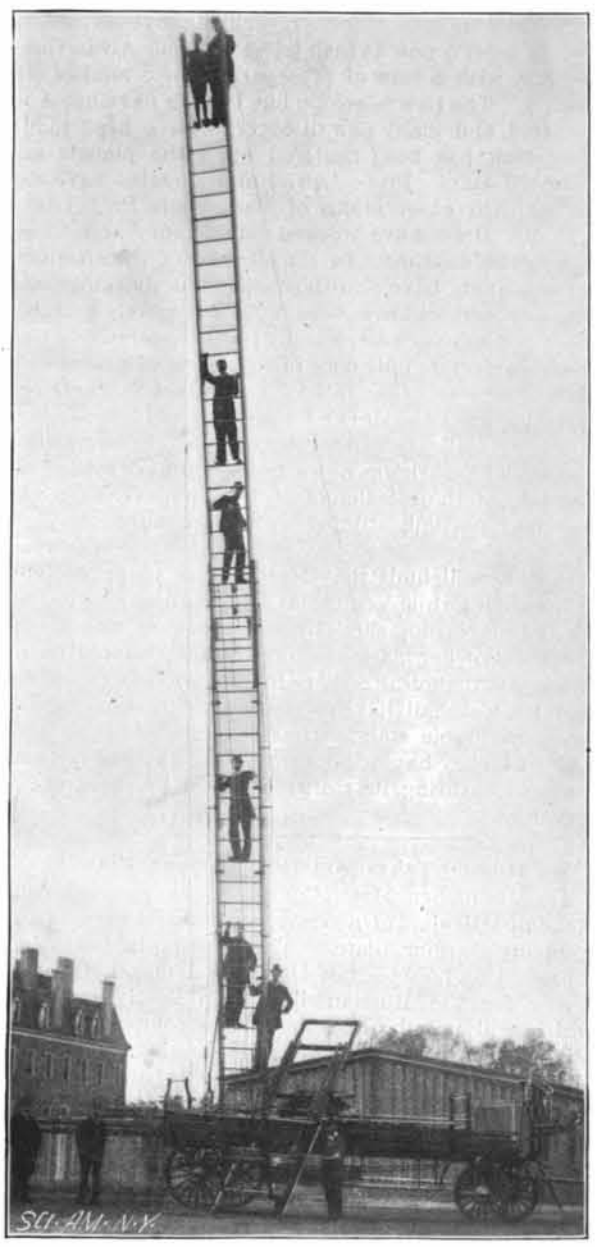
Rapid Firing at Home and Abroad.

An English officer on Indian service, who recently spent his holiday in the Alps with the special object of reporting on the comparative efficiency of French and Italian batteries with regard to English, had no hesitation in deciding, says the Admiralty and Horse Guards Gazette, that in rapidity of fire and general smartness our men and mountain guns were ahead of both countries. There were some points of special excellence about both corps, and with regard to the Italians one fact may be noted. The men were trained and accustomed to carry the component parts of the gun themselves; but in accuracy of fire as well as rapidity, and with regard to the general smartness of the men themselves, he would have had no doubt in putting our own mountain batteries into competition with either French or Italian. But the high standard of merit attained with regard to accuracy relates exclusively to stationary objects, and it is felt that the results attained at the ranges might be easily falsified on the field of battle against moving objects, and especially against the rapid movements of cavalry. At the present moment there is no place in India where firing at moving objects can be practiced, and even in England it is only quite recently that the simple moving target on a pair of rails has been established at Okehampton. Even there the target is never moved at anything approaching the rate at which cavalry would charge, and, moreover, the object fired at moves across the horizon instead of toward the guns themselves, as would be the case with cavalry in real war.

THE HORTON FIRE LADDER APPARATUS.

