been pretty extensively employed for lighting, and lately experiments have been made with a view to their adoption for street-car work. A car in Brooklyn equipped with these cells has made over eighty miles with one charge, — a record which has not been equalled; although the distance a car can go does not determine the value of the battery used, since the very important question of weight should enter, and in this case the weight is over five thousand pounds. The Detroit cells have been recently tested at the Johns Hopkins University, and a few figures as to their performance will be of interest. Taking a cell with 15 plates, of which the total weight is 80 pounds, the following results were obtained: charge rate, 15 ampères; discharge rate, 20 ampères; storage capacity, about 220 ampère hours; efficiency, between 75 and 80 per cent. This cell, after experiments at normal charge and discharge rates had been made, was charged at a rate of from 75 to 85 ampères, and discharged at over 250 ampères; and this was done a number of times. At the end of the tests there were no signs of deterioration, which, considering the rough usage to which the cell had been subjected, speaks well for their durability, although the length of the experiments was not sufficient to test their length of life under normal conditions.

THE MAGNETIC PROPERTIES OF NICKEL. — Professor Ewing, whose researches on the magnetic properties of iron are so well known, has examined the magnetization of nickel under various conditions. He finds that nickel behaves very much as iron does when submitted to a magnetizing force. The permeability, or magnetic conductivity, is small at first, then increases to a maximum, then decreases again. The maximum value of the induction obtained was 5,380, so that nickel is about one-quarter as magnetic as iron. When a piece of nickel was heated to redness and then allowed to cool slowly in the air, its permeability increased. On stretching a piece of nickel, its permeability decreased rapidly. For example: a certain specimen of wire had a value of the maximum magnetic susceptibility for no load, of 15. With a load of 13 pounds, this was reduced to 2.6, while at 26 pounds it was but .95. On submitting specimens to compression, the reverse effect was found: as the pressure increased, the magnetic susceptibility increased from 5.6 at no load, to 29.0 at a load of 45 pounds per square millimeter.

A CHALLENGE TO THE WESTINGHOUSE COMPANY. — Mr. Harold P. Brown has issued a challenge to the Westinghouse Electric Lighting Company, to a competitive test of the apparatus of that company against a corresponding continuous-current plant. Each company is to provide a plant capable of furnishing 650 lights. These are to be sent to the Testing Bureau of the Johns Hopkins University, where they are to be tested for efficiency. The loser is to purchase the winning plant, which is to be presented to the university; and he is also to pay all of the expenses of the test. If the Westinghouse Company desires it, they may use one of the Westinghouse engines, while Mr. Brown will employ for the continuous-current plant some other make of automatic high-speed engine. If the Westinghouse Company does not accept the challenge, Mr. Brown will consider himself at liberty to purchase an alternating plant and have the test made. It is to be hoped that the test will be made, as systematic knowledge of the performance of alternating apparatus is wanting, although the marked success of the system speaks well for its efficiency.

THE CONDUCTIVITY OF MICA AT HIGH TEMPERATURES. — W. H. Schultze, in *Wiedemann's Annalen*, describes a number of experiments on the conductivity of mica at high temperatures. It is well known that the conductivity of glass increases rapidly with the temperature, a fact which in many cases is a serious inconvenience. The results of Mr. Schultze's experiments are, that while mica split parallel to the planes of cleavage shares with glass the property of becoming a better conductor as the temperature rises, yet the conductivity reaches a maximum, and after that diminishes until at very high temperatures it becomes infinitely small; so that, comparing glass and mica, it is seen that even at high temperatures the latter is the better insulator.

A. J. DREXEL, the banker, is about to found an industrial college for women at Wayne, Penn., at a cost of $1,500,000.

NOTES AND NEWS.

