## the convention of the civil enaineers

## We continue our abstract of the proceedings of this ass

 ciation.Mr. G. W. R. Bayley, of New Orlaans, La., followed, with an exhaustive communication on the subjoct of

## tHE TEREDO

or ship worm, well known for its ravages upon timber under water. It belongs to the first subclass of mollueca, known as acephala. Although having no head, the animal feeds itself aad reproduces its kind. The body is surrounded by folds of the mantle, and it has a shell consisting of two it upon the extreme edge of the shell, when the secreticn hardens and besomes converted into a layer of solid testaceous substance. Every newly formed layer enlarges the diameter of the shell. The sh:p worm moves by means of an oxtensive fleshy organ cailed a foot. It is a muscular mass, capable of being pusbed out from between the mantle lobes and the valves, and of adhering, by the exhaustion of the air and water under it, firmly to the 1ront end of the tube, when the teredo is engaged in excavating or boring.
The long bridges across Bay St. Louis, 10,055 feet, and Bay Bilosi, 6,136 feet, built (on heavy, yellow pine piles from 15 to 20 inches and more in diameter) in 1869 and 1870, had to be reconstructed in the winter and spring of 1871 by driving an entire new set of piles in the place of those destroyed by the teredo. The Bay St. Louis bridge piles-the new ones-were covered with felt and copper, and the Beloxi bridge piles with felt and zinc, from the water line to the bottom, the depth of Bay St. Louis being from 10 to 12 gen: erally, and at Biloxi Bay from 10 to 15 feet. In 1872 the writer found that many of the piles in the Bay St. Louis writer found that many of the piles in the Bay St. Louis
bridge had been damaged by the teredo below the coppering. bridge had been damaged by the teredo below the coppering. To remedy the evil, sand and clay were hauled and dumped
round the new piles in sufficient quantities to cover the ex. round the new piles in sufficient quantities to cover the ex.
posed posts, thas cutting off the teredos' connection with posed posts, thas cutting off the teredos connection with
the aerated salt water, and killing them in a few days. The piles much injured were replaced with new ones, previously charred, with coal of tar poured on them, washed with clear oil, and coated with coal tar varnish; and all loose or broken sheets of copper were renailed under water. It was estimated that this coppering, already considerably thinned by decomposition, was good for perhaps three or four years.
The teredo, cannot penetrate any soft, fibrous, or spongy substance, as felting, thicit paper, or the bark of pine tim. ber, and this is the reason wby the spongy, fibrous wood of the cabbage tree palm is never attacked. The action of salt water upon copper or zinc sheets is very destructive, and tarred felt is even a better protection than metal for submerged timber; with metal only, the sea water can penetrate under the sheets, especially when lovse or broken; and when
sea water ebbs and flows with the tides, so can the ship sea water ebbs and flows with the tides, so can the ship
worm enter and work. If felt, saturated with the dead oil of coal tar and well coated with thickened coal tar, can be secured to and maintained on the outside of submerged timber, it may be considered safe from the ravages of the teredo.

