

It seems that, during the interval above named, the old blank forms were used while the new ones were being prepared and engraved, the above difference in wording not being considered of any essential importance, and certainly in no manner exposing the validity of the grant. It would have been a simple matter to have changed the wording of the old forms with pen and ink, if it had been legally required, or even desirable. We understand that the chief reason for adopting a new blank form was to reduce the size. Why a change was made in the wording of this paragraph in the law itself is not apparent. Persons, therefore, who may have seen the sensational item alluded to, and have had their fears much excited thereby, can safely compose themselves on the subject. Even in case the Office had committed an error, as stated, affecting in any measure the soundness of any patent, Congress would not fail to protect the rights of the party interested.

SOMETHING ABOUT FACES.

It is a trite remark that, among all the multitude of people who inhabit this globe, no two can be found that exactly resemble each other. Even in cases of twins, where a strong similarity exists, there is always to be found some point of difference by which those most intimately acquainted with them are enabled to distinguish one from the other. And it may be further observed, that those most alike in early youth lose their resemblance, to a greater or less degree, as age advances. No face leaves this world at mature years without having undergone changes that astonish even the most intimate when comparisons are rendered possible. In this age of photographs, almost any one is able to make such comparisons, and to note how the various circumstances and trials of life carve their impress upon the features. Very few have, however, fully estimated the infinite variety and number of indirect, direct, near and remote influences that have operated through ages to work out the form and feature of every face upon earth.

A skillful physiognomist may often determine character approximately by the countenances of men; but, as a sheet of paper, printed and reprinted, must at last become a confused jumble of indistinguishable characters, so are most people's faces too much interlined and crosslined, by the confused imprint of circumstances and events, to be intelligible even to the most practiced reader of faces.

There are, indeed, some traits of character, and some passions, that ordinarily stamp themselves upon faces more conspicuously than others. Of these may be mentioned cruelty, settled melancholy, and jolly good nature. As a rule, these traits are easily distinguished by a look at faces; but it is not infrequent that good faces conceal bad hearts, and sanctimonious appearances cover secret vices.

A man who was tried for and convicted of murder, and who confessed his crime before his execution, was admitted, while on trial, to be as fine looking and prepossessing in appearance as any man on the bench, in the bar, or in the jury box, yet that court room contained some men whose lives and records have been in the highest degree honorable, and whose personal appearance could scarcely be excelled by any equal number of men anywhere.

It is notorious that circumstances of easy living, the absence of business cares and worries, will do much toward smoothing away the marks of crime; while the faces of criminals that have lived in circumstances of physical hardship gather a rough brutality from which we instinctively shrink.

As the circumstances which give character to the human face at birth have been infinitely various, and have acted through long periods of time, it is not a matter of surprise that the results are so varied, but rather that they should be even as uniform as they are. Were it not that throughout nature there prevails the great law of compensation, and also the great law of reversion (admirably set forth by Darwin), there could be no two living things even approximately alike. There would be neither genera nor species, even if the wide difference in structure and habits thus arising should not lead to the mutual destruction of all.

As circumstances shape our birth, so they shape our lives and mold our characters. Yet, with all the thought and effort toward social improvement that marks the age, the effort of society seems to be directed to making character adapt itself to circumstances rather than to form character by controlling the circumstances through which character is developed. Thus we have failed to recognize the fact that physiological law is stronger than social law. We do not yet admit the fact that, if our habits and customs are such as to develop the animal in us at the expense of the mental and spiritual, we shall have animals to control by civil law; or if we do see this, we do not see that civil law must prove utterly inadequate to control animals, that obey only their depraved instincts.

Society, in assuming to govern not only the depraved, but the healthy, instincts of our animal nature, assumes too much when it attempts to force violations of physiological law. As well might it legislate that weights shall fall upward; they will fall downward in spite of enactments; and so will the catastrophes and crimes that have lately shocked our community continue to happen so long as the circumstances that lead to them are permitted to exist. If we feed our children upon heating diet, and place them where they are forced, like plants under glass, into premature bodily development, let us blame ourselves only, that their immature minds and wills are too weak to contend with the strength of their passions which we have taken such pains to cultivate; and if, in the temptations that beset them, they overstep the bounds of social propriety, let us not be surprised that,

in their efforts to escape the disgrace society attaches to such lapses, they, some of them, resort to dangerous practices, and find a final escape in death.

