disposition to spread laterally, but grows in close tufts. These spring from a dense, knotty mass of small, closely aggregated root-stocks, which bear a profusion of long, fibrous roots. Year after year these rooty masses produce an abundance of new shoots, which rise from the surface amid the old. Each ultimate root-stock becomes the site for a closely clustered colony of compound shoots; and these secondary tufts, compacted into a single mass, make up the plant. A slight lateral prolongation of a shoot is sometimes necessitated by an obstruction in the most direct way to the surface, but this is the nearest approach to subterranean spreading. In no other of our species of Carex, of the section Montanae, do we find the counterpart of the underground stems of C. Pennsylvanica. The closest approach towards them is shown by C. umbellata. From its dense underground tufts, this plant sometimes produces short underground stems; these are, however, more like suckers, and do not stray far from the parent plant, merely assisting to increase its dimensions. C. pubescens is of less tufted habit than either of the other species of this section; the shoots being irregularly produced by a progressive underground stem, or root-stock, which, however, bears no resemblance to the underground runners of C. Pennsylvanica.

The Brookville society of natural history, Indiana.

May 6. — A. W. Butler described the extent of the Niagara formation in Franklin county, and gave a section showing the stratification near the town of Laurel. He described the varying thickness of the strata, the economic uses of the stone, the southwestward dip of the strata, and the quantities of chert which are found in locations on top of the best building-stone. —— D. R. Moore gave an account of some peculiar mounds in Butler county, O., and Franklin county, Ind., confining his time mostly to the 'Glidewell mound,' four miles northeast of Brookville. This mound is situated nearly three hundred feet above the east fork of the White Water River, on the point of a ridge jutting out into the river. The mound is sixty feet in diameter, and at present is twelve feet high. It is built of earth which has been brought from some other locality, as no such earth has been found within about half a mile of its location. The mound has been covered with large, flat stones, overlapping each other after the manner of shingles on the roof of a house; and these stones are now covered with vegetable mould, in some places to a depth of almost two feet.

Academy of natural sciences, Philadelphia.

April 29. — Mr. Joseph Willcox called attention to a fine collection of upwards of eighty specimens of fifty species of marine sponges made by him during the winter in Florida, and presented to the academy. Continuing his remarks on the geology and natural history of Florida, Mr. Willcox stated that the rocks which line the west coast extend out for many miles into the Gulf of Mexico, making the waters very shoal. The channels of the streams from the mainland continue out through these rocky shoals in the same direction, and with the same tortuous course as before reaching the shore. The limestone of the peninsula is soft, and eroded into a vast number of caverns and sink-holes. Where exposed at an elevation, the rock becomes hard and firm, in some localities resembling marble. Referring to Agassiz's suggestion that the sea-urchins of the coast which cover themselves with seaweed do so for protection, the speaker remarked that such an explanation was open to doubt, as allied forms which have the habit of covering themselves with little mounds of white shells are rendered thereby much more conspicuous. The common conch of the coast, Busycon pyrum had been found spawning under the sand, the egg-cases always being attached to a shell at least eight inches below the surface. He had been interested in the numerous saw-fishes which swim about in shallow water. When approached, they settle quietly in the sand until partially covered, when, feeling secure, they will allow themselves to be almost touched before darting away. In this condition, they are readily held down with a spear, when they elevate the head, turn up the saw, and pull it repeatedly, and with sufficient force to make a deep notch in the wooden handle. —— Referring to the collection of sponges, Mr. Edward Potts remarked that they were all siliceous, with the exception of one interesting calcareous species. He had received several fine fresh-water sponges from the St. John's River, in the neighborhood of Palatka, collected by Mr. Mills of Buffalo. He believed one of the forms to be an undescribed species of the genus Meyenia, for which he proposed the name subdivisa. He was informed by Mr. Willcox that the comparative scarcity of fresh-water sponges in that region was, doubtless, owing to the superabundance of confervoid growths, which not only covered submerged logs, etc., but also flourished on the backs of the alligators.

NOTES AND NEWS.

