STEAM SYPHON PUMPS.

In a great many cases where water is required and it has to be raised or pumped, there are no simpler contrivances than those illustrated in the annexed representations. Fig. 1 shows a form of steam syphon for stationary work, and Fig. 2 represents another one that is portable and more especially adapted to railway requirements, as in the case of construction trains, which are very frequently at a long distance from a regular water station. The very great simplicity of these devices may possibly raise a doubt in the minds of some as to their great and permanent efficiency, but the present and constant demand for them, and the satisfactory results obtained from the large number already in operation, are facts that speak for themselves. They are neither novelties nor speculative inventions, but of great political value and usefulness. Decrees were rendered sustaining the patented improvements by Judge Blatchford, 26th January, 1874, and 13th January, 1876, in the U. S. Circuit Court, Southern District of New York.

The principle on which they are constructed is one familiar to all scientific and mechanical men, namely, that of creating a vacuum by an injection of steam. There are no valves, rods, or complication of parts. The arrangement is simple and inexpensive: the operation certain and efficient. The manner of construction and operation will be readily comprehended on reference to the engravings. Fig. 1 represents a steam syphon pump, complete. The body, A, is made of cast iron, is hollow, and has four openings, namely, one for admission of steam, by means of a steam pipe, B; two for the insertion of suction pipes, C C; and another for the conical chamber, D, into which the delivery pipe is inserted. The operation is simply this: Steam is turned on through the steam pipe, B, and rushes across the spherical chamber, A, into D, carrying the air in A and D before it, and thereby exhausting the air from A. Water immediately rises to supply its place, rising through the suction pipes, C C, by atmospheric pressure, as in ordinary suction pumps, when the steam jet forces it onward through D, and the discharge pipe connected therewith, with a velocity proportioned to the pressure in the steam boiler.

Fig. 2 shows the manner of applying this steam syphon to fill a locomotive tender from any body of water within reach near the side of the road. A is the hollow spherical body; B is the steam hose attached to the locomotive boiler by a steam cock; C is the steam cock to be screwed into the boiler; D D are the suction orifices, and E is the discharge hose. Steam is let on through the hose, B, and water is forced through the discharge hose, E, into the tender. Every locomotive provided with this appliance can be used as a fire engine, throwing water from the tender or any adjacent water.

These steam syphons are made in sizes ranging from ¾ inch discharge to 6 inches discharge; capacities ranging from 30 to 1,800 gallons per minute. The steam syphon will lift water 16 to 20 feet, and force it one foot for every pound steam pressure employed. The quantity of steam used being very little more than by an ordinary plunger pump doing the same amount of work.

Having no valves or other movable parts, and no obstruction of any kind whatever, sand, gravel, or other similar substances pass through it as freely as clean water.

High pressure pumps are constructed to work with 30 lbs. and upward steam pressure; low pressure, from 30 lbs. down. They are serviceable as bilge pumps and as fire pumps, and are in operation at railway water stations, mines, gasworks, breweries, papermills, manufactories, etc., for filling cisterns and tanks, and for many other purposes. They are known as Lansdell's patent steam syphon pumps, and are constructed by Messrs. Leng & Ogden, 4 Fletcher and 212 Pearl street, New York city, agents for the railroad water station pumps.

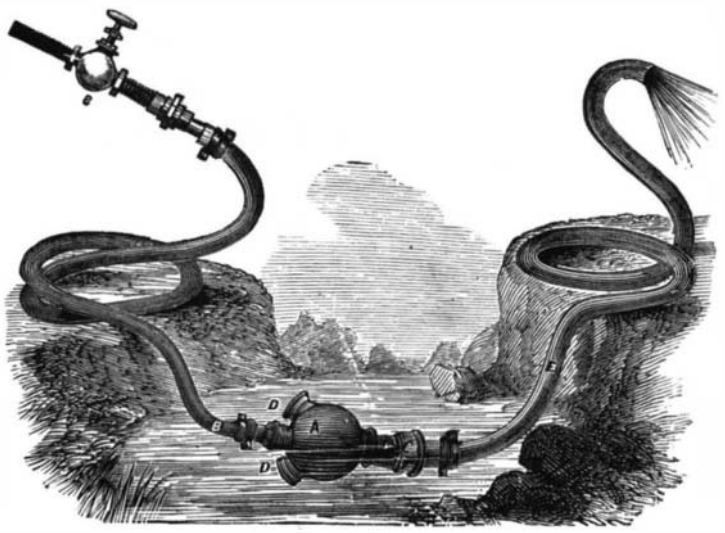

Fig. 2.—PORTABLE RAILWAY STEAM SIPHON PUMP.

