EXPLOSIVE COMPOUNDS FOR ENGINEERING PURPOSES.

NO. III.

During the year 1866, a new kind of blasting powder, which promised to supersede gunpowder in mining operations, was introduced to public notice in England. This was the invention of M. Gustave Adolph Neumeyer, of Taucha, Saxony, and to which the term "inexplosive" may appropriately be applied, inasmuch as there is no possibility of its exploding, either during its manufacture, storage, or manipulation. Not until the proper moment of ignition arrives, when it is well rammed home and prepared to do its work, is its energy developed. Then, and only then, it manifests a power, when used weight for weight, considerably in excess of that possessed by gunpowder. M. Neumeyer, all his life connected with the management of quarries, and himself the possessor of a quarry near Taucha, had his attention forcibly drawn to the distressing accidents, which are of such frequent occurrence in blasting operations, and he conceived the idea of producing a blasting powder which should combine the desired degree of strength, with perfect safety when in work. After a long series of trials and experiments, he succeeded in effecting his object, by the invention of a powder which unites in itself the above important qualities. Within two years from the date of his discovery, M. Neumeyer was manufacturing this powder on a large scale; extensive mills with steam power having been erected for its production in the city of Altenburg, and in two other places in Germany.

Although Neumeyer's powder differs in color as well as in action from gunpowder, in that it is slow burning instead of violently explosive when in contact with air, it is composed of precisely the same materials as ordinary gunpowder. To these no other substances are added, the whole secret of the extraordinary result arising simply from the method of proportioning and compounding the ingredients. A reduction is made in the amount of sulphur employed, by which means a much smaller quantity of the noxious vapors is evolved on its ignition than is produced by the combustion of ordinary gunpowder—a point of great importance in underground mining operations. Some difference is made in its preparation, according to the use for which it is required, whether for military or for mining purposes. As a consequence, there results, in the former case, a powder which, when hermetically confined, explodes at the same temperature as ordinary gunpowder, while when prepared and charged for blasting purposes, it requires a somewhat higher temperature. This, so far from being objectionable, is positively advantageous, inasmuch as it makes the possibility of accidental ignition more remote. Bickford's safety fuse, which is now so extensively used in our own and continental mines, is best adapted for the ignition of this powder. Another important feature in Neumeyer's powder is, that although no coating or glaze is imparted to it in manufacture, it is not more hygrometric than ordinary gunpowder, while, if wetted and dried, it is said to retain all its good qualities in full force. Ordinary powder is more powerful as the size of the grain is increased, but Neumeyer's powder, when in a condition of fine dust, is equally if not more efficient than the other. From what has been said, it will be seen that the new gunpowder embodies safety in manufacture, in transport, and in handling, preparatory to actual use; while it has been proved to be superior to ordinary gunpowder, in point of effective power, so that it may fairly be said to be a safe and efficient substitute for our old powder.

In support of the above assertions, both of its inexplosiveness and explosiveness, the author would observe that he has made some trials, which proved conclusively that Neumeyer's powder possessed both those qualities. But as a greater value attaches to trials made publicly, and the results of which have been placed publicly on record, the author prefers to give these in place of his own limited experience of this powder. First, then, as to its inexplosiveness. This was proved by several experiments made in the grounds of the Crystal Palace in December, 1866. The most conclusive test of this quality of the powder was the following:—A small house, 5ft. square, built of brick and roofed with slate, and having two chimneys made of 5-inch drain pipes, was constructed, and in it 35lbs. of Neumeyer's powder, half blasting and half gunpowder, were placed. On firing this mass an immense body of flame issued through the openings in the roof, but the powder simply burned, and moved neither brick nor slate. On 3lbs. only of ordinary gunpowder being placed in the same structure and ignited, a violent explosion took place, which rendered the building a mere wreck