THE *American* of Philadelphia announces the *personnel* of the new biological department of the University of Pennsylvania as follows: "At the head, as director, and professor of anatomy and zoölogy, was placed, of course, Dr. Joseph Leidy, whose selection guarantees to the scientific world the value of the new department. With him are to be associated Dr. J. T. Rothrock, professor of botany; Dr. A. J. Parker, professor of comparative anatomy; Dr. Harrison Allen, professor of physiology; Dr. Horace Jayne, professor of vertebrate morphology; and Dr. Benjamin Sharpe, professor of invertebrate morphology. That there will be enthusiastic, earnest, and thorough work done, is insured by all of these names."

— *Nature* states that tickets have been applied for as follows for the Montreal meeting of the British association: members elected prior to October, 1882, 379; members elected since October, 1882, 181; associates (relations of members), 120: total, 680.

— Mr. W. T. Lynn, late of the Royal observatory, Greenwich, writing to the *Observatory*, on the eclipses

during the war of Xerxes with the Greeks, makes an attempt to decide upon the most probable nature and dates of these 'eclipses,' which have occasioned chronologists so much trouble, from the assumption that they were solar eclipses, and from the difficulty of finding any such eclipses that could be identified with them. In the history of Herodotus, two 'portents' are said to have happened in the sky (besides many terrestrial ones) during the memorable war between the Greeks and the Persians under Xerxes, and (after his flight from Salamis) under Mardonius. The first of the two is mentioned in the seventh book of Herodotus, where he says, that in the early spring, while Xerxes was at Sardis preparing to set out on the Grecian expedition, "the sun, leaving his seat in heaven, became invisible, and, instead of day, it became night." The date when this expedition, and the battles of Thermopylae and Salamis, took place, is considered to have been B.C. 480. No eclipse of the sun could, however, have been visible in western Asia during the spring of that year. Sir George Airy suggested, in 1853, that the total *lunar* eclipse of B.C. 479, March 14, was the probable cause of the alarm and inquiry of Xerxes. Mr. Lynn, reviewing briefly the evidence on this point, concludes that this 'portent at Sardis' (respecting which Herodotus could not have been in possession of full information) was really of the nature of some remarkable meteorological phenomenon. But of the other 'portent' referred to by Herodotus in his ninth book, Mr. Lynn regards his account as likely to be more accurate, as it was visible in Greece. The prodigy was this: "While he was offering sacrifice to know if he should march out against the Persians, the sun was suddenly darkened in mid-sky." Mr. Lynn finds that a large solar eclipse (but not nearly total) occurred on the 2d of October, B.C. 480; and he is inclined to the belief that this was the phenomenon which frightened Cleombrotus, the brother of Leonidas, who was in command of the Spartan troops.

— In a recent scientific *feuilleton* in the Paris *Débats*, Mr. Henri Parville quotes a reference to the singular action of oil on waves by Theophylactes, the Byzantine historian of the sixth century. The passage occurs in a dialogue on 'various natural questions.' The question propounded is, why does oil make the sea calm? and the answer given is to the effect, that as the wind is 'a subtle and delicate thing,' and oil is 'adhesive, unctuous, and smooth,' the wind glides over the surface of the water on which oil has been spread, and cannot raise waves, not being able to obtain any hold on the water.

— The Linnean society of New South Wales offers a prize of a hundred pounds for an essay on 'The life-history of the bacillus of typhoid-fever.' The essay should be received by the society not later than Dec. 31, 1884. The intention and wishes of the donor of the prize will be best given in his own words: — "The questions chiefly to be solved in the investigation of the life-history of the bacillus of typhoid-fever are: 1°. What are the specific characters of the organism, as distinguished from other bacteria? 2°. What are the changes, if any, which the organism undergoes in the human body? 3°. What are its modes of development and reproduction in the human body? 4°. What changes or metamorphoses, if any, does the organism undergo after ejection from the human body, or in any other condition of its existence? 5°. What fluids or other substances seem best adapted for the growth and multiplication of the organism? 6°. Can the organism live or be cultivated in pure or distilled water? 7°. What are its limits of endurance of heat, cold, dryness, or humidity? As far as these points are concerned, the author should confine himself entirely to facts which come under his own observation; and those should be given in detail, with a full explanation of the method of investigation. But in dealing with the results obtained by these investigations, and the consideration of the means whereby a knowledge of the life-history of this most dangerous organism may help towards its eradication, the theories and observations of others may appropriately be referred to; but in every such case the authority must be correctly cited. The chief points to be ascertained in this branch of the subject are: 1°. How, and under what conditions, does the organism get access to the human body? 2°. How can its growth be impeded, or its vitality destroyed, in the human body, without serious injury to the individual affected? 3°. How can it be eradicated or rendered innocuous in wells, water-holes, drains, etc.?"