Cleopatra's Needle.

Mr. John Dixon, C.E., the engineer who has undertaken the task of removing from Alexandria and erecting in London the Cleopatra obelisk, lately gave an interesting lecture at the United Service Institution, on the subject of his arrangements for the conveyance of the stone to England, and the plan he purposes adopting for placing it upon its pedestal, when a suitable site shall have been determined upon. Admiral Sir Erasmus Ommanney presided, in the absence of General Sir James Alexander, and read a communication from that officer, detailing his initiatory efforts to secure the removal of the obelisk.

Mr. Dixon premised his lecture by observing that, as this was his first opportunity of speaking in public since the accomplishment of the first portion of his task, it was only meet that he should place on record a warm acknowledgment of the kindness and liberality of the Khedive, who had afforded them every facility for carrying on the work to a successful issue, and also of the assistance so readily rendered, first by the Hon. Mr. Vivian, our consul general in Egypt, and then by Signor Demetrio, the owner of the land occupied by the prostrate obelisk. Cleopatra's Needle, as it has been termed, was the oldest monument existing which recorded upon its face a history dating from its birth, and as some persons had questioned the utility of taking such pains to possess it, he might, he thought, bring to their recollection a few of the principal dates with which the monolith was associated. Fifteen hundred and fifteen years before Christ, Thothmes III, the greatest monarch of his time, caused this stone to be quarried at Syene, some seven hundred miles up the Nile, and erected in the City of On, in celebration of a high festival, and engraved upon it hieroglyphics commemorating the event. Three hundred years later Rameses II., finding no more honorable place in which to inscribe a record of his achievements and virtues, added other lines of characters. Twelve centuries passed, and On meanwhile became the great university of the world. Joseph, and after him Moses, went there to learn and study all the wisdom and science of the ancient Egyptians; and after them Euclid, Pythagoras, Plato, and other men illustrious in the annals of ancient history. This brought the period down to the Christian era and the time of Cleopatra, with whose history the name of the obelisk was so intimately associated, and who, no doubt, instigated its removal to the Alexandria site, although she was not fated to witness its erection there. For the further history of the obelisk, we were indebted to an inscription discovered on a claw of one of the brass crabs that formerly supported the stone on its pedestal. It related that, during the seventh year of the reign of the Emperor Augustus, Barbarus, the then Prefect of Egypt, caused the monument to be erected by a certain Pontius—supposed by some to have been the grandfather of Pontius Pilate—to ornament the water-gate of Cæsar's temple. How the obelisk came to be thrown down was uncertain, but possibly it might have been for the sake of abstracting the said brass crabs. The obelisk suffered no further vicissitudes until the year 1801, when the French endeavored, during their occupation of Egypt, to remove the mass to Paris, but were prevented from carrying out that intention by their defeat at the hands of the British troops. Mr. Dixon then glanced at his own connection with the present effort to realize Mehemet Ali's gift to the nation, and said that some years ago, in conjunction with General Sir James Alexander, whom he had found working in the same field, a plan of transport had been matured, and the preliminaries arranged, and there only remained the sinews of war to be provided. It was at this juncture that Mr. Erasmus Wilson came forward, and if the obelisk was destined to be erected in London, it was to that gentleman that the thanks of the nation would be primarily due.

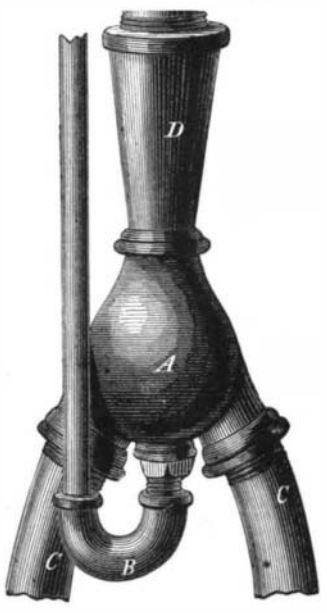

Fig. 1.—STEAM SIPHON PUMP.