With regard to its explosiveness, the author has a number of authenticated reports of numerous and varied trials illustrative of this quality. A few are selected which have been made in mines and quarries in England. The first trials to be noticed were made on the 4th of December, 1866, at the Bardon Hill and the Markfield Granite Quarries, situated near Leicester, and owned by Messrs. Ellis and Everard. The rock at Bardon Hill, which is of a very hard and stubborn character, was rent and cracked in a most satisfactory manner, and a large quantity of material was thrown down, the results being considered highly successful. At the Markfield Quarry one hole was bored horizontally at the foot of an unbroken face of a large extent of solid rock; others were bored vertically. On firing the horizontal hole, the face of the rock was blown out to a considerable extent in every direction, and an unusually large amount of stone was displaced. The vertical shots proved equally successful, and the results generally were highly satisfactory, the quantity of the new powder used being less than that of ordinary powder required for the same amount of work. In a hard, compact rock, too, such as at Bardon Hill, the effect produced by a given quantity of the new powder is much greater than that produced by an equal quantity in a soft or loose rock. It may be as well to mention here, that, bulk for bulk, Neumeyer's powder, when well tamped, is equally as strong as if not stronger than ordinary powder; while weight for weight, Neumeyer's powder is the stronger of the two. In point of weight, the new powder is one-sixth lighter than the old, which, supposing we take them at even prices, gives over 15 per cent advantage to the former, owing to the fact that bulk for bulk (or one-sixth less weight) gives an equal, if not a superior result, to the best ordinary power.

Having seen the successful action of the powder upon granite, we will now notice its behavior in slate quarries. On the 11th of December, in the same year, five shots were fired at the quarries of the Welsh Slate Company, Rhiwbryfdir, Carnarvonshire. The first shot was in hard rock, the hole being 2ft. 6in. deep, and 1¼in. in diameter; 21in. of the new powder were used, and found to do more work than the same bulk of ordinary powder. The second shot was fired in a hole of the same diameter as the last, but 3in. deeper, cut in the same description of rock; the same depth of powder was used, the result being similar to that obtained with the first shot. Shot No. 3 was in a hole 3ft. 6in. deep, by 1¼in. in diameter, the material bered being pure slate or pillaring rock; the powder filled the hole within 1in., which was occupied with the tamping. The result of this shot was the discovery that the powder was much too powerful—a fault certainly on the right side, and one easily remedied. The next hole was in the same rock as the last, and was 5ft. 8in. deep, with 4ft. 6in. of powder and a light tamping; this gave exceedingly satisfactory results. In another 1¼-inch hole, 4ft. 6in. deep, 2ft. of powder were used, with 2ft. 6in. of hard tamping; the result of this shot was decidedly good, the rock being shattered. On the following day three more experiments were made at the same quarries. With 2ft. 6in. of powder in a 1¼-inch hole, 3ft. 6in. deep, the shot proved much too strong. The second shot was highly satisfactory; but in the third too much power was again developed

The general result of these experiments is to prove that, bulk for bulk, Neumeyer's powder is much stronger than the powder in ordinary use at these quarries, and which was of the very best description. The question, therefore, arose as to how the strength was to be reduced when pillaring. It was proposed to have paper cartridges of much smaller diameter than the holes, and which would hold only about one-third or one-fourth of the present charge of powder. These cartridges, it was believed, would answer the purpose exceedingly well in the pillaring rock, where it was desirable to cleave the slate without fractnre, and would beside produce a very considerable saving of powder.

A few days after the foregoing experiments, a series of trials were made with the new powder at the slate quarries of Messrs. Matthews & Sons, at Festiniog, Merionethshire. Here two holes 2ft. deep, in a hard rock of an underground chamber, each half filled with Neumeyer's powder, and two similar holes in a slate rock, were fired with perfectly satisfactory results. Two more shots in the hard rock of the tunnel were not quite so successful; but it was owned that the tamping had been imperfectly rammed, the man having fired them before they were inspected. The two next shots were stated to have done as much with 11in. of Neumeyer's powder as with 15in. of ordinary powder. In another hole, in very hard rock of the tunnel, the result was completely successful, it being stated that with ordinary powder two holes would have been necessary, or the shot would not have succeeded in effecting the required detachment. A 1¼-inch hole, 8ft. deep in hard rock in the open air, was charged with 4ft. 6in. of powder. This shot was considered very successful, for although not much rock fell, an enormous bulk was loosened, which was readily brought down with a small blast of ordinary powder placed in the rent. Experiments have since been made in various collieries to test the capabilities of this powder in the working of coal, and the results have been exceedingly satisfactory, and have fully borne out the expectations formed. Experiments in the copper mines of Cornwall have also given similar results.

