
2. "Smith-shop."
3. "Paint-shop."
4. "Trimming-shop."
5. "Office," including the Repository.
6. "Correspondence," including Home and Foreign Correspondence, and Answers to Correspondents.
7. "Trade News," including the present "Carriage Items" of The Hub, beside many new features.

We are increasing our corps of practical corrsespondents, and hope to make each of these seven departments not only well filled, but so practical and valuable that each carriage maker, and each woodworker, and smith, and painter, and trimmer will feel a continued and personal interest in them. To do this we shall need the countenance and aid of all these classes, and with such support we shall endeavor to develop each department of carriage building.

The subscription price of the new series of the Magazine, as described above, will be $3.00 per year, *strictly in advance*, and this will include postage, prepaid by us, and a suitable roller of pasteboard, in which the Magazine can be mailed without injury to the plates. To clubs of four subscribers the price will be $2.50 apiece, or $10 in aggregate, also in advance. This also will include postage and rollers, and it is not required that the club should be made up solely from one shop, or that the addresses should be the same.

This change will not interfere in any manner with unexpired subscriptions to the Magazine, as we explain in detail on page 152. The Magazine for March will appear in the new and improved form, and will hereafter be known as "The Hub and New York Coachmaker's Magazine."

THE FOUR-IN-HAND.

FAST moves the world: each passing day
Brings something new, and takes away
Some phase of life that made men gay:
But time has no remorses.
However, 'tis pleasant when chance brings back
The perished fashion we've learned to lack—
And I like to travel the good old track,
On the box behind four horses.

The things to be done: you may breath the air
Of Kent, whose cherries and hops are rare,
And dine at the Wells of Tunbridge, where
King Charles was wont to dissipate;
Or off to Windsor's town take flight,
And gaze on the keep of massive might,
Whence James of Scotland, poet and knight,
Saw what he didn't anticipate.

Or down to brilliant Brighton go—
You can dine at the "Bedford" or "Grand," you know:
I'm rather an ancient traveler, so
I like the "Old Ship," like Bacon.
Aye, thanks to Beaufort, Carington, Hoare,
Cherry Angell, and one or two more,
We can travel from town in the style of yore,
And the highroad's not forsaken.

The Period.

This poem refers to the old-style coach which still runs between London and Windsor, and from another

English publication, we gather in addition, the following particulars in regard to the famous "Windsor Coach." The subject possesses an intrinsic interest from its graphic description of a ride in a stage-coach of olden times, and there is, moreover, an additional interest in the fact that the coach is owned and driven by a wealthy lord, and by Mr. J. B. Angell, a gentleman of vast properties, and the Duke of Beaufort, who was formerly Master of the Buckhounds. The coach is run by these gentlemen, not for money-making, but for enjoyment, and everything connected with the line is managed in the finest style.

Rip Van Winkle, when he came out of the mountain after his thirty years sleep, saw so many changes in his native village that they made him rub his eyes with incredulity. A Rip Van Winkle, who had similarly slumbered in London for the same space of time, would find a great deal more to wonder at. Nothing surprised Washington Irving's hero more than to find the little children, whom he had left playing about, grown up into mature men and women, long since married, and with families of their own. His London successor would find *things* grown up as well as persons, and possessed of large families begotten of ideas. He would find in fact an immense amount of what we call progress—progress in a right direction or a wrong, but certainly progress. He would see here and there signs of reaction, of progress having had its own way for so long that people had begun to find it going too far, and had given it a hint to stand still.

If any man doubt the truth of what I say, let him go down to the White Horse Cellar in Piccadilly on any day in the week (Sundays excepted) and he will find actual stage-coaches starting from that time-honored hostelry, which, once a great caravansera, has of late years had very little to do with locomotion, whatever merits may attach to it as a hotel. One of these stage-coaches—there are only two—is the coach to Windsor, which starts daily at noon and reaches the royal town at twenty minutes past two, returning at four and arriving at Piccadilly after a similar period occupied in the journey. It is driven alternately by Lord Carington and Mr. J. B. Angell, the joint proprietors, and a debt of gratitude is due both to his lordship and to Mr. Angell for the public spirit which has rendered us independent of the dreary despotism of the Iron Horse.

And why, it may well be asked, should we not have a revival of the "good old coaching days," even though railways are to remain the rule in these traveling times? The laudators of those days have disappeared. You meet them neither in flesh nor in contemporary writing, and there are none who can be said to miss them. Even fiction seems to have forgotten them of late. When Mr. Dickens made us acquainted with the immortal Toney Weller, that illustrious whip was the type of an existing class who were being driven off the road. Since then we have found coachmen introduced into a few sporting stories, but they and their grievances are now neglected by novelists of the period as being unrepresented in real life. The present generation, until aroused by a little experience, find it difficult to enter into the sentiment of the last generation for coaching. That sentiment still survives among omnibus drivers and cab drivers, for all who habitually drive horses feel an unfailing contempt for all who drive steam engines. One of the former, reduced to travel with the latter, will ask him as contemptuously as ever "if he can't manage to boil up a trot," and, except cabmen who act as feeders or relievers of trains, the whole class regard the rail as their natural enemy. As for the public in general, they are accustomed to see the stage-coaches belonging to private persons, as members of the Four-in-hand Club, driven down to Derby or round the Park, and they feel that kind of temporary triumph in the exhibition that one does at the sight of an old man-of-war in full sail. But for practical purposes, their association naturally tend to railways as to turret ships. Not only have the coaching days been neglected in novels, but a few ruthless writers have done their best to uproot all reverence for their memory. Albert Smith, for instance, thoroughly English as he was in many of his tastes and prejudices, never failed to ridicule any sentiment that he heard expressed on the subject. "A great deal of nonsense," he has said, "has been talked and written about the old coaching days"—a remark that would apply to most other things. He believed them to be all humbug, a dreary mode of conveyance, nothing comparable to a comfortable place in a first-class carriage in an express train.

But I am keeping you waiting at the White Horse Cellar all this time. You are going with me on the Windsor journey. It is now a quarter to twelve, the coach is at the door, and I have already booked you, at the small cost of five shilling, for an outside seat. These people who have been standing about the pavement for the last ten minutes, enlivening the interval by making occasional dives down the steps into the "Cellar," to make useless inquiries—these people prove of course to be intending passengers like ourselves. Now that I know their relation toward me, I notice them more minutely. Here is a thorough pater-familias, leaving stock to broke for itself for one day, and that comfortable lady is doubtless his wife. But surely he does not mean to take all those children with him? He does, though. He is plainly talking to that courteous gentleman, who officiates as guard, with a view to their most convenient disposal. The result is that the juvenile brood—I counted six before I got tired, but there may have been more—are hoisted up the ladder and handed with success upon what a sailor would call "the deck." Being packed closely, and expressly enjoined by their mamma not to fall off, I dare say they will manage to stay on. Mater familias and pater follow, and are soon comfortably placed. This happy family occupy nearly all the back part of the coach; but there is just room for two late comers who have engaged the remaining seats. These are an unmistakable clergyman, and a young lady whom I take to be his daughter. The other passengers, who have been pattering about the pavement, are making their way meanwhile to the seats in front. The seat on the box beside the driver is occupied by a gentleman of sporting appearance, and immediately behind are several other gentlemen, including ourselves. There are several passengers inside whom I will not describe.