Such being the history of the monument, he thought no one could say that the efforts to preserve it from destruction had been misdirected. Passing to the more scientific part of the subject, namely, the engineering appliances adopted in connection with the transport and erection of obelisks, Mr. Dixon said that the Egyptians left no decisive record of their plan; but in the erection of the St. Peter's obelisk before the Vatican, the Romans employed for a month the united power of fifteen hundred men and one hundred and forty horses. The French method in 1835 was not materially different, although they economised labor better, both consisting in building up a timber framework round the obelisk, and hauling it into an upright position. But with the advent of newer and better mechanical appliances, he thought it would not be to the credit of English engineering if he followed a similar plan in the present case. Mr. Dixon then went on to describe the construction of the vessel built to encase the Cleopatra Needle and the calculations involved, and the incidents of the launch, which have been already made public. He argued that the voyage of the vessel had fully borne out the conclusion formed as to her perfect seaworthiness, and that they were running no risk whatever in trusting the obelisk in such a structure. But for the unfortunate shifting of the ballast in the Bay of Biscay all would have ended well, for the ship remained perfectly sound and water-tight. She was now at Ferrol, in Spain, but they might reasonably hope before long to witness the arrival of the Needle in the Thames.

Hay Fever.

In an article on hay fever published in the *Medical and Surgical Reporter*, Mr. J. E. Bell says that he suffered extremely from the disease, and consequently determined to clearly ascertain its cause. He says:

"I knew it was to be found in something that made its appearance coincidently with the disease, and passed away coincidently with its decline. Noticing that my suffering and the flowering of the common hay weed (*Ambrosia artemisiæfolia*) came hand in hand together—and that when its flowering was over, and the pollen ceased drifting from its numerous little flowers, my trouble also abated, I concluded that the cause was to be found in the flowers of this weed; and repeated experiments and subsequent experience have convinced me that its pollen is the prime, if not the sole, factor in the causation."

This weed is one of the most abundant that infests our cultivated fields. It springs up after the harvesting of our wheat, oats, etc., and becomes as thick as the wheat itself had been, and grows along fence rows, roadsides, and everywhere it can escape the hoe and plow, by thousands. Its flowers, beginning to open about the first of September, are in long terminal racemes, and its barren ones are as numerous, and afford a sulphur-like pollen in the most wonderful profusion. This pollen, being very light and fine, is easily wafted about by the wind, and is floating everywhere in the atmosphere in myriad numbers during the whole period of the plant's flowering.

Mr. Bell considers its effect upon the mucuous membrane to be caused by a volatile oil which it carries. He thinks that a saturated tincture of the open flowers of the weed, if taken for a month before the regular appearance of the disease, will do much to brace the system against the effects of the poison. Months after the trouble was over he applied this tincture to the mucuous membranes, with the effect every time of inducing a slight attack.

The chief manifestation of the disease is an intolerable itching. To alleviate this, a gentle stimulant is useful. Cold water, warm water, a solution of common salt, a weak alkaline solution, or mild soapsuds will often prove grateful applications to the conjunctiva. The sufferers must not rub the afflicted parts, and should sneeze and cough as little as possible, as these only aggravate the trouble without relieving it. In advanced stages, coughing is of course sometimes necessary. The remedy Mr. Bell recommends, to allay the itching and quiet the cough, is the oil of peppermint. It acts as a local anæsthetic and gentle stimulant. All the instrument required is a wide-mouth vial, partly filled with the oil. By partially covering the mouth of the vial with his lips, and making inspiration, the patient can cause the air to pass over the surface of the oil and arise to his lungs charged with its vapor, the pharynx getting its benefits at the same time. By applying the nostrils to the vial in a similar manner, the Schneiderian may be impressed likewise, and when it is desirable to apply the vapor to the conjunctiva, it is readily accomplished by blowing downward into the vial, and directing the rebounding or upward current of air to the eyes. Whenever the vapor of this oil, or the oil itself, is applied, a feeling of cooling warmth succeeds, soon followed by a soothing sensation of relief.