The president of the society, in announcing the prize, remarked that the present seemed to be a very opportune time to bring this matter forward, as the subject was now engaging the serious attention of medical men, owing to the prevalence of typhoid-fever. He had been given to understand that Australia offered exceptional opportunities for the investigation of the bacteria, as the climate was favorable for their growth during the greater part of the year.

— Professor Tyndall has given during the past winter, at the Royal institution, a course of lectures on 'The older electricity, its phenomena and investigators,' showing what was known of electricity up to the time of Faraday; at first thought, not a promising subject, but apparently successfully worked out by the lecturer.

— Prof. C. A. Young's 'The sun' (one of the International science series) has been translated into Russian, as well as into French, German, and Italian. In England eight thousand copies have been sold, and it has been very favorably received in this country.

— A very ingenious arrangement has been made by the Great northern telegraph company of England for telegraphing to China. The peculiarity of the Chinese language is, that the single characters do not stand for letters, but words, of which there are six thousand. For use on the new Chinese lines, the company has had special wood blocks made, on one end of which the word and facsimile are cut, while on the other end a number specially standing for the word is cut. The telegrapher substitutes the numbers for the words in transmitting a telegram, while

messages arriving in the numbers are deciphered in the same manner by means of the blocks.

— An attempt will be made to place the collections of the late Dr. Engelmann, of which he made no disposal, in the Shaw botanic gardens of St. Louis.

— In a recent article on the Edinburgh university festival, *Nature* says, "Silently and unconsciously, perhaps, the universities are passing from the exclusive domination of the older learning. At Edinburgh the emancipation is far advanced, but has yet to take shape in a definite re-arrangement of the curriculum of study. No thoughtful scientific man would advocate a merely scientific education. The foundations of every man's culture should be laid broad and deep in those humanizing departments of thought which the experience of centuries has proved to be admirably fitted for the mental and moral discipline of youth. But the day is not far distant when it will be acknowledged that modern science must be admitted to a place with ancient philosophy and literature in the scheme of a liberal education, when in all our universities provision will be made for practical instruction in scientific methods, and when at least as much encouragement will be given by fellowships and scholarships to the prosecution of original scientific research as has hitherto been awarded to classical study or learned indolence."

— Dr. V. B. Wittrock, curator of the herbarium of the Royal academy of sciences, Stockholm, Sweden, has issued, in a handsome folio volume, the first fasciculus of his Erythraea exsiccata, in which he proposes to represent and illustrate all the known species and forms of this critical genus. He wishes to include the American forms, and, likewise, the few European ones which are naturalized in North America. In this view, he invites the correspondence and cooperation of those American botanists to whom species of Erythraea are accessible. No truly indigenous species occurs on our Atlantic border: so this announcement is particularly addressed to botanists in Arkansas, Texas, and especially New Mexico and California.

— Antimony ores have been found in numerous parts of New South Wales. The ore consists of oxide and sulphide of antimony, and occurs in original bunches, occasionally of a considerable size, enclosed in a quartz matrix, which forms the chief constituent of the lodes.

— Whoever wishes to consult a concise compilation on primitive metallurgy will find Dr. Andree's *Die metalle bei den naturvölkern* (Leipzig, 1884, 166 p.) a most useful work. The subject is divided according to the geographical distribution of the peoples using the metals. The first two chapters, about one third of the book, are given to the discussion of iron and copper among the Africans; another third is taken up with the consideration of Asiatic metallurgy; and this is followed by five chapters on the iron, copper, bronze, and gold of America, with a final chapter on the use of iron in the South-Sea Islands. There are fifty-seven figures of various native blast-furnaces, bellows and tongs, of Africa, Asia, and Malaysia, and of the metal implements and ornaments of America. These all are referred to their original sources. A great number of authorities have been consulted, and all are noted conscientiously. The work deserves a place in the working-library of every student of the primitive arts; while its method and style are such as to interest the general reader.