SOME interesting experiments were made March 22 near Dartford with the Maxim Nordenfelt quick-firing and automatic guns. As described in *Engineering*, the first weapon fired was the Maxim automatic gun of .45 caliber, and with this 334 rounds were fired in twenty-seven seconds. A comparative test was then made between ordinary rifle-powder and the new Maxim smokeless powder. A cartridge containing 85 grains of black powder, and others containing 55 grains of the new powder, were fired. The last-mentioned cartridges gave a slightly greater velocity, and at the same time produced extremely little smoke. Among the other guns tried was an automatic six-pounder, which has a dropping block like the Sharpe's rifle. It requires only two men to work it, one man firing and the other loading. Every thing about the gun is fixed save the gun itself, which is placed inside a jacket, which latter is also fixed. There can be no danger of escape of gas or from a hang-fire. The gun, on being fired, recoils about $4\frac{1}{2}$ inches, and then returns to its original position. The cartridge-case is not ejected till the gun has travelled some little distance on its return journey. The act of putting in the new cartridge pushes forward the ejectors and releases the block, which rises and closes the breech. If great rapidity is required, one man on a saddle with a butt to his shoulder aims and fires, while a man on each side puts in the cartridges. If only one gunner is left unkilled, a single man can work the gun in the following manner: having laid the gun and fixed the trigger in a firing position by a bit of wood or string, he simply puts in cartridge after cartridge, the gun on each occasion going off as the cartridge is pushed forward. It can be fired, with two men to load, sixty times a minute.

— The kaolin and pottery clays of Texas are beginning to attract considerable attention. There have been representatives of several of the different Northern and Western potteries through the State during the last few weeks, looking up the ordinary pottery clays as well as the kaolin of Edwards and adjoining counties. The deposits of these materials are abundant, and of such quality that they are certain to be brought into market at an early day.

— An English correspondent of the *American Field* writes that a new gunpowder, the invention of Mr. Hengst, has recently been tested at the Royal Gunpowder Factory, Waltham Abbey, England, and the results point to it as a promising substitute for black powder for military and sporting purposes. The new powder is prepared from straw, which is pulverized, chemically treated, and finished in granular form for use. It is claimed for this powder that it is smokeless, flameless, practically non-fouling and non-heating, and that both the recoil and the report are less than those of black powder, with superior penetrative power. From the powerful character of this explosive, which, weight for weight, is 150 per cent stronger than gunpowder, and is not explodable by concussion, it is probable that in a compressed form it will be found to be applicable to blasting-purposes.

— President Patton says that after June 1 the Princeton College will have added to its permanent endowment fund $250,000 through the kindness of many old and some new friends.

— Mrs. Eliza A. Clark of Cleveland has given $100,000 to the Cleveland College for Women, a department of the Western Reserve University. One-half the amount is to be expended in erecting the Clark Hall of Liberal Arts.

— The committee on science and art, of the Franklin Institute, has recommended the following awards: of the John Scott legacy medal and premium, to Thomas A. Edison of Orange, N.J., for his invention of the mimeograph, an improved duplicating system and apparatus; of the Elliott Cresson medal, to Edward Alfred Cowper of London, England, and J. Hart Robertson of New York, for their invention of a system of facsimile telegraphy, called "The Writing Telegraph;" of the John Scott legacy medal and premium, to A. A. Marks of New York, for his improvements in artificial limbs; of the John Scott legacy medal and premium, to Thomas Shaw of Philadelphia, for his mine-inspector's gas-testing apparatus; and of the John Scott legacy medal and premium, to Roman

Abt of Luzerne, Switzerland, for his system of railways for steep inclines.

— "According to a careful estimate," says the London *Iron*, "the number of war-vessels launched last year by the naval powers of the world was 60, while more than 100 were building when it closed. England led with 15 vessels launched, and 28 building; France launched 9, and laid down 15; Russia launched 2, and began 10; Germany put 6 vessels into the water, and ordered or laid down 4; Italy launched 10, and laid down 18; Austria launched no vessel, but laid down or ordered 3; Sweden laid down 1; Denmark launched 1, and laid down another; China added 4 vessels to her navy, and ordered or laid down 4 more; Japan ordered 3, and launched 3; the United States launched 6, and laid down 6; Chili ordered a new cruiser in England, and the Argentine Republic contracted for a 4,300-ton ironclad; Brazil laid down a cruiser; and even Uruguay has contributed to the navies of the world, launching a small iron gunboat. The minor powers, like Greece and Portugal, have either contracted for or launched small vessels. Turkey has begun the work of building up her navy, laying down one ironclad and several smaller vessels."