Strychnine will sometimes prove quite valuable in hay fever, by in some way bracing the system against the effects of the poison; but to get its full benefit it should be resorted to some time before the expected attack.

New Agricultural Inventions.

A Hen House patented by A. H. Kling, of Perrysburg, Ind., is divided into two compartments by a partition in line with the middle part of the platform upon which the nest boxes stand. The lower board of the partition is hinged at its upper edge to form a swinging door. One division of the house is larger than the other, and in this are the roosts and nests for laying. When a hen wishes to set, the swinging door is raised and her nest pushed under into the other partition and the door dropped. The setting hens are thus kept separate from the rest and free from any annoyance.

A Corn Planter has been improved upon by Allen F. Hall, of Onarga, Ill., so that the wheels are provided with semicircular distance-measuring cams, combined with and constructed to hold dropping slide levers which are pivoted to the middle crossbar of the frame. It drops the corn automatically, at uniform distances apart, and marks the hills so that the field may be planted in accurate check row.

J. M. Bassett, of Athens, Ga., has invented a Plow, so constructed that the standard can be easily adjusted to give any pitch desired. The branches of the standard in which the plow beam rests are secured to the beam by a clamp formed of a bow and a bolted yoke. By loosening the clamp the standard can be easily moved. It will prove a very acceptable instrument to farmers.

A novel Wheel Cultivator, devised by Messrs. Irwin Macy

and John C. Watkins, of Harrisburg, Oregon, embodies a number of ingenious mechanical contrivances whereby it is more easily controlled and readily adjusted to work at any desired depth in the ground.

Mr. P. McCollum, of Fayette, Mo., has devised a new and ingenious Corn Planter, which is of simple construction and is so contrived as not to clog in wet ground, and to scatter the seeds as it plants them.

W. H. Carpenter, of St. Joseph, Mo., has patented a Gate Hinge, which consists in a rectangular reversible latch pivoted to the gate and constructed so that it is self-latching, and will not be affected by the sagging of the gate. It is valuable to farmers.

Samuel Myers, of Adamsborough, Sharpsville, Ind., has invented an improvement on his Fruit Drier which he patented in April 24, 1877. The supply of heat to the fruit trays is regulated at will, and each tray is independent of each other in the drying process. The improvement consists of the connection with the trays of diagonal partitions and pivoted valves, that open or close the space between the shelves and partitions, for admitting or excluding the heat from the rays.

A Platform Gear for Wagons, invented by B. F. Rix, of Mason, Mich., is made of a solid centerpiece, or of two pieces bolted together, and bent forward and back to the spring block. It is very light, and there is no possibility of its breaking or sagging down and causing the fifth wheel to bind.

In a Combination Hoe patented by D. A. Nelson, of Tyler, Texas, the blade fits into a nib in the hoe head and is secured by a staple and key. A ring binds the parts securely together. Hoe blades of every description may be adapted to this head.

William M. Leaman, of Bullitt's Bayou, La., has invented a Bale Tie which consists of a U-shaped buckle, corrugated lengthwise on the inside, and a metallic strap, the ends of which are corrugated crosswise, for the purpose of being held from slipping when placed to overlap each other.

A Self-Acting Wagon Brake has been patented by Alfred Hart, of San Marcos, Texas. The wagon body is hung so that it is free to receive endwise movement on its front bolster. By rods and cranks this works a brake, which, by the forward movement of the body, is brought against the wheels. The steeper the grade, the more forcible will the brake be applied. A suitable device controls the brake, if so desired.

A Grubber and Stump Extractor, invented by John Motheral, of North McGregor, Iowa, consists of a standard so mounted as to be moved about its vertical axis. A chain and pulley are attached to the stirrup, and is wound up by a large spur wheel, which is itself moved by a hand crank on a pinion shaft. It is a ready means of applying power.