THE EFFECT OF LIGHT ON MINERAL OILS.

Herr Geotowsky, at a recent meeting of the Society for the Advancement of the Manufacture of Mineral Oils, in Halle-on-the-Saal, Prussia, made some remarkable communications on a new property of photogenic hydrocarbon oils, discovered by by him. In exposing various kinds of such oils to the rays of light in glass balloons, he invariably found that the oils absorbed oxygen and converted it into its allotropic condition, ozone. It was found that the air was even ozonized in well-corked vessels, the effect being to some degree also dependent upon the color of the glass. The respective results were marked down after the space of three months. Before enumerating them, it is perhaps appropriate to remark that by "photogen," oil from peat or bituminous coal is meant, which distills between a temperature of 212° and 550° Fah., and is of a specific gravity of from 0·795 to 0·805. The term "solar oil," is given by the Germans to oils having a specific gravity of from 0·830 to 0·835 and distilling above the temperature of 550° Fah. The former is burned in lamps adapted for that object, the latter in Argand or Carcel lamps. The observations of Herr Grotowsky are the following:

1. Photogen and solar oil stored in barrels and cisterns, lined inside with iron, remained free from ozone and burned faultlessly.

2. Photogen and solar oil kept in balloons of white glass, wrapped up in straw, showed traces of ozone but burned well otherwise. Both the color of the oil and that of the cork were were found to be slightly changed.

3. Photogen and solar oil in balloons of white glass, which were painted black, exhibited traces of ozone, but the oils were less changed than in experiment No. 2. The corks were not bleached

4. Solar oil and photogen in unwrapped and white glass balloons, which had been kept outside, gave very strong indications of ozone. They burned very badly, charred the wick, and nearly extinguished the flame, after burning for six or eight hours. The solar oil was turned to a deep yellow, and showed an increase of 0·003 in its specific gravity.

5. Solar oil which had been exposed to the light in unwrapped balloons of green glass, gave also strong indications of ozone, though the wick charred it burned well. The color had been little changed.

6. Solar oil in green balloons, painted black, proved to contain some ozone. It burned, however, perfectly well.

7. Solar oil in green balloons, wrapped in straw, gave indications of traces of ozone; it burned like the former. Color slightly bleached.

8. American kerosene, which had been exposed to the light in white and unwrapped glass balloons, had become strongly ozonized, so much so that it scarcely burned. The originally bluish white oil had assumed a vivid yellow shade of color, and the specific gravity was found to have increased for 0·005.

9. American kerosene, which had been kept in the dark for three months, did not show any ozone and burned perfectly well.

The oils had been exposed from April to July, 1868. Those which had become strongly ozonized smelled otherwise than before, and the corks had become bleached as if attacked by chlorine, while those of the unaltered oils had also remained unchanged.

Though the experimenter favors the opinion that the oxygen of the air, in being absorbed by the oil and converted into ozone, does not effect any chemical change, but remains simply absorbed, it cannot be seen why such oils should deposit carbon when burned. They should, on the contrary, burn better. According to Dr. Ott, of this city, there is only only one case possible by which we may account for the decrease in the illuminating power; it is this: The ozone seizes a part of the hydrogen and forms water therewith, while a higher carbonated oil remains. Vohl, a German chemist, expressed the opinion, years ago, that the depositing of soot is invariably caused by an admixture of carbolic acid. If this is taken for granted, it would have to be admitted that a part of the hydrocarbon is directly oxidized by the ozone. This, however, is impossible, as any chemist will admit who is acquainted with the chemical constitution of carbolic acid. Dr. Adolph Ott gives a ready means for ascertaining whether a photogenic hydrocarbon oil will deteriorate in time or not. This test is based upon the property of nascent chlorine gas to act in the same manner as ozone does, which action, however, takes place in a much shorter space of time. In order then to test the oils, it is prescribed to measure equal quantities, say ten ounces of each. Take as many flasks as you have samples of oil, cover the bottom of each, when flat, to the length of one-tenth of an inch with black oxide of manganese, or take otherwise a corresponding quantity of it. Add now so much of strong muriatic acid as will cover the manganese to twice the hight indicated. Fill, finally, the flasks with the oils, and set them on a heated sand bath or in some other warm place, until the generation of gas ceases. Separate now the oils from the residual manganese, and shake them well with warm water before applying them to the burning test.