DEATH OF SIR RODERICK IMPEY MURCHISON.

The death of this distinguished man is announced by telegraph to have taken place on October 22, in England, at the advanced age of seventy-nine years. It has rarely fallen to the lot of any man to contribute so largely to the advancement of science as this deceased scholar. His career was a peculiar one. In early life he was an officer in the British army, and, as such, served under Wellington in Spain. He left the army, in order to marry and settle down to quiet literary pursuits; and, in accordance with the advice of his friend, Sir Humphrey Davy, as well as the influence of his accomplished wife, and following a natural predilection, he took to scientific studies, more particularly to geology and physical geography.

One of the earliest fruits of this study was the publication, in 1834, of a work "On the Geology of the Neighborhood of Cheltenham," which was afterwards augmented by Buckman and Strickland, and republished in 1845. "The Geology of the Counties of Salop, Hereford, Radnor, etc.," appeared in 1835; and, in 1839, was published "The Silurian System, founded on geological researches in the County of Salop." By this time Murchison had become a thorough scholar, and an indefatigable investigator; and, like many previous scientists, had taken up a hobby, which he pushed with admirable zeal, and in elegant language. The ancient name of Wales was Siluria, and this served to give character to the new system of the oldest rocks. The Silurian system has become one of the recognized names in geological science, and for this we are indebted to Sir Roderick.

From the date of his first publication, in 1834, down to the time of his death, Sir Roderick Murchison was a constant contributor to the proceedings and transactions of learned societies, and the author of several popular books. The genial character of the man and his high social position at once pointed him out for the position of presiding officer over the learned societies of London, and he was for many years President of the Royal Geographical and Geological Societies; and in this double capacity he was able to aid in the organization of some of the most important exploring expeditions that have ever been fitted out in England. To his persuasion and energy, the world is indebted for much that we have learned of obscure portions of the earth.

The death of such a man will create a profound impression in the whole scientific world, for there is no part of the globe where his name has not been carried by the indefatigable explorers fitted out and sent through his influence. A thorough gentleman, a conscientious scholar, an active publisher, an elegant writer, and an eloquent speaker, he will be greatly missed from English circles, and will be mourned by lovers of scientific truth everywhere.

Death of Mr. Charles Babbage.

We have received from England the news of the death of Mr. Charles Babbage. This gentleman gained considerable celebrity by inventing a calculating machine, which excited great public curiosity for a time, but was found to be valueless for general use. It was subsequently improved, and is now in use in England for indicating logarithms in one of the statistical departments of the Government service. The deceased was for many years the holder of the mathematical professorship at Cambridge University, a position long held by Sir Isaac Newton. Mr. Babbage's writings on the economy of manufactures and cognate subjects are numerous and valuable. He was, in the year 1832, a candidate for Parliament, but was defeated at the election. He died in his seventy-ninth year.

FAIR OF THE AMERICAN INSTITUTE.—ADDITIONAL OBJECTS OF INTEREST.

Many objects of interest have been added to this exhibition since our last visit, some of which we will notice in the present article, and which, together with what we have already noticed, render this year's fair one of the best ever held by the American Institute.

GLASS AND STONE CUTTING BY SAND BLAST.

The new process of cutting hard substances by the sand blast has, on account of its novelty and unique character and the great rapidity and exactness with which the work is performed, attracted crowds of admiring observers, so much so that it was quite difficult to get near enough to see the operation of the apparatus. When, however, we succeeded in approaching it, we were lucky enough to be in time to witness a test experiment, being the drilling of a $\frac{3}{4}$ inch hole through a solid emery wheel; this was done at the rate of a quarter of an inch per minute. Specimens of glass cutting in beautiful lace patterns, and of lettering in marble in either *intaglio* or relief, elicited unanimous commendation. Few that saw the operation of the machine failed to see that the process is destined to a high place in the useful arts. As we purpose giving an engraving of this machine, we reserve further particulars for a future article.

NAIL CUTTING.

