

### The Northwestern Terra Cotta Company.

Probably the most extensive works in existence for the production of architectural terra cotta is the Northwestern Terra Cotta Company of Chicago. The quality of the work which it turns out as well as the quantity, the artistic standing of its assistants and the initiative and progress which it exhibits in manipulation and technic, make it easily first among its competitors.

We have long had in mind that a description of these works would be of interest to our readers, and perhaps if the plant had been further away we should have visited it earlier. The remarkable things of a man's own city are generally the last with which he becomes acquainted. It is only when a country cousin comes in to view the wonders of the town that the city man finds an excuse for sightseeing, and this is how it was with us.

The Northwestern Terra Cotta Company is a close corporation,

is boxed in and goes up through two or three floors, but all the information we could get respecting it was that it saves the labor of about thirty men. There are three or four pug-mills, made in Chicago, but which do not call for comment. A surfacing machine was similar to those used in face and ornamental brick works for surfacing brick and grinding them to angles for arches, etc. This is an iron disc or table about ten feet in diameter revolving horizontally. Sand is used for the grinding material. This is quite an important machine tool, as each piece of glazed terra cotta has its ends ground so as to produce the closest possible joint. While on this question of machines we would make particular mention of one apparatus, that for putting on glaze and slip. Perhaps we ought to call this a system, or method, of doing the work. It is very simple, but has been made so by the experiment and practice of a number of years.

Our illustration shows the blungers, with rubber or flexible



ARCHITECTURAL WORK BY NORTHWESTERN TERRA COTTA COMPANY.

that is, its stock is not offered for sale to the general public, but is held by a few individuals. The business was established in 1878, and incorporated as a company in 1887. The officers at the present time are: President, Gustav Hottinger; vice-president, Henry Rohkam; treasurer, J. R. True, and secretary, F. Wagner.

The works are in the city of Chicago, at Wrightwood and Clybourn avenues, which is by no means in the suburbs; in fact, it is only about half an hour's ride on the Clybourn avenue car, from the corner of Monroe and Dearborn streets, the heart of the down-town district. Fourteen acres of land are included within the company's fence, and the buildings, which photographic views are not able to give a full idea of, contain over 150,000 square feet of floor space.

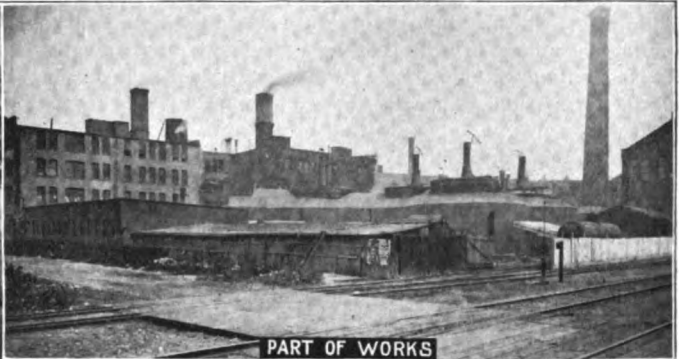
Of the machinery here there is not much to say, for with the exception of a weighing and mixing machine which we found a disinclination to have described, most of the work is done by hand. This mixing machine was designed and made on the premises. It

pipes attached to them. Connected with each pipe that proceeds from a slip vat or blunger is a blast pipe, and on the blast being turned on, a fine spray cloud of slip or glaze comes out of the nozzle of the pipe exactly like the spray from a perfume atomizer. The blast is supplied by an air compressor driven by steam and working at a pressure of 80 pounds, sometimes 90 pounds. This compressed air is carried to different workshops to some fifty points, and is used not only for spraying on slip and glaze, but also for blowing away small pieces, crumbs of clay and dust, from the work when taken out of the molds.

The method of applying slips and glazes in spray form, instead of putting them on with a brush, was introduced here about ten or twelve years ago, but steam was used then. The action of the steam was similar to that in an injector. It throws out a very fine spray of slip or glaze and was a complete success with one exception. The steam condensing weakened the slip by adding too much water. Compressed air, which was substituted about twelve



