The illustration that we give was drawn from life and gives a good representation of the animal. It is about the size of a goat. Seen from the front, it has a wolf-like appearance, on account of its strong neck, encircling mane, and peculiar color of the head. The coarse long hair of the body is of a light slate color, the points of which are united so as to form tufts or curls. The back, neck, ears, and goat-like tail are of a dark black color. The hair from the eyes towards the forehead, the cheeks, and along the throat is of a dirty grayish white. The short spirally-twisted and backward-bent horns are grooved at their base and are nearly hidden by the long hair of the forehead. The insides of the ears are covered with long and thick hair. The eyes are dark brown. The hoofs are grooved on the inside and terminate in dull points.

A full grown female of this rare species was exhibited at the Zoölogical Gardens, at Cologne, in the winter of 1876. It was unfortunately killed by the inundation of last spring, which overflowed a part of the garden.

KID GLOVES.

The manufacture of kid gloves is an old French industry. Grenoble is the principal seat of the trade, over a third of its inhabitants being engaged in it, and it was from this city that the manufacture was introduced, some three hundred years ago, by wandering craftsmen, into other European cities, especially those of Germany. Paris not long ago grew to be the rival of Grenoble in the trade, mainly through the exertions of Jouvin, who brought the manufacture into prominent notice, and laid the foundation of that world-wide fame which the Parisian kid gloves have ever since enjoyed.

He introduced several important improvements, and was among the first to recognize the great superiority of machine work in his special department.

The French kid glove manufacture gives employment to over 70,000 hands, including those who attend to preparation of the leather. The yearly production amounts to something like 24,000,000 of pairs, representing a value of 80,000,000 francs.

Kid gloves are made of the skins of goats, kids, sheep, and lambs, which are supplied by all European countries, Saxony, however, furnishing the best. Great care is exercised in tanning in order to obtain leather of the required degree of softness and pliability. The dyeing of the leather is carried on in special establishments, for the convenience of glove makers who do not, like larger firms, attend to their own dyeing. The soft gloss of kid gloves is not, as some have been led to suppose, due to any peculiar treatment, but depends upon the quality of the leather and the care expended in its tanning.

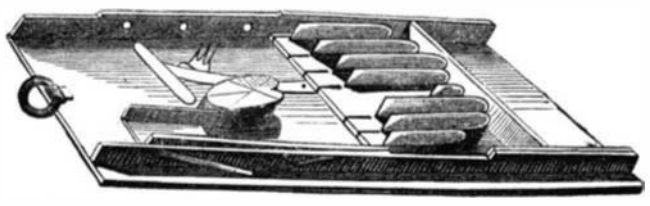


Fig. 1.—FORM FOR CUTTING GLOVE BLANKS.

The hides, after coming from the dyer, are spread out separately upon a marble table with the smooth side down, the other or flesh side being submitted to a scraping process in order to reduce the existing inequalities and to render the skin as smooth and as uniformly thick as possible.

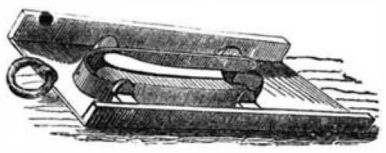


Fig. 2.—FORM FOR CUTTING THE THUMB PIECES.

The leather is now cut into strips of a little over twice the breadth of a hand, and these *établions*, as the French call them, are then stretched for some time in the direction of their length. The cutting, which now follows, was formerly accomplished by first tracing the outline of the glove upon the piece and then using the handshears. Next came sheet iron patterns, which had merely to be pressed upon the soft leather in order to leave an impression of the outline, when the shears as before completed the work. This method is still employed to some extent. The mode of cutting at present almost universally adopted is to stamp the gloves out by means of the contrivance shown in Fig. 1. Steel knives are so arranged upon a board, with their edge uppermost, as to form the outline of a double glove, including the opening for the thumb piece. Four to six pieces of kid of the proper size are placed upon these knives, a board is laid over both, and the whole is then submitted to pressure, after which the gloves, neatly and cleanly cut, are ready to be passed to the seamstress.