Mr. Henry Scheurle, 64 Avenue B, New York city, has added to the attractions of the fair a nail cutting machine that cuts, from cold bar iron, 400 nails per minute. The machine is small and very compact, and its gluttonous way of satisfying its appetite for iron amuses all who see it.

GEOMETRICAL LATHE.

Mr. A. Schaefer, of 82 Forsyth street, New York city, exhibits a geometrical lathe. This wonder of mechanical art,

seen for the first time by the majority of visitors to the fair, is a center of attraction to which many are drawn, and the delicacy and richness of the tracery wrought by it are marvelous to the uninitiated.

Mr. G. L. Kelly, 723 and 724 Broadway, New York, has laid the public under obligations by exhibiting the various processes in the manufacture of upholstery trimmings. The beautiful wares, growing under the practiced and skillful fingers of the trained female operatives, are very curious, and make a very instructive and interesting exhibit. The machines employed have a somewhat primitive appearance, and there is more than one operation now performed by hand that appears susceptible of being done wholly by automatic machines.

BRICK MAKING.

Mr. J. Nottingham Smith, 225 South Third street, Jersey City, N. J., claims with much reason that it is useless to press bricks when molding them, for, consisting of intimately mixed clay and water, they, at that stage of the process, form a practically unyielding mass. When, however, they have partially dried, they are susceptible of being further compacted, and he has therefore invented, and exhibits at the fair, a machine designed for this purpose, which is worthy the attention of brickmakers. The theory seems plausible, and the machine is evidently the production of a thoughtful mechanic. It is guaranteed to press one thousand bricks per hour.

AIR COMPRESSING ENGINE.

This is the exhibit of J. B. Waring, consulting engineer of the Norwalk Iron Works, 133 Center street, New York city. It is a very handsomely finished and effective machine, evidencing in its design a full comprehension of the niceties of engineering required in a first class air compressor. The air cylinder is kept cool by a water jacket. The trouble experienced in some compressors, from congelation of moisture on the chilled pipes, seems, by certain peculiarities of mechanism, to have been obviated in this machine. It supplies power to two rock drilling machines in another part of the building, of one of which we have now an engraving in process of preparation, and in describing which we find it necessary to again allude to this air compressor.

THE CAMPBELL COMBINATION PRINTING PRESS.

We have already noticed briefly this beautiful machine, and we now return to it, because its liberal exhibitor, having announced that it will be sold at the close of the fair, and the proceeds donated to the Chicago Relief Fund, we are anxious to aid in its sale for a good price by some further exposition of its merits. Said a bystander at our last visit: "That machine feels and thinks," and surely the extreme delicacy of its operation is such as to make it easy to imagine a brain and nervous system concealed in its beautiful proportions. If it has not these, it has the nearest approach to them human art has ever been able to achieve, a galvanic battery, which so acts upon the adjustment of the machinery that it is impossible to print out of register. Said its inventor to us: "When I first began to construct presses, it was impossible to print in register. I first rendered it possible, and now I have made it impossible to print out of register." As a proof of the truth of this last assertion we have now on our table a sheet, one side of which received two impressions, the form being inked the second time and the sheet fed in precisely as at first. No one in comparing it to a similar sheet printed only once could tell it had been printed twice, except that, having received double the usual quantity of ink, it is somewhat darker in general tone. There is no indistinctness of outline, and yet this sheet has upon it engravings of a character that would show the slightest discrepancy in the registering.