— An article published in the Oil City *Derrick* recently, contains some statements regarding the area and character of the illuminating oil-bearing territory, which *Bradstreet's* believes should be re-assuring to believers in a possible future oil-famine in this country. The oil regions as now developed, the article states, "extend from Wellsville, N.Y., crossing Pennsylvania at nearly a 45-degree line to Dunkard Creek, in West Virginia. On an air line, this covers a distance of 204 miles in length; and, so far as developed, the belt is about 10 miles in width. The yield of the oil-fields up to March 1, 1889, was 340,133,997 barrels. About 150,000,000 barrels of this came from McKean County alone, and this county is still good for 20,000 barrels a day." The total future production of this belt is beyond prediction. It has been noted, says the article, that oil-bearing rock, wherever found, usually yields about the same quantity of oil to a given acre. The yield of oil per square mile of territory during the first fifteen years of its existence is about 1,000,000 barrels. It is considered certain, however, that each of the 204 square miles of territory will not yield this quantity. If it did, the total production there outlined would be about 2,040,000,000 barrels. "This belt of 204 miles is a chain of pools, large and small; and, until the area of each one is known, the total yield would be simply conjecture." The figures and estimates given relate only to the region where the illuminating-oil of commerce is produced; namely, New York, Pennsylvania, and the Macksburg district in Ohio. The great Lima field is not taken into account, nor Colorado, California, Kentucky, or Tennessee. "It has been stated that under the energy of the drill, the Ohio field might be made to yield 100,000 barrels a day. This is not improbable, since the Bradford field in July, 1882, produced 105,102 barrels each day of that month. The Bradford field had no large wells, compared with the geysers of Ohio. Lima oil is worth but about one-seventh as much as the Pennsylvania product, and can never come into competition with it as an illuminant, unless some new process of manufacture is discovered beyond any thing now known. Its utility in the world's economy lies in the direction of fuel, and there is not much likelihood that it will ever be diverted from this field. Natural gas is the only fuel that can compete with it in cheapness, and that is not everywhere obtainable. Natural gas cannot be transported much above 100 miles, and oil-fuel may be carried to the ends of the earth. As far west as Omaha it is now furnishing manufacturers a cheaper fuel than coal." With the above large supplies of oil, both for illuminating purposes and for fuel, in sight, the writer of the article apparently sees little reason to fear an oil-famine, as he states it, as among the immediate probabilities.

— John Ericsson desired that if any biography of him was undertaken, it should be intrusted to his friend, Col. William C. Church, editor of the *Army and Navy Journal*, and the executors of the estate accordingly have turned over to Col. Church all the papers which could be useful in such a work. While it is true that Capt. Ericsson destroyed his diary, all his documents since 1860 were preserved. In private letters and other papers has been found abundant material relative to his youth and the influences which shaped his early career. Col. Church will contribute some valuable papers embodying much of this material to the fall numbers of *Scribner's Magazine*, which have been prepared by the help of these original documents. They will afterwards be expanded into an adequate biography.

— Another of Dr. Andrew D. White's papers on "The Warfare of Science" will be among the contents of the May *Popular Science Monthly*. This article is devoted to diabolism and hysteria, and will contain accounts of the dancing and other manias of several centuries ago in Europe, and the witchcraft delusion in this country, for which many innocent persons met their death, showing that these epidemics originated in nervous derangements, and were magnified and distorted by false theories. An extended reply to Professor Huxley's article on "Agnosticism," which was published in the last number of the monthly, will appear in the May issue. This view of the other side of the subject is given by Rev. Dr. Henry Wace, principal of King's College, and the Bishop of Peterborough, whose earlier utterances had been criticised by Professor Huxley. Every one who has wondered how the marvellous artistic effects of our best mosaic windows are produced will be interested in the account of a visit to a colored-window studio, which Professor C. H. Henderson will contribute. The article is entitled "The History of a Picture Window," and contains illustrations of the several processes of manufacture. Finally, "The Strange Markings on Mars" is the title of an illustrated article. The author, Mr. Garrett P. Serviss, tells how these markings have been explained, and shows the bearing of what is known about this planet upon the question whether or not it is the abode of life.