— In a lecture on the dawn of mind, delivered at Owens college, Manchester, Eng., March 28, by Mr. G. J. Romanes, he claimed that the whole structure of mind took its rise from excitability, or the aptitude to respond to nervous stimulus, which was a characteristic of all matter that was alive. Next to excitability, in an ascending scale, they had the functions of discrimination and conductibility. Discrimination he believed to be a function of all nerve-cells: it was the power to discriminate one stimulus from another, irrespective of the degrees of their mechanical intensity. Conductibility was a function which admitted the possibility of reflex action, and of the co-ordination both of muscles and of ideas. In the faculty of discrimination they had the physical aspect of that which elsewhere was called choice; because choice, if it was analyzed, was merely the power of discriminating between one stimulus and another. With the aid of an elaborate diagram, Mr. Romanes traced what he held to be the various grades in the process of mental evolution from excitability as the root of the mind. The diagram had forty lines or levels. Any given level represented the earliest stage in the development of all the faculties named therein; the animals in which, and the age of the human being at which, they first appeared; also the grade of development at which human intelligence was arrested in idiocy and deaf-mutism. The diagram was not, he said, a mere production of his imagination, but was the result of his study of the subject. At the bottom, on a level with excitability, he placed protoplasm. Reason, he thought, arose out of the powers of perception; for the simplest possible perception involved some act of inference,— an act unconsciously performed, perhaps, but performed all the same. Regarding reason in its lowest phase, it must be placed immediately above the association of ideas, because they might regard it as a process of unconscious or deliberate inference, and this occurred in monkeys, dogs, and elephants. Next above reason he placed indefinite morality, or the germ of conscience. Indefinite morality was the feeling of dislike at offending those for whom the child or animal having it felt an affection. Definite morality was much higher in the scale: it was, in fact, at the top, on a level with man. A child at birth he placed, in this process of mental evolution, on a level with jelly-fish; at five months old, he put the child on a level with pigs, horses, and cats; and at nine months, on a level with the anthropoid apes. He could not help feeling that the doctrine of evolution, as a whole, was a somewhat hard doctrine, — hard as an answer to the question which must at some time, or in some shape, have occurred to most: 'Shall not the Judge of the whole earth do right?' The answer that evolutionists made to that seemed to him to be a hard one; for it said, that in the order of nature the

race was always to the swift, and the battle, without fail, to the strong. Thus the voice of science proclaimed a new beatitude: 'Blessed are the fit, for they shall inherit the earth.' This doctrine seemed to constitute might the only right. But if this world was a world of sorrow, struggle, pain, and death, at all events, the result, so far, had not been altogether profitless. Whatever the 'far off divine event' might be, to which 'the whole creation moves,' the whole creation, with all its pain, and in all its travail, was certainly moving, and moving in a direction which made, if not for righteousness, certainly for improvement.

— The Italian government has determined to offer, on the occasion of the opening of the Turin exhibition, a prize of four hundred pounds for the most practicable process for the transmission of electricity.

— At a recent meeting of the New-York academy of sciences, Mr. G. F. Kunz stated, that while unpacking some specimens of fluorite from Amelia county, Va., he had noticed the display of phosphorescence, a pale greenish light, by the mutual attrition of the specimens, the same being excited also by the warmth of the hands. By the heat of a candle, this phosphorescence was increased, and, on a red-hot stove, became a deep emerald-green. This led Mr. Kunz to examine fluorite from over a dozen localities, and he found that only chlorophane yielded phosphorescent light by attrition. In Phillips's Mineralogy, edition of 1823, a specimen of fluorite, described by Pallas, from Siberia, is mentioned, which yielded light by the warmth of the hand. The fact that attrition will cause phosphorescence, Mr. Kunz considered new; and as the same result was produced by chlorophane from Branchville, Conn., it was looked upon as a new distinguishing characteristic between chlorophane and common fluorite, as pectolite from Bergen Hill is distinguished from the fibrous zeolites and other associated minerals.

— Dr. Otto Struve states, in a letter to Dr. David Gill, that, during the publication of vol. x. of the Pulkova observations, he has reduced a series of parallax measurements of α Tauri (Aldebaran) made thirty years ago. Twenty observations give for the parallax (from position-angles), $0''.500 \pm 0''.075$; while the distance-measures give $0''.538 \pm 0''.089$, the mean being $0''.516 \pm 0''.057$. The agreement of the values obtained by these totally different methods is to be regarded as evidence of a comparatively large parallax, and shows that there are still large parallaxes to be looked for among the stars.