India-rubber Soles for Boots and Shoes.

A method of making india-rubber soles for boots, etc., has been patened, and consists in applying to a linen cloth india-rubber dissolved in naphtha, camphine, or other suitable solvent. With this india-rubber solution is mixed whiting, sulphur, litharge, or white lead, calcined magnesia, lampblack, and clay, in the following proportions: Four pounds of rubber, two pounds of whiting, one pound of sulphur, one pound of litharge, one-half pound of magnesia, one-half pound of lampblack, and two pounds of clay. When sufficient of this compound has been applied to the cloth, it is passed between rollers, the surface being sprinkled with French chalk to prevent adhesion. Patterns can be imprinted in this manner by the use of an impression cloth, or the surface can be simply roughened. The sheet should be exposed for three hours and a half to a temperature of 60° Fah. The impression cloth is then removed from the surface of the india-rubber. The cloth on which the india-rubber was first spread can be removed, by moistening it with warm water, naphtha, or camphine. The sheet of prepared rubber can be then cut into any desired forms

India-rubber Tubing.

Ordinary vulcanized india-rubber tubing becomes saturated with gas, which again evaporates at its outer surface, causing a most disagreeble smell. An invention for the prevention of this, by coating the india-rubber tubing with a varnish, has been made in England. The chief novelty in it is that the varnish is easily made, and it renders the substance of the tube impervious to gases. The varnish is composed of linseed oil, fine litharge, or white lead, in the proportion of one quart of oil to one pound of litharge. These substances should be well boiled together until brought to a proper thickness or body, and while hot the composition is applied by running it through the tube to be coated or lined. The varnish for the outside is made by mixing one quart of linseed oil with half a pound of litharge, and by adding to the same about a gill of gold size, these ingredients should be well boiled together, and while hot should be applied with a brush or a sponge.

If a shaft springs in running one of three things is certain to occasion the difficulty; either a too small diameter of the shaft for its weight and velocity, a set of unbalanced pulleys, or an unequal strain on either side by the belts. Either of these may be remedied.

Mr. Graham's Experiments with Hydrogen.

At the February meeting of the Royal Institution in London, Dr. Odling delivered a lecture upon the new discoveries made by Mr. Graham, F. R. S., respecting the properties of hydrogen, tending to prove that hydrogen is a metal having a boiling point much below the temperature of the air. The lecturer took a tube closed at one end with a single thickness of well-moistened calico, and showed that when the tube was half filled with water, and its lower end just dipped below the surface of some water in a glass vessel, the water in the tube would not run out, because the wet calico was, practically speaking, air-tight. Air could only enter the tube by dissolving in the water upon the calico, and then evaporating on the other side—a very slow operation. Ammonia being a gas much more soluble in water than common air, a jar of it was inverted over the wet calico; it was quickly dissolved in the water, and evaporated on the other side, so as to push down the column of water in the tube. In the same way gases are believed to pass through india-rubber and colloid septa by first dissolving in the material of the diaphragm, then passing through it as a condensed volatile liquid, and finally evaporating on the other side.

M. Deville, a French chemist, proved that hydrogen gas would pass through red hot solid platinum. Mr. Graham took up the discovery of M. Deville, and, by other experiments made, gained fresh information respecting these phenomena. He showed that platinum absorbed a certain quantity of hydrogen before the transmission began, as is the case with india-rubber. Next he tried palladium, and discovered that this metal will absorb or occlude about 1,000 times its own volume of hydrogen gas, the greatest amount taken up in the actual experiments being 980 times the bulk of the palladium. One volume of water will dissolve 800 times its volume of ammonia, the water being then increased in bulk by one half—that is to say, that two centimeters of water, after absorbing 800 times their volume of ammonia, will have increased to three cubic centimeters. Palladium does not increase in bulk to anything like the foregoing extent when it absorbs hydrogen; it only enlarges to 1-20 or 1-21 of its former volume, after taking up 900 times its bulk of the gas, in which operation the hydrogen is reduced to 1-19,000 of its former volume.

