part of M. Delray's report upon the subject. After having recalled past experiments in that direction, M. Delray stated that M. Moissan's method consisted in submitting hydrofluoric anhydric acid to the action of very strong electrical influence and intense cold (from — 23° to — 51° C.). After two or three hours of this treatment, a gas is obtained which it does not seem possible can be any thing but fluor.

The ancient Sorbonne re-opened its venerable doors some days ago; M. Lavisse, professor of modern history in the literary faculty, delivering the opening address. A new chair, that of physical geography, has been created, which will be filled by M. Vélain, a geologist.

The Musée du Louvre some time ago received several fine specimens of Persian art of very great antiquity. They consist of a series of warriors, in relief, natural size, of enamelled and colored bricks. They come from the palace of Darius, in Susa, having been brought thence by M. and Mme. Dieulafoy. These specimens of Persian art are the first that have been found, and have excited much admiration here. Unfortunately the venerable warriors are not as well suited by the climate of Paris as by that of the Susian province, the dampness of the air disagreeing with them; and, to prevent the crumbling of these remains of the great Darius's palace, they are to be submitted to a preservative process, — heating to a high temperature after having been covered with spermaceti. The operation will be an extensive one, as each brick must be treated separately.

Among the books recently published, I would call special attention to Vulpian's second volume on diseases of the spinal cord, which came from the press two days ago. In this excellent work the able physiologist makes known all that his clinical experience and physiological experiments have taught him these many years. A good book, also, is that of Alex. Peyer: 'Atlas de microscopie clinique.' It is a collection of a great number of figures relating to pathological substances and morbid products. Each plate is accompanied by a lengthy explanation. This book will prove very useful to the practitioner as well as to the student, and is gotten up in very handsome style. V.

Paris, Nov. 13.

NOTES AND NEWS.

THE annual report of the surgeon-general of the navy, Francis M. Gunnell, says that 8,429 patients in the navy were treated during the year, with 52 deaths, — less than 1 to 162. He complains that the navy has not sufficient inducements in rank and pay for young physicians to become medical officers, while the army has many applicants. An appropriation is urged for a yellow-fever hospital at Widow's Island, near Portsmouth, N.H.

— Commander Schley has received the gold chronometer voted to him by the Maryland legislature as a testimonial in consideration of his bravery and efficiency in the rescue of Lieutenant Greely.

— Gas has recently been discovered at several places in Indiana in supposed paying quantities. The following places are reported to have wells which have been sunk to a successful end: Eaton and Muncie in Delaware county, and Kokomo in Howard county. Prospecting is being carried on in most of the larger towns of northern Indiana.

— Captain Anderson of the Norwegian bark Hebe reports to the U. S. hydrographic office that on Aug. 24, 1886, while in the Indian Ocean (11° 52′ south, 90° 17′ east), a tremendous sea passed the vessel, looking as if it had come from shoal water. The sea, just before and after the passage of the wave, was perfectly smooth; light breeze at the time from the south-east. No soundings were taken. The charts in this locality give no soundings, and the captain is of the opinion that the wave may have been due to an earthquake.

— The French ministers of foreign affairs and of public instruction will shortly place before the Chamber of deputies a *projet de loi* relating to literary and artistic copyright, in order to carry out the conclusions of the Berne international convention.

— The president and council of the Royal society have awarded the Copley medal to Franz Ernest Neumann of Königsberg, for his researches in theoretical optics and electro-dynamics, and the Davy medal to Jean Charles Galissard de Marignse of Geneva for his researches on atomic weights. Prof. S. P. Langley of Alleghany City was awarded the Rumford medal for his researches on the spectrum by means of the bolometer. At the same time Francis Galton, F.R.S., and Prof. Guthrie Tait were nominated for the royal medals, the former eminent for his statistical inquiries into biological phenomena, and the latter for his various mathematical and physical researches.

— In a pneumatic street-car system for which a patent has recently been granted, air is compressed at a central station, and distributed through pipes to reservoirs, situated between the tracks and below the street surface, at points on the road where supplies of compressed air for the pneumatic locomotives are needed. Tanks on the locomotive hold sufficient compressed air to propel it from

one reservoir to the next, where the supply is replenished by means of a quickly adjusted tapping-pipe which connects the reservoir with the tanks. A similar system, differing in details, was projected some years ago, but without tangible results.