— Mr. Khersevanoff, director of the Institut des ingénieurs des ponts et chaussées of St. Petersburg, has elaborated a project for a grand work on the physical geography of Russia. Woeikof, the well-known meteorologist, has just issued a volume on the climates of different parts of the earth. Barabosh has devoted some years to the study of Manchuria. The results of these studies, made on the spot, have at last been printed by the authorities, but the work is not on sale. The annexation of Merv has again called the attention of geographers to the great work of Grodekoff on the Turkoman country, of which the third volume has recently appeared, and the fourth is printing. A work by Alikhanoff, printed by the general staff, as well as the detailed report of Lessar, recently summarized in these columns, have been issued, but are also withheld from publication. Lessar has received the gold medal of the Imperial geographical society, and is again at work in the field, where he is charged with the reconstruction and improvement of the wells along the route from Askabad to Merv.

— The great chart of Russia in Asia, comprising not only the Russian possessions, but portions of China, India, Persia, the whole of Beluchistan and Afghanistan, and nearly the whole of Russia in Europe, has been appearing in sheets during the last six months, and is now completed. In spite of the faults inherent in such a vast undertaking, it will prove most useful; and the eight large sheets, on a scale of 1:4,200,000, are sold at the low price of ten francs.

— There has recently been formed at St. Louis the St. Louis society of microscopists. This organization is distinct from the St. Louis microscopical society. The officers are: president, Frank L. James, Ph.D., M.D.; vice-president, W. B. Hill, M.D.; secretary, H. Ohman-Dumesnil, M.D.; treasurer, Thomas F. Rumbold, M.D.

— A prison congress is to be held in Rome in October, 1884. The circular calling attention to the congress is issued by the U.S. bureau of education, with an apology for touching upon such matters as having to do with the discipline of this life.

— In the discussion at a meeting of the London Society of arts, on Dr. Percy Frankland's paper on Thames water-supply, Sir Robert Rawlinson gave some facts, from his long experience as a government sanitary engineer, that are of special interest with reference to the theories brought into prominence by the cholera commissions. He denied that the much-praised mountain streams were any purer in regard to organic matter than ordinary river-water, since "every particle of growing matter was imbued with ammonia, which would combine with the water, and there was also the chance of other forms of impurity from decaying organic matter," and they often had a bad effect on the health of strangers, who were well enough where the water was supposed to be much worse. "It seemed to be a question of acclimatization," and he believed that the changing from one class of water to another might be very injurious. "But, taking water as it is found on the surface of the earth, he would say, that, out of the whole population of the globe, ninety-five per cent must be drinking water, which, according to chemical tests, ought most seriously to injure the health; and more than fifty per cent of the water would horrify any person who had its chemical contents explained to him." In India and China, water was always polluted; and on the European continent wells were almost invariably sunk in farmyards. In 1833, 1849, and 1854, cholera prevailed in the district of Stafford-

shire, which drained into the river Thame, from which Birmingham draws its water-supply; yet Birmingham escaped. When there were two thousand cases of cholera in Newcastle-upon-Tyne, and the water at Tynemouth was so bad that it was sold in cans with flannel tied over the nozzles to keep the impurities back, not a single case of cholera occurred in Tynemouth. In the Crimea the Sardinian contingent of the army was stationed on a hill, and their water-supply was drawn from a large Prussian fountain in the oolitic rock; yet, of the sixteen thousand men, a thousand died from cholera in the first month. When he came back to England, he heard Dr. Snow explaining the theory that cholera-polluted water was necessary to the production of cholera; and he then said to him, that he must be mistaken, because he had seen, on the largest possible scale, that it was not a fact, and, whatever might produce cholera, he was satisfied that it could not be imputed in all cases solely to impure water.

— Appendix No. 7 of the coast-survey report for 1883 is a 'Table of depths for harbors on the coasts of the United States,' prepared in outline by Commander Lull, and expanded by Messrs. Bradford and Parsons. The harbors are arranged in order along the coast from Maine to Texas, and from California to Alaska; and for every one the depth of water is given for the various bars, channels, and anchorages at high and low water of mean and of spring tides. This occupies one hundred pages, and is followed by an index of twenty-four more, making a work of great thoroughness, that must prove of high value to all of our coasting-vessels. A brief introductory mention of the tides states, that along our eastern coast to St. Augustine, Fla., the tides show no diurnal inequality, the two tidal waves of a single day being practically equal in range. On the Pacific coast the tides are of the more normal type, showing a diurnal inequality in height of flood, that becomes most apparent when the moon is farthest north or south of the equator, and disappears when it is on the equator. This is also characteristic of the peninsula of Florida; but along the northern coast of the Gulf of Mexico, to the Rio Grande, there is but one tide in each lunar day, and that is of small range, and disappears when the moon is on the equator. 'Wind tides' are here very marked, especially with on or off shore winds that blow for several days. The range of tide can be closely determined from the harbor tables.