YARD & MAIN SHEDS



PART OF WORKS



DRAWING ROOM



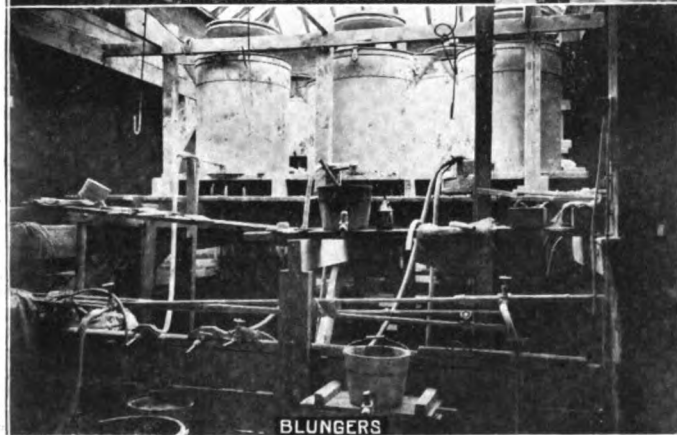
2ND FLOOR PRESSING ROOM



3RD FLOOR PRESSING ROOM



MODELING STUDIO



BLUNGERS

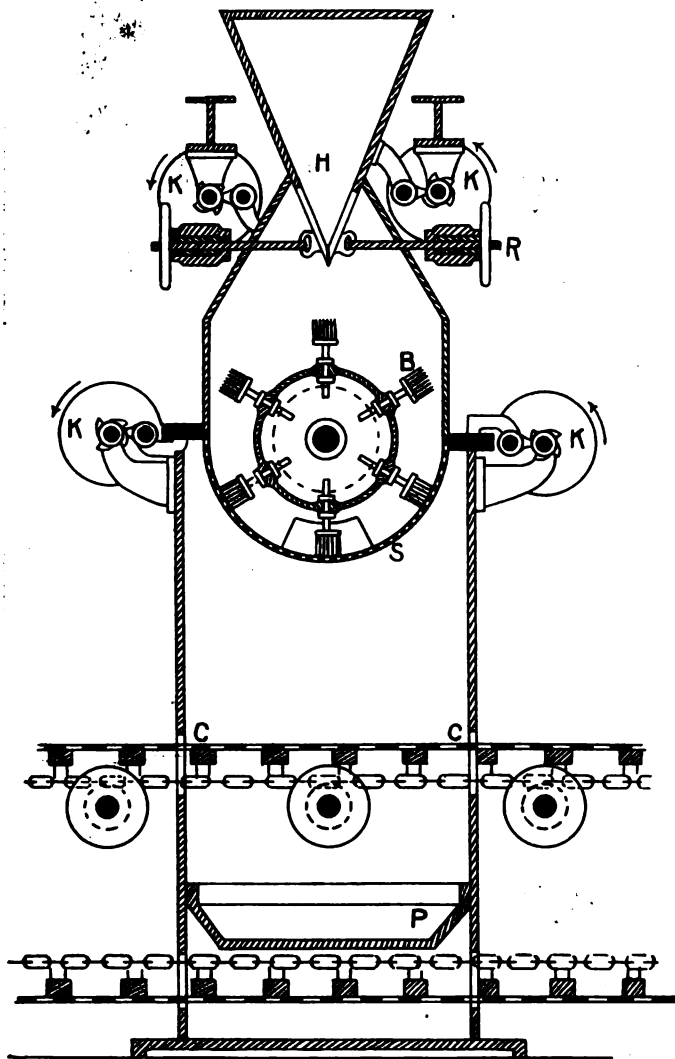


ONE OF THE FITTING SHOPS

VIEWS IN THE NORTHWESTERN TERRA COTTA COMPANY'S WORKS, CHICAGO.

months ago, converted the steam brush into an air brush and perfected it. This can be and is used on all kinds of surfaces, though its advantage is greatest on irregular surfaces, such as work modeled in relief, which cannot well be dipped and would be damaged by using a common brush. It is very frequently used on flat surfaces too, but any simple article, such as one side of a plain tile or piece of terra cotta, is usually dipped because it is quicker to do it that way.

While on this subject it may be well to refer to a machine which has been patented in Germany for putting on glazes in powder form, though we have no knowledge of this machine being in use anywhere. Our illustration shows the arrangement, an endless chain conveyor C moves the tile or brick at a regular speed under a narrow or slit shaped opening of a hopper H; through which the glazing material, in the form of a powder, falls and is strewn upon the brick or other piece. The amount of powder falling on the tile in this dusting on process, is regulated by the speed at which the tile passes underneath the slit of the hopper, and also by the extent to which the slit is opened. This is done by means of set



GERMAN MACHINE FOR PUTTING ON GLAZE.

screws R, or any suitable arrangement. Shakers or knockers K prevent the opening in the bottom of the hopper becoming stopped up. The powder falls into a curved screen S, here it is kept stirred up by a set of six brushes mounted on an axle which brush the pow-