## The partial report of the committee on the

mandfacture of rails
was next submitted. The English system of rails is not applicable to tbis country, as it requires strength, while the American system demands endurance and wear. Where there is the most wear of rail, strength should be the first consideration, and the rails should contain the greatest amount of metal; but where there is less wear, the rails should be as light as experience shows to be safe. As there is the most wear on the head of the rail, there should also be at that point the greatest amount of metal. There was no theory more erroneous tban that a head of $2 \ddagger$ inches wide was more endurable than one three inches wide. With the present heavy machinery, the narrow high rails will not last as long as the low wide rails. An inflexible or rigid rail is
more sure to break than ove moderately flexible. If the more sure to break than one moderately flexible. If the
rails were laid on a better foundation, and there were no frost, rails were laid on a better foundation, and there were no frost,
the rails might be made atiffer. In answer to the question the rails might be made etiffer. In answer to the question
why rails should not be made square, the committee believed that it would be too flexible, erpecially when of iron, and that rails with stem and base were much better. It would be even adviazble to place 60 per cent of the metal in the head; but a double headed rall wears out faster than a single. The average wear of an iron rail is equal to a pressure of $4,000,000$ tuns of dead weight, or $10,000,000$ tuns of gross weight. The stone ballast of the American roads has been too large; and on a good road a rail would last fully 25 per cent longer than on a bad one. In cold weather, the metal is more brittle than in summer; consequently the breakage of rails in winter is greater in proportion. No definite figures had been received as to the comparative values of iron and ateel raile, but the committee were of
opinion that a steel rail was 20 per cent better than a good opinion that a steel rail was 20 per cent better than a good
iron rail, 40 per cent better than á fair iron rail, and 100 per iron rail, 40 per cent better than a fair iron rail, and 100 per
cent superior to the ordinary rail used on many railroads. FIRE in the coal fields.
Mr. Martin Coryell,of Wilkesbarre, recited the particulars of the conflagration now existing in the coal at the Kidder slope. At first water was pumped out of the mines by loco-
motives; but subsequently, this proving unsuccessful, a new motives; but subsequently, this proving unsuccessful, a new plan was adopted. Steam boilers were erected at various pointe, and the work of forcing steam into the mines was begun. This appears to be working with great success. At one time during the hight of the fire, the thermometer at the mouth of the air shaft registered 212 degrees. When 50 pounds of steam pressure were forced into the mine, the ther-
troduced, the thermometer fell to $100^{\circ}$. The men are now at troduced, the thermometer fell to $100^{\circ}$. The men are now at
work boring a nine inch hole with a diamond drill, во as to work boring a nine inch hole to put in, at a differant point, another stream of steam to aid the others. The work is apparent going on suc cessfully. The steam has evidently created a great amount of carbonic acid gas; but as yet there have been no means of ascertaining the quantity thus created, or whether it was
aiding the steam in doing the work of extinguishing the fire. The mines are at least 600 feet below the surface, and therefore very difficult to reach.
An interesting history of the