The accompanying illustrations represent a fire ladder apparatus designed to combine the advantages of the ordinary hand ladder truck, a main extension ladder useful at high buildings, and a substantial water tower, the entire apparatus being of much less weight than has been heretofore deemed feasible. It is claimed that the truck and an 85 foot ladder built on this plan will not weigh over 7,000 pounds, as against a weight of over 12,000 pounds for the same extension in the ladders hitherto most approved. In the improved ladder, also, the steering wheel may be dispensed with, as the distance between the hind and fore wheels is only about 14 feet. The improvement is the invention of William J. Horton, of Halifax, N. S., Canada, and is being introduced by the Horton Fire Ladder Company (Limited), of that city, patents having been obtained thereon in the United States, Canada, Great Britain, France and Germany. The ladder platform is connected to the main frame of the truck by a rocking yoke swiveled to swing horizontally, enabling the platform with its raised or partly raised ladder to be turned one-quarter around and then tilted to the ground on one side, the ground end of the tilted platform being then adjusted by side levers, as is also the lateral adjustment of the upper portion of the main ladder. By this means a solid foundation is obtained and the weight is taken off the truck, which then forms an anchor. The mechanism for raising and bracing the ladder comprises principally a pair of screws having nuts which are coupled by connecting rods to opposite sides of the pivoted ladder, as shown in one of the views, the ladder-raising screws being fitted in front thrust bearings held to the platform



THE HORTON FIRE LADDER EXTENDED VERTICALLY.

THE HORTON FIRE LADDER ELEVATING MECHANISM.

sides and in rear metal plate bearings which form the back end of the ladder platform, large gear wheels engaging pinions fixed on the screws, and the gear wheels being rotated by a crank turned by the firemen on the rear step of the platform. The drum, wire rope and pulley mechanism, for extending the upper or fly ladder, is also operated from the platform, the upper ladder being extended as desired and safely held, or again lowered after use, by operating the drum. Sockets in the side bars of the ladder sections carry bracket forks in which the hose may be placed to assist or relieve firemen on the ladder, enabling them to direct the stream to the best advantage, and the hose may be raised as the ladder is raised to any required height. It is claimed that this ladder can be raised by four men in less time than other ladders can be raised by eight or ten men.

Method of Coating Paper with Emulsions.

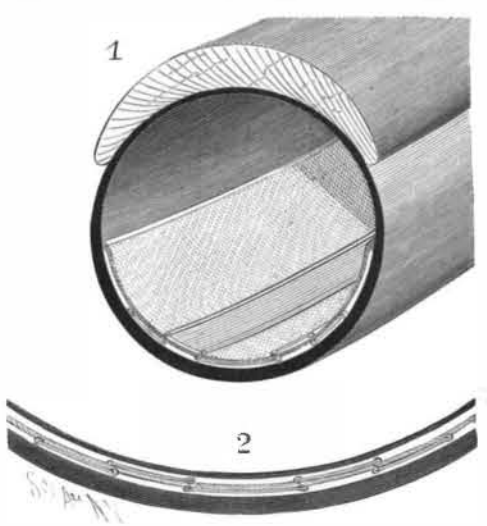
A correspondent in Photography describes the following plan of coating paper with emulsions: The coating of paper with emulsion in a liquid state is attended with such difficulties as unequal expansion of the paper, and the too rapid solidification of the emulsion into lumps or waves. The following method (due to White) coats the paper with the cold and solidified emulsion, and then produces an even coating by application of a very gentle heat, just sufficient to melt the emulsion. The apparatus required is very simple: it consists of a zinc or tin reservoir of hot water, in section of quadrant shape. Two openings at the top allow of hot water being poured in. The back, sides, and bottom of the reservoir should be covered with felt. It is not necessary to keep a light burning underneath, for when once filled with hot water the apparatus suffices to prepare 300 to 400 feet of paper. To the upper part of the back of this apparatus is fixed a perfectly horizontal board, about 2 feet wide and 8 feet to 10 feet long, and to the lower end of the reservoir a similar board is attached. The lower board is used for applying the cold emulsion to the paper, and the upper board for smoothing and solidifying the same. The paper to be coated is generally 22 inches broad, and in lengths of 8 feet to 10 feet (these are convenient dimensions). Proceed now as follows: Lay one piece of paper on the lower board, take the emulsion, either in lumps or pressed through canvas, and by means of a stiff bristle brush (one about 8 inches broad, similar to the tool used by bookbinders) work the mess as a paper hanger does his paste. By skillful working of the brush a coating quite flat and free from lumps can be given. Now take one end and steadily and regularly (though fairly quickly) draw it over the central reservoir containing the hot water. The slightest contact with the warmed surface is sufficient to make the emulsion flow, and it naturally solidifies, the more quickly the less heat is employed. When it has reached the other board it is allowed to remain lying until the next piece is coated with emulsion. It can then be hung in a drying chamber to dry. It is important to note that just sufficient heat should be applied as will melt the emulsion. Delay or too long contact of the paper with the hot zinc removes the solution partly from the paper, and causes undulating marks, such as are seen in badly prepared albumen papers.