— The report of Admiral Mouchez, director of the Paris observatory, was presented to the council at a recent meeting. The number of meridian observations made in 1883 amounted to the number of 23,830, five times the largest number made at any other establishment. A new fifteen-inch telescope was completed during the year, and with it one of the satellites of Mars was observed during the opposition of January. After the reading of the report, there was a special discussion respecting the removal of the principal instruments of the observatory to a position outside the city of Paris. This project has met with much opposition in the academy and elsewhere; but the observatory feels obliged to urge it, from the impossibility of finding a good foundation for large instruments. A piece of ground was purchased from the city a few years ago, on which to mount the great telescope of twenty-nine inches aperture, which is now in course of construction. The whole region is, however, so mined by the catacombs, that no good foundation can be secured; and it is considered absolutely necessary to mount it outside the city. It is considered that the grounds now owned by the observatory could be sold for a sum sufficient to found a new establishment.

— Mr. Arthur F. Gray has earned the thanks of conchologists by preparing, in a neat octavo of twelve pages, a complete list of the scientific papers of Thomas Bland. The works of this veteran and philosophical student of the Mollusca extend over the period of thirty years subsequent to 1852, and are seventy-two in number. Several were published jointly with Mr. W. G. Binney, and the series is one of which any naturalist might well be proud. We trust Mr. Bland may be spared to enlarge it indefinitely.

— The immense work of Mr. Elisée Reclus, the *Nouvelle géographie universelle*, begun in 1874, has now reached its ninth volume. The subscribers have received their promised instalments regularly, and without fail. The last volume deals with southwestern Asia. The *Athenaeum* says, "That one man should have been able to do so large an amount of work, is matter for surprise; and that he should have done it so well, is almost phenomenal.

— Lieut. E. K. Moore, in a paper reprinted from No. 29 of the Proceedings of the U. S. naval institute, has given a detailed description of the method of testing chronometers at the Naval observatory. A small 'temperature-room' was built with double walls, the space between the walls being filled with sawdust. This room is heated by the circulation of hot water, and is cooled by ice in a refrigerator beneath the flooring, when a temperature below that of the outside atmosphere is required. The heating-apparatus, which is in a room adjoining the temperature-room, consists of a small copper boiler, under which are two Bunsen burners. The boiler is fed from a tank overhead. In the gas-pipe supplying the burners, there is a spring valve, operated by the armature of an electro-magnet. Two minute gas-jets serve to light the larger burners when this valve is opened. The electro-magnet is in circuit with a mercurial thermostat, which is so adjusted, that, when the mercury in the tube of the thermostat is at or above a height corresponding to the temperature at which it is desired to keep the room, the circuit is closed, and the gas is cut off from the burners; but, if the mercury falls below this point, electric contact is broken, the valve is opened, and the water heated and caused to circulate in the pipes which pass around the room and return to the boiler. This automatic arrangement has been found to keep the temperature within a range of two degrees.

Some time during the cooler months of their trial, the chronometers which are to be tested are placed

in the temperature-room for about fifty days, and during this time they are given two tests at three different temperatures (between 45° and 90°); one set going from a lower to a higher temperature, and one from a higher to a lower, always beginning with one extreme, and ending with the same. The chronometers are also tested for polarity by rating them with the XII of their faces north, south, east, and west successively. "Great care should be taken, when chronometers are suspended in their gimbals, that they swing perfectly free, but without play enough to give them a jar; and the gimbals should be so adjusted that the chronometers will always hang with their faces level." Two chronometers, both running very regularly, were canted 9°, first with the XII down, then with the VI, IX, and III down successively, leaving them two 'terms' of seven days in each position, and placing them level again for two terms between the successive changes. "They both *lost* on their level rates, varying from five-tenths to three seconds, and were more or less irregular; but, when placed level again, they each time came back to their regular rates, running a little irregularly at first." The paper is illustrated by a number of drawings of the apparatus, diagrams of temperature curves, etc.