Mr. Julius Hartmann, of Louisville, Ky., has patented a new Plow. Its point is curved to give a centre draft, and the mouldboard and point together constitute a wearing surface having a gradually increasing convexity and width back of the center, and a gradually increasing concavity and width forward of the center, up to the beveled portion of the point. This shape is calculated to produce the best results in practice, as respects friction and draft, and turning the furrow. The landside is formed of a bar which is beveled on each side from the bottom upward. The standard is provided with lugs or shoulders, which engage or lock with the upper edge of the mouldboard, and thus relieve its pivots of part of the strain incident to plowing.

Gigantic American Reptiles.

Professor O. C. Marsh in the last number of the *American Journal of Science* states that the museum of Yale College has recently received the greater portion of the skeleton of a huge reptile, which proves to be one of the most remarkable animals yet discovered. It was found on the eastern flank of the Rocky Mountains, in beds which are regarded as corresponding nearly to the Wealden of Europe, and which may be classed as upper Jurassic. The remains are well preserved, but are embedded in so hard a matrix that considerable time and labor will be required to prepare them for a full description. The characters already determined point to affinities with the Dinosaurs, Plesiosaurs, and more remotely with the Chelonians, and indicate a new order, which may be termed *Stegosauria*, from the typical genus here described.

In this specimen, some of the teeth preserved have compressed crowns, and are inserted in sockets. Others are cylindrical, and were placed in rows, either in thin plates of imperfect bone or in cartilage. The latter are especially numerous, and may possibly prove to be dermal spines, having all the essential characters of teeth, as in some fishes. The vertebræ are biconcave, their neural arches being coosified with the centra, and the chevrons articulated. The limb bones indicate an aquatic life. The body was long, and protected by large bony dermal plates, somewhat like those of *Atlantochelys* (*Protostega*). These plates appear to have been in part supported by the elongated neural spines of the vertebræ. One of the large dermal plates was over three feet (one meter) in length.

The present species was probably thirty feet long, and moved mainly by swimming. For its discovery science is indebted to Professor A. Lakes and Engineer H. C. Beckwith of the United States Navy, who found the first remains in Colorado near the locality of the gigantic *Atlantosaurus montanus*, and in essentially the same horizon.

NEW DINOSAURIAN REPTILES.

The gigantic Dinosaur, *Atlantosaurus montanus*, proves to belong to a lower horizon than at first supposed, and is really from the upper Jurassic. Additional remains on the type specimen, moreover, throw considerable light on the structure of this largest of land animals, and indicate that it is the representative of a distinct family, which may be called *Atlantosauridæ*. The size of the original specimen of *A. montanus* may be estimated from the femur, which was about seven feet in length. If the animal had the proportions of a crocodile, it was at least eighty feet long.

Another gigantic Dinosaur, allied to the above, and of scarcely less interest, is represented in the Yale Museum by a nearly complete skeleton in excellent preservation. It is from the Jurassic beds in the Eastern foot hills of the Rocky Mountains, but from a somewhat lower horizon than the type of *Atlantosaurus*.

The cervical vertebræ are strongly opisthocœlous, and are rendered comparatively light by large pneumatic cavities in the centra. The anterior dorsals have similar characters. The posterior lumbars have the articular faces very nearly flat, and transverse. The sacral vertebræ are more solid, and have their transverse processes nearer the middle of the centra than in *Atlantosaurus*. The anterior caudals are biconcave, and their interior structure is cancellous. The chevron bones differ from those of most known Dinosaurs in having the superior articular ends of the rami not united, but separated from each other, as in the Mosasauria with free hæmapophyses.

This animal must have been between fifty and sixty feet in length, and more than thirty in height when erect.

Another huge Dinosaur, apparently of the same genus, but of smaller size, is represented in the Yale Museum by the more important parts of a skeleton, in remarkable preservation. In this specimen the cervical vertebræ have the walls of the centra very thin. The caudals preserved are elongated and slender, indicating a long tail. The femur is comparatively short, and without a third trochanter. The great trochanter is much lower than the head of the femur, and continuous with it. The metapodial bones indicate a foot of medium length.

The known remains of this species are from the same geological horizon as those above described. They indicate an animal at least thirty feet in length.

New Mechanical Inventions.