Recent Discoveries in Palestine.

The Quarterly Statement of the Palestine Exploration Fund, in noticing some recent discoveries by the society's officers, says: "Dr. Bliss' excavations in the Tyropœon Valley have brought to light a very remarkable stone stairway, forming part of a road leading down from the city past the Pool of Siloam. This stairway is 24 feet broad, and on its eastern side is a parapet, apparently constructed to prevent passengers falling over the scarp which exists there. The steps are thirty-four in number, so far as discovered. They are about 7 inches in height, and are arranged in a system of wide and narrow treads alternately, the wide treads measuring between 4 feet and 5 feet in breadth, and the narrow ones about 1¼ feet. The stones composing these stairs are well jointed and finely polished by footwear. It is impossible not to be reminded by this important discovery of the statement in Nehemiah iii, 15, that Shallun repaired the gate of the fountain, the wall of the Pool of Siloam, by the King's Garden. 'and unto the stairs that go down from the city of David.' It is not suggested that these newly discovered stairs are identical with those mentioned by Nehemiah, but possibly they may be on the same site. Also another paved roadway leading down from the city has been discovered near the top of the hill, a little east of David's Tomb, and apparently continuous with the long street which runs through the city from the Damascus Gate and traverses the present Jewish quarter. In its width, in its curb on either side, in the size and appearance of its slabs, and in its inclination, this street resembles the one found in the Tyropœon Valley. Students of Jerusalem topography have long been of opinion that such a roadway existed in this situation. The main thoroughfares of a city are apt to remain in the same spot from age to age, and it has always been thought probable that the great central street of the Holy City was continued further south than the present wall. Of quite special interest is the rock tomb near the Tombs of the Kings described by Mr. Dickie. It is the only rock tomb with a vertical shaft which has yet been discovered in South Palestine."

A NOVEL PNEUMATIC TIRE.

The illustration represents a tire having a novel form of protective shield, designed for application to a single or double tire, without in any manner detracting from its resiliency. Fig. 1 shows a section of a tire on which the improvement is applied, and Fig. 2 a portion of an outer and an inner tire and an enlarged section through the shield. A patent has been issued for this invention to Joseph F. Dolles, of Chester, Ill. The shield is placed next the inner face of the outer tire at its tread portion, and between this tire and the tread section of the inner tire when used with an inner tire, and consists practically of a diaphragm of canvas to which are attached a number of endless bands of very light spring steel. The bands are placed along the inner as well as the outer face of the body of the diaphragm, there being preferably a central wide band and two narrower bands near the side edges, the sides of the inner bands extending over upon the body portion of the



DOLLES' BICYCLE TIRE.

outer bands. Each of the bands has a rib along its sides, the ribs being bent over on the slightly convexed outer faces of the bands, and the bands are so overlapped as to make it difficult for any sharp object piercing the outer tire to pass between the inner and outer bands where they connect. The diaphragm or shield is made air tight when used with a single tube tire, and may be secured to the sides of the outer tube in any approved manner, or the canvas may be woven in to form an integral portion of the outer tube. The improvement is designed to add but little to the weight of the tire and not to stiffen it or in any way mar its appearance.

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The Ravages of Consumption in New York.

The Health Board of New York City considered, on January 12, a report on tuberculosis made by Dr. Hermann M. Biggs, its pathological expert; Dr. T. Mitchell Prudden, consulting pathologist, and Commissioner George B. Fowler. The report recommends the establishment of a hospital where cases of consumption can be treated separately.