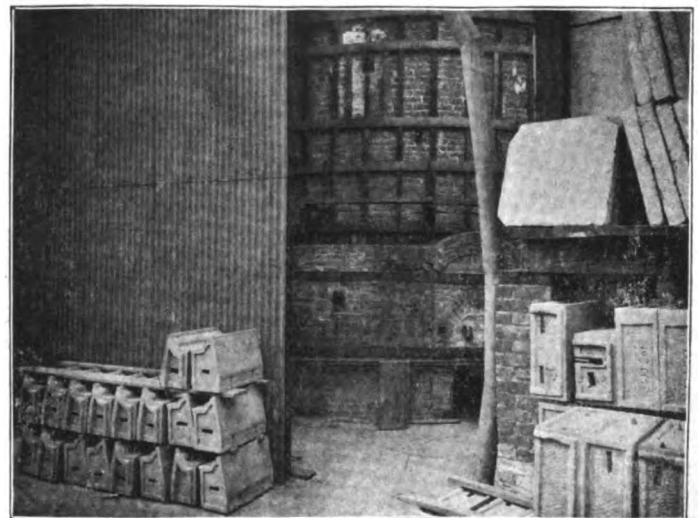


ARCHITECTURAL TERRA COTTA FROM NORTHWESTERN TERRA COTTA COMPANY.

der through. The pulverized glaze which is not caught by the tile or brick, etc., falls into a tray P below, whence it is removed from time to time. The inventor states that instead of the glaze being in the form of a dry powder it may be used in a wet state. The description is to be found in the German patent office records, the patent having been granted in 1891, but the machine does not appear to have come into use. It might, however, be valuable for glazing roofing tiles and similar work, but we think instead of dusting on the glaze in powder form it should be sprayed on, and this would give in every respect better results. A roofing tile or glazed brick maker would only have to adopt the air brush system with a conveyor to carry the ware at a steady rate beneath the jets. This conveyor could be of sufficient length to take the goods into a drier, so that when they came out at the other end they would be ready to set in the kiln. This is, of course, assuming that the glaze would be put on a bone-dry tile. In the event of the glaze being put on green ware as is often done, that is, clay in a wet state, just stiff enough to handle, the usual time would be required for drying.

But to return to the system in use at the Northwestern Terra Cotta Company's works, this does not seem to need any improvement. This is not a glazed brick or roofing tile factory, the pieces to be treated are comparatively large, of great variety in surface and shape.

It will be noticed that here, unlike most ceramic works where



KILN BOXED IN BY CORRUGATED IRON STRUCTURE.

slips and glazes are used, instead of two or three large blungers there are a number of smaller ones, twelve or more, with each of which one or two air jets are connected.

It seemed to us once that every ceramist must know what a blunger is, but we sometimes find this is not the case. The present form of a blunger is a wooden vat in which an upright shaft revolves in the center, to this shaft boards or paddles are attached, which continually stir up the solution of slip or glaze, keep it well mixed and prevent settling. "Blunger" no doubt is a corruption of "plunger," and our printer always wants to correct it, but no matter how ignoble its origin, the word is here to stay, and having a definite meaning it is convenient.

The arrangements for drying are very simple. Some of it is done with the help of steam pipes in enclosed rooms. The rest by natural air-drying on the floors.

The kilns are eighteen in number, all of them, but one, muffle kilns and they are all down draft. These kilns are in great part designed by the president of the company. Fuel oil (crude oil) is the fuel used in all, unless, as sometimes happens, the ware is ordered to be burned with stains on it, what is known in the workshop as fire-flashed, then the oil burners are removed from a kiln, an operation requiring only a few minutes, and coal is used, some of the smoke and gases being allowed access to the ware.



DAVID HUNTER MAKING AN EAGLE.

When burning with oil the time from starting a kiln to taking out the goods is from ten to twelve days, and about 5,100 gallons of crude oil are required to burn out a kiln. Our photograph shows how the kilns are cased in with corrugated iron, keeping out cold winds from the walls of the kiln and undesirable drafts from the burners. At one time oil fuel was used for all purposes, including the boilers, but with the considerable increase of the price of oil the company went back to coal for making steam, but for burning fine terra cotta the advantages of oil fuel are so considerable, if the boss burner knows how to handle it, that the price, within reasonable limits, is not of prime importance. Besides the clean, good and equal burn, there is the advantage that no space around the kilns is wasted for storing coal, and there is also the considerable economy of labor.