Unless the sheet is properly presented to the grippers, the press refuses to print it. If it is a quarter of an inch from the guide, it is thrown out perfectly blank and uninjured; if it is farther away from the guide than this, it may be rumpled, but will not be soiled. If the sheet is not printed, the press places it on the regular pile, with its edge sufficiently projecting to be easily seen and drawn out, so that it shall not be sent to the bindery. In printing the second side, unless the registering points are entirely through the paper, the sheet cannot be printed, as, these points then failing to make the battery circuit complete, a stop motion, to all the parts not necessary to throw out the sheet unprinted, acts to effect this result. Ink is only taken by the forms when the press prints; when a sheet is printed, the press runs on but takes no more ink till the next sheet is printed; and although the roller may have run many times over the form, there is to the ordinary observer no perceptible difference between the sheets printed. This results from the fact that in inking there are two distinct and complete operations, at each end of the form, that distribute the ink in, so to speak, two superimposed wedges, the thin end of one lying on the thick end of the other, and thus making the layer of ink uniform throughout. No part of the form can be over inked. This, with the new and peculiar mode of adjusting the form rollers, makes four rollers equal in efficiency to twenty of the old style, as is shown daily in the actual working of this press. All this automatic accuracy in working is accomplished through the agency of the sheet itself. It must cover, when laid, three small holes in the sheet guides, which, when so covered, establish a perfect communication between a small gravity air pump and two diaphragm bolts. These moving pieces accomplish all the varied results, and they are so simple and easy to comprehend when seen that they surprise even the best mechanics who have, after long search for something complicated, found in them the secret of the delicate working of the press. If any one wishes to see a mechanical poem, and to converse with a man who has reduced printing

almost to a fine art, let him look at this press, and get it explained by its courteous exhibitor, Mr. A. Campbell, who is generally present. Mr. Thomas H. Senior, Sun Building, New York city, is the general agent.

GRINDING MACHINES.

Mr. W. S. Jarboe, 93 Liberty street, New York city, agent of the Union Stone Company, Boston, exhibits an Universal Grinding machine, which is a very useful appliance in doing many kinds of work. The work is placed on a bench or truck, and the emery wheel is swung at will to conform to the straight or uneven surface. It is especially adapted for heavy work that cannot be easily handled. He also exhibits a hand machine for universal grinding of castings, etc. which have uneven surfaces, which is an ingenious and effective tool.

Another interesting exhibit is a machine for grinding paper or other long knives requiring to have a truly straight edge, the knives traversing by the emery wheel, and the grinding being performed in the most accurate manner. In all these machines, emery wheels made by the Sorel process are used.

STEEL CASTING TO PATTERN.

A case of various articles of steel, cast to pattern, is shown by the Union Steel and Iron Works, of Rhinebeck, N. Y. It is claimed that the process by which they are made is entirely novel in its character, and that by it all articles now forged from steel may be successfully made. The articles thus cast may be hardened or tempered to suit the work they are designed to perform; and the steel, being malleable when taken from the molds, may be, it is claimed, worked and tempered the same as tool steel. The specimens shown seem to indicate that these claims are not exaggerated. Should they become established in practice, this little case will be entitled to rank among the most important expositions of the present fair.

POTTERY.

The Jersey City Pottery Works show the process of manufacturing pottery. This evolution of forms of beauty from crude clay, by the agency of the time honored and primitive potter's wheel, has attractions second only to those of glass blowing, which forms a center of delight in another part of the building. The managers of the fair are wise in encouraging displays of this kind, which do far more to educate the people than the mere exhibition of products.

ANOTHER NOVELTY IN SEWING MACHINES.

The Lathrop Combination Sewing Machine Company, of New York, exhibit a decided novelty in sewing machines, which is almost as radical in its character as is the celebrated Lyall positive motion loom in weaving. This machine sews directly from two spools, making either the lock stitch, the simple chain stitch, or a beautiful French embroidery stitch compounded of the two. The looper is so constructed that one of the spools, sustained in a carrier which takes the place of the shuttle on ordinary shuttle machines, passes through the loop to make the lock stitch. The machine is most ingenious, and appears to work admirably. We hope soon to present engravings illustrating it, together with a minute description.

The Bickford Family Knitting Machine, several of which have been running at the fair since its commencement, deserves commendatory notice. It has no competitors at the fair, but notwithstanding the absence of opposition to add zest to its struggle for public favor, it attracts much favorable comment. It has, like Saxe's fisherman, a "very taking way," that seems to captivate the fair sex at sight, and it is really wonderful to witness the variety and beauty of the work it performs, as well as the speed with which the operation proceeds. It has made a decidedly good impression, and is one of the first class attractions of the fair. It is exhibited by Mr. Dana Bickford, vice-president and general agent, 689 Broadway, New York. The reader will find a detailed description of it, with illustrations, on page 367, Vol. XXIV. of the SCIENTIFIC AMERICAN.