— Vol. xviii. of the Tenth census of the United States ('Social statistics of cities,' part i., by G. E. Waring, jun.) treats of the principal cities of the New England states, and of New York, New Jersey, Pennsylvania, and Delaware, to the total number of 53. Part ii. will describe the principal cities of the rest of the United States. The character and scope of the work may be seen in the following list of subjects, in accordance with which each city is treated more or less fully : history ; site, elevation, topography, climate, and tributary country ; means of communication ; streets, pavements, and public parks ; sewerage, water and gas supply ; police, fire, and health departments ; schools, churches, and cemeteries ; hospitals, penal and reform institutions ; etc. At the present time, when the movement of our population toward cities is so rapid, and the problems of municipal drainage, water-supply, paving, etc., so press for a solution, the value of this compilation is apparent. The volume is freely illustrated with maps showing past as well as present conditions. The historical maps of Boston are especially worthy of notice.

— Vol. xx. of the Tenth census of the United States ('Statistics of wages, necessaries of life, trades societies, strikes and lockouts,' by J. D. Weeks), though long delayed, makes a very timely appearance, as its contents throw a flood of light upon the condition of the laboring classes, and will doubtless aid in the solution of the question, 'Do strikes pay?' It appears that during the year 1880 there occurred 762 strikes or lockouts. Of these, details were obtained regarding only 226, or less than one-third. As a consequence of these 226 strikes and lockouts, there was a loss in wages of $3,711,097. If the same proportion carries through the others, there was a direct loss to the laborer of nearly $12,000,000, or fully one per cent of the total wages paid. This takes no account of industries which were broken up or driven away in consequence of such strikes. An examination of the comparative tables of wages does not indicate that the results in raising wages have been commensurate with this loss.

— According to the vital statistics of Germany for 1885, 4,091 males and 1,209 females committed suicide. The methods of self-destruction were as follows : hanging, 3,567 ; drowning, 1,177 ; shooting, 611 ; poison, 232 ; cutting their throats, 112 ; throwing themselves under railroad trains, 77 ; throwing themselves from heights, 49.

— Captain Gager of the steamship Louisiana reports to the U.S. hydrographic office at New Orleans, that, on his last trip from New York to that port, he found an almost entire absence of current in the Gulf Stream. Captain Gager states that this has generally been his experience when the water in the Mississippi was unusually low, and connects the absence of Gulf Stream current with this fact. This is not unusual after a strong northerly wind.

— The *Boston medical and surgical journal* says, that, in estimating human character, the ear affords a better criterion than any of the other features. An ear which presents no well-defined elevations and depressions indicates selfishness and want of delicacy of perception. The possessor of a thick, well-shaped, highly tinted appendage, set well forward, is usually ungrateful, grasping, and lacking in depth of feelings. A thin ear indicates keen susceptibility ; and an ear that projects from the head, alertness. A broad ear is more coarsely practical. The perfect ear is one which lies close to the head, and is gracefully rounded with pretty curves, strong lines, and firm, delicately tinted cartilage.

— Numerous instances have been recorded of late in the medical journals, of the complete reunion of portions of fingers which had been cut off from the hand, in some cases by the knife, and in others by the axe. In one case a man, in cutting kindlings for the morning fire, accidentally cut off the end of his thumb. He had gone from the place some twenty feet, when he returned, picked up the end, wiped it and replaced it, binding it in its original place as nearly as possible. The wound united ; and the finger is now as good as ever, save that its sensibility is somewhat diminished. In another case a boy chopped off the ends of three fingers. He was seen by a physician three or four hours after the accident. The ends of the fingers had been found in the snow, and were brought to him. He attached them, and two of the three united.

— A physician, in a letter to the *Medical record*, narrates a case in which one of his patients, who is suffering from dyspepsia accompanied by the eructation of gas, burned his hair, eyebrows, and mustache by the ignition of some of the gas as it came from his mouth, while at the time he held a lighted match in his hand.

— At a recent meeting of the New York pathological society a case was reported in which a negro child, which died at the age of two months,

had but one lung, the left. The right was rudimentary, and had never been inflated. The heart was also malformed, having but one auricle and one ventricle, both being the left.

— The *New York medical record* has the following, not very flattering account of the family of the great Caesar: "In the Claudian-Julian family, beginning with Julius Caesar himself, and ending with Nero, we have an almost unbroken line of neuroses. Caesar himself was epileptic; but probably the disease developed late in life, from exposure and excesses, and did not much affect his health. Augustus, his grand-nephew, had, it is believed, writer's cramp. Julia, his daughter, seems to have been little more than a nymphomaniac; she had an imbecile son. Tiberius was a man naturally heartless, cruel, and licentious; in his later years he seems to have lost all moral sense, and illustrated the most shameless sensibility and cruelty. Caligula, reputed great-grandson of Augustus, was epileptic as a boy, badly formed and weak-minded as a man. He stuttered, was insomnious, and apparently had hallucinations. Claudius was also weak-minded, timid, and credulous, with unsteady gait, weak knees, shaking head, and dribbling lips."