In a Universal Joint patented by Phineas Burgess, of Brooklyn, New York, the flattened ends of the shaft have the inner lugs formed upon them, at such a distance from the outer or ordinary lugs as to rest against the inner side of the coupling ring, interposed between them and the outer lugs, and receive and support the inner ends of the coupling bolts.

A Brick Machine has been patented by W. J. Blair, of Oil City, Pa. The prepared clay is introduced from the mill through an orifice in the box, whence it is pressed down through orifices into a mould by a follower worked by a lever. A V-rod fitted with wire passes along the top of the mould and separates the clay in the mound from the clay in the guide spouts, so that when the loose bottom of the box is lowered the filled mould may be easily drawn out and replaced with an empty mould.

James White, of North Adams, Mass., has invented an improvement in spindles and their bearings. The spindle is provided below the upper shoulder with a second shoulder, between which and the collar of the upper bearing a small annular air chamber is formed, which surrounds the upper chamber. The oil is introduced through holes in the upper bearing, and any waste oil is caught by a cup-shaped support at the bottom.

Hermann Springborn and C. H. Bauch, of Holyoke, Mass., have invented an improvement on their cloth-finishing machines patented July 17, 1877. It consists in constructing the concave bed with a detachable unoxidable jacket, and in a locking device for the weight-adjusting levers. The bed with brass jacket is much cheaper than one made wholly of brass.

A Blind-Slat Planer, patented by R. S. Griffin, of Worcester, Mass., consists in combining with a suitable bed and laterally adjustable guides, suitably mounted, a rectilinear reciprocating plane, the cutters of which are so arranged that they will dress one side and one edge of a slat. A novel device keeps the slat down firmly on the bed, and discharges the dressed slat from the machine.

In a rag-washing machine for paper making, patented by F. A. Cloudman, of Cumberland Mills, Me., a cylinder is arranged at the inside with a number of curved buckets extending from the circumference to a central outlet and flanged at the edges. The volume of water is lifted to a lesser height, by reason of the peculiar form of the buckets and their inclination toward the outlet. The buckets are best made of a continuous piece of wood and are surrounded with wire cloth to retain the rags.

R. S. B. Thornton, of Pawtucket, has patented an improvement to be applied to the Noble Wool Combing Machine. A shaft drives a flanged pulley keyed on it, which communicates motion by an endless belt to two other flanged pulleys. They are fitted on longitudinally slotted pieces and brackets secured by thumbscrews.

An improved Traction Wheel has been patented by W. H. Trenwith, P.O. Box 4,068, New York city. It consists of a movable web or center section, supported on rollers or wheels arranged within a revolving traction wheel of larger diameter, the web supporting an axle made of two symmetrical sections, to one section of which suitable operating mechanism is applied. It furnishes a simple means for starting the vehicle and stopping the same, without the use of brakes.

Photo-Printing Plates.

There are two methods of producing the type plate from the negative, namely: the swelled gelatin and the dissolved gelatin processes. In the latter process, a thick film of bichromatized gelatin is spread on a sheet of glass, and upon this a sun picture of the negative is made, as in ordinary photographic printing. Wherever the light strikes, which in this case is upon the writing, the gelatin becomes insoluble. The gelatin film is then moistened with cold water, which causes the soluble portions between the lines to swell up and leave the writing sunken. A plaster cast is taken from this, when the writing will appear in a raised line upon the plaster. This cast is then pressed into wax; the wax impression is dusted over with plumbago to give it a metallic conducting surface, and is then placed in a galvanic bath, remaining there from one to three hours, producing an electrotype plate from which the printing is done. It is found, however, that the lines on the plaster cast are not high enough to make a good type, and before pressing the cast into the wax, the spaces between the lines are routed out, or dug out, with a tool, to any required depth. Another method of accomplishing the same result is first to take the wax impression, the workman afterward building up the spaces on the wax, before putting it into the galvanic bath. Still another way is to take a plaster cast from the one already made, which will reverse it, the lines appearing sunken, and from this last cast to make a stereotype plate in type metal, and rout out the spaces in the plate itself from which the printing is done.