EXTENSION DESIRED.

We echo a generally expressed desire that the date for closing the fair shall be postponed. The attendance still remains large, and, as it must be remunerative, we trust the wish for an extension will be regarded by the managers.

[Special Correspondence of the Scientific American.]

LARGE NUMBER OF PATENTS EXTENDED.

Washington, D. C.

Among the extensions recently granted are the following: To Stanley A. Jewett, for improvement in melodeons, reissued in 1864. The invention consists in graduating the sizes of the air chambers, above and below each reed, upon a geometric scale, by which an uniformity of volume of sound is produced; also, in producing a perfect *mute*, and in producing a swell and *diminuendo* by operating the swell valve by the bellows, without the intervention of a pedal, yet under the control of the performer.

To J. D. West, for an improved pump.

To G. J. Mix, for an improved iron spoon. The bowl and handle are made in separate pieces, cut and fashioned by a die, and then riveted. The invention consists in forming the rivet and handle out of one piece of metal, by which the manufacture is much facilitated and a better article produced.

To Samuel Darling, for a metallic square. The blade is tempered at the edges to prevent wear, and soft in the middle to prevent springing, and so united to the beam by soldering that there is no danger of its changing its position; a valuable invention by which a very durable and accurate instrument is produced. Formerly the tongue of the square was warped by being tempered throughout its whole extent, and had to be straightened before being fit for use, and the blade, being secured to the beam by rivets, was constantly

liable to be untrue or to be displaced through the wear of the rivets.

To Lauriston Towne, for machine for making ornamental chains. The links are cut from a strip of sheet metal, and then transferred to the bending and clinching mechanism, which locks them together, and thus builds up the chain. Prior to this invention, chains of this character were all made by hand, at an average price of fifty cents per foot, but on this machine they are manufactured for three cents per foot. The exclusive use of this machine in this country is controlled by Sackett, Davis & Co., of Providence, R. I., and since the patent was granted, they have made nearly 2,000,000 feet of chain, causing a saving to the public, on the above ratio of three to fifty, of about \$839,000. Four machines are leased to parties in Hanau, Germany. So valuable a machine is necessarily exposed to infringements, and, in this case, no less than ten different parties have pirated the invention and worked it secretly, until discovered and compelled by the Courts to cease the manufacture.

To A. B. Lotta, for a steam generator. This is the third extension granted to the applicant for devices connected with tubular coil boilers, which are specially useful in steam fire engines, where steam is required on short notice. The patent just extended was for a combination of a force pump receiving water from the jacket, and returning it to the coil, and a strainer box through which the surplus water, discharged from the coil, passes on its way to the jacket. In ordinary boilers, the salts, formed by heat and evaporation, settle at the bottom, and are blown off; but in case of rapid circulation, as in the tubular boilers, this becomes impracticable, hence the need and advantage of Lotta's strainer box. Mr. E. G. Maguire, who was chief engineer of the fire department of Cincinnati for many years, estimates that each of Lotta's patents is worth not less than \$20,000 to that city alone. The application in the above case is made by Finley Lotta, administrator of A. B. Lotta, deceased.

John Butler, for a gas generator. The gas is for lighting purposes, and is produced from resin. The invention consists in covering the bottom of the retort with a fusible metal, such as lead, which, becoming fluid, prevents a crust from forming on the bottom of the retort, and effecting a saving of fifty per cent. An ingenious and valuable invention. The rebellion having cut off the supply of resin, applicant has failed to reap a reasonable reward during the term of his patent.

William Plumer, for a rock drilling and cutting machine. It consists of an arrangement of devices, for cutting out pillars and blocks of stone, circular pillars of any diameter, and blocks either square, rectangular, or irregular shaped, the cutter working on all sides of the piece. A valuable invention, and some of its features have been incorporated in nearly all of the later stone cutting machines, but, by reason of sickness and service in the late war, applicant has failed to cover even the expenses of his invention.