By the time we are all settled, our noble coachman, who has been making a personal inspection of the team, mounts to his place and assumes the ribbons with a thoroughly professional air. It is pleasant to see that our

turn-out excites manifest admiration from spectators who assemble to see us off, and the cheerful salutations from the drivers of the passing cabs and omnibuses add to the natural pride of our position. Nor do we disdain the "hurrahs!" of several small urchins, to whom some of our party throw patronizing coppers. I should not omit to mention, too, that our team is much admired, as it deserves to be, and that the good appearance of the coach is not unmarked by the bystanders, who especially commend it for its build, which is low on the ground, so as to be both safe and easy in drawing.

"Their heads"—I need not say whose—are now "let go," there is a sound of the cheerful horn, and we are off, with the pleasantest of salutations from everybody about, including those driving in the opposite direction, who make way for us in a most considerate manner. The passengers being all settled before, now of course settle themselves again. Then all are at ease, and begin to look about as with a strong determination to enjoy the journey.

There is no livelier road out of London than that which begins at Piccadilly and passes Hyde-Park Corner. The liveliness forbids any great pace, but it is easy to see that Lord Carington is a first-rate whip, and when we get past Knightsbridge and are on the Kensington Road, our team is allowed to display their "spanking" qualities. At Kensington and Hammersmith we excite a proper amount of attention; our coming is evidently expected and "seeing the coach go by" seems a regular recreation in many a household. We are much gratified at seeing a whole-boarding school of young ladies drawn up to look at us over a garden wall. They all look very smiling and one of the little ladies waves a handkerchief, but the promptitude with which she is pulled down after this process suggests a governess behind. I trust that the consequences of such temerity are not terrible. At Turnham Green we make our first change of horses, which is accomplished with business rapidity, and we are off again, passing through Brentford, where the seat of the Duke of Northumberland, and its park and pretty wooded scenery are objects of general interest, and there are charming villas, here and there, which help enliven the road. On a sudden there is a sweet scent borne upon the breeze, the familiar scent of strawberries. It is explained presently by a wagon which we pass filled with baskets of the "morning gathered" and with the women who have been picking them. At Hounslow there is another change of horses, and another at Colnbrook; and we are riding gallantly, meanwhile, at the rate of ten miles an hour. It would be difficult to trace any kind of metropolitan influence over the road at this part, for everything is so primitive that you might fancy yourself hundreds of miles in the country. The little roadside inns are charmingly behind the age, and the people you see sitting out in front of them drinking their beer are so stupid in appearance as to be a real relief after the high-pressure intelligence of London. The team taken at Colnbrook is a splendid one, calculated to bring us into Windsor in right royal style. Past streams and rivulets and bridges we ride, past Langley Broom and Tetsworth Water and Slough, where the Duke of Buccleugh's place claims attention. We are now near our journey's end. Salt Hill is gained, and the antique spires of the college prepare us for the glorious view of the castle, which tells us that we have reached Windsor at last, and in a few minutes our noble driver has pulled up his bounding team in front of the Castle Hotel.

After being ushered into the dining-room and furnished with a bountiful supply of refreshments, we sally out, feeling in good humor with everybody and everything, to view the royal old town of Windsor, with the residence of our beloved Queen and the castle itself, which has been the principal seat of British royalty for the past eight centuries. The Saxon kings had a palace at Old Windsor long previous to the Conquest. The present castle was founded by William the Conqueror, but was almost rebuilt by Edward III. It occupies about thirty acres of ground.

[The author then follows with a detailed description of the castle, its state apartments, and their contents, which is full of interest, but which our want of space prohibits us from giving to our readers. He concludes as follows.]

But now we must hurry back, for we must not keep the coach waiting, and for the best of reasons—*it will not wait.* Punctuality is the first duty of the captain of a coach, next to the obvious one of not overturning his passengers. Our captain is faithful to the front, and has taken up his position before the entire company are mustered. Early among the members of that body I observe the city gentleman with wife and numerous family. He is beaming and vivacious, as befits a man after doing justice to a dinner at the Castle. The other passengers arrive, party by party, and find their places.

"All ready?" cries Mr. Angell, for it is he who will drive us home.

"Yes sir, let them go."

They go accordingly, and again goes the cheerful horn, and all Windsor is out to see us start. The homeward journey is just what might have been expected from the outward one, and something more jovial. The fresh air, through which the team dashes as gallantly as ever, would invigorate us, if we needed invigorating, but we disdain any such requirement, and when we pull up once more at the White Horse Cellar amidst the cheers of the populace, we are more than ready for the dinner which is awaiting us not far from St. James Street, where ourselves, and more than one of our fellow passengers will not fail to drink success to the Windsor Coach, with hopes that its shadow will never be less and that the days may be distant when it shall cease to give life to the good old road which it has brought once more into existence.

Wood Shop.

STYLE AND TASTE IN CARRIAGE-BUILDING.

PAINTING AND TRIMMING.

In our article in the December number, we tried to explain the particular requirements which the present day demands of a carriage in the latest style. Among the points which we then enumerated there are several prominent ones which are worth dwelling upon, and after a few remarks on this subject we will speak of the present classes of fashionable carriages.

We said in the last number that "tasteful painting,"

and "trimming in corresponding color," are necessary attributes to a vehicle in the latest style, and as indeed these items contribute in a large degree to make up a first-class job, we will add a few words to explain this. Let us look at a carriage turned out by a first-class maker, when we happen to see it on one of the fashionable drives, and we will notice how every small point matches the rest. We may sometimes discover, for example, that the color of the trimming was calculated to highten the beauty of the lady occupant—namely, if she is of light complexion, the trimming is also light colored. Moreover, the painting exactly repeats the colors used for the laces and trimming—if the latter are black, maroon, or red, the same tints will be found repeated in the trimming. We can safely say that not enough attention has been given in general to these points by those who are free to acknowledge the superiority of the products of others, and true as it is that by far the larger number of carriages manufactured are built for the market, and that there is consequently no possibility for the display of such fine taste as we have referred to in the foregoing, there is still an almost unlimited field for the operation of every man's good judgment.

As an illustration of how these qualities are missing in some cases, we will cite here a few instances of our own experience. Some time ago we saw a top-wagon, the running part painted ultramarine blue, the trimming dark Russian green cloth. We did not consider the case any less objectionable by the salesman's statement that this was a mistake. Next we came across a carriage-part painted straw-color, and striped with light gold, both matching each other so well that the striping could only be detected after a close scrutiny.

In our travels in the direction of the "course of Empire," we quite frequently saw new jobs in the "repositories," elaborately ornamented with any such monograms as were availably at hand, and without any regard to the initials of the future buyer; so that Mr. A. B. might, under these circumstances, have the letters X. Y. in old English characters on the panels of his wagon for a lifetime, perhaps, without solving the puzzle of their meaning.

We will now notice which are the fashionable carriages at the present time, and commence with heavy work.

Heavy work, which term comprises all vehicles with top, carrying more than four passengers, including driver, must be divided into two classes; namely, private carriages, and public or hack carriages.