## DOCK SYSTEM OF NEW YORK CITX

was given by Mr. John D. Van Buren. The speaker, after ketching the past dock facilities of the port and pointing out the advantages as a harbor, referred to the operations at present in progress.
The river wall, recommended by General McClellan and
adopted by the present department, is composed of béton adopted by the present department, is composed of béton blocke weighing trom 25 to 50 tuns each, extending from the foundation to within two feet of low water mark, and, above this level, concrete laid in mass, faced with ashlar granite masonry. The idea of using béton blocka for this arch is due, e said, entirely to General McClellan, and the late operacons of the department show that the plan is an exceedingly expedion, now being built by the department, 14 blocke, weigh. ing about 450 tuns, were laid in one day, and 109 blocks, weighing 3,560 tuns, were loaded, transported, and laid in 18 days of from 10 to 12 hours each. The crew consists of 10 men, including captain and engineer. The total cost of loading, transporting, and laying, in 14 feet of water, will not exceed $\$ 1.50$ per cubic yard. The cost of the blocke, ex clusive of the rent of yards, is about $\$ 12.50$ with cement at $\$ 5$ per barrel, this material alone costing about $\$ 850$ per cubic yard. It does not cost the city, considering all ex. penses, over $\$ 16$ per cubic yard laid. This wall is being built considerably within the estimate, made by General McClellan, of $\$ 2,500,000$ per mile, including the cost of filling.
The departments are now building four large wharves of wood on the Christopher street section, of an improved quali. ty, and have nearly completed three of them. Another is built at Canal street, North river. In these structures they have not found it possible to allow the engineers to intro duce any articicial preservatives, except external coatings of fish oil and paint : but in the general character and strength of the woodwork and fastenings, every care has been taken to make them complete and of the very best quality. TLe pile heads are the only novel features of these piers; they are constructed of built-up columns $20 \times 20$ in section and 75 feet length. placed in rows $12 \frac{1}{\frac{1}{2}}$ feet apart, and about $9 \frac{1}{2}$ feet apart in rows. The rows are sheathed for low water up to the girders on both sides with 5 inch planking, the ends of which are protected with boiler plates. The heads of the columnsare securely passed into the caps and girders. The plles used in the pier, some of which are 94 feet long, are driven in rows 8 feet apart, and 5 feet apart in the row. The square timber is $12 \times 12$ in section.
The plan of construction, then, which seems to commend itself as the proper one for the improvement of the water front of New York is: To construct a quay wall along the main street of granite masonry, increasing the width of the atreet considerably, and from the wall to throw out piers of the very best quality of wood, preserved against decay by all possible meane, and at once $\epsilon$ stablish a broad main street and have good piers built and taken care of accordirg to a settled plan; and it will shortly follow that all known means of facilitating the handling and transportation of freight will be introduced by the interested persons then under certain general restrictions.
These public works should go slowly on, sayat the rate of half a mile per annum. If in 10 years the wall could be completed on the East river and to West 11th street on tbe North river, its progress would be all that could be desired. The city would then possess the finest dock facilities in the world.
the education of civil engineers
was the topic of a paper by Mr. Thomas C. Clarke, of Clarke, Clarke co., the well known iron bridge constructors. Mr. professional mainly practical, while the latter required the student to be thoroughly versed in theory before ontering upon actual work. He believed in combining the advantages of both syatems, and advocated a thorough training in the natural sciences. Too much time, the speaker said, was now wasted
in studying the higher mathematica, which rarely are brougbt into practical use. The student should be limited to ordinary analysis, and the time thus gained devoted to tbe study of Nature. After graduating from college, prac-
tice in the field should be immediately begun, and then, after an insight had been obtained into the actual labor of the profession, the young engineer might profitably attend a technological school for the purpose of devoting himself to some specialty. In conclusion, reference was made to the late John Edgar Thompson, and his life was held up as an ness and of thorough training, by which the possessor was enabled to conduct the great operations under his control.

EXCURSIONS, ETC., of the convention.
The reading of papers being concluded, on the following day the delegates made visits to the Stevens Institute at Hoboken, where they inspected the Stevens Battery, and subsequently to the East river bridge, Hell Gate exca
vations, and Fourth avenue improvements. An excursion vations, and Fourth avenue improvements. An excursion
wes also made to Ashley, Pan, the ascent of Wilksbarre Moun
tain accomplished, and the mines of the Wilsesbarre Coal and Iron Cemproy examinei. Tuejourney terminated with a visit to Mauch Chunk, a ride over the Nwitch Back and an inspection of tbe works of the Bathlehem Iron
pany and the Lehiga Zinc Company at Bethlehem, Pa.