— In speaking of the preservation of dead bodies, *Gaillard's medical monthly* says that Edward I., who died in 1307, was found not decayed four hundred and sixty-three years subsequently. The flesh on the face was a little wasted, but not putrid. The body of Canute, who died in 1017, was found fresh in 1766. Those of William the Conqueror and his wife were perfect in 1522. In 1569 three Roman soldiers, in the dress of their country, fully equipped with arms, were dug out of a peat-mass near Aberdeen. They were quite fresh and plump after a lapse of about fifteen hundred years. In 1717 the bodies of Lady Kilsyth and her infant were embalmed. In 1796 they were found as perfect as in the hour they were embalmed. Every feature and limb was full. The infant's features were as composed as if he had only been asleep for eighty years. His color was as fresh and his flesh as plump and full as in the perfect glow of health. The smile of infancy and innocency was on his lips. At a little distance it was difficult to distinguish whether Lady Kilsyth was alive or dead.

— The British schooner Souvenir (Captain Fraser) reports to the U. S. hydrographic office that they encountered a very severe electric storm on the 24th of November, off Block Island. A heavy gale was blowing from south-west to west. There was terrific squalls with remarkably brilliant lightning and tremendous thunder, and torrents of rain. The vessel was completely covered with St. Elmo's fire, and the sea was full of phosphorescence. The compasses and barometer were very greatly affected, the former varying from one to three points either way, and the mercury in the latter trembling and 'pumping' violently.

— During the annual meeting of the American society of microscopists at Chautauqua, N.Y., last August, some of the members under charge of the 'working session committee,' collected, by means of a surface-net, quite a number of fresh-water forms from the lake. The Crustacea found included, of the Copepoda, two species of Diaptomus, two of Cyclops, and one each of Episcura and Ergasilus; of the Cladocera, there were found Daphnella brachyura (Lievin), Daphnia cederstromii (Schoedler), Chydorus sphaericus (O. Fr. Muller), Leptodora hyalina (Lilljeborg); also Ceriodaphnia and Bosmina. The Crustacea were put in the hands of Mr. C. S. Fellows for identification, who will report at the next meeting of the association.

— The Brazilian government has appropriated ten thousand dollars for an agricultural experiment-station, and inquiries are being made abroad for a competent specialist to take charge of it. There is an agricultural school near Bahia, in charge of Dr. F. M. Draenert, a German, but thus far there are no experiment-stations in the empire.

— Despatches from Buenos Ayres state that cholera is on the increase there. Seventeen new cases and nine deaths were reported in the city in one day. In Rosario thirty-four new cases and twenty-five deaths occurred, and at Cordova twelve cases and five deaths.

— A case of actinomycosis is said to exist in Springfield, Ill., in the person of a young lady employed in a manufacturing establishment in that place. Its common name is 'lump-jaw,' and appears as a tumor of the jaw. Although affecting cattle and swine, it very rarely attacks human beings. This is certainly true for this country, although thirty cases are said to have occurred in Germany in four years. It is a disease caused by a vegetable parasite, the actinomycis or ray-fungus. Some place this parasite among the Schizomycetes, others among the fungi. The disease may also appear in the lungs and in the intestines. The germs are supposed to enter the jaw through decayed teeth or the tonsils, and the resulting tumor shows itself at the angle of the jaw.

— The nineteenth annual meeting of the Kansas academy of science was held at Emporia, Kan., Nov. 17, 18, and 19. The welcoming address was given by Pres. A. R. Taylor of the State normal