After saying that in the last twelve years there has been a reduction in this city in the mortality from tubercular diseases of over 30 per cent, the report shows how deadly consumption still is:

"During the past year nearly 9,000 cases of tuberculosis were reported to this department and nearly 6,000 deaths resulted from this disease. It is conservatively estimated that at least 20,000 cases of well developed and recognized pulmonary tuberculosis now exist in this city, and an additional large number of obscure and incipient forms of the disease. A very large proportion of the former cases constitute more or less dangerous centers for infection, the degree of danger depending in each instance upon the intelligence and care which are exercised in the destruction of the expectoration. It may be safely assumed that from the failure to safely dispose of the sputum of consumptives, from thirty to fifty inhabitants of this city daily become infected by tuberculosis, and of these about one-half later die from the disease. All this suffering and death, in view of modern scientific knowledge, we know to be largely preventable by the efficient enforcement of simple, well understood, and easily applied methods of cleanliness, disinfection and isolation.

"The knowledge now at command regarding the methods of extension of pulmonary tuberculosis entirely justifies the belief that its ravages can as certainly be limited by proper sanitary control and appropriate treatment as can other infectious diseases, more acute, more dramatic, and more readily communicated, but at the same time far less prevalent, less fatal, and incomparably less important to the welfare of the community.

"From the beginning of this work the officials of this department have encountered, in the utter lack of proper facilities for the care of consumptives, an obstacle to practical success so great and so disheartening that we feel impelled to urge our conviction that the grave responsibilities which rest upon the Health Department in this matter cannot longer be adequately sustained without the immediate establishment, under its direct control, of a hospital for the care and treatment of this disease. No week passes in which the officials of this department do not encounter many instances in which the members of many households, numerous inmates of crowded tenement houses, employes in dusty and ill-ventilated workshops, and many others are exposed to imminent peril from victims of this disease, to whom either the doors of our overcrowded public institutions are closed or who reject all proffered assistance and instruction and, from ignorance, indifference, or inability through weakness due to the disease, scatter infectious material broadcast, and thus diminish their own chances for recovery and imperil the health and safety of others. In such cases the sanitary suggestions of the Health Department inspectors are now futile, and effective action impossible. We are convinced that no other factor is so potent to-day in perpetuating that ominous death list from pulmonary tuberculosis as the lack of proper facilities for the care of the poor of this city stricken with this malady.

"The best medical opinion forbids that persons suffering from pulmonary tuberculosis be treated in association with other classes of cases in the general medical wards of general hospitals. This opinion is based on the daily observation that consumptives, when occupying hospital wards in common with other classes of cases, not only constitute a serious source of danger to other patients, but that they are themselves placed under peculiarly unfavorable conditions. This is an opinion which the former action of this board has done much to establish and extend. It has very properly resulted in the exclusion to a large extent of persons suffering from this disease from many of the general hospitals to which they were formerly admitted. . . .

"As the Health Department has already declared its conviction that pulmonary tuberculosis is a communicable disease, and has taken steps looking toward its prevention, and as the information at hand shows that it is far more fatal than any other communicable disease with which the board has to deal, and destroys each year more lives than all the other communicable diseases together, it would seem self-evident that some efficient and far-reaching measures should be at once adopted to protect the inhabitants of this city from its further ravages. . . .

"We would, therefore, respectfully recommend:

"First—That such action be taken by the Health Board as seems necessary and proper to at once secure the provision of hospital accommodations, under its charge, for the care of the poor suffering from pulmonary tuberculosis, who, as active sources of danger to the community, may properly come under its supervision.

"Second—That an amendment be made to the sanitary code declaring that tuberculosis be officially considered a communicable disease, and formulating regulations under which its sanitary surveillance shall be exercised.

"Third—That all institutions in this city which admit and treat cases of pulmonary tuberculosis be subjected to regular and systematic inspection by officials of this board, and that specific regulations be established for the conduct of such institutions, in accord with the proposed amendment to the Sanitary Code.

"Fourth—That the scope of the measures designed for the education of the people in regard to the nature of pulmonary tuberculosis, and the methods to be taken for its prevention, be enlarged and a closer sanitary supervision be maintained over individuals suffering from this disease in the densely populated tenement districts, and in the crowded workshops and public buildings of this city."