## New Remedy for Dysentery.

In a recent issue of the Archives de Médicine Nrvale is pub lished an official note, addressed by Dr. Robert, who is the medical chef of thenaval division of China and Japan, to the Inspector General of the Health Service in tbe Fredch navy, calling attention to a drug used by Chinese pbysicians in the treatment of dysentery. It consists of the root bark of the ailanthus, very common in China, also cultivated in France and in this country.
The bark of the root is the only part employed. An infu sion of the bark, however, exhales a slightiy nausecus odor ard possesses an excespive bitterness, resembling that of sulphate of quinia. The Chinere physicians employ the rost in the fresh state only; but Dr. Robert, baving been compelled to use some that lad becomodry, found no sensible difference in its action in the two states.
For administration, $1 \frac{1}{2}$ ounces weight of the root is cut into very small pieces and triturated with 2 ounces of hot water for a few minutes in a mortar, in order to pofien the bark, and then strained. A teaspoonful of this strong infusion is administered as a dose morning and evening, alone or in a cup of tea. Taken in this form, it provokes vomiting. cup of tea. Taken in this form, it provokes vomiling. The medicine is administered in this manner during three
days, the pationt being kept upon full diet. After tbat time days, the patient being kept upon full diet. After that time
the ailanthus is omitted and the diet is altered to broths unthe ailanthus is omitted and the diet is alterrd to broths un-
til health is restored. If after eight days' treatment the patient is not cured, the Cbinese plysicians recommence the use of the ailanthus; but Dr. Robert slates that he has not met with a single case in which this resumption has befn neces sary, although he had under his notice some where the disease had lasted several months, as well as others of more recent origin.
The principal symptoms which follow the administration of the ailantbus are said to be nausea, and sometices romiting, followed by a temporary lowering of the pulse. The dinappearance of blood from the evacuations commences on the first later in completed on the second, the colic ceses a litcle later. The effect of the drug upon the color of the evacua-
tions is variable. Dr. Robert sumes up by expressiog his options is variable. Dr. Robert sums up by expressiog his op-
inion that the administration of the ailanthus gave superior inion that the administration of the ailanthus gave superior
results to tbose of ipecacuanha, astringents, alone or comresults to tbose of ipecacuanh
bined with opiates, or calomel.
French Improvements in Manulacturing Steel. Those who have followed for the last dozen years tbe progressivesteps in the manufacture of s'eel know the difficalties wbich surrounded the first efforts in tbe Besarmer prociss These were not thoroughly surmount d, nor the process rendered thorougbly practical, until the idea was struct of pushing the refining process to complete decarburation, and then adding to the bath a cortain proportion of iron rich in mangavere, called spiegelesen. The object of this seem.d to be toadd againto the metal thenecessary quantity of car bon to make it steel, and aloo to give it,at the same time, certain myaterious virtues, which were known as a ateely propensity. It was soon recogniz${ }^{\circ}$ d that the importance of this addition was more considerable than at first supposed. Tue best gray irons were not suitable to replace the spiegeleis $n$. It follows, then, that the manganese must affect the iron in a It follows, then, that the manganese must affect the iron in a
useful manner. A more minute in veatigation of the process useful manner. A more minute investigation of the process
shows that, under complete reduction of the carbon, the iron becomes oxidized and brittle, and the astionof the man iron becomes oxidized and brittle, and the aation of the man-
ganese is to destroy this excessive oxidation, and torestore to the metal its original good qualities.
In tbe Martin Siemens process, also, the addition of a mun ganesic iron was recognized from the firet as prac ical and ne-
cessary. This method answered all requirements for rolled cessary. This method answered all requirements for rolled
rails and sucb goods; buta demand arose fora metal milderand rails and sucb goods; buta demand arose fora matal milderand
softer, for plates and parts of machines. Here this addition of spiegeleisen involved a serious dilemma. For with the necespary quantity of manganese must be introduced so large a quantity of cal bon that the hardvess was product $d$, which was precisely the thing wished $t)$ be avoided. There was then no other resource than to push the seduction of the carbon further still, so as to be perfectly sure of total removal of the carbon, and then, by the addition of a quantity of epiegeleisen as rich as possible, to get a minimum of carbon in the result ing steel. This is, at best, but an uncertain and dangerous method, though much in use at present, and is very liable to give a result too hard, or atill very oxidized and britthe.
The company of Terre Noire sets itself to produce alloys of iron and manganese, and claims to be able to make alloys of
iron with manganese having forty to seventy per cent of the iron with manganese having forty to seventy per cant of the latter, and that, so to speak, in illimitable quantity. This gives a meial very mild, but with all the tenacity of nttel. A nother edly discovered, use of ferro-manganese has bar nuse in dependently, elsewhere. A series of experiments had been made, upon ores of inferior quality and with large admisture of phosphorus. In seeking to purify or use these ores in some way, it was found, most unexpectedly, that the pbosphorus was no detriment to the laminability and tenacity of tbe me tal, provided that the carbon, combined with tbe manganese was very small indeed. Here is a great field for the use of ferro manganese-to produce mild steel from many second rate brands of iron. Tbis renders the working up of all the old material of wrought iron rails into steel, which opens a
most valuable market for the old permanent way of many most valu
The above dotails give sufficient grounds for sapposing that
ferro manganese will become quite in large demand, and hence give ample employ to any company undertaking the special manufacture and application of it. The following is what this French company proposes to undertake:

1. The sale and manufacture of alloys of iron and manganese. 2. The application of those alloys to the production of metal with all the properties of mild steel. 3. The application of these alloys to the production of steel more or less phosphoric, either by the Bessemer or the Martin-Siemens process. 4. The fixing and making of all plant suitable for these productions and applications.