The enormous mechanical pressure necessary to compress hydrogen to this extent, would equal that at the base of a column of mercury three times as high as Mont Blanc, supposing hydrogen, at such a pressure, still to obey the laws of gases, and to possess all the properties of a gas. The weight of hydrogen, thus absorbed, is from 8-10 to 9-10 that of the palladium. Mercury can be boiled into an invisible gas, and analogy seems to point out that hydrogen, at all temperatures yet produced by man, is similarly the vapor or gas of a metal, and that, by a sufficiency of pressure or cold, it may be reduced to a liquid metallic state, so as to resemble quicksilver. Many chemists support this opinion, much evidence on the point having been brought to bear by M. Dumas.

In physical properties the gas acts like a metal, by conducting heat with facility. Dr. Odling illustrated this by passing a current of electricity through two platinum spirals, till the two coils of wire kept at a white heat. Over the one spiral he inverted a jar of common air, and over the other a jar of hydrogen, and the latter cooled the wire so rapidly that it ceased to glow. He said that it was but fair to state that Dr. Tyndall's questions whether the cooling effect shown in this experiment is due to the rapid conduction of heat by the hydrogen; still, it is the prevalent opinion, that conduction by heat really causes the cooling, and Professor Magnus, of Berlin, has come to the same conclusion. Mr. Graham's experiments also favor the view that hydrogen is a metal.

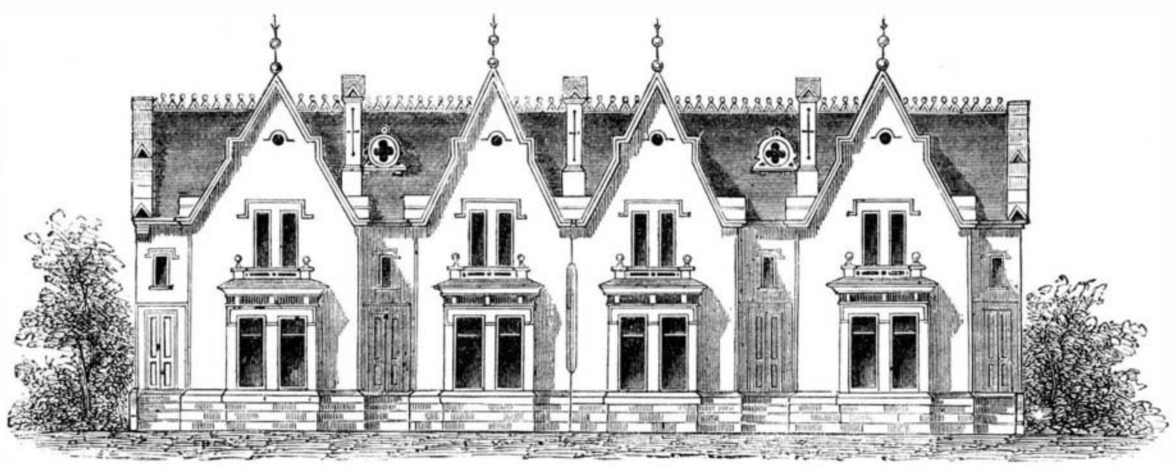
Dr. Odling then proved that the condensed hydrogen has a more powerful action upon reducing agents, than when in its ordinary state, by showing its bleaching action upon several colored solutions of chemical reagents. The greatest absorption of hydrogen by palladium, takes place at moderately low temperatures, but a high temperature is necessary for the passage of the gas through the solid metal. He then took a tube of palladium, closed at one end, and connected the other end with the Sprengel air-pump. A tube of glass was then slipped over the palladium tube, and a stream of hydrogen gas passed between the two, which were then made hot in the middle by the flame of a Bunsen's burner. The hydrogen gas then passed readily through the solid metal, being, it is supposed, liquefied in the pores of the palladium, and as it evaporated again inside the tube, the Sprengel pump delivered it into a glass vessel inverted over a trough of mercury. The hydrogen thus collected was then set on fire by the lecturer, to prove that it was hydrogen and nothing else.

Dr. Odling showed that a palladium wire is elongated after being allowed to absorb hydrogen for half an hour; but the remarkable fact is that when the gas is driven out again by heat the wire contracts, not to its original length, but to less than its original length. The cause is not known. As a final illustration of the probable metallic nature of hydrogen, a bar of palladium, charged with the gas, was suspended by a fiber of silk in the field of an electro-magnet, and was seen to be attracted like iron, though not so strongly. The bar had thus acquired a metallic property, not possessed by palladium in its unalloyed state.