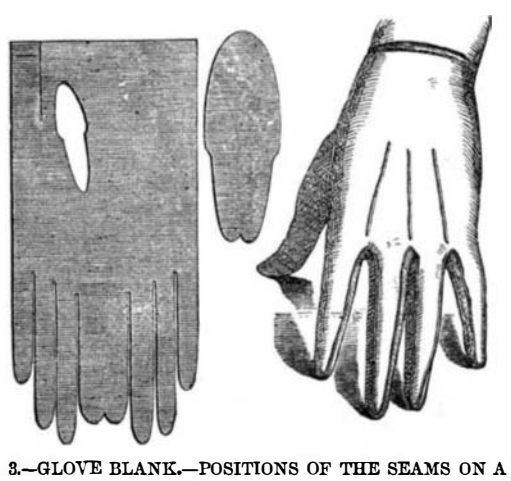


Fig. 3.—GLOVE BLANK.—POSITIONS OF THE SEAMS ON A GLOVE.

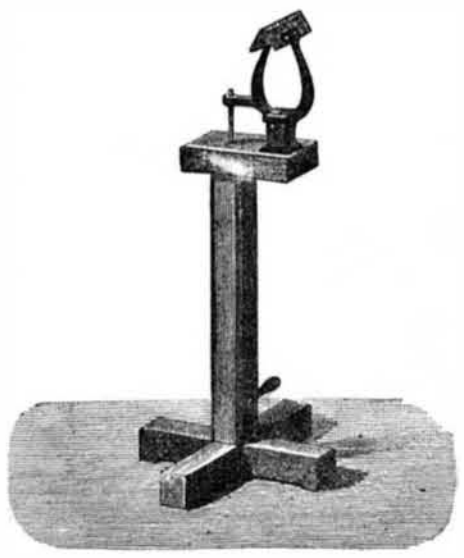


Fig. 4.—MACHINE TO ASSIST IN SEWING.—FRONT VIEW.

A separate apparatus, as shown in Fig. 2, is provided for cutting the thumb pieces. The knives used are made of the very best steel, and demand special accuracy in their manufacture.

In some Parisian factories they have a more complicated form of cutting tool, in which the glove, besides being cut, is provided at the same time with the holes through which the sewing thread is to pass. Such an apparatus has, however, from its complexity, been found to be too uneconomical to warrant its extended introduction.

In sewing the gloves, silk is ordinarily used. A small contrivance is employed for this purpose, which, besides serving to hold the glove while being sewed, furnishes also a guide in making the stitches. As shown in Figs. 4 and 5, it bears some resemblance to a vise, and is ordinarily kept closed by the pressure of a spring, but can be opened at pleasure by means of a treadle. The jaws of this vise are furnished with a pair of brass plates, changeable at will, which have their upper edges provided with a row of teeth, the latter being placed at varying distances apart on different plates.

In sewing, the two portions of the glove are allowed to project slightly above the comb, sufficiently to permit the seam being made with the necessary freedom. The needle is made to pass through the glove in the spaces between each two teeth, and the seam thus acquires its uniform and pleasing appearance. This machine has been in use ever since its invention, in 1807, by James Winter, of England, and is still extensively employed, despite the fact that special sewing machines have been brought to the notice of the trade, capable of sewing within the same time three times as many pairs as the most skillful seamstress.

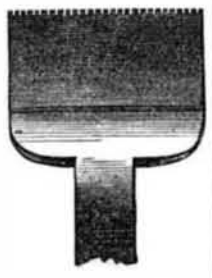


Fig. 5.—Machine to assist in sewing. Side view of head.

After sewing, the gloves undergo various minor operations, such as straightening those portions that may have become distorted, flattening the seams, pressing, etc., and are then ready for the market.

Hyposulphite in Diphtheria.

A very large number of diphtheria cases are cited by a Boston physician as having been successfully treated, in his own practice, by the use of hyposulphite of soda, in doses of from five to fifteen grains or more in syrup every two or three hours, according to age and circumstances; as much as the patient can bear without physicking being a good rule in the severer cases. The tincture can be used in doses of five drops to half a drachm, in milk, the amount for thorough stimulation being greater than can be taken in water, and, in the treatment of children, the milk thus used answers for food. As, however, the hyposulphite prevents the digestion of milk, it should not be given in less than an hour from it, though they may be used alternately, in frequent doses.