## SCEENTIFIC AND PRACTICAL INFORBATION.

the newly discovered crater of mati.
Mr. T. M. Alexander, in a letter to the Haroaiian Gazette, gives au interesting account of his discovery of very remarkable volcanic phenomena on West Mani, one of the
Sandwich Irlands. He found a crater in which were nearly a score of volcanic pits, not cones, from fifteen to fifty feet broad, and ten to twenty feet deep, with shrubbery wi hin concealing the chasins below. From six of the pits columns of steam or smoke were rising, which were destitute of sulphurous fumes and had very little warmth. It is believed that these pits are connected with subterranean chambers heated by volcanic action, and that the air arising from the warm depths on a cold morning becomes cbanged to fumes oxcept Hawaii.

## progregs of the east river bridge.

Work upon the great suspension bridge between Brooklyn and New York, which has been temporarily suspended, is now resumed. The Brooklyn tower bas reached an elevation of 222 feet above high water mark, leaving 40 feet of masonry yet to be laid. The workmen are engaged upon keystones will weigh ten tuns each,and constitute the heaviest blocks in the structure, the ordioary stones weighing some three tuns. It is expected that before winter the 'saddles' or castings over which the cables' will pass will be in position.
The New York tower is now 123 feet high, and will probably reach 200 feet during the present season. The anchorage on the Brooklyn side is 6 feet high, and contains
8,334 cubic fet of masonry. Its total elevation will be 66 feet. On the New York anchorage, or on the approaches, work has not yet been begun.

## THE GERM THEORY OF DISEASE.

That hay fever, a disease quite prevalent during the pres ent month, is traceable to vegetable organisms, is a curious discovery, tending roward the confirmation of the theory that disease is originated and prepagated by ind $\ell$ pendent organic germa, recently made by Professor Binz, of Bonn. The in vestigator has been himself subject to the malady, and has pursued his repearches over a number of years.
On examining the nasal secretions with a powerful im mersion lens, he found tbe organisms to be absent axcept when the disease attacked him during epring. Then the parapitical bodies were clearly seen in motion, vibrating on the slide and $i$ creasing in size after several days. By using a neutral solution of sulphate of quinine, applied by the nasal douche, Professor Binz found that the animaicu' $\quad$ were completely destroyed, and thet subsequent ex

## a simple analysis of arable earth.

M. Schlösing gives the following simple process for separating the clay in soils from other constituents, and consequently for determining the quantity of the for mer present. The earth is tbrown in water and the calcareous matter is eliminated by meavs of hydrochloric or other suitable acid. The carbonate of lime and humic acid, found in nearly all vegetable earth, hinders the clay from remaining in suspension in the water, and it is hence precipitated. By treating the liquor with ammonia, the humic acid is removed. The residue is composed of sandy matter and clay; but the form. er falls to the bottom, leaving the clay in suspension in the liquid, from which it may be separated by decantation. This method, though almost mechanical, it is said, will prove of much value to agriculturists. M. Schlösing has found that earths, considered argillaceous, in some cases contained little over 2 or 3 per cent of clay, while others, supposed to be composed almost entirely of that substance, contained but 30 per cent.