— The *Contemporary Review* for April (New York, Leonard Scott Publication Company, 29 Park Row) opens with two timely papers on the political situation in France, by G. Monod and P. G. Hamerton; Professor A. V. Dicey discusses the rights of public meetings, viewing the matter from the standpoint of a lawyer, and not as a politician; the Rev. Horace Waller treats of the slave question in Africa in an article entitled "The Two Ends of the Slave-Stick;" Professor Edward A. Freeman contributes a lengthy paper on Christianity and the "geocentric" system; Dr. Dale continues his interesting papers on Australia, devoting himself this month to a consideration of religion and morals; Dean Plumtre writes an interesting and novel paper on Shakspeare's travels in Somerset, Wales, and the Netherlands, basing his argument on extracts from the plays and poems; James Runciman writes on the ethics of the turf; and Professor Stuart treats of the Metropolitan Police.

— The *Nineteenth Century* for April (New York, Leonard Scott Publication Company, 29 Park Row) opens with a rejoinder on agnosticism, by Professor Huxley, in which he replies to the criticisms made by Dr. Wace in the March number. The Earl of Meath discusses the work of the new London Council, the body that has recently been organized for the government of London. Special importance is attached to the necessity for parks and open spaces for the poor. Lady Blake writes of seals and seal-fisheries. Viscount Powerscourt, a Liberal-Unionist, contributes some casual notes on Ireland. Mr. Scrutton, the president of the Chamber of Shipping of the United Kingdom for 1888, replies to Mr. Plimsoll's paper on marine insurance in the March issue. The Rev. Henry Sidebotham writes on Monte Carlo, pointing out the still numerous errors of the place. W. Frewen Lord describes the British dominion in the Ionian Islands, extending from 1815 to 1863, when they were ceded to Greece. He treats at some length of British misrule, a phase of English history heretofore little understood. Rowland E. Prothero discusses the question, "Is an Agricultural Department Necessary?" which is not without interest to Americans, in view of the recently established department at Washington. Sir William Gregory contributes an interesting series of reminiscences of Daniel O'Connell. Dr. Tuke writes of lunatics as patients, not prisoners. The Marquis of Lorne makes some suggestions for emigrants, with special reference to Canada. Under the head of "Noticeable Books" are brief reviews by Mr. Gladstone, Rev. Dr. Jessopp, Walter Pater, Hamilton Aide, and Frederic Harrison.

— Mr. Samuel Cabot, 70 Kilby Street, Boston, in a letter to *Building*, states that the cause of the white efflorescence on bricks has been recently investigated by him, with the result that there are at least three different substances which cause it. Of these, carbonate of soda is most common upon new work, after the lime-stains have been removed. This is due to the action of the lime mortar upon the silicate of soda in the bricks. Silicate of soda seldom occurs in bricks unless the clay used is a salt clay. The only other white efflorescence of importance is chiefly composed of sulphate of magnesia. This is due to pyrites in the clay, which, when burned, gives rise to sulphuric acid, and the latter unites with the magnesia in the lime mortar. The conclusions thus far arrived at are, (1) the "efflorescence" is never due to the bricks alone, and seldom to the lime alone; and (2) to avoid it, the bricks should be covered with an oily preservative capable of keeping the salts from exuding. Linseed-oil cannot fill the requirements, as it is injured by the mortar. Mr. Cabot wishes to investigate the matter still further, and will be obliged to any architects who will send him samples of this substance (say a quarter-ounce) that may come under their observation.

— The directors of the Old South studies in history and politics have included in their new general series of Old South Leaflets a leaflet containing Washington's inaugurals, — the address delivered in New York, April 30, 1789, when Washington first took the oath, and his address to Congress in 1793. This leaflet will be especially interesting at this centennial time, the first inaugural address being nowhere else so easily accessible. The account of the inauguration from Irving's "Life of Washington" is appended, and there are some useful notes. These Old South Leaflets, furnishing so many original papers to the people in such attractive form for only five cents, are a great means of education in history and politics. Washington's farewell address, which, as Senator Sherman recently said, ought to be spread everywhere broadcast among the people, is included in the series, and this deserves new attention now at the time of the Washington centennial. Lincoln's inaugurals are given in another leaflet, and it is useful to compare these with those of Washington. The leaflets are published by D. C. Heath & Co., Boston, New York, and Chicago.