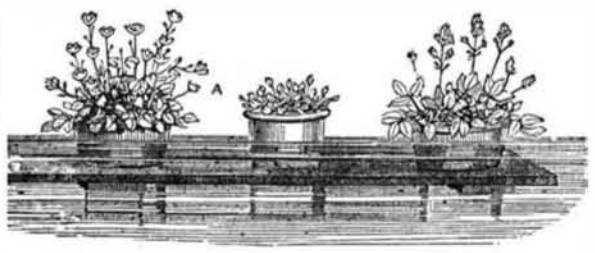
GRAVITY OF WOODS.—The woods which are heavier than water are Dutch box, Indian cedar, ebony, lignum-vitæ, mahogany, heart of oak, pomegranate, vine. Lignum vitæ is one third heavier, pomegranate rather more. On the other hand, cork, having a specific gravity of ·24, and poplar, ·383, are the lightest woody products.

Freezing Point of Ether.

Our common ethylic ether, improperly called sulphuric ether, because made by the action of sulphuric acid upon alcohol, is known to be a substance which does not freeze very readily. Its freezing point has been variously stated by different investigators, but Franchiment thinks that pure ether cannot be frozen. He has cooled it to —80° C. (—112° Fah.) and it remained a thin liquid showing no signs of crystallization. In ether containing any water, white crystalline flakes form at a very low temperature, but the less water there is present the lower the temperature required will be, and the smaller the quantity of crystals. Franchimont thinks that these flakes are not crystals of ether, but ice crystals. The question seems to be one not easily settled, for few experimenters care to work at such extremely low temperatures, obtainable only by the expenditure of so much time, labor, and expense.

A FLOATING FLOWER BED.

G. F. Wilson in *The Garden* gives his experience of a float which he has successfully used in the cultivation of bog and water plants, and says: The raft is 8 feet square and consists of nine planks, connected underneath by crosspieces, and having about 2 inches open spaces between; this was sunk by the weight of the pots, pans, and pieces of rock to 2 or 3 inches under the surface. On the raft bog plants in pots and water plants in pans were placed, with the result that, with no attention, they flourish as well as in their natural homes. After a time, when the wood has become saturated with water, and its floating power thus lessened, we nailed large pieces of cork underneath the raft; this enabled it to carry a heavy load. The plants now growing on the raft number twenty, and were chosen as representative plants. There are the North American pitcher plant (*sarracenia purpurea*), *saxifraga palmata*, buck beans, bog violets (*pinguicula vulgaris*), grass of Parnassus, several sorts of mimulus—the spotted mimulus overgrows its pan, and with floating roots in the water is most beautiful—*lobelia cardinalis*, bog myrtle, a large variety of yellow iris, and North American lady's slipper (*cypripedium spectabile*). It is obvious that, while the raft floats between 2 inches and 3 inches under water, each



pan or pot may be adjusted according to the requirement of its inhabitant; thus a water plant is sunk to the full depth, while a plant requiring only moist soil is raised up by a piece of wood placed under its pot. Probably a still more ornamental form would be a round raft of wood with cork or wood fastened with copper nails to form sides, the bottom to have only small holes all over to admit the water; there might be cross divisions for different mixtures of soil suitable for the various plants, made not deep enough to show above the surface; in this case the whole raft would be covered with soil, and all woodwork, except the sides, hidden.

A Fertilizer from Blood.

A Frenchman named Lissagaray has taken out a Bavarian patent for making a fertilizer from blood. High pressure steam is first passed into the blood so as to cause it to boil and coagulate the albumen. The coagulated blood, while still hot, is pumped up on a linen filter stretched across a frame, and the greater part of the liquid drained off from the coagulum, which is packed in bags made of stronger linen, piled one upon the other, and squeezed between the plates of a hydraulic press, then dried in a wheel divided into four compartments, into which is passed hot air. In this way the nitrogenous portion of the blood is all retained in a form in which it is not liable to immediate decomposition, rendering it less offensive to handle and transport. If the blood be subjected to this treatment while fresh, the operation should not be particularly disagreeable.

Tellurious Odors.

Some salts of bismuth, more especially the nitrate and carbonate, have recently come into favor, and been prescribed by medical men for certain disorders of the system (*Ann. Pharm.*) It has been remarked in several cases in England that persons to whom either of these preparations had been administered were affected in an unaccountable way, the breath and skin acquiring an intolerable odor. It appeared at first sight probable that the cause lay in the presence of arsenic in the bismuth, but analysis of the salts has shown them to be contaminated with tellurium. Tetradymite, a compound of bismuth and tellurium, is a mineral which has been met with in many localities, and may easily have caused the contamination of the crude metal.