## CORROSION OF TIN.

Tin is generally regarded as the least liable to change of all our common metals; but a case, recently reported to the American Academy of Arts and Sciences by Mr. S. R. Sharples, S:ate Assayer of Massachusetts, cites a circum stance wh:ch appears to be wholly contradictory to such a theory. A taok, belonging to an hotel in Collinsville. Conn impurities. Some time after the constraction of the recepimpurities. Some time after the constraction of the recep-
tacle, white de posits were noticed upon the lining, and the tacle, white de posita were noticed upon the lining, and the
owners, fearing that the water might be rendered deleterious, sent specimens of the powder and of the water to Mr. Sharples for analysis. The white powder proved to be ox ide of tin with a mere trace of iron, and the water, which was led to the tank through 100 feet of lead pipe, was entirely free from the latter metal.
During the month of March last, an interval of nearly two years having elapsed since the above examination and the tank lining being some five years old, the proprietors called Mr. Sharples' attention to the fact that the lining had bocome perfectly riddled by corremion, and this although there
had been a free and constant circulation of fresh water, an analysis of which sinowed even better results than bofore. There were 4.20 parts of inorganic matter and 0.80 parts of organic matter in 100,000 , and no nitrates were present.
This extensive corrosion can hardly be accounted for, as he weight of present authority points strongly to the unal terability of tin under similar circumstances.

## Slr Charles Fox.

Sir Charles Fox, the distinguished civil engineer, died re cently in Eogland, aged 64 years. He was an assistant to the celebrated Robert Stephenson, by whom he was ap pointed assistant engineer of the London and Birmingham railway when that work was begun. Mr. Fox's greatest en gineering work was the construction of the bailding for the ceived the honor of knighthood in recognition of the geniue and skill exhibited in this magnificent structure. He also re-constructed the same building for the Crystal Palsce at Sydenham, and executed many extensive railway and other engineering works. He was the senior partner in the firm of Sir Charles Fox \& Sons, rivil engineers.

## Henpital Hygiene.

Dr. Alphonse Guérin, an eminent surgeon of the Hote Dieu in Paris, has recently preeented to the French Academy of Sciences a remarkable memoir on the influence of atmos pheric germs on surgical maladies, in which he strongly advocates tow dressings for wounds. He states that, when thi material is packed upon the injured part,the pus is complete
ly preserved from putrid fermentation. He uses the tow in ly preserved from putrid fermentation. He uses the tow in it, and in fact produces an arrangement precisely analogou to the cotton wool respirator mentioned by Professor Tyndal in his paper on haze and dust.

DECIBIONS OF THE COURTS.

## United Staten Circuit Court--Southern District of

atent hair het.-jobzph daliton vs.
 Blatchford, Judge


## NEW BOOKS AND PUBLICATION8

The Tonnels and Water Srstem of Chicago-Under the Lake and Under the River. Illustrated. Chicago: J. M. Wing \& Co.

This handsome volumegives a complete and interesting account of the extenfive system of tunnele in Catcago, by whtch water supply and su ba--
queoue communtcation ts obtained to that enterpritigg city. It is writen queous communication is obtained in that enterprising city. It is writen
throughoutin a loquaclous, hamorous style, and contains several eagravings that are even more comic than the ilterature
Kindergarten Toys, AND How to Use Them. A Practi-
cal Explanation of the First Six Gifts of Fröbel's Kinder garten. By Heinrich Hoffmann. New York: E. Steiger 32 \& 24 Frankfort street.
This book contalne full explanations of the kindergarten apparatue,
which, on account of ite almplicity, gradual progreasi reness, and accuract Which, on account of ite almplicity, gradual progresal veness, and accuracy
to the moat effectual method of imparting instruction to very young chil is the most effectual method of imparting instruction to very young chll.
dren, and has the eqpectal merit of belng thoroughly amuaing to the ittie
 playling with such toys as are uauallygiven to the merest infant.
Tee American Yacht List for 1874, containing a Complete Register of the Yacht Clubs of the United States
and Canada. Ccmpiled by Niels Olsen, Steward of the and Canada. Ccmpiled by Niels Olsen, Steward of the
New York Yacht Club. Price $\$ 1$. New York : L. H. New York Yacht Club. Price
Biglow \& Co., 13 William street.
In addition to the information spectifed in the above title, this wel various yacht clabs.
The Principles of Science-A Treatise on Logic and Scientific Method. By W. Stanley Jevons, M.A.,F.R.S.,
etc. Special American Edition. New York: Macmillan \& Co.
In his " Sclentitac Use of the Imagination," Professor Tyndall bas, in
popular language, conveged a clear idea of the mental processes by which popular language, conveyed a clear idea of the mental processes by which the investigator fe enabled to proceed from the known to the an known
He brtely touches upon the course of reasoning whtch detects analogites He biefy touches upon the course of reasoning which detects analogies
leading to a great diesovery, or upsetting, in the end, pre-existing and acoepted theories; but be neceesarily does not conduct us into the detalls, ortrace, atep by step, the general logical and systematic operation of the mind by which certain and a bsolute reanits are alone reached. This lack-