— Some time ago P'au-let, the director of the Nanking arsenal, was commissioned to procure from abroad the requisite machinery for the establishment of a foundery for smelting iron in Kueichow. The machinery, which weighed 1,780 tons, reached Shanghai in three separate consignments, whence it was forwarded by boat to Nanking. Owing to the rapids and shallows in the river between Ch'ang-tê, in Hunan, and its destination, it had to be placed on frames and transhipped piece by piece. The first consignment reached its destination early in August of last year, and the remainder followed closely afterwards. A number of workmen and artisans accompanied it, and, arrangements having been made for putting it together and setting it up at once, it was expected that the furnaces would be in working order within the year. The undertaking being on a very large scale, the funds raised by the issue of shares have not yet sufficed to cover the expenditure, and the governor has been asked to take steps to meet the urgent demand which exists for more money. Kueichow, the governor explains, is an extremely poor province, and its only natural production is iron. Accordingly, permission was obtained from the Throne for sending officers abroad to procure machinery for establishing a smelting-furnace in the Ch'ing district, within the prefecture of Chen-yüan, and thus develop the only resource the province possesses. The great difficulty of inaugurating such an enterprise, says the *Indian Engineer*, is shown by the fact that two years have elapsed before the machinery could be procured from abroad. It has now, however, arrived, and been put up, and the greatest part of the difficulty is over. The quality of the coal and iron obtained in the district is excellent, and the seams in the hills are exceedingly rich. The only drawback experienced has been the difficulty of raising the money at once by shares, which is, no doubt, due to the fact that the mercantile classes have suffered severely in the past from the insecurity attaching to scrip issued by similar companies, and will not be enthusiastic in subscribing to the present undertaking until they see the furnaces actually at work, and the iron turned out. The purchase of the machinery, the erection of the buildings, and other expenses, have hitherto been defrayed by loans contracted from merchants, or by temporary appropriation from the *likin* revenue, to be repaid on the receipt of the money from the shares, which, it is expected, will shortly be forthcoming, now that there is every prospect of the founderies being brought into full operation.

— According to the report of the Massachusetts Railroad Commission, there are twelve times as many persons killed and injured at level crossings in that State as in the whole of Germany, though there are nearly twice as many of these crossings in the latter country.

— The *Engineering and Mining Journal* is authority for the statement that at Aitken, Minn., on April 2, at 4.45 o'clock, it became so dark that lights were necessary in business-houses, and the air was filled with snow that is represented to have been as black and dirty as though it had been trampled into the earth. Six ounces of snow and one-fourth ounce of dirt and sand were found in the bottom of a dish. The dirt is very fine, something like emery, and contains particles that have a metallic lustre. This dirty snow fell to the depth of half an inch. The atmosphere at the time presented a peculiar greenish tinge. There was a little wind blowing at the time from the north-west, though there seemed to be a considerable wind higher in the air. Solid chunks of ice and sand are reported to have been picked up in various places.

— A series of articles on submarine boats is now appearing in *Engineering*. Among the earlier forms mentioned is one invented during the American war of independence by David Bushnell of Connecticut, for employment against the British ships of war. It was like a walnut, somewhat flattened, and was sunk and raised by letting in and forcing out water. One oar served for sculling ahead or astern; and another, on the screw principle, placed above the operator, regulated the descent and ascent. When on the surface, an automatic tube supplied the air necessary for one person for half an hour's submersion, and another expelled it when foul. The manhole was covered with a hinged hat-like covering provided with glazed eyelets, and a manometer and compass were illuminated by phosphorus. The torpedo, containing 150 pounds of powder, clock-work, and firing spring, was secured on the top of the boat. A wooden screw manipulated ingeniously through a tube from the interior was meant to be screwed into the bottom of a hostile ship. A line connected this screw with the torpedo, which, when released, floated up by its own buoyancy against the ship's bottom. The boat was then to beat a rapid retreat, and rise again to the surface when at a safe distance. The clock-work, when the time for which it was set had run out, unlocked the striker, causing the explosion. The whole arrangements were well conceived, and, as Washington said, an effort of genius, but requiring too many things in combination for much result to be anticipated from them when employed against a watchful enemy. The boat, manned by Sergeant Lee, who had been previously well drilled in its use, sallied out against Lord Howe's flagship, lying off Governor's Island near New York, and succeeded so far as to get under her without being detected. The screw, however, would not act; and, the sergeant losing his head and his bearings, the attempt signally failed, as did two subsequent ones. Some time afterwards the vessel conveying the boat up the Hudson River was chased and sunk by a British man-of-war, and thus closed the brief career of the first diving-boat designed and used for aggressive belligerent purposes.