— The following item comes from the Pilot-chart data, collected by the hydrographic office, under date of Philadelphia, May 15: "Schooner M. A. Nutter (British), at this port, from Bahia, reports on April 21, at 9 A.M., latitude 21° 6′ north, longitude 61° 44′ west, the vessel was shaken from stem to stern by the shock of an earthquake, apparently from the westward." The position assigned for the vessel places it in deep water (about three thousand fathoms), about two hundred miles north-east of Sombrero, Windward Islands; and the date of the shock is noteworthy as being a day before the recent disturbance in England.

— Herr Moritz Honigmann's fireless locomotive, worked by chemically induced heat, has been used regularly since March 31 for passenger-traffic between Stolberg, near Aix-la-Chapelle, and Würfelen. When charged, it is found, the locomotive will go for twelve hours.

— Capt. Sörensen has communicated some important observations, taken in the arctic seas, to the Société de géographie of Paris. They include numerous rectifications of the charts of Spitzbergen, especially of the shores of the canal between the West Island and Prince Charles Island, and of Wood Bay, the head of which is divided into two arms, like Wijde Bay. From Cape Platen, North-east Land, Capt. Sörensen saw on the 28th of August, to the north and east, a land composed of an elevated plateau, cut into two parts by a fiord. A shipmaster from Tromsö also saw this land in 1876, and it is indicated on a chart of these seas issued at Tromsö by the captains of that port. This is probably the Gillis Land of old charts, lying between Spitzbergen and Franz Joseph Land.

— One afternoon, during the recent cruise of the Albatross, in the Caribbean Sea, several boobies were flying around the ship; and finally one of them alighted on the forecastle, when he was caught by one of the men, who, after amusing himself and his ship mates a while, tossed it overboard, expecting it would take itself off as quickly as possible; but, to their surprise, it returned immediately, alighting on the rail, where nearly every man of the crew had congregated to watch its performance. It did not seem to be distressed in any way, and went deliberately to work re-arranging its plumage, which had been somewhat ruffled by handling, calmly surveying the noisy crowd of men gathered around it. They tried to feed it, offering every thing that could be found, but nothing seemed to suit its taste. It would not submit quietly to being handled, but made no attempt to fly away; and, although tossed overboard six times during the afternoon, it returned as often, invariably alighting in the same place among the men, where it finally took up its quarters for the night, remaining till six o'clock the next morning, when it left without ceremony, and was not seen afterward.

— The working in agate, jade, and chalcedony, done at Idar and Oberstein in Germany, was described by Mr. G. F. Kunz at a recent meeting of the New-York academy of sciences, and many of the articles manufactured there exhibited. Some perforated carnelian ornaments were shown, in which the perforations, round at one end and over an inch across, run to an acute point, and vary in length from two and a half to four inches. These ornaments are sent to the interior of Africa, and sold at from four to five cents each, and are there worn by the natives. A jade pendant was shown over an inch and a half long, being one of a lot of over two hundred pounds of jade made up and sent to New Zealand. Mention was made of a mass weighing nearly three hundred pounds, to be used for the same purpose. The cost of making these ornaments at Oberstein was about forty cents each, which was much less than they could have been made for by native or skilled New-Zealand labor. There was also exhibited an oval carnelian disk that had been shaped for cutting by chipping with a small hammer: this chipping is equal to any that can be seen on American stone antiquities, and the entire cost is perhaps one cent. Some onyx beads were also shown, that in London or Ceylon would bring from ten pounds to twenty pounds sterling per string, and were here made for as many dollars. Mention was made of an American who achieved a fortune by importing the elephantine dentalium from the Red Sea, and selling to our American Indians. These instances illustrated the far-reaching influences of modern commerce in the most remote regions of the earth, and also the increasing difficulty in determining the genuine character of supposed aboriginal work in jade, chalcedony, and other similar material.

— Charles Adolphe Wurtz, the distinguished French chemist, died May 12, in his sixty-seventh year.

— The Houghton farm has issued in pamphlet form (ser. iii., No. 3) an account of experiments on the diseases of plants as affected by different fertilizers and the condition of the soil.