original research and discovery. Th e anthor descrithes hts hook as "a
almple and general description of the devices by wbtch exact measurement is effected, frrors eliminated, a probable mean result atta'ned, and th probable error of tbat mean ascertalued." He illuscrates the conditton and precautions requitite for accurate observation, for succeesful exper ment, and for the sure detection of the quantirative lawe of Nature. In a
word, he telle us how to question Nature in order to obtatn thore responses Word, he telle us how to questlon Natur
which of all thlogs are alone in fallible.
A Universal Table for Excatations and Embank MENTs, applicable to any Base or Slope Whatever; and
the Calcnlations of All Solds to which the Prismoida Formula is Applicable. By William Zimmerman, C. E Thts is a very elaborately calculated table of the measurement of earth
work, applicable to every possible configuration of cross sect on of cut. ork, applicable to every possible configuration of crose aect on of cut
ungsand embankmentr. It 1 well tiluatrated with disgrams, showing it unl versai use for the work for which it is intende
and contractors will find it espectally valuanle.
 We know of no work in which there te a more coplous supoly of informa tion, brought down to the latest dates, or in which the possessor can b more truly aatc to have placed at his disposal a digest of everytbing that as been written anon almost e very concetrable sabj ct. The rolum before us is particularly rich in its acteatific department. There are four
astronomical papers by Professor Proctor, and a number of ex hanative chemical articles by Professor Joy; wblle the treatisea on phyalcal an medical toples are from the pens of Dra, wogeboom, Clarke, Flint. Dalto and Kdes, and Professors Abbe. Hant. Eueeland snd others. Count $P$ our talé, of the Cosst survey, contributes a valuable accoznt of deep sea dredging, ta which is contained a resume of the most recent tnvestigations
of the ocean bed aud its odd Inhabitants. Volume VI., ilke trs predeces. ors, in coplously illuatrated with excellent engravings, a feature of muct value, and tending to give additional interest to the enbjecta treated of in