STRENGTH is a general term. The strength of an iron bar resisting torsion is entirely different from the strength of the same bar resisting deflection or tension. No general rules can be applicable in all cases.

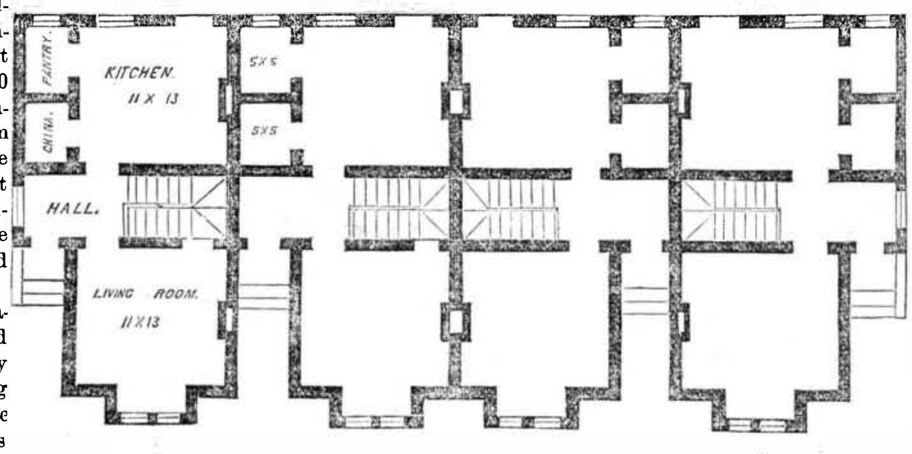
Plan for a Block of Cheap Houses on 75-Foot Lots.

We copy from the *American Builder*, of Chicago, a plan for



BLOCK OF CHEAP HOUSES ON 75-FT. LOTS.

a block of buildings, for laborers and others of small means, which is not only pretty, but cheap; a block of four such buildings, it is estimated, can be erected in that section for $4,000. The elevation at once strikes the eye as being exceedingly cosy and tasty, while the plan of the first floor, which we also give, shows that such a house may indeed possess conveniences which many more pretentious structures are destitute of. The cottages are two stories high, with attics; and the upper floors, being arranged to meet individual



requirements, may be made to accommodate quite a large family.

Brass Chains for Gaseliers.

A correspondent of the *London Times*, states that it is only a question of time as to the certain fall of gaseliers, the consequent escape of gas, and a very probable explosion, so long as the weights which hold up gaseliers are supported by brass chains. He attributes the deterioration of brass chain to decay by the action of the atmosphere and says the only wise remedy is to discard the use of brass chain altogether and to substitute copper chain in the place of it. In this explanation of the weakening of the chain he is undoubtedly at fault. The true reason is given by another correspondent to the same journal who writes as follows:

"In a letter in the *Times* of to-day attention is properly directed to the danger which may occasionally arise from the use of brass chains for suspending gaseliers. This is a subject on which during many years I have been collecting information. I have seen brass wire, about an eighth of an inch thick, after having been subjected to occasional vibration while stretched, become so tender and brittle in the course of a few weeks as to be capable of being easily broken into short pieces between the fingers. I have also seen the links of brass chains, which have been employed in suspending gaseliers, undergo a similar change, though in a less degree. These effects, so far as I have observed, have been due to spontaneous physical changes in the metal, and not, as your correspondent states, to atmospheric corrosion. It is well known that other alloys undergo singular spontaneous changes. Brass which has become tender and brittle may, by annealing, be rendered as tough and flexible as at first. It appears that only certain varieties of brass are liable to be thus affected; and, if so, the explanation will probably be found in the presence of foreign matters in small proportion. I have never seen copper become tender and brittle like brass."

Toys at the French Exhibition.