Of the engines used here the largest is made by the Bates Machine Company of Joliet, Ill. Five boilers, two Chicago and three Heine "safety" boilers, supply the steam.

On the occasion of our visit at the end of October last not more than 350 hands were employed, while the usual number when trade is flourishing is 650. The week before our visit ten men had

been let go from the drawing room alone. This was a result of the political pre-election campaign.

The usual working hours are ten per day, though at that time nine hours were found to be more than enough, for as Vice-President Rohkam assured us, so far as returns on the outlay went, it would have been better to close the works entirely until things improved. The rates of wages range from \$1.50 to \$6 per day,

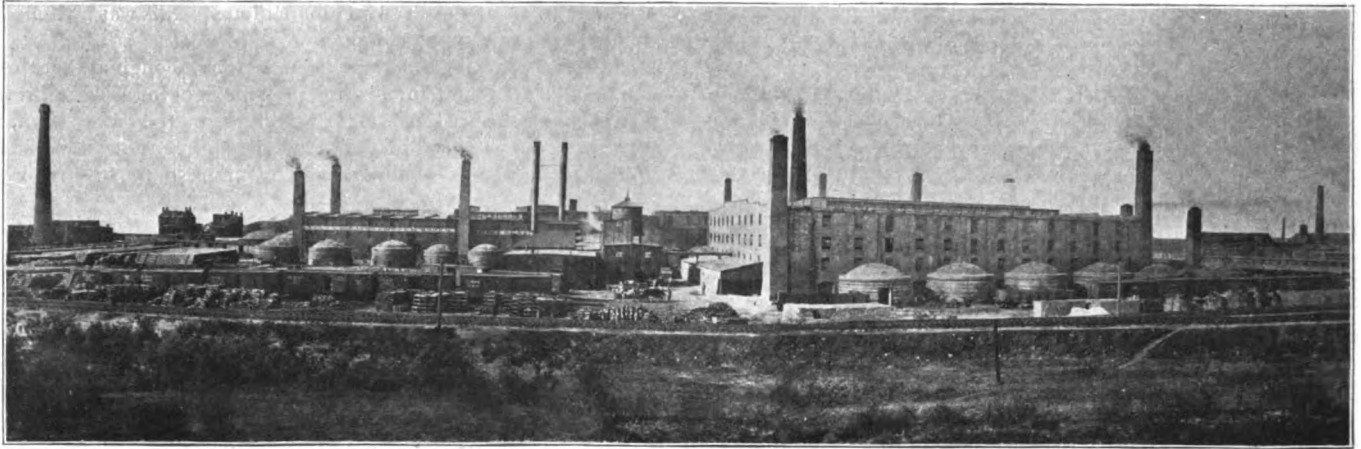


MADE BY THE NORTHWESTERN TERRA COTTA COMPANY.

though this does not include the principal artists, who are paid a salary of so much per annum, which amounts to considerably more.

On the premises is a well equipped repair shop run by steam power. Here we find lathe, punch, shears, etc., nine machine tools in all, besides a forge with air blast. Two artesian wells, one 800, the other 1,500 feet deep, supply the water, which is lifted by two steam pumps.





WORKS OF THE NORTHWESTERN TERRA COTTA COMPANY.

A dynamo, which has an engine to itself, lights the whole plant and runs an electrical railway in the works of 1,600 feet in length. The whole electric plant, rails and all, cost between \$4,000 and \$5,000.

The means for extinguishing fire consist of water tanks with hose leading from them on all the floors, and chemical fire extinguishers are placed at suitable points, while iron doors cut off communications between the building. In addition to this there is, of course, the magnificent Chicago city fire service to fall back upon.

The ware manufactured is only ornamental terra cotta for building purposes, and by ornamental is meant nearly every possible



USING THE AIR BRUSH.

kind of burnt clay that can be used in a building, except common brick and fire proofing for floors and partitions.

The markets for the products are anywhere in the United States, for the excellence and the highly artistic character of this terra cotta cause it to be demanded at distances which, on account of cost of freight would seem impossible, and we were informed that the output in the best year before the hard times came amounted to \$750,000 worth.

The F. D. Cummer Company, Cleveland, has recently shipped driers to Paris, Hull and Reading, England.

#### Home Seekers Excursions.

On December 1 and 15, 1896, the Chicago, Milwaukee & St. Paul Railway will sell round trip excursion tickets from Chicago to a great many points in the western and southwestern states, both on its own line and elsewhere, at greatly reduced rates. Details as to rates, routes, etc., may be obtained on application to any coupon ticket agent, or by addressing F. A. Miller, assistant general passenger agent, Chicago, Ill.