The Ways of the Druids.*

The Druids considered no plant more sacred than the mistletoe, and the tree on which it grew, provided it was an oak. They chose groves consisting of oak trees only, and did not perform any religious ceremony without using the foliage of that tree, for they believed that everything which grew upon the oak was sent from heaven, and was a sign that the tree was chosen by God himself. But, as a matter of fact, the mistletoe was rarely found growing upon the oak, and when it was so discovered they repaired to the spot with great religious pomp. To begin with, they chose the sixth day of the moon, which was the first day of their month, their year, and their cycle of thirty years, because the moon has then considerable influence, though not as yet half full. They called the mistletoe in their language "all healing." When they had duly prepared sacrifices and a religious banquet beneath the tree, they led up to it two white bulls (of the same breed possibly as those now preserved at Chillingham Castle), whose horns were then for the first time bound. Then a priest, clad in a white vestment, climbed the tree and with a golden reaping hook cut the mistletoe, which was received in a white sagum (a Celtic term, apparently, for a cloak), after which they sacrificed the victims, praying that God would make His own gift prosperous to those to whom He had given it. They believed that fecundity was granted to every sterile animal that drank a decoction of this plant, and that it was an antidote for all kinds of poison. (Pliny, 16, 95.)

The Druids also possessed an amulet called the "serpent's egg," and they gave the following account of the manner in which it was produced: In summer time numberless snakes rolled themselves into a knot, and by skillful intertwining formed a ball with the saliva of their mouths and the foam of their bodies. This ball was cast high into the air with violent hissing, and had to be caught in a sagum before it reached the earth. The person who caught it galloped away on horseback, for the snakes pursued him until they were stopped by some intervening river. A test that it was a genuine serpent's egg was that it floated upward against a current of water when encircled with a golden band. They also held that it must be taken at a certain phase of the moon. Pliny had seen one of these so-called eggs. It was the size of a small round apple, and its shell was formed of cartilage, thickly covered with small cavities, like those on the arms of a polypus. The Druids used it as a badge, and extolled its virtues for obtaining a successful termination to matters in dispute, and procuring access to royal personages. It is said that the Emperor Claudius once killed a Roman knight, belonging to the Gallic tribe of the Vocontii, because he was so superstitious as to wear a "serpent's egg" in his bosom during the progress of a lawsuit in which he was engaged. (Pliny, 29, 12.)

Cicero had actually seen a Druid in the flesh, for he represents his brother Quintus as reminding him that he had received as his guest at Rome the celebrated Divitiacus, an Æduan who professed to be acquainted with the science which the Greeks called physiology, and to be able to foretell future events partly by augury and partly by conjecture. ("De Divinatione," 1, 41.) The Emperor Claudius finally suppressed the Druidical religion in Gaul. Its rites had already been forbidden to citizens in the reign of Augustus. (Suetonius, "Life of Claudius," 25.) The Druids were thus deprived of all political influence in the state. But although their organized system was broken up, the members of the religious society were still held in great esteem by the people for their knowledge of futurity, and in the year 70 A.D. they were again stirring up the Gauls to revolt against Rome by declaring, in their vain songs, that the oracles portended the empire of the world to "Transalpine" nations. (Tacitus, "Hist.," 4, 54.) In later times those who claimed to belong to the ancient order seem to have been for the most part females in a humble class of life, who professed to tell fortunes. Women were no doubt treated with more indulgence than men, as being less likely to use their power for political purposes. When the Emperor Alexander Severus was on the march through Gaul in 235 A.D., shortly before he was assassinated by some of his own troops, a Druidess (druias) met him and called out in the Gallic language, "Go thy way, but hope not for victory, and trust not thy soldiers!" (Lampridius, "Life of Alexander.") The Emperor Aurelian once inquired of some Gallic Druidesses whether the imperial power would remain with his descendants, and obtained the answer that the name of none of his descendants would be more famous in the state than that of Claudius. (Vopiscus, "Life of Aurelian.")