There exists a certain rivalry between these two classes, which in some measure has benefited the carriage trade. A style or kind of carriage used for hack purposes must after some time fall into discredit for private use. Thus during the last few years the old time-honored family coach has lost its well-deserved prestige, and for the only reason that it found employment as a hack. In certain localities, in the New England States, where landaus of a cheap kind are used for hack purposes, and are called in a general way "hacks," this noble vehicle has come into utter discredit with private families.

Again, at this day clarences of really good and tasteful make are seen in New York on the public stands, while there are very few new coaches; and in consequence thereof coaches are in call by private people, and seem to be reinstated in their former rights, and fashionable makers have commenced to build them again; how and with what changes we shall see hereafter.

The most stately carriage used in this country is, no doubt, the chariot, a full-size clarence hung on loops, with hammercloth seat. There are but three or four of recent make in New York city, which are owned by the richest merchants, and as there is very seldom a call for this pattern, it is an exceptional thing to find it in any repository, and one now built would probably be made after the style of clarences which we are going to describe.

We next find the clarence, and competing with it the full-size landaulet, the latter sometimes hung on loops, with a "*coffre*" or "*tonneau*," which are French names for the box under the dickey seat. Round or Salisbury boots, which have been made for several years, are still in favor, but in a variety of shapes, both round and concave, which we will have occasion to illustrate in an early number. Seat-legs for drivers' seats are universally made as plain and light as possible, a single leg or one with a division on the upper half to the sides of the seat being preferred. Bodies without mouldings are the newest, and they look very well. Square cut-unders and straight lines generally are ruling, and are the so-called "English patterns," and the painting is very plain, and the striping as little as possible.

The next pattern is the landau, and we see numbers of these to-day in the salesrooms, some of them lighter and more graceful than last year. Looking back a few years, when it was considered rich and stylish-looking to have very deep sides, and comparing what is made now, we find a saving of weight amounting to several hundred pounds. Dickey seats for landaus are mostly *French-paneled*, with rounded corners, and gearings all iron. For bodies there is an equal proportion of full, round (boat) sweeps and cut-down doors. Wood's patent window-holders are much used. Crest-panels have since last year been often made of glass, and by some eccentrics of looking-glass even; but an objection to the former was that the window frames showed out on both sides when the window was down. This was a serious objection, which has since been overcome by a different shape of glass, which finds great approval, and will be illustrated in one of the next numbers of "THE HUB AND NEW YORK COACH-MAKER," which, I understand, will be published hereafter. A. MULLER.

(*To be continued.*)

Smith Shop.

JOURNEYMAN.

ITS CONTINUATION AND CONCLUSION.

"Those that are bound must obey."

THE writer, fortunately, belongs to that class that is generally favored with constant employment, and in consequence he is bound to obey the injunctions of his employers, and to render to them sufficient duties in office, that they may be satisfied that they are not paying him for services not performed. And on the other hand, the duties of your humble servant are such that much of his time beyond the regular ten hours per diem has to be devoted to the furtherance of the interests of his employers, and moreover, from the rapid strides of progress and

improvement which are every day taking place in the art of Coach-making, some little time must be spent in his own culture, in order that he may keep pace with the present age of progress.

Therefore he has no time to devote to controversies, and furthermore, his chances of obtaining an education sufficient to enable him to enter into any controversy have ever been too limited; but in all his pen and ink sketches he will endeavor to use as pure English as possible, and will spare no pains to make all his problems as lucid as possible, in order that those, who may have labored under the same disadvantages that he has, may be able to understand his exact meaning.

In writing a previous article, termed "Journeyman Smith," I sought, by brevity and as plain language as I could use, to find why the term *journeyman* was applied to mechanics that had served their regular term of apprenticeship—not the modern application, but the primitive one.

My esteemed and good friend, the Editor, fails to agree with me, and requests by particular favor to hear from me again on the subject. In compliance with the request I now embrace the few moments that are lying about loose to continue and conclude all that I have to say on the subject.

I have known for years that the French word *jour* (pronounced zhoor), translated to English, means *day* or *light*; that *journée* (pronounced zhoorna), means all that transpires in a day, *viz.*, the *day's light*, the *day's heat*, the *day's toil*, the *day's profit*, the *day's travel*, etc. And I have every reason to believe that the English word *journey* is taken from the French word *journée.*

But all this in no way tends towards telling us why the term journeyman was first applied to the mechanics.

Farm laborers, clerks, drivers, etc., have never been complimented with the term. Their labor is done in the day; then why not employ the same term in speaking of them? Because their duties being ever the same, there was nothing to be learned that could not be learned at home, hence what use had they in "journeying, strange lands and things to see."

The writer has frequently heard, in by-gone days, many and different ballads, all having for their theme the "journeyman." One verse was about as follows.

> "East and West I did *journey,*
> Strange towns and cities for to see,
> I *journeyed* up, and I *journeyed* down
> Until I came to fair Lunnun town."

As mentioned in the preceding article, it was the custom in all European countries for the young mechanic, after he had completed his apprenticeship, to spend a certain number of years in traveling in other or foreign parts. The terms applied in the different countries to these persons are about as follows. In England, on his first round, he is called a journeyman, or young tramp, or tramp, or stager, from the fact of his having to move so far in each day. The whole country being laid out in stages or day's journeys, at certain towns he has the privilege of remaining longer than at others. He has the privilege of making two or three stages or journeys in a day, and receives a competence from each one. If he obtains or takes employment, he is considered as being done for the present with journeying or tramping, and is called a smith, tailor, etc., according to his profession, which he enjoys until he again starts on his meanderings, the term journeyman being rarely if ever applied while in constant employment.

Some mechanics rarely perform more than twelve weeks' work in the year, and are always on the move, and are termed old tramps or old stagers, and such is their knowledge of the country that they can travel two years without visiting the same place twice.

In France the custom was the same, but has of late years been dying out. The terms applied there are, when traveling, *ouvrier voyageur:* a traveling workman or a young mechanic on his tour of learning or perfecting himself in his trade. When in employment, he is called *compagnonnage forgeron* (smith), or if a carriage-maker or wheeler, *compagnonnage charron.*

In German countries, he is first called *ein Handwerksbursch auf Reise:* a young *Handwerker* on his travels, or a young mechanic traveling to finish his trade. When spoken of by those at home, it is said, *er reist in der Fremde:* he is traveling among among stranger, or is journeying to finish his trade. While he is in employment he is called *Geselle:* companion, or smith companion, or body-maker companion, etc. After he is done with traveling, and is about or contemplates establishing himself in business, he is called *ein reisender Geselle*, and *reisender Arbeiter:* traveled companion, or learned companion, or traveled workman, or learned workman, smith, etc.

Believing that I have quoted enough to make myself directly understood, I will now conclude the subject by saying that I believe, from what has been set forth, that *the term journeyman was first applied to mechanics because of their having to travel or journey* after having finished their apprenticeship. What the modern meaning of the term may be is no concern of mine, nor do I question Messrs. Webster, Walker, or Johnson, as to whether they are right or wrong; but since writing my first essay upon the subject, I convened a number of *learned mechanics* of the art of Coach-Making, and after conversing upon the different terms in use in Europe, reading the article appearing in the December number of the Magazine, and the editor's note attached, I asked them their views as to which was correct. After an hour's controversy upon the subject, during which English, French,

and German Dictionaries were examined and quoted, it was voted that the author of Journeyman was correct, as was also the esteemed editor, so far as related to his quotation from Webster.