— *The Nationalist*, a monthly magazine soon to be issued by The Nationalist Club of Boston, Mass., will have as contributors, Col. T. W. Higginson, Edward E. Hale, Rev. W. D. P. Bliss, Cyrus Field Willard, Edward Bellamy, Rabbi Solomon Schindler, Sylvester Baxter, John Ransom Bridge, Laurence Grönlund, Rev. Albert Lawson, Gen. A. F. Devereux, Henry Willard Austin, Mrs. Mary Livermore, Mrs. Maud Howe Elliott, Mrs. Abby Morton Diaz, Miss Frances E. Willard, Miss A. A. Chevaillier, and many others. The declaration of principles of the Nationalist Club reads

as follows: "The principle of the brotherhood of humanity is one of the eternal truths that govern the world's progress on lines which distinguish human nature from brute nature. The principle of competition is simply the application of the brutal law of the survival of the strongest and most cunning. Therefore, so long as competition continues to be the ruling factor in our industrial system, the highest development of the individual cannot be reached, the loftiest aims of humanity cannot be realized. No truth can avail unless practically applied. Therefore those who seek the welfare of man must endeavor to suppress the system founded on the brute principle of competition, and put in its place another based on the nobler principle of association. But in striving to apply this nobler and wiser principle to the complex conditions of modern life, we advocate no sudden or ill-considered changes; we make no war upon individuals; we do not censure those who have accumulated immense fortunes simply by carrying to a logical end the false principle on which business is now based. The combinations, trusts, and syndicates of which the people at present complain demonstrate the practicability of our basic principle of association. We merely seek to push this principle a little further, and have all industries operated in the interest of all by the nation, — the people organized, — the organic unity of the whole people. The present industrial system proves itself wrong by the immense wrongs it produces: it proves itself absurd by the immense waste of energy and material which is admitted to be its concomitant. Against this system we raise our protest: for the abolition of the slavery it has wrought and would perpetuate, we pledge our best efforts."

— Two daring Englishmen, Mr. E. W. Everest and Count de Sainville, have started from Winnipeg on an adventurous trip. They propose to descend the Mackenzie, which is nowadays easily accomplished by means of the steamer that was put on the river a few years ago. They intend to start west from the mouth of the Mackenzie, and to follow the Arctic shores as far as Bering Strait. It appears that they intend to study the Eskimo of Cape Bathurst and Point Barrow. It is expected that the expedition will occupy two years.

— Mr. George F. Kunz sails on April 20, per steamer "La Champagne," to represent Messrs. Tiffany & Co. at the Paris Exposition, and also to be acting special agent for the United States Exposition Committee, having in charge the government mineralogical and metallurgical exhibit.