We may add that among workers in ores containing tellurium in Colorado, it is well known that, if they inhale the vapors of that metal, or take it into the system, they soon begin to emit from every pore an odor, compared with which the smell of rotten eggs, sulphuretted hydrogen, or bisulphide of carbon are savory substances. Tellurium is a metal resembling tin in color, but it has many of the characteristics of sulphur.

Henry Ward Beecher on the Railway Strike.

There is no class of men who deserve the gratitude of the community more than those who operate our great railroads. I shall not satisfy myself if I do not express the gratitude which I feel, and which I think every man should feel, for that most honorable class of laboring men in our midst. Considering the vast extent of these roads; considering how they have changed the forms even of industry and civilization; considering how the industrial interests and the very happiness of society are dependent on them; considering what an instrumentality the railroad system has become in the civilization of our land and in our time—considering these things, the men who conduct this system and make it successful are certainly worthy of consideration. Civilization would be obstructed and in many respects destroyed but for these workers upon this multiplex and universal machine. The faithful men who operate it are responsible for an incalculable trust; and in general they execute that trust so as to demand recognition and gratitude on every hand. In all weather, by night and by day, they toil, carrying their lives in their hands. No man more than the engineer sows without reaping. No man carries such responsibility with so little remuneration. Millions of men by his care and fidelity are sped upon their errands safe from disaster who give him never a second thought.

The general sobriety of all the operatives on our great roads, and their usual carefulness, are unquestionable. Myriads of men daily are indebted to them. Their heroism often breaks forth in most illustrious acts. It is seldom that in any great catastrophe we do not hear of some among the engineers and their faithful assistants who heroically risk their lives. The stationary men who care for the depot, the switchmen and the brakemen, all of them, though humble in position, are indispensable parts of a machine whose workings are a marvel of modern civilization.

These men, hundreds and thousands and thousands of thousands in number, are, as a class, men that are seeking to become more and more self-respecting men. They organize themselves into "unions" for mutual insurance, for fellowship in life, for succor in sickness, and for an honorable burial when they die. For the exclusion of evil men from their ranks, they organize themselves. There is a moral purpose that animates them. They seek for intelligence, sobriety, and fidelity among themselves, and for mutual protection against the natural selfishness of employers and capital.

Thus far their organizations are eminently wise; but there is a foreign element which has come into these "unions" in America. It is a poisonous element. It is a usurpation of authority over one's fellow workmen. It is an assumption of right by the exercise of force to compass their ends—an assumption which surpasses the most bitter tyranny of Europe, and which would not be tolerated a day in a crowned head. What right has any association of men to say to the master mason, "You shall not work as a laboring man on your own contracts?" What right have they to say to an employer, "You shall never have more than five or six apprentices to learn this trade?" What right have they to say to him, "You shall employ nobody but 'union' men?" What right have they to dictate to free men as to how they shall carry on their business? They have a right to say, "If your business is carried on in a way that is prejudicial to our interest we will not work for you." The continent is large; the door to enterprise is open for all; and let no man be compelled to work where it is not for his interest to work; but who clothed any of these "unions" with authority to say, "Such men shall work, and only such men shall work; so many shall work, and only so many shall work; they shall work under such conditions, and they shall work only under such conditions?" It is a denial of freedom, it is a blow at personal independence and popular liberty; and if there were any considerable danger of its spreading, if it did not carry in itself the elements of its sure defeat, it would be time to raise the banner and lift the voice like a trumpet, against this clandestine industrial tyranny.

It is the virus that has vitiated the course of these disaffected railroad laborers; and it is a subject of profound regret to all who sympathize with them that they have put themselves in an attitude in which their friends cannot defend them, and in which the public peace and safety require that they should be resisted and subdued.

The reduction of their wages is the solitary grievance which is alleged as an excuse for their misconduct. But men whose pay is not sufficient have a right to refuse to work for the pay. They are not bound to work for less than they deserve. But they have forbidden those men who are willing to work for that pay to avail themselves of it. It is not enough for them to say, each man for himself, "I will not work for one dollar a day," but they turn to their neighbor and say, "Neither shall you." They say, "I have a family to support, and a dollar and a half never can feed my children;" and when a man who is without a family says, "It will feed me," the response is, "It shall not feed you; for if I will not work for that, neither shall you work for it." They have seized the property of companies, and domineered it. They have taken the law into their own hands—or, rather, they have trodden it under their own feet. They have disturbed the public peace by riot and violence against the State laws, and against the laws of the whole of these United States. They have thrown the vast business interests of this country into confusion. And, that every element of blame may rest upon them, they have shed the blood of those who have the authority of their State in their hands. And this has been done, evidently, by a combination running through the whole country, from ocean to ocean. It exhibits the tendency of a class interest to seek its ends, not by open, reasonable methods, but by an organized conspiracy which has in it every element both of opprobrium and of peril.