Then, if both are right, why should the subject be continued longer, when it will more materially enhance the value of the Magazine, and increase the knowledge of the craft, to devote valuable space to direct practical articles.

At some future time I shall endeavor to place before the *patrons* of my good friend, the editor, a full and complete statement of the customs of European Mechanics, which I believe will well pay for the reading.

J. L. H. M.

The foregoing article is a most interesting one. The derivation of the word journeyman, as suggested by our correspondent, is argued by him most ingeniously, and he has brought forward in its support many facts with which we were unacquainted. If the facts mentioned by Mr. M. be correct (and at present we have no reason to doubt them), then the derivation mentioned by Webster is incorrect.

The writer of the following verses, which we picked up the other day, seems, however, to hold Webster's idea of the primitive meaning of the word:

THE JOURNEYMAN.

Working, working, hour by hour,
Through the morning's chill and dew,
Through the sunshine and the shower,
Through the evening's dusky blue.

Stone by stone is laid with care
In the river's flowing tide;
Night comes on, the day is dead,
Labor must be laid aside.

Still no vision of the work
Peers to cheer the worker's face;
Still the river darkly flows,
Not a ripple points the place.

Journeymen we are, and each
Has his portion in a day;
We must stop, and others come
When the hours have flown away.

What though some do all unseen,
There the depth may darker be,
There the sand may run less bright,
Or the tide more forcibly.

Working, working, hour by hour,
One shall see his labor done;
Working, working, just as nobly,
Many see it just begun.

Paint Shop.

CRACKS VERSUS GRAIN.

SINCE my last article on this subject appeared in the Magazine I have studied this very important subject still more closely, and will now proceed to give the results of my investigations:

During the last two months I have had two bodies pass through my hands to repaint. One a light no-top wagon; the other a clarence coach, with a boot of the latest style. I may here state that it is necessary to mention the boot particularly as it will play an important part in elucidating the subject-matter of this article.

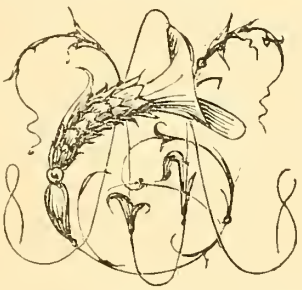
I will first take the light no-top. This wagon had been running *five years*, according to the owner's statement, and I have no reason to doubt his word, as he is a perfectly reliable man. It had never been repainted, or *revarnished* even; in short, to use a painter's phrase, it had never had a brush put on it for five years. Of course the paint was cracked. I think I hear some knight of the brush exclaim, "*about time it was cracked*, or we should have to kill off one-half of the painters; and as for the varnish makers, why they would have to retire to some rural and secluded spot, there to rusticate for the remainder of their days on the *fortunes* made out of varnishes." But was it cracked all over? No, on examining the body previous to burning it off, I found certain portions of it without cracks; this led me to examine it still more closely, and I found the parts that were not cracked had been *canvased* with fine linen, put on of course with glue. This had thoroughly covered the wood, and while all the other parts of the body, even underneath the tail-board, were quite perished, these canvased parts showed no signs of cracks, and after these five years still retained their gloss. Having so far disposed of the light wagon, let us now take the coach. This had only been running about thirteen months, but every part *except the boot* was terribly cracked. As it is not at all unusual for a body to crack within a year, of course I took no notice of that, but when I came to examine the boot, I found no cracks whatever, although it was quite as *much exposed*, if not more so, than some other parts, for being one of those built-up boots, the sweep came right down on the deck and near to the circular front glasses. Of course such a boot could not be built of large thick pieces of white-wood without being *canvased*. It had, therefore, been nicely rounded off, and then a thick piece of canvas well filled with glue covered it all over. You could see where the wood under the canvas had shrunk in all directions, but it was not able to carry the canvas with it—that had remained firm. But to the very edge of where this canvas was put on the cracks were as bad as any I ever saw, while on the canvas not one was to be seen, and the gloss was good—so much so that I only varnished that part with Valentine's Black Body to make it as black as the other parts. Having fully described these two bodies, my next business is to inquire as to who is responsible for these bodies cracking. I think I have shown pretty conclusively that if you give the painter a *solid* foundation and time to let his work dry, it will not crack within any reasonable time. The inference, therefore, that I draw, is this: It must be the fault of the wood not being dry, or else there is something in the nature of the wood used for panels that is destructive to paint. I know I shall be met with the body-makers' oft-repeated argument, that the wood shrinking cannot make the paint crack, but that it has a tendency to hold it together, as the panel gets smaller. This argument I think can be shown to be fallacious, for if we examine the cracks in a body closely, we shall always find them curling over as it were; that is to say, the surface underneath

having become smaller has forced up the paint, throwing it up in ridges. The panel itself, being canvased on the inside with a good coat of glue, is unable to move or split, as it undoubtedly would in drying but for the canvas. Now here we have a piece of wood that does and will shrink; 'tis coated on one side with glue, on the other with paint. In the drying by the action of sun and atmosphere something has got to give, and the paint in this case having to face shrinking wood on one side and sun on the other is at last compelled to give way; in short, it opens its floodgates to let out the gases generated in the drying process of the panel. Even on the roofs of heavy jobs we find this still more apparent. The roofing being very thin usually shrinks very much, carrying canvas, paint, and everything else with it. The upheaving is sometimes nearly an eighth of an inch, as all painters can see when they have to rub down an old roof. Having thus opened the subject in this number I will continue in the next.

OBSERVER.

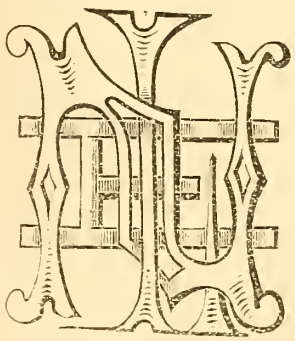
ORIGINAL MONOGRAM.

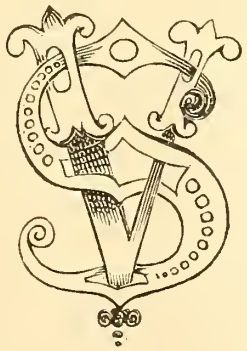
THE following tasteful monogram has been set us by W. F., of Brooklyn, N. Y. The letters A. C. V. are very



graceful, and if they were colored would make a pleasing combination.

Below we give two others, one introducing the letters L. E. N., designed by J. S. L. of Amenia; and the other the worked letters V. S., by some unknown pen.





TRADE.—A moderate business is done in heavy carriages, but as a rule business with the carriage builders continues very quiet.

The appearance of the cold weather in a measure revived the condition of the trade. Dealers in fine and heavy carriages reported a fair number of sales, and they were also receiving a satisfactory amount of orders.

Trimming Shop.

TRIMMING SLEIGHS.