To E. B. Bigelow, for wire weaving looms. Owing to the inflexibility of wire, the ordinary fly shuttle is too uncertain and weak in its action for this class of weaving, and is not adapted to straighten the wire as it comes from the reel or bobbin; and, prior to this invention, wire cloth was made by hand. Mr. Bigelow's shuttle is moved positively throughout its whole passage, and is provided with a wire straightener. The drag required to straighten the wire would draw in the selvedge wires, and contract the cloth, but this is guarded against by an ingenious mechanism. Pointed upright bars are moved horizontally towards and from the selvedge, also vertically up and down, by which they are alternately thrust between the filling wire and the selvedge, so that the filling wire passes around them, and draws on them instead of on the selvedge. The loom is also provided with a peculiar stop motion and also a double beat up of the lay. The Clinton Wire Cloth Company was organized to develop this invention, and has produced 11,444,059 square feet of cloth at an average cost of from three and a half to four cents per square foot less than hand made goods, making a saving to the public of \$400,652.05. A portion, however, of this saving should be credited to other inventions used in the manufacture.

The application of George W. Hildreth, of Lockport, N. Y., for an extension of his patent for a gang plow, has been refused. This patent was reissued last December. The leading features of the invention are these: crank supports, for adjusting the height of the frame from the ground; supporting wheels, so adjusted as to run upon different planes, one to run in the furrow and the others upon the sod; the axle made adjustable laterally; in brief, the axle has a triple motion, upward, downward, and lateral, and it also vibrates on the center bolt. This plow is well known on the Pacific coast, and has been manufactured by Baker & Hamilton, of San Francisco. It is claimed that it will plow from two to four acres a day more than a common plow. The applicant appears to have been unfortunate in reaping no profits from his invention. He says: "I am getting towards three score years; and ten, and have had a hard up-hill business for years; and this gang plow business has contributed largely to my misfortunes." The extension was strongly opposed, and remonstrants claim that applicant has not used due diligence in introducing his alleged invention into general use, and that in his reissue he claims more than is his invention. A suit for infringement of this patent has lately been brought against Treadwell & Co., the damages being fixed at \$50,000.

It will be noticed that the Patent Office is disposed to be liberal towards all applicants for extension, and that in most cases of real merit, extensions are allowed without any close scrutiny of the profits that may have already accrued. Even the present limit of a patent to seventeen years is considered by many as too short, and it is not impossible that Congress

will either extend this period, or allow the Office to grant extensions to patents issued since March 2, 1861. In a late issue of your paper, I see that ex-Commissioner Charles Mason expresses the opinion that Congress, by special act, will extend many of the seventeen year patents, and that twenty-one years is not too long a period for their general continuance.

Among the recent visitors at the Patent Office (and no bureau or department is more inviting to strangers) we find the names of Mr. William and Mr. Alfred Carpmael, the sons of the distinguished patent lawyer of England, Hon. William Carpmael, the author of a standard collection of law reports of English patent cases. These gentlemen have made a thorough examination of our patent system, and of much of the office routine, and they have expressed themselves highly pleased. In England, at present, the subject of patents is undergoing considerable discussion in view of proposed changes, some favoring an entire abolition of this form of government protection, while others favor the adoption of the American law and our general official management.

NEW BOOKS AND PUBLICATIONS.

THE AMERICAN CHEMIST—Edited by Professors C. F. & W. H. Chandler of Columbia College, 49th street, corner 4th avenue, New York—to whom subscriptions should be sent—now rivals in interest and value the London *Chemical News*. Each number contains a large amount of information that no progressive chemist can afford to be without. The Professors Chandler are editing this journal with singular ability and judgment, and it has taken its place in the front rank of contemporaneous scientific publications.

THE ATLANTIC MONTHLY FOR NOVEMBER comes to hand richly freighted. The number is one of the best issued by its publishers, James R. Osgood & Co., Boston, during the present year. The article "Bedlams of Stamboul" is alone worth the price of the number. The leading article, "Tennyson and Theocritus," in which the styles of the ancient poet and the English Poet Laureate are compared, will be of great interest to students of *belles lettres*. The usual lighter literature and reviews are provided.