The strike went to show that labor had not received its full remuneration; that working men were subjected to a great many petty injustices, and that the way of acquiring prosperity was not the way of the grog shop. It was by the way of more work, better work, more refinement, nobler ambitions and larger manhood. Discontentment and strikes did no good, neither did the attempt to make men work eight hours with wages of fifteen. It is an American doctrine that every man must stand upon his own level. It is said that the world owes every man a living. That is so when a man earns it. Again, that the world should take care of all men. Man was born to take care of himself, but sometimes he is cared for by his mother, and afterward by his wife. Man should be valued according to his achievements. If he achieved as much as a fly he is entitled to an equal reward for what he did. If he is an eagle, he has a right to the whole air. No man has a right to go high by artificial merits; it must be through merit. Men may go into a rebellion, and learn that two pounds weigh more than one. The law of nature is on the side of two pounds. A man who drinks beer and grumbles, and works one tenth of the day, says that he is as good as the next man. That depends on who is the next man.

The test of all governments and combinations was, "How much individual liberty did they secure to each one?" To restrict the individuality of a single man was pernicious and poisonous. The tyranny of combinations was just as much a tyranny as that of the despot upon the throne. Human nature was the same all the world over. He said it would be the glory of his life if he might see the majority of the working men happy in houses of their own. In speaking of the adversity that overtakes many, he said that when a man has hard times he should not grumble or complain. He ought to be manly enough to be manly when he is poor as well as when he is rich. When he comes down to a single dollar a day, must he throw up his hands in despair? Is that the manly course for a man? If you are being reduced, go down boldly to poverty. Bankruptcy never hurts a man until it takes his manhood. Working man, work more and grumble less. Mr. Beecher said that he did not say that a dollar a day was enough for a working man, but it would give a man bread. Man ought to be superior to his circumstances. He should not suffer the outside world to shake him. He should stand, not crawl. Don't sneak, but bear adversity as well as prosperity.

A NEW method of preserving the bodies of the dead has just been exhibited in Berlin. It is the invention of a Mr. Tominetti of Hamburg, and consists in a thorough drying of the tissues by means of an injected gas, which absorbs the moisture and drives it out through the pores. Prepared in this way, an animal preserves its form and color in perfection. Mr. Tominetti exhibited a bear which had thus been treated after his death four months previously. Slices were cut from the body to show that the tissues were not destroyed but, except for their desiccation, were preserved in excellent condition.

Inventions Patented in England by Americans.

July 10 to July 17, 1877, inclusive.

BALE TIE.—S. N. Drake *et al.*, New Orleans, La
BLIND ROLLER.—Henry Hughes (of San Francisco, Cal.), London, Eng.
BOOT AND SHOE MACHINE.—G. W. Copeland *et al.*, Malden, Mass.
BUTTER TRAY, ETC.—C. Ingersoll, Beloit, Wis.
DOOR AND WINDOW SASH.—H. E. Russell, New Britain, Conn.
GAS APPARATUS.—E. T. Thomas, New York city.
GAS LIGHTER.—K. Vogel, Chelsea, Mass.
HERMETICALLY SEALED PACKAGES.—C. Lewis, Boston, Mass.
LOCK.—H. E. Russell, New Britain, Conn.
LUBRICATOR.—R. Hawarth, New York city.
MOULDING MACHINERY.—A. K. Rider, Walden, N. Y.
OZONE, PURIFYING.—F. W. Bartlett, Buffalo, N. Y.
PLAITING MACHINE.—H Albrecht, Philadelphia, Pa.
SAW BLADES, MANUFACTURING.—J. A. House, Bridgeport, Conn.
SHEET METAL PIPE.—H. K. Flager, Boston, Mass.
STEAM PACKING.—H. Greenough, Boston, Mass.
TOY.—L. Seasongood, Cincinnati, O.
WATER METER.—H. B. Hayes, Woburn, Mass.
WOODEN SOLED SHOES.—T. R. Hyde, Westerly, R. I.