ON our visit, during the last month, in the repositories of the leading carriage firms in New York, we have, of course, looked most attentively at the sleighs. It is the season for sleighing, and everybody is on the look-out for snow. Yet so far we have had to be contented with skating.

In the American sleighs two different types are very apparent: The old Dutch dragon-sleigh, and the genuine American farmer-sleigh. The former is very fanciful, being built of sweeps and curves which look like remnants of that fantastical animal called a dragon. The latter, on the contrary, is very primitive in its forms, consisting mostly of straight lines and right angles. But though both may be very elegant, we confess that we prefer the forms of the Russian and Norwegian sleigh.

As to painting and trimming, on the contrary, we think that the American sleighs excel the European in a considerable degree. They are painted and trimmed with greater care than the Europeans bestow upon their sleighs, and generally with more taste, too. The European sleigh is commonly painted dark brown, without striping, and is trimmed very plainly with dark-blue or gray. But we prefer the deep carmine, striped with black and gold, or the light green, and blue and yellow, with its trimming in warm colors, mostly with red velvet or plush. A sleigh is something gay, and must look gay. We do not understand, however, why the trimmer generally uses more elaborate patterns in the carriage than in the sleigh. In the sleighs he generally confines himself to the plain square pattern, while other and richer patterns would highly increase the effect of the appearance.

FRENCHMAN.

Pen Illustrations of the Drafts.

ENGLISH VICTORIA PHAETON.

Illustrated on plate XXXIII.

THIS style, which comes to us from London, is somewhat novel in its appearance, but is tasteful, and in its general plan is popular. Our informant says of it: "The Victoria Phaeton may be truly styled the ladies' carriage, as most successful efforts have been made in its construction to provide for the comfort and refined taste of the fair sex." The design made use of in the formation of the seat and body of the carriage is such that while unusual space is allowed for the disposal of dress and drapery, weight and massiveness are entirely avoided, thus producing in a remarkable degree an example of airy lightness.

C-SPRING PONY PHAETON.

Illustrated on Plate XXXIV.

THIS drawing merits the particular attention of makers of light work, as it represents a very graceful and

stylish vehicle. We have given the body a round shape, believing this corresponds better with the sweep of the C-spring, and the mouldings, which are plain and simple, relieve the sides to good advantage.

For the coming season, we know that quite a number of open jobs with this mode of suspension will be turned out. The C-springs have three plates, steel No. 3, 1¼ inch wide, and the leather strap and one plate are jointly connected with the body loops. Plates and straps are fastened together by a T-head bolt ¼ inch thick, and clasp (of the shape of a whiffletree clasp). The springs are clipped to the axle from below.

Dimensions.—Wheels 3 ft. 7 in. by 2 ft. 10 in; axle 1 inch, well tapered. *Painting.*—Body, wine color, striped vermillion; graining, vermillion, striped black.

CLOSE-TOP PHYSICIAN'S PHAETON.

Illustrated on Plate XXXIV.

THE demand for this class of work is always good, and we know that many of our readers will welcome something new and stylish in this line. When such considerations as low hanging do not necessitate a cut-down body, we prefer the round sweep pattern, of which our cut shows a new variation. What is claimed as novel in it is the shape of the bracket pillar, and the moulding near it, which terminates at the middle of body. This moulding is triangular and very light, and when gilded shows out to good advantage. The sides are worked out of a solid piece.

Dimensions.—44 inches between bows; wheels, 3 ft. 4 in. by 3 ft. 10 in.; spokes, ⅞ inch; springs, 4 plates of 1⅜ inch; track, 5 feet; hubs, 3½ inches by 6¾ inches.

PIANO-BOX TOP WAGON.

Illustrated on Plate XXXV.

THE form of the piano, or square-box wagons, presents less chance for altering than many other styles. Our illustration shows *two new points*, namely: *the line on top of the box*, and the *lines on both ends of it.* The triangular panel at the top, produced by shaving out the side pieces, looks well, and should be painted with a bright color, such as carmine or canary yellow. The ends of the box may be constructed in different ways, by either moulding or striping at the indicated pieces, or, what is preferable, by swelling or sinking the edges to commence from the moulding. This produces a strikingly handsome effect and should be tried. It is a little extra work of course, but we think it will repay for the same. Dimensions as usual.

MR. GEO. WILLIAMS, formerly of New York, bought, in December, the carriage factory in Amenia, N. Y., formerly owned by Wm. C. Payne. He intends to make a specialty of road wagons for the New York market.

Editor's Work-bench.

TO OUR SUBSCRIBERS.

WE have explained in our preface and in the leading editorial how the Magazine will hereafter be published in a new and improved form, but at a reduced rate. We assure all present subscribers, whose subscriptions have not yet expired, that they shall have the benefit of this reduction. Although for purpose of convenience in binding, this number of the Magazine will be considered as closing this volume, the volume will in reality close with the May number, and three numbers, therefore, are lacking, equivalent to about $1.25. To balance this, we will send five copies of "The Hub and New York Coachmakers' Magazine," (subscription price $3.00), equivalent to $1.25. All other unexpired subscriptions will be compensated on the same principle, and on terms that no one will have any cause for complaint. We shall try to make the arrangement perfectly just.

PRESIDENT GRANT'S STABLES.

FROM early boyhood President Grant has been an ardent admirer of horses, and since his arrival at years of maturity he has always been the possessor of one or more attractive animals. His stable at the Executive Mansion now comprises the best stud of horses in this District, and the best ever owned by any President. All of them were his own private property, purchased or raised by him before his election to the Presidency. Although he never permits any of his stock to participate in races, he has several excellent trotters, which probably cannot be easily passed by any horse in the city. At present he has eleven horses here, most of them blooded animals, besides a number of inferior horses on his farm near St. Louis.

The stable of the Executive Mansion, while it will not compare in extent or magnificence with that of Tweed, or Bonner, of New York, is, nevertheless, a very comfortable and respectable establishment, such as befits a gentleman of modest taste. It is located in the southwest corner of the garden, about two hundred yards east of the Navy Department. It is a brick building, two stories high, with a front of fifty feet and a depth of forty feet. An addition on the north end accommodates the foals and stallion in two comfortable apartments.

The carriage-house is in the main building, about fifteen feet wide and forty feet deep; the ceiling is painted a light blue, and the walls white. The floor is of brick, and the room is spacious enough to contain eight or ten carriages. A wide hall runs through the building, at right-angles with the carriage-house, and upon either side of this passage are two large rooms in which the stalls are located. At the head of each stall is an oval window, with a cast-iron frame or collar, opening into the passage above described, giving a free circulation through the building at all times. The windows are large enough to admit the head and neck of the horse, and it seems to be the favorite attitute of some of the animals to have their heads constantly out of

the window, gazing at their neighbors across the passage. Upon either side of the passage are two smaller rooms, in which the harness is kept in glass cases fixed to the walls. A portion of the second story is devoted to the feed, and the other is divided into comfortable rooms, in which the hostler lives. The building is lighted throughout with gas, and a stove in one portion keeps the atmosphere therein at a moderate temperature. The entire stable is as clean as a new pin, and is kept in this order at all times.