Again, when Diocletian was serving as a private soldier in Gaul, he lived at a tavern kept by a Druidess in the Tungrian country (Tongres). One day, as she was making out the bill for his daily board, she said to him, "Diocletian, you are too covetous, too sparing." He laughed and answered, "I will be liberal enough when I am emperor." "Don't jest," replied the Druidess, "for you will indeed be emperor when you have killed the boar" (aper). Diocletian, bearing this prediction in mind, was always intent on hunting the boar, and endeavored, whenever the opportunity occurred, to kill it with his own hand. But when he repeatedly saw others made emperor before him he used to remark, "I kill the boar, but some one else always eats the flesh." When in 284 A.D. he was chosen emperor by the army, his first act was to slay Arrius Aper, the murderer of his predecessor in the purple, exclaiming, as he plunged the sword into Aper's body, "At last I have slain the fatal boar!" and so was fulfilled the prophecy of the Gallic Druidess.

* From an exhaustive article entitled "Druidism," by T. H. B. Graham, in the Gentleman's Magazine.

The Lowell Observatory to go South from Arizona.

The Lowell Astronomical Observatory, which was established at Flagstaff, Arizona, in 1894, for the study of planets, especially Mars, is in process of removal to the city of Mexico. The lenses of the great telescope have been removed and the machine is being taken down to be shipped in a few days, says the New York Tribune. The object in going south is to secure good views during the winter months, and the experts who have studied the question say this can be obtained in the Mexican plateau, which lies within the tropics and has an elevation of about 8,000 feet over the sea level.

The observatory was in active operation there during 1894 and 1895, and many hundreds of fine drawings were made of Mars, the results showing that our neighboring planet is covered with an extensive system of canals, arranged in artificial manner, as if the work of intelligent beings. These researches were made by Profs. Lowell, Pickering and Douglas, and have attained world wide fame. Prof. Lowell's discoveries induced him to order a new 24 inch telescope from Alvan Clark & Sons, with a view of prosecuting these studies still further. The new telescope has been in use since August, 1896, and many new discoveries have been made. The work has been centered upon the planets and southern stars. Profs. Lowell and Douglas have continued their observations of Mars, while Prof. Lowell and Mr. Drew have worked on Mercury and Venus during the daytime. In the clear air of the afternoon these planets have shown conspicuous markings, and the astronomers have been able not merely to make maps of their surfaces, but to prove conclusively that the bodies rotate only once in the course of a revolution about the sun. One face of the planet is, therefore, turned toward the sun and heated to an immense temperature, while the other is wrapped in everlasting night. The markings down by Lowell have settled the question of the rotation of Mercury and Venus, which had been partially studied by Schiaparelli some years ago.

Prof. Lowell finds that Mercury has an appreciable atmosphere, while Venus has an abundance of it, but, for some reason, she possesses only a few clouds. Drawings of her markings have been forwarded to the Royal Astronomical Society in London. Dr. T. J. See and Mr. Cogshall have used the new telescope on the southern double stars, and it is announced that since August 1 they have discovered 50 new stellar systems, besides measuring 100 stars recognized by previous observators.

Russia Takes American Armor Plate.

The Bethlehem Iron Company has received from Russia particulars of a very successful test there of the company's armor plate. The tested plate was one representing 1,500 tons of Harveyized nickel steel side armor for the Russian battleship Rostivlov, all of which will now be accepted. The company has received a contract for making the shaftings and engine forgings for two big cruisers for the Japanese government.

THE Hon. Carroll D. Wright, U. S. Commissioner of Labor, has been chosen President of the American Statistical Association. The position was left vacant by the death of Gen. Francis A. Walker, who had been president of the association for fourteen years.

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Recent Archæological News.

Over four hundred diamonds are known to have been recovered from the ruins of Babylon. Many are uncut, but most are polished on one or two sides.

Permission to excavate the site of old Corinth, between the Acrocorinthus and the modern city, has been granted to the American School at Athens by the Greek government.

At the fiftieth anniversary of the French School at Athens, a performance of "Œdipe Roi," with Mounet-Sully and the Comédie Française company, will be given in the theater of Dionysos.

Prof. Homolle thinks that the copper statue recently exhumed by French scholars at Delphi represents Hiero, tyrant of Syracuse, and was probably made by Onatas, the teacher of Phidias; in which case the value of the statue would be equal to that of the Hermes of Praxiteles.