— At the instance of Mr. Jules Simon, president of the commission of the history of inventions, at the great International Exhibition at Paris, it has been decided that an important part of this branch of the exhibition shall be tableaus showing the characteristic industries of each of the great epochs of the history of mankind. This plan has been taken up vigorously, and a number of tableaus have been completed. For illustrating the industries of primitive man, four groups in full size have been made, — the first makers of stone implements, the first engravers, the first architects, and the first founder. The first group represents a man and a woman. They flake the flints in the same way as the Australians continue to do up to this day, the physical and ethnological character of whom is, moreover, so much like that of the earliest inhabitants of central and western Europe. This scene has been modelled according to a sketch by Baines. The first engravers are troglodytes of the reindeer age. One of them graves relief figures on a perforated stick of the class generally called chief's batons. The other cuts small sticks which are to become needles. The group "Founding of Bronze" shows a founder casting the metal in the mould, while another man blows up the fire by means of the double bellows which have been used since the earliest times in eastern Asia. All these figures — and this is the most noteworthy part of the work — have been modelled according to skulls and skeletons of the various races, — those of Canstadt, Cro Magnon, Furforz, etc. Dr. Hamy undertook the reconstruction of the human races of these ages, and it was found that the resulting types are pretty much of the same time as many modern Europeans. The collection, furthermore, embraces Egyptian, Chaldæan, Greek, and Gallo-Roman figures. Egypt is represented by a weaver reproduced from a grave at Thebes. As a representative of Chaldæa, Gudea has been chosen, offering to his god a model of the temple of Tello. Four Greeks are shown engaged in making painted vases. Ancient France is represented by a factory of clay statuettes. The arts and industries of primitive people will be represented by a negro forger and a Samojede engraver; those of eastern Asia, by a Chinese potter; while a manufacturer of paper will represent the industries of ancient America. This collection of groups of working-men will be supplemented by collections of their manufactures.

— At a recent meeting of the Swedish Anthropological Society, Professor G. Storm read a paper on his researches relating to the Lapps. The speaker held, says *Nature*, that this race had settled in northern Scandinavia as far back as the stone age, and had not begun to move southwards until the middle ages. These southward movements had occurred periodically. At the end of the fifteenth century the Lapps had reached the sixty-fourth degree of latitude, but were now found much farther south. The subject was of interest, because of the general belief that the Scandinavians had driven the Lapps northwards. In common with others, Professor Storm was of the opinion that the Lapps belonged to the Finnish-Ugrian race.

— The second season of the Marine Biological Laboratory, of which Dr. C. O. Whitman is director, will open soon. In the investigators' department, Howard Ayers, Ph.D., and E. G. Gardiner Ph.D., are assistants. In the students' department, J. S. Kingsley, Sc.D., is instructor in zoölogy; James E. Humphrey, S.B., instructor in botany; and Playfair McMurrich, Ph.D., instructor in microscopical technique. In addition to the regular courses of instruction, and the appointed aids in laboratory work, occasional lectures, or informal accounts of results obtained in special lines of research carried on at the laboratory, may be expected from some of those who will occupy investigators' tables. Professor E. B. Wilson of Bryn Mawr, and Professor C. S. Minot of Harvard Medical School, will be among the number of such contributors. The new laboratory is located on the shore, at Wood's Holl, Mass., near the laboratories of the United States Fish Commission. The building consists of two stories — the lower, for the use of students receiving instruction; the upper, exclusively for investigators. The laboratory has aquaria supplied with running sea-water, boats, collecting apparatus, and dredges; it will also be supplied with alcohol and other re-agents, glassware, and a limited number of microtomes and microscopes. By the munificence of friends, the library will be provided henceforth not only with the ordinary text-books and works of reference, but also with the more important journals of zoölogy and botany. The laboratory for investigators will be open from June 3 to Aug. 31. It will be fully equipped with aquaria, glassware, re-agents, etc., but microscopes and microtomes will not be provided. In this department there are eight private rooms for the use of investigators not requiring instruction, who are invited to carry on their researches at the laboratory. Those who require supervision in their work, or, being already prepared to begin original work, desire special suggestions and criticism, or extended instruction in technique, will occupy tables in the general laboratory for investigators, and will pay for its privileges a fee of fifty dollars. The laboratory for students will be opened on Wednesday, July 10, for regular courses of seven weeks in marine zoölogy and microscopical technique. Botany will be taught for the present season during August. Opportunities will be given for collecting and preparing material for use in the classroom and for special lines of study. The fee for workers in this department is twenty-five dollars, payable in advance. The number of students will be limited to twenty-five, and preference will be given to teachers or others already qualified. By permission of the director, students may begin their individual work as early as June 15, without extra charge, but the regular course of instruction will not begin before July 10. Applications for places in either department should be addressed to Miss A. D. Phillips, secretary, 23 Marlborough Street, Boston. The new laboratory is intended to continue and enlarge the work of the laboratory at Annisquam, carried on for six years by the Woman's Education Association, with the co-operation of the Boston Society of Natural History.