The carriages used by the President and his family are very comfortable, and finished in excellent manner. First is a landau or family carriage, which is used by Mrs. Grant and the children. A park phaeton, purchased about two years since, at a cost of $1,700, is the favorite carriage of the President, and is always used by him in fair weather. It was in this phaeton that he rode to the Capitol on the day of his inauguration. A basket phaeton for the children is a neat and handsome conveyance; a top-buggy for the double team; a single team road wagon, and a sulky, completes the list of vehicles.

The harness consists of two single sets heavily mounted with gold; a double set heavily mounted with silver; besides several sets of single and double harness for the various horses.

The President, of course, takes the greatest interest in his horses, and frequently visits his stables, and when opportunity offers gives suitable exercise to his several favorites. In this way it happens that he takes more healthful exercise, and his form is consequently better known to the public than that of any of his predecessors.

In publishing the following, we would remind our readers that peace has been established between this Magazine and the "Philadelphia Coachmaker;" but the former editor of this Magazine desires to say one word more. We do not hold ourselves responsible for this word, and, moreover, we do not intend to ever mention the subject again.

AFTER THE BATTLE.

Mr. Editor: On looking over your last issue (p. 123), I came across the following extract, credited to the International Journal: "When our journal (the International), was first started, we remember sending a similar friendly greeting to the New York Magazine; it was then in other hands, but the response was quite different from that which we now tender to the present editors, in reply to his offering . . . . We are not partial to strife of any kind (!), but when the gauntlet is thrown at our feet we are not so cowardly as to fear to take it up. The history of the past, in this connection, will prove who was the victor in that tournament of words, and on that we rest satisfied." Now, the writer of the above never sent us *a greeting*, and, consequently, we had no occasion to respond, otherwise than appeared in the respective prints, and that portion of complaint must be set down as mere waste of words.

But what about the victory? We have never, as we remember, thrown down the gauntlet in any other form than in defence of right and the interests of business men against what we deemed the unjust and arbitrary claims of trades unionism. The public know the result—how its knight fled from the field with such *spoils* as were left. We cannot, therefore, see where *his* "victory" comes in. History of the case proves that on our part we fought for principles; and with the result we are *more* than satisfied.

Ex-Editor.

THE ROBBER AND THE WAGONER.

Here is one of the random fables of the Russian fabulist Kritof.

In a thicket, at a little distance from the high road, a robber was lying in wait for booty one evening, gazing gloomingly into the distance, like a hungry bear looking out from its den. Presently he sees a lumbering wagon come rolling on like a great wave. "Ha!" whispers one robber to himself, "the wagon is doubtless laden with merchandise bound for the fair—there will be nothing in it to a certainty but cloth and damask and brocade. Don't stand there gaping at it, you will get of it something to live upon. Aha! this must not be a lost day for me." Meantime the wagon arrives. "Stop!" cries the robber, and flings himself upon it, cudgel in hand. But, unluckily for him, he has to deal with a stout lad, and no fool. The wagoner is a strapping youth, and he confronts the malefactor with a big stick, and defends his goods like a mountain. Our hero is obliged to fight hard for his prey. The battle is long and fierce. The robber loses a dozen teeth, and has an arm crushed and an eye knocked out. But in spite of all this he remains the victor. The malefactor kills the wagoner, and, having killed him, rushes on the spoil. What is it that he gets for his pains? Why, a whole wagon load of bladders.

Correspondence.

THE FILLING OF WOOD.

Mr. Houghton.

Dear Sir: I take the liberty to address a question to you, as I see that you have become the editor of the New York Coach-maker's Magazine, to which I have been a subscriber for twelve years, and to which I have always paid my best regards. The question, however, is not concerning the magazine, but about the so-called Permanent Wood Filling. I suppose you are the right man to ask, since you are the editor of the Hub, too, and I have found that paper permanently filled with said article.

I do not wish to say anything disagreeable to you, yet I must confess that I do not like cheap papers, which everybody can buy, and easy papers, which everybody can understand—that is to say, I do not like to have my employés read. If anything must be learnt, I read it myself. If anything must be tried, I suggest it. Science is for me—experience for my employés; but the great, nay the only, instrument of experience, is to try. In the good old times, a mechanic, not only the apprentice, but even the accomplished workman, tried and tried again, but never read, and the result was a large experience and excellent skill, which made a steady and reliable worker, and a noble and happy man. But that time is gone.

Now newspapers pass into the shops every moment; cheap, easy to understand, and bristling with new ideas. The mechanic jumps into an old coach which is to be repaired, makes himself comfortable on the seat, and

studies his paper, while he sucks a cigar and whistles a melody. Do you think that is an edifying spectacle to me, a coach-maker's son, who has been a coach-maker himself for some forty years? And when the fellow has finished the paper, he jumps out of the coach, brags the best he can of "the new I D," "the new method of painting," "the new, I don't know what," and greases me all over with his Permanent Wood Filling.

But, sir, I ask you, what does that mean? Is Permanent Wood Filling a new method of painting? Is the old method with white lead not good enough? I have used it for forty years to my entire satisfaction, and feel sure that it is a first-rate method; nay, indeed, the best method in the world. And now, at once, the day after Mr. Piotrowski has conjured up this filling, white lead has became the old, the worn-out, the bad method. What is wrong with it? Do not come and tell me that it is liable to crack! The whole world would crack if poorly worked or badly bruised. Do not come and tell me that it is poisonous. Nonsense! I read, two days ago, in a French paper, that a painter should drink ten gallons of fresh milk to every gallon of white lead he worked, in order to avoid the lead-colic. Nonsense! My old painter, who died some months ago, before I got this new one with his filling, used white lead during fifty years, and got no colic. A well-bred painter can eat white lead. A foolish one may be poisoned by the smell only.

Please give me an answer, and oblige

Yours, very respectfully, K.

We beg our correspondent to observe that we have never said that painting with white lead was a bad method. We have only said that painting with P. W. F. was a better method; and we have some reasons for saying so.

In old times the method of building a house was to clear the ground, make it level and raise the building immediately upon the ground, without any foundation. At our time, we not only clear the ground and make it level, but we underbuild it, and raise the house on solid subconstructions. The first method may not be a *bad* one, but we have no doubt, and neither is our correspondent likely to have any, as to which of these two methods of building houses is the best one.

Well, now, we beg our correspondent to look through a microscope at two pieces of wood, one of which is painted by the white lead method, the other with the P. W. F. method. With the former he will find that the several coats of white lead, rough stuff, paint and varnish, are pressed together and against the wood like the several strata in a geological formation, and that they cover the wood like a piece of pasteboard, which, if in case that moisture found its way between the wood and the covering, would lift, crack, and split away. With the P. W. F., on the contrary, he will find that the priming has combined chemically with the wood. It looks as if the P. W. F. had put forth its roots down into the wood, for it has filled all its pores and petrified the surface so that it excludes all moisture and dampness.

Thus the method of painting with P. W. F. resembles that of building a house with solid subconstructions, and this is the first great reason why we have called it a better method of painting. Are we not correct in so doing? —ED.