THE COMMERCIAL LAWS OF THE UNITED STATES. A Summary of the Laws relating to Arrest—Assignments—Attachments—Collections—Commercial Paper—Corporations—Depositions—Dower—Deeds—Damages on Bills—Execution—Exemption—Factors and Consignees—False Pretences—Homesteads—Imprisonment for Debt—Interest—Usury—Liens—Statutes of Limitation—Receivers—Redemption—Stay Laws—Partnership—The Rights of Married Women, etc. New York: Published at the Office of the "Banker's Magazine and Statistical Register," 23 Murray street. Sold by Baker, Voorhis & Co. Price, Three Dollars.

The exhaustive summary of contents of this book, embraced in the above title, relieves us from the necessity of characterizing its contents, except by way of commendation, of which it is highly worthy. It would be worth many times its price, annually, in the counting room of almost any business house in the country.

EXPERIMENTAL MECHANICS. A Course of Lectures, delivered at the Royal College of Science for Ireland, by Robert Stawell Bell, A.M., Professor of Applied Mathematics and Mechanism in the Royal College of Science for Ireland (Science and Art Department). With Illustrations. London, and 38 Bleecker Street, New York: Macmillan & Co.

This is a magnificently printed, illustrated, and bound octavo volume comprising twenty lectures (some of them revised and rewritten), delivered at the above named institution of learning, to artisans and others unable to attend the ordinary classes. As specimen lectures in which science is popularized, they are models. While, of course, they do not take the place of a full treatise on mechanical science, they form an outline easily comprehended by ordinary readers, and really embracing the fundamental principles of the subject. If a mechanic has once mastered these, there is little danger of his being led astray into absurdities in his practice. The style of these lectures is such as to at once attract and sustain the attention of the reader, and no father could make a more valuable investment for the price (six dollars) than to place the volume in his family library.

A TREATISE ON THE RESISTANCE OF MATERIALS, AND AN APPENDIX ON THE PRESERVATION OF TIMBER. By De Volson Wood, Professor of Civil Engineering in the University of Michigan. New York: John Wiley & Son, 15 Astor Place.

This is a thorough investigation of the resistance and strength of materials in the various forms and under the different circumstances in which they are applied in civil and mechanical engineering. It has been prepared by an author of distinguished ability in his field of labor, and is rich in tables and formulae for reference. In this place it would be impossible to give any thing like a suitable review of the work, and we shall therefore supplement this notice by some extracts which will give our readers a taste of its quality. The volume is a handsome octavo of over 200 pages, with an appendix, but, we regret to say, while giving a full table of contents, is devoid of an index. This, while it matters little in a work used solely as a text book, limits the usefulness of the treatise as a work of reference.

ANCESTRAL TABLETS. A Collection of Diagrams for Pedigrees, so arranged that Eight Generations of the Ancestors of any person may be recorded in a connected and simple form. By William H. Whitmore, A.M., Member of the New England Historic-Genealogical Society. Second Edition. Boston: William Parsons Lunt, 102 Washington Street.

This is, undoubtedly, the most complete, direct, and easily understood system of genealogical diagrams ever devised. Those who are interested in tracing back their ancestry, or in the recording of pedigrees, will find it very useful. We cannot spare space to describe the ingenious method adopted, but recommend our readers to examine the system for themselves.

CATALOGUE OF PRACTICAL AND SCIENTIFIC BOOKS. Published by Henry Carey Baird, Industrial Publisher, 406 Walnut St., Philadelphia. Sent free on application.

This enterprising publisher is constantly extending his catalogue, which now embraces works on almost every known industrial subject. The mechanic, engineer, chemist, farmer, and teacher, may each find, in its enumeration, works which constitute the most valuable aids to each avocation. Full descriptive tables of contents of the works are given, so that there is no difficulty in selecting the precise work needed. It is worth the trouble to send for this catalogue, if only to see what an amount of talent has been enlisted by Mr. Baird to supply industrial information to the workers of the United States.

SCRIBNER'S MONTHLY FOR NOVEMBER is a beautiful number, finely illustrated, and containing much useful as well as entertaining reading. This deservedly popular monthly is achieving, we are glad to learn, a brilliant success, and it has undoubtedly a brilliant future in American literature. The Hell Gate improvements form the subject of a very instructive and interesting article, profusely illustrated, which appears, to our mechanical mind the gem of the number.