NEW BOOKS AND PUBLICATIONS.

A POPULAR TREATISE ON WATER SUPPLY ENGINEERING: relating to the Hydrology, Hydronamics, and Practical Construction of Water Works in North America. With numerous Tables and Illustrations. By J. T. Fanning, C.E. New York: D. Van Nostrand, Publisher, 23 Murray street. 1877.

The author says in his preface that this work is intended more for those who have already had a task assigned for them, and who, as commissioner, engineer, or assistant, are to proceed at once upon their reconnoissance and surveys, and the preparation of plans for a public water supply. Its aim is to develop the bases and principles of construction, rather than to trace the origin of or to describe individual works. The book is divided into three sections, the first treating upon the collection and storage of water in its impurities; the second upon flow of water through sluices, pipes, and channels; the third, practical construction of water works. In the introductory chapter of the first section the influences of a liberal water supply are pointed out, and then follow statistics and tables of water supplied to various American and foreign cities, the ratios of consumption during the different seasons, and the reserve capacity necessary to provide water for the use of a fire department. To those who have to estimate large quantities of water the statistics and diagrams will prove of great value. The hydrology of the United States is discussed in chapters relating to rainfall, flow of streams, storage and evaporation of water, supplying capacity of water sheds and supplies from wells and streams. The second section opens with special characteristics of water, its weight, pressure and motion, and is followed with chapters on the flow of water through orifices, ajutages, pipes under pressure, upon channels, and to measuring weirs and weir gauging. The third section includes about one half the entire book and embraces the practical construction of water works. The first subjects discussed are reservoirs, embankments and chambers, and canal banks. The proportions of waste ways and the safety valves of embankments are fully discussed. Waste weirs and dams of masonry and timber cribwork are exemplified and described. Following this are chapters on proportions, construction, and laying of conduits of masonry and mains and distribution pipes of metal, and the valves, hydrants, and appendages of the distribution systems. The clarification of water is fully discussed and sediments and impurities are duly considered, the processes of treatment by infiltrations, precipitations, and filtrations are described. The management and maintenance of filter beds and basins are illustrated and described. The concluding chapter is a brief discussion of the several systems of water supply, and includes a review of the methods of gathering and delivering water, choice of water, systems of pumping, etc. An appendix is added, giving tables, equivalents and formulas, of value to hydraulic and mechanical engineers.

THE ANTELOPE AND DEER OF AMERICA. A comprehensive scientific treatise upon the natural history, including the characteristics, habits, affinities, and capacity for domestication, of the Antilocapra and Cervidæ of North America. By John Dean Caton, LL.D. New York: Published by Hurd & Houghton. Boston: H. O. Houghton and Company. Cambridge: The Riverside Press. 1877.

The author says that the natural history of these animals, the pursuit of which has been his favorite recreation, has occupied his leisure for many years, during which time he has kept in domestication all of the American deer of which he treats, except the moose and the two species of caribou. This has given him opportunities of making observations of them, which in the wild state he could not do. The habit of noting these observations accumulated a vast amount of facts, which those competent to judge deemed of scientific value, and so he was induced to put them in a form that would be available to others. He makes no attempt to exhaust the natural history of the few animals of which he treats, but contents himself with a mere monograph of them, leaving their osteology and anatomy almost entirely for other hands, invading their province only so far as is necessary to give completeness to the externals of the animals studied. His aim has been to carefully observe facts and to accurately state them, and to truly exhibit nature and her workings. In the illustrations he has tried to make them true to nature regardless of the question whether they were ornamental pictures or not. The full figures, as far as possible, are drawn from photographs, taken while the animals were standing at ease, believing in this way he could give a truer idea of them than when they were made to assume striking and unusual attitudes, although these attitudes might be more attractive to the eye. The book is written in a free and easy style, interspersed with anecdotes enough to make it interesting, even to those who care but little for the subject which the author has chosen for his discourse.

AN ELEMENTARY COURSE OF CIVIL ENGINEERING FOR THE USE OF CADETS OF THE UNITED STATES MILITARY ACADEMY. By I. B. Wheeler, Professor of Civil and Military Engineering in the United States Military Academy, at West Point, N. Y., and Brevet-Colonel, U. S. Army. New York: John Wiley & Sons, 15 Astor Place. 1877. Price $4.