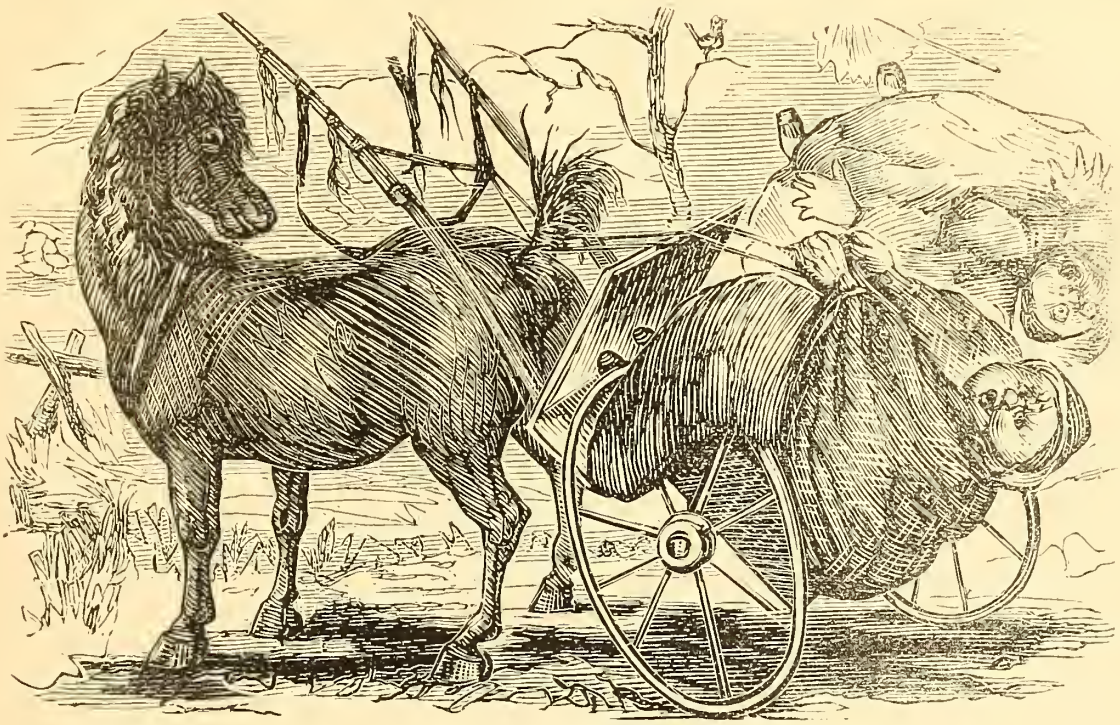
REMOVAL OF A BOSTON CARRIAGE FIRM.

THE firm of Sargent & Ham, carriage-makers of Boston, who have for the last eighteen years occupied the premises 57 and 59 Sudbury street, have been forced by the increase of their business to move to more extended quarters.

Sargent & Ham are among the oldest carriage firms of Boston who manufacture their work exclusively to order; and they have built up an extensive business. It is said by a Boston paper that during the past year they have probably built more carriages to order than any other firm in Boston. In July last they bought of the city the vacant land on Bowker street, adjoining the Charity building, and they have there erected a manufactory which is said to be larger than any other carriage factory in the city. The building has a frontage on Bowker street of forty-seven and one-half feet, and covers about three thousand feet of land. The structure is built of brick, and is seven stories in height—giving twenty thousand feet of flooring. The building is well lighted on three sides, having upward of two hundred windows, which furnish light to every part. The basement (which will be used as a reception room for carriages to be repaired) is entered by a drive-way from the street. Thence the carriages are carried to either story of the building by one of Canfield's steam elevators, seven by fourteen feet in dimensions, and capable of receiving a full-sized clarence coach without unhanging.

On the first floor will be the office and repository for their new carriages. The office is very elegantly finished in white-wood, with black walnut, and maple floor. The repository is sheathed with first quality of pine, and is painted white. On this floor are speaking-tubes connecting with the workshops in every story. On the second floor will be the trimming shop, and a room for the sale of their second-hand carriages; on the third floor will be the blacksmith shop, and also a room for the storage of carriages while being repaired. The fourth floor will be used exclusively for the workshop and the storage and seasoning of lumber; on the fifth floor the painting of second-hand carriages will be carried on; and the sixth floor will be used for the varnish room and paint shop for new carriages.

The firm will employ from seventy-five to one hundred men in their manufactory. The building presents a very attractive appearance, both internally and externally, and reflects much credit upon the architect and builders. The cost of the building, including the land, was about $40,000.



AN UN-STYLISH TURN-OUT.

The story, which suggested the above cut, is so well represented in the illustration that it does not need many words of comment. It is a true story, and the thing happened in one of the small towns of Connecticut, and it was told to us by a carriage-maker, who was conversant with all the circumstances. It shows the importance of hanging a chaise body very accurately, and especially so in case the harness be weak, or the maiden sisters particularly bulky.

CHIPS AND SHAVINGS.

Copartnership.—Wm. D. Rogers and Joseph Moore, Jr., formed a copartnership on January 2, 1871, under the name or firm of Wm. D. Rogers & Co., and they will continue the carriage business heretofore conducted by Mr. Rogers alone, at the old stand at 1009 Chestnut Street in Philadelphia, and at the new factory corner 13th & Parrish Streets, which was formerly occupied by G. W. Watson.

"Streaking-Flies."—In May, 1860, I engaged to go to South Carolina to work in a carriage shop which was about sixty miles from Charleston. I was engaged through a friend, who related to me the following story.

The painter of this Southern shop inquired of my friend how it was that they managed to do such good "streaking" (striping) up North.

"By striping-flies," replied my friend. "The fly is provided with a small reservoir of color on his back, and a hair is placed on his tail, after which he is placed on the article to be striped. When all is in readiness, the operator holds a piece of sugar in front of the fly, drawing an imaginary line, and the fly does the work."

"You don't say! Well, I wish you'd buy me a box of those flies when you go North again, and send them on by your smith friend, when he comes."

"All right."

When I arrived, the flies were asked for, but I told him the funds had been absorbed by the other purchases, but that a new kind of flies were about to be introduced which would come cheaper. He appeared satisfied, but he would have given most anything for one of those "streaking-flies."

S. & J. Sewell, of Fishkill Landing, N. Y., have lately made a large addition to their factory, by a brick building of 33 feet front by 45 feet deep, thus giving their entire factory a frontage of 63 feet, and three stories high. The repository is on the ground floor, and the smith shop, in which there are 4 fires at present. The upper floors are used for painting and trimming, and the wood-shop, 24 by 30 feet, and two stories high, is in the rear. Messrs. Sewell employ 20 hands, and works mostly on light work of good quality. They have been very particular in the construction of their paint and varnish department, and they have two well-arranged varnish rooms, which will add materially to their conveniences for turning out good work. These improvements make this carriage factory one of the largest and best appointed ones in Dutchess County.

Commission Agency.—It will be seen by a card in our advertising columns that H. J. Edwards, formerly of Syracuse, N. Y., proposes to open a carriage repository and commission agency in Chicago.

Dr. Helmbold of New York has an elegant sleigh this winter, drawn by four bays. The sleigh was built by Brewster & Co.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY FOR THE NEW YORK COACH-MAKERS' MAGAZINE.