An important find of skeletons of prehistoric people, supposed to be cliff dwellers, was made recently on Beaver Creek, Yavapai County, Ariz. The skeletons were laid out in orderly arrangement on natural shelves in the chalklike cliffs bordering the creek. There were about forty skeletons in all, and each was laid on a piece of matting. They were evidently of full-grown people, but were very small in size and were in a remarkably good state of preservation.

An uncial Greek codex of the Gospels, recently bought by the Emperor of Russia from the village of Sarumsahly, northeast of Cæsarea, written on fine violet parchment in silver letters nearly an inch high and dating from the fourth century after Christ, is believed to be the manuscript known to New Testament scholars as N, of which thirty-three leaves are kept at Patmos, six in the Vatican, four in the British Museum, and two at Vienna. The Czar's copy is said to lack thirty-six leaves.

The common Greek method of reckoning distances, both by sea and land, was by computation, not by measurement, says Architecture and Building. A journey or voyage took a certain number of days, and this number was reduced to stadia, by allowing a certain number of stadia to each day's journey. The number of stadia so allowed was computed on the supposition that circumstances were favorable to the traveler's progress; and therefore every impediment, such as winds, tide, currents, windings of the coast, a heavily laden or badly sailing ship, or any deviation from the shortest track by sea and the corresponding hindrances by land would all tend to increase the number of days which the journey took, and consequently the number of stadia which the distance was computed to contain. These circumstances, together with the fact that the Greek writers are by no means agreed as to the number of stadia contained in a day's journey, and other sources of inaccuracy which we know to have existed, furnish a satisfactory explanation of the discrepancies which we find in their statements of distances, both when compared with one another and when compared with the actual fact, without there being any occasion to resort to the supposition of a stade different from the Olympic. Col. Leake also came to the conclusion that "the stade, as a linear measure, had but one standard, namely, the length of the foot race, and which is very clearly defined as having contained six hundred Greek feet."

Mount Kenia Ascended.

Late in 1895 Mr. George Kolb, a German explorer, practically reached the top of the famous African mountain Kenia, which lies directly under the equator in East Africa, and which has never been ascended before, though several explorers have made the attempt. Mr. Kolb started from the east coast on this expedition in July, but the exact date when he accomplished the ascent of Kenia is not given in the account of it which appears in the October number of Petermann's Mitteilungen, says the New York Sun.

The noses, ears, and toes of some of the black men who made ascent with him were frostbitten, and it is a wonder that he was able to induce them to undergo so much suffering, for explorers have always found it very difficult to tempt the tropical negro above the snow line. His success was the more noteworthy because the natives at the foot of the mountain hold the summit in great awe. They told the explorer that an enormous snake lived at the top and no one who ascended the mountain ever came back. The summit, they said, had another terrifying guest, a devil, the brother of the snake, and between the two it was certain death to venture into the forbidden region. Most of Kolb's party would not ascend with him for love or money, but a few of the braver men were induced by tempting offers to see the white man through to the end of his enterprise.

Kolb attacked the mountain on the east side, and it took him over five days to reach the summit plateau. He was 6,000 feet above the sea when he began the ascent of the mountain proper, and so his total climb was about 12,600 feet. Near the base of the mountain is a large lake, called by the mountaineers Gunga Lake, about a mile across and teeming with hippopotamuses, who thrive there over a mile above sea level. There is no apparent outlet to the lake, but as its waters are perfectly fresh, it undoubtedly has an underground connection with some river. Lake Ntorobbo, a still larger body of water, was most unexpectedly discovered far up the mountain side on the third day of the climb. It is about two miles long and a mile and a quarter wide, and there are no hippos disporting in its waters, for it lies above the tropical zone, and a skimming of ice forms over its surface nearly every night.

Soon after passing this lake the limit of forests was reached, and then succeeded the zone of bamboos through whose thickets the little party cut their way until they finally emerged, late on the fifth day, upon the mossy slopes above. For a day they had been marching above the upper limit of the range of wild animals, but bees buzzed in the higher part of the forest zone, and two natives who had scrambled far up the mountain side were found collecting wild honey. They sold a part of their provisions to Kolb, and this perhaps saved his expedition from defeat, for he had been unable to kill any meat, and his supplies were running low.