The dissolved gelatin or photo-electrotype process is somewhat more simple, and is the reverse of the one just described. The film of gelatin is made very much thicker than before. A light sun picture is taken, leaving sharp outlines. The surface is moistened and the gelatin washed out, slightly deepening the spaces between the lines. The film or plate of gelatin is then dried, and these depressions are filled with an opaque paste, and the plate is again exposed to the full glare of the sun, by which the chemical effect of the light upon the lines is intensified and deepened, so that the gelatin is hardened to a considerable depth and a gradually increasing breadth, making a firm foundation for the type. The plate is again washed and the spaces deepened to any extent desired. It is then dried, and can be printed from directly, as a type plate, or electrotyped as before described.

The negative can also be used in connection with the zinc etching process, by which the writing is transferred to a zinc plate, and the spaces between the lines eaten out by acids.—*Franklin Journal.*

NEW BOOKS AND PUBLICATIONS.

A MANUAL OF THE MECHANICS OF ENGINEERING AND OF THE CONSTRUCTION OF MACHINES. By Dr. Julius Weisbach. Vol. II. Translated from the Fourth German edition, by Professor A. Jay DuBois, Ph.D., Published by John Wiley & Sons, 15 Astor Place, N. Y. Price $6.00

Dr. Weisbach's great work has for years been known as the best standard authority on its subject. The progress of discovery and invention has, however, necessitated its revision and adaptation to modern ideas, so that in the portions relating to practical applications of mechanics the changes have been extensive and far-reaching. The complete work consists of three volumes. The last American translation of the first volume was made by Mr. Sekley B. Coxe in 1870, and it was the intention of the translator to complete the wholework. Being unable to carry out this plan, Mr. Coxe withdrew in favor of Professor DuBois who has carried on the labor through the present volume of 1,150 pages in a manner which cannot be too highly commended. Although this volume is one of a trio, it is nevertheless rendered complete in itself by the insertion of an introduction covering those portions of volume I, which are most commonly referred to in the text. It treats more especially of the application of the general principles of mechanics, and is divided into two sections. The first treating of the application of the principles to structures of stability has been judiciously omitted as its matter is obtainable in many other English works. This book forms portion of the second section, namely: I, which discusses the various motive powers and their recipient machines, hydraulic and air motors. Part II, relating to heat, steam, and the steam engine will constitute another volume. The work is one which inventors and engineers should study carefully and closely. As here produced it is in admirable form. The illustrations are new, copious, and fine, and the typography admirable Professor DuBois has hitherto done some capital work in the ay of translating foreign technical treatises, but none better than this. The edition, we may add, has been specially authorized by Dr. Weisbach, son of the late author.

THE SILVER COUNTRY OR THE GREAT SOUTHWEST. By Alexander B. Anderson. Published by G. P. Putnam's Sons, 182 Fifth avenue, New York city. Price $1.75.

This is a book on the mineral wealth of the former kingdom of New Spain, comprising Mexico and the Mexican cessions to the United States in 1848 and 1853. It describes the resources of the country and shows that the Southwest is producing each year two thirds of the silver of the whole world. The work is well illustrated by maps, and in view of the present agitation of the silver question will be read with timely interest.

FORMULÆ FOR THE CALCULATION OF RAILROAD EXCAVATION AND EMBANKMENT. By John Woodbridge Davis, C.E. Illustrated.

This is a second edition of a work that has already met with much favor. It has been adopted as a text book in the School of Mines of Columbia College and many other institutions of the kind. It has been revised and improved so as to be still more valuable to engineers.

BEAUTIFUL HOMES, OR HINTS IN HOUSE FURNISHING. By Henry T. Williams and Mrs. C. S. Jones. Henry T. Williams, Publisher, New York. Illustrated. Price $1.50.

Household taste is but a synonym for household culture. This work is designed to cultivate this taste by narrating and illustrating everything relating to the picturesque furnishing of bedrooms, halls, parlors, and sitting rooms, so that any lady may by following its directions make a winning and beautiful home. The contents relate specially to house furnishing and furniture, and are profusely illustrated.

"Fret Sawing," Household Hints," and "Needlework and Embroidery," are other works issued by the same publisher in the same style, at fifty cents each. The ladies will find them of much value in the household.