school, and evening lectures by the president of the academy, Prof. E. L. Nichols, of the University of Kansas, on 'The sky,' and by Prof. John C. Branner, of the University of Indiana, on 'Geologists, professional and unprofessional.' The following papers were read: F. H. Snow, Rain cycles in Kansas; E. B. Cowgill, Meteors of the Biela train; T. H. Dinsmore, jun., The meteors of 1885 and 1886; T. H. Dinsmore, jun., and A. D. Crooks, Color-blindness in the State normal school: E. L. Nichols, On black and white; W. S. Franklin, On some curves allied to Lissajou's figures: E. L. Nichols and W. S. Franklin, A preliminary note on the electro-motive force due to magnetism; E. B. Cowgill, On the magnetization of a ring; T. H. Dinsmore, jun., A new illustration of the arc light; D. S. Kelly, The coal-measures of Lyon county; Robert Hay, Historical sketch of geological work in Kansas; A. H. Thompson, Additional notes on history of geological work in Kansas: F. H. Snow, On the species of Dakota leaves in the museum of the University of Kansas; Joseph Savage, Pink and white terraces of New Zealand; Concretionary forms; Robert Hay, Natural gas in eastern Kansas; G. H. Failyer and J. T. Willard, Preliminary report on the chemistry of the natural gases of Kansas; E. H. S. Bailey, Miscellaneous chemical notes; G. H. Failyer and J. T. Willard, Some notes on the determination of lithium, and on its occurrence in a mineral spring in Jewell county, Kan.; On some mineral waters of Kansas; E. H. S. Bailey, On the composition of the lime solution in which straw is digested in the straw-paper manufacture; E. C. Franklin, Proximate analysis of Artemisia annua; L. E. Sayre, A preliminary analysis of Astragalus mollisimus (loco weed); J. T. Willard, On variations in the sugar-content of Sorghum vulgare, with an account of some efforts to improve the species; T. H. Dinsmore, jun., New distillation apparatus; T. H. Dinsmore, jun., and W. S. Picken, Notes on the effects of oxygen on animal life; M. A. Bailey, The minus sign; B. B. Smyth, Figurate series; A. H. Thompson, Ethics among animals; J. A. Udden, Some mounds on Paint Creek, McPherson county; John D. Parker, On mounds in Davis county; J. R. Mead, Explorations among the Pueblo ruins of New Mexico; L. L. Dyche, Notes on the humming-birds; N. S. Goss, Additions to the catalogue of the birds of Kansas; L. L. Dyche, List of birds observed near Hermit's Peak, Las Vegas, N. Mex., with notes; F. H. Snow, Note of the occurrence in Kansas of the Mississippi shapper, or alligator turtle; F. W. Cragin, On a new variety of a rare Sonoran reptile from Kansas; J. R. Mead, List of the fresh-water Mollusca of Sedgwick county; E. A. Popenoe, A list of Kansas Hymenoptera in the museum of the state agricultural college; C. L. Marlatt, On the cedar saw-fly; W. Knaus, On the distribution of species of Kansas Coleoptera; E. A. Popenoe, A revised list of the Coleoptera of Kansas; C. L. Marlatt, Notes on the oviposition of the Buffalo tree-hopper; F. H. Snow, A preliminary list of Kansas desmids; W. A. Kellerman and M. A. Carleton, Second list of Kansas parasitic fungi; W. A. and Mrs. Kellerman, Kansas forest-trees identified by leaves and fruit; J. H. Carruth, Scraps of botanical history; F. H. Snow, A list of plants collected in New Mexico by the scientific expeditions of the University of Kansas.

— Messrs. Ticknor & Company, Boston, announce the publication of Goethe's 'Faust, a commentary,' by Denton J. Snider (2 vols., 12°, $3.50). This is a treatise on the greatest of German poems, giving its history, critical standards, and outline, and analyses and explanations of all the scenes and situations, as seen from a philosophical point of view.

— The seventh annual meeting of the American society of mechanical engineers was held in this city from Nov. 29 to Dec. 3, Vice-President Towne presiding in the absence of President Sellers. The opening address was a review of the early history of steam-engines in this country, by Horatio Allen. The following papers were read: Prof. F. Reuleux, Friction in toothed gearing; Prof. R. H. Thurston, Friction of non-condensing engines; A. Wells Robinson, Dredging machinery; Benjamin Baker, The working-stress of iron and steel; Andrew C. Campbell, A new conicograph; Prof. G. Lanza, Strength of shafting; William Kent, Heating capacity of water-gas: Professor Alden, Formulae and tables for calculating the effect of reciprocating parts of high-speed engines; William Cowles, Fire-boats; George H. Barrus, The new calorimeter; Oberlin Smith, Intrinsic value of special tools; W. E. Partridge, Capital's need of high-priced labor. Among the topics discussed were the following: Transmission of power by flying rope; Practical value of the sand-blast for sparpening files; Feed-pumps and injectors; Effects of exposure upon aluminium bronze; Annealing-furnaces for small gray-iron castings; Grit in grinding-rooms, yards, and shops; Expansion and contraction of drawing-paper; Cutting of intricate templets from very thin metal; Equipment of mechanical engineering laboratory; Problems for students of mechanical engineering in the last year of their regular course; Power required to drive modern American machine-tools. The officers elected for the ensuing year are, president,

George H. Babcock; vice-presidents, Joseph Morgan, jun., Charles T. Porter, Horace S. Smith; managers, Frederick G. Coggin, John T. Hawkins, Thomas R. Morgan, sen.; treasurer, William H. Wiley.