#### Monterey, Mexico.

The Monterey Brick Manufacturing Company, J. A. Robertson, president, writes us that it is desirous of constructing eight or ten down-draft kilns, for the purpose of burning vitrified brick for street paving. The company has eight large up-draft kilns now in use, which it would be glad to convert into down-draft kilns, if possible. These are comparatively new, strongly constructed and perhaps can be converted into down-draft kilns without a great outlay. The chief expense in those parts is for fuel, wood and coal; wood costing \$7 a cord, and coal \$7 a ton; so economy in fuel would be desirable. The Monterey Brick Manufacturing Company is a big concern, and is just now filling a large order for brick at the rate of 500,000 per month, for the vast construction work of the Mexican Central Railway system.

Both factories of the American Clayworking Machinery Company are very busy.

The Rose Brick Company, of Newburg, N. Y., close the year with a record which outstrips any previous twelve months, having made 47,000,000, all of which have been sold in New York city. Most of the brick went into the new sky-scrapers.

Now is the time to make your arrangement for attending the annual convention of the National Brickmakers' Association, which will meet in Buffalo, February 2, 3, 4 and 5. The meeting has every promise of being one of the best ever held.

Sometime since we published the request for all machine men to send printed matter to South Africa. We are now advised that none was received, owing it is believed to the burning of a large amount of foreign mail on its arrival. Manufacturers are requested to again send a liberal supply, which will be distributed among the various clayworking concerns there, to A. W. Williams, Vereeniging, South African Republic.

### High Art Terra Cotta.

The three examples of modeling in clay which we present here are by David Hunter, the talented pupil of the celebrated sculp-



tor, Johannes Gelert. The full sized bust of a laughing girl is strikingly natural and life-like, and the small statuette of the mother and child is a picture of home happiness and love. The group of soldiers tells its own tale of sorrow, "taps" is the name of the last call to the soldier, to the living it means rest to prepare for the struggles of another day, but the cover being drawn over the face of the dead man shows that "taps" have sounded for him for all future time.

Mr. Hunter has, we believe, been engaged for some time past modeling for the North Western Terra Cotta Company.

### Ancient and Modern.

The Scientific American, referring to the work of the ancient Egyptian and Greek builders says: "We degenerate moderns too, have some tricks of our own, going so far now in good practice as to have pressed and ornamental brick snugly packed in crates at the brick yards, transported in these crates and finally swung up in them to the level where the bricks are to set, not for convenience in handling merely, but to avoid chipping of corners and edges, thus effecting quite a little saving."

But why "we degenerate moderns"? We think some men are too prone to make unfavorable comparisons between the work of to-day and that of our early history ancestors. It does the ancestors no good, who are thoroughly dead and it is not fair to us.

If some of those old time brickmakers could see our samples of modern pressed brick, etc., they would probably be very glad of the excuse for getting back to this earth.

### Brongniart's Book on Decorating Clayware.

In answer to a correspondent at East Liverpool we reply: No. Brongniart's great work has never been translated into English. There is a very good German rendering but, strange to say, our translation of the third volume is, so far as we know, the first time it has been done into English.

We have preferred to take the third volume as being the more useful, it giving full and proved practical directions for making ceramic colors, fluxes and lusters, as well as formulas for colors, with directions for their use and for burning them on to the ware.

We do not know where a copy of Brongniart's work can be bought. The one we are using is the latest edition, published at Paris, with Salvetat's notes and additions. It is lent to us by H. R. Griffen, the ceramic chemist and glazed brick maker.

### Common Brick to Supersede Fire Proofing.

In a new building at Minneapolis, Minn., of eight stories, common building brick will be used instead of the fire clay hollow tiles known as fireproofing. The entire flooring will consist of this, and the brick is laid in arches 16 inches high, and with a span of about 10 feet between the usual steel I beams.

By the desire of the architect a severe test was made of the first floor. A portion of this was built of the commonest kind of brick, without any selection, whereas soft and defective bricks will be thrown out for the rest of the work. The test piece, 10 by 12 feet, had a weight of 78,000 pounds put on it, or 650 pounds to the



square foot. During the first few hours there was a slight depression of less than 1 inch, but during the last 24 hours no increase took place in this.

# BRICK.

A Monthly Magazine, devoted to Brick, Tile, Terra Cotta, and Allied Clay Industries.