New York, January 20, 1871.

Apron hooks and rings, per gross, $1 *a* $1.50.
Axle-clips, according to length, per dozen, 50c. to 80c.
Axles, common (long stock), per lb. 7 c.
Axles, plain taper, 1 in. and under, $5.00; 1⅛, $6.00; 1¼, $7.00; 1⅜, $9.00; 1½, $10.00.
Do. Swelled taper, 1 in. and under, $6.50; 1⅛, $7.00; 1¼, $8.00; 1⅜, $10.00; 1½, $13.00.
Do. Half pat., 1 in. $9; 1⅛, $10; 1¼, $12; 1⅜, $15.00; 1½, $18.00.
Do. do. Homogeneous steel, ⅝ in., $10.00; ¾, $10; ⅞, $11.00; long drafts, $2.50 extra.

☞ These are prices for first-class axles. Inferior class sold from $1 to $3 less.

Bands, plated rim, 3 in., $1.75; 3 in., $2; larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Bent poles, each $1.00 to $1.50.
Do. rims, extra hickory, $2.75 to $3.50.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $6 to $9 per bundle of 6 pairs.
Benzine, per gall., 35c.
Bolts, Philadelphia, list. 45 off.
Do. T, per 100, $3 *a* $3.50.
Borax, English, refined, per lb., 33c.
Bows, per set, light, $1.00; heavy, $2.00.
Buckles, per grs. ½ in., $1; ⅝, $1.12; ¾, $1.25; ⅞, $1 75; 1, $2.00.
Buckram, per yard, 16 *a* 20c.
Buggy bodies, finished, $15 to $20.
Burlap, per yard, 10 *a* 12c.
Buttons, japanned, per paper, 20c.; per large gross, $2.25
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Bruss., $1.75 *a* $2; velvet, $2.50 *a* $3.50; oil-cloth, 40 *a* 70c.
Castings, malleable iron, per lb. 15c.
Chapman rubber, $1.25, doz. pr.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $3.50 *a* $5; lining, $2.50 *a* $3. (See *Enameled.*)
Cord, seaming, per lb. 35c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Damask, German cotton, double width, per piece, $12 *a* $16.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $1.25.
Enameled cloth, muslin, 5-4, 32c.; 6-4, 50c.
Enameled Drills, 45 in., 45c.; 5-4, 40c.
Do. Ducks, 50 in., 65c.; 5-4, 60c.; 6-4, 80c.

☞ No quotations for other enameled goods.

Felloe plates, wrought, per lb., all sizes, 15 to 18c.
Felloes (Rims), $1.50 *a* $3.
Fifth-wheels, wrought, $1.25 *a* $1.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.

☞ For a buggy-top two pieces are required, and sometimes three.

Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in., 35c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 50c. *a* $1 per pair.
Glue, per lb. 25c. *a* 30c.
Hair, picked, per lb. 40c. to 65c.
Hubs, light, mortised, $1.20; unmortised, $1. Coach, mortised, $2.
Japan, per gal., $2.00.
Japan gold size, $4.00.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, 60c. *a* $1.25; narrow, 10c. to 16c.
Do. broad, worsted, per yard, 40c. *a* 50c.
Lamps, coach, $10 *a* $30 per pair.
Lazy backs, $9 per doz.
Leather, collar, 23c.; railing do. 20c.; soft dash, No. 1, 14c.; do., No. 2, 10c.; hard dash, 15c.; split do., 15c.; No. 1, top, 23c.; enameled top, No 1, 23c., do., No. 2, 20c.; enameled trimming, 20c.; harness, per lb., 50c.; flap, per foot, 25c.
Moss, per bale, 8c. *a* 15c.
Mouldings, plated, per foot, ¼ in. 12c.; ⅜, 13c. *a* 16c.; ½, lead, door, per piece, 30c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates, $5 for 25, $8 for 50.
Oils, boiled, per gal., $1.20.
Paints. White lead, extra, $12.00, pure, $13.00 per 100 lbs.; Eng. pat. black, 20 to 25c.
Permanent wood-filling, $5.00 per gallon.
Poles, $1.25 *a* $2 each,
Pole-crabs, silver, $5 *a* $12; tips, $1.25 *a* $1.50.
Pole-eyes, (S) No. 1, $2.25; No. 2, $2.40; No. 3, $2.65; No. 4, $4.50 per pr.
Pumice-stone, selected, per lb., 7 to 8c.
Putty, in bbls. and tubs, per lb., 5 to 7c.
Putty, in bladders, per lb., 6 to 8c.
Rubbing-stone, English, per lb., 9 to 10c.
Sand-paper, per ream, under Nos. 2½ and under, $4.50.
Screws, gimlet, manufacturer's, 40 per cent. off printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Serims (for canvassing), 16c. *a* 22c.
Seats (carriage), $2 *a* $2.75 each.
Seat-rails, 75c. per doz.
Seat-risers, Linton's Patent, $2 per pair.
Seats, buggy, pieced rails, $1.75; solid rails, $2.50.
Shafts, $12 to $18 per doz.
Shafts, finished, per pair, $3 to $4.
Shaft-jacks (M. S. & S.'s), No. 1, $2.40; 2, $2.60; 3, $3.00.
Shaft-jacks, common, $1 *a* $1.35 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 13c.; bright, 15c.; English (tempered), 18c.; Swedes (tempered), 26c.; 1¼ in., 1c. per lb. extra.
If under 34 in., 2c. per lb. additional.

☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes (Best Elizabethport), buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each. 10 off cash.

☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices): 1 x 3–16, and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Steel Tire—best Bessemer—net prices: 1-4 x 1 1-8, 12c.; 1-4 x 1, 12c.; 3-16 x 1 1-8, 13c.; 3-16 x 1, 13c.; 3-16 x 7-8, 14c,; 3-16 x 3-4, 17; 1-8 x 7-8, 20; 1-8 x 3-4; 1-16 x. 3-4 23c.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 7c. and upwards.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12: acorn trigger, per dozen, $2.25.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35.
Do. Marshall's Machine, 432, $3.25; 532, $3.75; 632, $4, gold.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c. Do. close plated nuts and rivets, 75*a*80c.
Tufts, common flat, worsted, per gross, 15c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2 Do. ball, $1.
Turned collars, $1.25 *a* $3 per doz.
Turpentine, pr gl., 50c.
Twine, tufting, pr ball, 50c.; per lb. 85c. *a* $1.
Varnishes, American, wearing body, $6.50; elastic gear, $5.50; hard-drying body, $5; Quick leveling, $4.50; black body, $5; enameled leather, $4.00.
Varnishes, English. Harland & Sons', wearing body, $8; Carriage, $7; Noble & Hoar's, body, $7.50; Carriage, $6.50.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Wheels, $12 to $22.
Wheels, coach, $20 to $40 per set; buggy, $12 to $18.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen; hard rubber, $9 to $10 per doz.; leather imitation English, $5 per doz. common American, $3.50 *a* $4 per doz.
Window lifter plates, per dozen, $1.50.
Yokes, pole, 50c.; per doz, $5.50.
Yoke-tips, ext. plated, $1.50 pair.