The July number of that admirable chlldren'd magazine, St. Nicholas, to
superlatively good. The ilterature for the youtb of this country 18 , at a superiatively good. The ilterature for the youth of this country 18 , as a
eneral rule, so much of the morbdly mawkleh order-we know of no bet ter term to exprese its nature-treats so mach of those intensely well be
 over the pages of a work that telle the youngaters storles which we know theywill read and reread untll the very paper becomes worn and limp will innumerabie ingermarts. While none believe in making plety and uprigh living more attractive to the chlldren than ourselves, we have no patier
with the tra:h which alma to convert a healthy roay.cheezed, eastuly Into an inciptent theologian or a poctet model of sanctity mbose joys a not of thisworld, asd whoseexisteuce is matnly spent in "gettiog licked and thereupon tearfully forgiving hie aggreseor. The tesue of 8 r . Nicho Las before us bas an excellent atory, by Bret Harte, about a Juvc nile bear Which will provoke many a hearcy laugh, and to which Beard, the artle, contributes a a ketch of the hero, dra wn as only he can draw beara. The
there la a table of contente and a lot of plctures, which we canoot pretend to describe, put which are sure to delight the young ones, and the old ones for that matter, too. Besides, as if all this were not enough, St. Nichola proudly announces that. not content with swallowing " Our Young Folks"
 "Calldren's Hour." and, in the fature, will have a tbrec-fold clalm upon
the notice of his juvenlle readers. If we were a youngster. we tonk we ohould teasehard for the neceseary three dollars for a year's aubecription and lose not a moment in forwarding the money to Mesers. scrioner \& Co at 654 Broad way, New York.
SORIBNER's Monthly, for July, opene with a continuation of Edgar
King's Papers on the Great Souta, in which the hitory, resources, and Eing's Papers on the Great south, in which the history, resources, and enterprise of Mlasourl are described with considerable detall. Professor
Hartt contributes a valuable article on "The shakspeare Death Mask," Hartt contributes a viluable article on "The shakspeare Death Mask,
whtch to coplousig illustrated, and which gives many toterestiog fact regarding the extating and much disputed likenpsq of the great poet.
More ingtalmenta of the sertal stories, Including Jules Verne's fanclfal Mgteriand, a few choll poems, and o ther ineree Ing matter, bestdes the usual Edtorlal Miscellany, complete a varled and excellent table of contents. sub
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soribnez's magazine for July contalas au excellent rartety of con tente, among themillugrations of the Htart of the Repubitc. wotch refe tente, among themituarrat.
eapectally to the City of st. Louta, and facludea view of the new bitige a espectally.t.
tbat place.
Godif's magazris for July is as attractive as ever. This number is the arst of the forty-atith year of the work.

## Inventions Patented in England by American [Complled from the Commisiouers of Patenta' Journal.]

[Complled from the Commiselouers of Patente' Journal.]
Carnurettueg atr, etc.-J. M. Cayce, Frankilin, Tenn.
CAR Coupling.-W. Todd, Portland, Me.




STBAW FABRICB, ETC. - N. A. Bald win
TOY.-W. W. Rose, New York cltty.
YEABT POWDRR, ETC.-E. P. East wick, New York city.
Wool Card Evener.-F. F. Burlock, Birmingham, Coun.

## 为ectut Autrirau axi fintigu Futents.

Improved Building Block.
Thomas B. Rhodes, Leotonia, $\mathbf{O}$. - This invention re
bullding block formed of concrete or ndition mat bo molded into the required form, and will in ite plastic ently hard and durable for maktog permanent fareproof walle or atruc tares. Hollow spaces extend through the blocks from bottom to top, to cake hollow waile. The parte by which the two stdes of the blocks are
connected are arranged anflictently ditatant from the enda to form groove theretn, tu which tongues on other blocks will it to licek the blocke frmly togetber. A groove may be formed in one end of a block and a tonsue in
the other. TTese grooves and tongues binders of wood or tron, extending from end to end of a wallat the top, or frombottom to top, are used. Theopeningsin the top blocks may be ar ranged so that hot alr admitted to them may crrculate throusbont the paces in all outside walis, and in partilions, if preferrec, for beating the roins. In laying ap a wall, it is proposed to enclose eacb layer tempora-
rily in a casting of wood, and pour ta not cement to flow into the tuter silces and fill them upand unite the blocks.

## Improved Electrical Condenser

Carles A. Browne and Ibaac s. Browne, North Adams, Mass.-This invention relates to the construction of Leyden Jars or condensers, com-
posed of indla rubber plates with embedded tin foll sbeete ; and it coosfet in so constructing the condenser in sections that, in case a rubber plate to rupt ared by a spark, the damage can be repalred by simply readiusing the
gections, or, at most, by the lose of a section only instead of the whole jar as when all the plates are valcanized together.

## Improved Trank

Willam J. Large, Soath Brooklyn, N. Y.-To the till of the trunk are at tached bars, which bllde up and down in ways in the trank body. By sult-
able mechautam, by raiting the lid to open the trunk, the till will al: bo be ralsed, plving coaventent access to the interior. When the ild is raised, sloted bar drops over a screw to support the aatd lld and the till. Arrange
ments are oonneoted with the till to adapt the game for use as a wrictag