Not the least interesting of the English reports on the French Exhibition is that of Mr. G. C. T. Barclay on toys. According to this report the chief French toy is a doll, not a representation of an infant for a child to fondle, but a model of a lady attired in the height of fashion, a leading manufacturer changing the costume every month to ensure accuracy. As an excuse for this apparently early inoculation of childhood with a love for finery, it is explained that these dolls serve as models to colonial and other extra-Parisian milliners before they are handed over to their children. French dolls, unlike our wax-faced natives, have china heads. Mechanical toys, made in tin out of such refuse material as empty biscuit and sardine boxes by M. Dessein, are, however, in more commendable taste. This ingenious toymaker manufactures a train, consisting of a locomotive, tender, and carriage, in separate compartments, with a finish that admits of their running smoothly, packed in a cardboard box, for twopence halfpenny. His economical genius is rewarded with an annual sale of a million railway-carriages. Another train, having clockwork movement, which enables it to run round a table, he sells for less than three shillings. The mechanical singing-birds of M. Boutemps, shown in the Exhibition, attracted much admiration, but were too costly to become general favorites. Military toys, too, in France, commanded a large sale. M. Andreux manufactures 70,000 toy guns per annum, beside immense quantities of cannon, gun-carriages, swords, and other military equipments. The taste for military toys is, however, on the decline, owing, Mr. Barclay says, to the present notion of giving children objects suggestive of the arts of peace. Nevertheless, M. Andreux sold 38,000 toy imitations of the Prussian needle-gun in three months, when that weapon was under public consideration. Prussian toys, as represented in the Exhibition, were not needle-guns, but the furniture of dolls' houses, horses and carts, sensible dolls open to caresses without certainty of destruction, and glass marbles. Mr. Barclay gives the palm to Biberach for tin toys. Messers. Rock & Craner seem to manufacture every description of carriage, cart, cab, omnibus, and perambulator of every nationality; our own insular peculiarities being catered for in the shape of Hansom cabs, with little wheels on the feet of the horses as well as on the vehicles. Bavaria has an original idea or two about toys. One of these is the popular model of a shop, manufactured at Nuremburg. The kind of shop that commands the largest sale is a grocer's—a selection accounted for on the ground of its having the most drawers to open and shut, full and empty. Another toy, not domiciled with us yet, consists of pictures of men, animals, carts, trees, painted on stiff cardboard, and furnished with a block of wood, to enable them to stand upright, which children can arrange in different combinations, and which appear likely to exercise their taste and ingenuity. The Austrian conception of a toy appears to be, that it should be a musical-box internally, whatever form it may externally take; the Danish, that it should be an implement; the Moorish, that it should be either a trumpet or a top; and the Russian, that it should be made of india-rubber.

The Tennessee Chair Factory.

The *Daily Press and Times*, of Nashville, Tenn., contains an account of a visit to the above factory, located near that place, which it seems rivals in extent many of our Eastern establishments. It has an engine of sixty-horse power, and at present employs seventy hands. It has, however, capacity for about three hundred. The establishment is now turning out two hundred chairs daily, but with its full complement of men will be able to turn out eight hundred. We are glad to record these evidences of returning prosperity to the South, and we feel the assurance that a few years will more than restore her former commercial and industrial health, and establish it on a firmer basis than ever before.

Mines of the West.

J. B. Ford & Co. have issued a special edition of the Report of Rossiter W. Raymond, United States Commissioner of Mining Statistics, for the past year. It is entitled, "The Mines of the West:" a report to the Secretary of the Treasury; being a full statistical account of the mineral development of the Pacific States for the year 1868, with sixteen illustrations, and a treatise on the relation of governments to mining, with delineations of the legal and practical mining systems of all countries, from early ages to the present time. The information contained in this report is of value to those who take interest in the development of the mineral wealth of the West.

THE EAST RIVER BRIDGE.—Brevet Major-Generals Newton, Wright, and King met yesterday at Army Headquarters, in Greene street, as a Commission from Government to consider the feasibility of the East River bridge. They will meet daily for perhaps a month. There are many important points to be considered, such as the possible obstruction of navigation, feasibility of the project, etc., upon which, we trust, the committee will be fully satisfied, so that this great work may proceed without delay.

BEET ROOT SUGAR.—We continue this week our series of articles on the beet root sugar manufacture. They are written by a practical engineer, formerly the superintendent of a beet root sugar manufactory in Belgium and perfectly familiar with all the details of the subject. The next number will be illustrated by suitable engravings.