This treatise has been compiled and arranged especially for the use of cadets of the United States Military Academy and with regard to the limited time allowed them for instruction in this branch of their studies. The author defines civil engineering as the designing and building of all works intended for the comfort of man, or to improve the country by beautifying it or increasing its prosperity, and gives in regular order the elementary principles, common to all branches of engineering, which are essential for the student to learn, that he may understand the nature of the engineer's profession, and know how to apply the principles that he has already acquired. In the first part, building materials are taken up; and under the head of wood, all kinds of timber are treated upon, their kinds, classes, defects, durability, and preservation, noticed. Stones, bricks, concretes, and glass follow. The metals used in engineering constructions are then taken up; uniting materials as glue, lime, cements, and mortars follow, and preservatives as paint, japanning, oiling, varnishes, coal tar, asphaltum, metal covering, etc., close this part of the work. Part second treats upon the strength of materials, as strains, tension, compression, shearing, flexure, torsion and strength of bearing. Part third treats of framing. Part fourth of masonry and masonry construction. Part fifth of foundations on land and in water. Part sixth of bridges, as trussed, tubular or iron plate, arched, suspension, movable and aqueduct, and of bridge construction in general. Part seventh treats of roofs, and part eighth of roads, their location and construction, closing with a chapter on railroads and one upon canals.

THEORY OF TRANSVERSE STRAINS, AND ITS APPLICATION TO THE CONSTRUCTION OF BUILDINGS. By R. G. Hatfield, Architect, Fellow of Am. Inst. Architects; Mem. Am. Soc. Civil Engineers; Author of the American House Carpenter. John Wiley & Sons. Price $6.

This book is intended especially for architects and for students in architecture and contains much that should be useful to civil engineers. Those who can command the time to read the work carefully through will here find the subject of construction so far as it applies to floors, girders and roofs, carefully elaborated and thoroughly elucidated, algebraically, graphically, and arithmetically. Those who have not the leisure for studying the work in detail may still derive assistance from its many useful results; which are classified in a directory, showing at a glance the particular rule needed in any given case, whether it be of a lever, a beam, a tier of beams, a header, a carriage beam with one, two, or three headers, a girder, solid, framed, or tubular, or a roof truss; and for those who are very limited in time, there are tables containing the dimensions required for floor beams and headers, of four several kinds of wood and of rolled iron; and all these are for dwellings, office buildings, halls of assembly, and first class stores. There is a table showing the thickness of floors made of timber, solid. In many other tables are recorded the results of experiments upon several of our American woods, made by the author expressly for this work, to test their resistance to flexure, rupture, tension, compression and sliding. Other tables give the values of constants which are derived from these experiments and which are used in the rules given in the body of the work. This feature gives to the work its great practical value, as well as the manner in which the principles of the science have been so carefully and lucidly developed. This work ought to become popular with students; the steps by which access is gained to the more intricate portions of the subjects treated are so easy and gradual that those even whose knowledge of algebra is quite limited will, by ordinary attention, be able to progress satisfactorily, and in a reasonable time become familiar with the more important of the subjects treated. To secure a knowledge of the useful results to the student unversed in even the simpler processes of algebra, a practical example is given to elucidate every rule, in which the practical application of the rule is shown by arithmetical processes worked out in detail. For the purpose of fixing in the mind of the student the subject matter of each chapter, there are appended questions of a practical nature, and at the end of the work the answers to these questions are given. An extended index, as well as a table of contents, will facilitate the labors of those who have occasion to consult its pages upon any particular subject.

REPORT OF THE DIRECTORS OF CENTRAL PARK MENAGERIE; Department of Public Parks, City of New York, for the year 1876.

The additions to the menagerie of the Park during the year are: mammals, 197, birds 145, and reptiles 51. The number of animals was 983. As compared with previous years, the donations have gradually decreased, which is attributable to the establishment of zoological gardens in other cities or where the owners of animals find markets for their specimens. The number of specimens during the year have diminished from the effect of a reduction of appropriation of funds and an order not to receive animals unless the owners agreed to furnish necessary food for them. There was an increase of visitors to the menagerie, which is accounted for by the great influx of strangers passing through the city, to and from Philadelphia, to visit the Centennial. The amount expended for the year was $15,418.10, against $18,089.92 of the previous year, being a reduction of $2,671.82.