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The number before your name on the envelope in which this copy is mailed, indicates the serial number of the issue to which your subscription is paid. This is No. 30.

#### American Fire Brick for Russia.

From having been an importer the United States has become an exporter of fire brick. The Philipsburg, Pa., Fire Brick Works are working on a large order from the Russian government, to be used in constructing furnaces for the manufacture of steel armor plate. The Harbison & Walker Company, of Pittsburg, Pa., manufacturing high grade fire and silica brick, has received the contract to supply all the material, amounting to 75 car-loads, required in the construction of the new open hearth steel furnace of the Nikopol-Mariopol Mining & Metallurgical Company, of Russia.

#### Nebraska Brick Manufacturers Association.

The next annual meeting of the Nebraska State Association is to take place at the Capitol Hotel, Lincoln, Neb., Jan. 19 to 21 next. An address of welcome will be delivered by the mayor. The program is as follows:

- Jan. 19. The President's Address.
- Jan. 19. Report of Executive Committee.
- Jan. 20. Setting and Burning Brick, by C. F. Kaul.
- Jan. 20. Mixing and Drying Clay, by W. H. Bushell.
- Jan. 20. Manufacture of Hollow-ware, by J. E. Stockwell.
- Jan. 20. General Remarks on Brickmaking and Legislation, by John Edelmaire.
- Jan. 20. Election of Officers.
- Jan. 21. Profits from Brickmaking, by B. H. Jungbludt.
- Jan. 21. General debate on brickmaking by eastern members.
- Jan. 21. Paving brick discussion by the members of the convention. In which all are expected to take part.

This, the youngest of the state associations, held its first meeting at Lincoln, Neb., last year, a report of which, furnished us by our friend, C. F. Kaul, the well-known brickmaker and kiln builder, appeared in BRICK.

A cordial invitation is extended to all members of brickmaking associations, and there is every probability of a very interesting and successful convention being recorded.

#### A Lump of Clay.

Extract from a Lecture by Director A. H. Griffith, of the Detroit Museum of Art.

To arouse an artistic feeling in the people at large, I believe that each one must make something with his own hands. This in time will raise the general level to a knowledge of that which is good; and the result is that where the general level is high, exceptional cases will rise still higher. As an evidence of this; America takes the lead of the world in inventions, but a Morse, a Fulton, a McCormick or an Edison are the result of a general excellence on every hand; much as a Raphael, Leonardo da Vinci or Michael Angelo are only likely to rise out of a people whose tastes are generally artistic. Clay would seem, by its almost universal distribution over the earth in large quantities, to be among the first things that would attract the hand of man; then too, he could not fail to notice its properties of softening in the rain and hardening in the sun.

Just when or where the first attempt to model or mold it was made, is lost in the darkness of ages, but could one gather examples that would mark the centuries that lie between the first cup made and fashioned, perhaps by Eve, down to that glorious bit of modern china; then truly would we have the world's history written on material more enduring than bronze, and mingled all through the fragments that tell of war and peace, battle and siege, freedom and captivity. You would find the songs of all nations. The songs that would tell the heart stories of the people, for while I do not forget the bricks that built the mighty walls for the protection of the cities, pottery by its very nature was more closely associated with the domestic life of the generations of men that have lived and passed away since time began. Think of the love stories that circle around the vase. From the earliest days artists have delighted to despise Rebecca at the well, with just such a vessel; the tragical love story of Helen of Troy, is the inspiration that decorated some of the oldest known Greek vases. And then there is that other Greek maiden, the daughter of a potter, who scratched the outlines of her lover's shadow on the wall, then with affectionate hands filling the lines with clay made the first bit of modelling in relief. For while the history of all the metals reeks with blood, the history of clay is stamped indelibly with the periods of peace that makes nations great. It enters into all the arts of peace and protection. It serves to build the humblest home and most stately palaces; while utensils fashioned from the same material are in daily use by the lowest and the highest. Art owes to this humble substance her greatest achievements. Michael Angelo's David first found form in clay. Canova and Thorwaldsen dreamed over it and from an uncouth mass brought forth the human form divine. What other material can one call to mind with origin so base, and yet one that fulfills such a mission of value to man.

D. E. Jones, engineer at the Standard Fire Brick Works, Anaconda, Mont., was recently stopped by a highwayman and ordered to hold up his hands. Mr. Jones did hold up a hand for an instant, but it fell very heavily on the footpad's face and that unworthy dropped to the ground. After giving the man a good thrashing Mr. Jones let him go.