— It is announced that the British government has taken possession of the island of Socotra, in the Indian Ocean, heretofore belonging to the imamat of Muscat. For many years the British government had subsidized the governor of the island, but had had no direct control over it. Socotra lies about 120 miles east of Cape Guardafui, near the entrance to the Gulf of Aden, and in the direct route of vessels passing between Suez and India. The island is 70 miles long by 20 miles broad, with an area of about 1,000 square miles, and a population of nearly 5,000, mostly Arabs, negroes, and Portuguese. A range of granite and limestone mountains extends through the middle of the island, rising in places to a height of 5,000 feet. The low coast-lands are fertile, producing aloes, dragon's-blood and other gums, tamarinds, dates, and tobacco.

— Snow hall, for the uses of the natural history department of the University of Kansas, at Lawrence, was formally dedicated on Nov. 17.

— The government of Queensland is taking vigorous measures to guard that colony against the rabbit-plague mentioned in *Science* of Nov. 12. A rabbit-proof fence of wire netting will be erected along the boundary-line between Queensland and New South Wales, with an extension of a hundred miles northward along the boundary of South Australia. For this purpose, 2,550 miles of fencing wire and 450 miles of wire netting have already been purchased in England.

— While the question of the advisability of women studying medicine is being discussed, the women are settling it for themselves by entering the medical schools in no inconsiderable number. At Zurich twenty-nine are now pursuing that study; in London, forty-eight; and at Paris, one hundred and three. At the latter eighteen have obtained their diplomas of doctor during the past seven years.

— An unsinkable lifeboat recently patented by a gentleman in Buffalo, N.Y., possesses some novel features. The entire lower part of the boat is filled with sheets or slabs of cork, set up edgewise and fastened together. Above this is a filling of rushes, set up vertically and having their ends rendered water-proof. Above the cork and rushes is a water-tight deck, which separates the lower half of the boat from the upper half, where seats are provided for crew and passengers.

LETTERS TO THE EDITOR.

Fort Ancient, Warren county, Ohio.

HAVING recently, in company with Messrs. W. H. Holmes and Charles M. Smith, visited some of the more noted ancient works of Ohio, among them the one mentioned above, I have concluded that a few words in regard to its present condition might be of interest to general readers as well as to archeologists.

This work has been so often described, that most readers interested in our antiquities are familiar with it. The first notice and plan were given in the 'Portfolio' (1809). Both plan and description were copied by Caleb Atwater in his memoir in the first volume of the Transactions of the American antiquarian society (1820). About twenty years later it was carefully surveyed by Prof. John Locke, his description and plat being published in the Transactions of the Association of American geologists and naturalists (1843). This plat was copied by Squier and Davis in 'Ancient monuments,' and is the one from which all subsequent figures have been taken. It is quite accurate in the main; so nearly so, in fact, that another complete survey may be deemed unnecessary. Some slight corrections might be made; but these, with two exceptions, which will be named, are of minor importance.

As remarked by Squier and Davis, this is "one of the most extensive, if not the most extensive, work of this class in the entire west." It is also one of the best preserved, the main portion having suffered but little from the plough; the surrounding wall being uninjured save at the points where the turnpike cuts through it, and at a few places where ravines have been recently formed. As earthen walls change but little so long as they are covered with vegetation, it is more than probable that we see this great structure (with the exceptions hereafter noted) as it was when abandoned by those last occupying and using it. For example: the wall at *d* (Squier and Davis's figure), in the north-eastern corner, although in an open field, shows no signs of material wearing; the height being now a little over nineteen feet, and width at base sixty-seven feet, — almost exactly the measurements given by Atwater. Growing on the top are some large trees whose roots are not at all exposed. With the exception of a short stretch at the point mentioned, the wall throughout is still in the unbroken forest.

Evidences of wearing are observable at some of the ravines it crosses, and a few of the smaller gullies appear to have been worn since the wall was built (a fact also mentioned by Atwater), though in most cases the adaptation of the wall to the slopes shows that these existed when it was thrown up. Professor Locke states that the "embankment is in several places carried down into ravines from fifty to one hundred feet deep, and at an angle of thirty degrees, *crossing a streamlet at the bottom*, which, by showers, must often swell to a powerful torrent. But in all instances the embankment may be traced to within three to eight feet of the stream." Although our visit was during an unusually dry season, when the ravines contained no water, the indications observed did not bear out what seems to be implied by Professor Locke's language, — that the wall originally crossed the ravines: on the contrary, they appear to show that the wall stopped on the sides at the points reached by the streamlets in time of highest water. It is true that at some points it has been