On the morning of the sixth day the explorer started with ten men, confident that he would gain the summit that day. They left their tent behind and carried only blankets and food. The blacks were warmly clothed from head to foot. They had not been marching over an hour when, greatly to Kolb's astonishment, they suddenly emerged over the east edge of the slope and stood on a wide-spreading, oval plateau. This is the summit plateau of Kenia, and only two protuberances rise above it. The plateau is about twelve miles long from north to south and about five miles wide. About midway on its eastern edge rises Kisiruni, which can be seen from the base of the mountain, from where it looks like a great volcanic cone; but Kolb was surprised to find there no sign of a cone or crater, but merely an elevation there of the edge of the plateau. Ice and ice water were found here and there in the depressions of the plateau surface.

The whole day was spent in wandering over this plain, and at night the party camped at the edge of a glacial brook less than a mile and a half from Victoria peak, the ice-crowned pinnacle of Kenia at the west edge of the plateau. This had been seen and described by all the plateau climbers who had attempted to reach the summit from the west side. The plain over which Kolb had walked had a scanty covering of Arctic vegetation.

The tired party passed a very trying night under the cold sky. Some of the men were afflicted with mountain sickness, in the form of faintness, severe headaches, and nose bleed. Nobody could sleep. The temperature was considerably below the freezing point. They were 18,600 feet above the sea, and they were frost bitten, while three miles below them was the eternal summer. They kindled a little fire, but the flame was blue and feeble and gave out little warmth. A handful of cooked beans apiece was their evening meal. At midnight it was twelve degrees below the freezing point, and a light snow fell during the night.

The next morning the leader and four of his men went on toward Victoria peak, but they soon turned back. There was not a mouthful to eat in the camp, and it was folly to think of climbing the peak, whose summit rose 400 feet above them. Under the best of circumstances it would be difficult to climb those icy slopes. The peak rises from a narrow base and the gradient is very steep. It would be long enough before the party reached a place where food might be procured, and so they left the plateau and descended to the villages as fast as they could. Kolb says the ascent is not difficult from the east side, and he thinks that Victoria peak can be climbed.

The missionary Krampf discovered this snow mountain on December 3, 1849, and he saw it again two years later. It was visited in 1883 by Joseph Thomson, who saw it from the west side, but the hostility of the natives prevented him from ascending its wooded slope, and, in fact, he came only within about twenty-five miles of its base. In 1887 Count Teleki made the first attempt to ascend the mountain, starting from its western base. He attained an altitude of 15,350 feet. In 1891 Capt. Dundas attempted to ascend the mountain from the east, but the highest point he reached was only 8,700 feet above sea level. In 1893 Dr. Gregory succeeded in climbing the west side of the mountain to a height of about 17,000 feet, above which point he saw glaciers descending the mountain side. He says that Victoria peak is the central cone of a greatly denuded old volcano whose crater has long since disappeared. The glaciers once extended much further down the mountain than they do now. The whole mountain is a great volcanic mass nearly thirty miles in diameter at its base, through which the equator passes. The third largest of the known snow mountains of equatorial Africa is Mount Rowenzori, and no one has yet succeeded in getting to the top of it.

IT is said that patents for inventions which relate in any way to electricity are now refused in Turkey.

Science Notes.

Prof. Behring has been awarded the Rinecker prize, consisting of a gold medal and $250, by the University of Würzburg for his discovery of the anti-toxine treatment of diphtheria.

An ethnographical museum is to be founded at Buda-Pesth. The nucleus of the collection will be the objects exhibited in the ethnographical section of Millennial Exhibition.

An international botanical garden is to be established at Palermo under the direction of Prof. Borzi, of the university. It is hoped that the favorable position of the garden may attract foreign students.

The recent Commercial Travelers' Fair at Madison Square Garden, New York, is said to have netted the sum of $17,500, which amount has been paid into the building fund of the Commercial Travelers' Home Association at Binghamton, N. Y. The gold medal was presented to William Hoge, the originator of the idea.

In the Prussian estimates is a vote of 50,000 marks to the Ministry of Public Instruction for investigations with the Roentgen rays. The vote is justified by reference to the importance which the new discovery has been shown to possess in physics, anatomy, zoology, physiology, botany and other sciences. The grant will be used to enable institutes and certain men of science to procure the necessary apparatus and to defray the expense of exhaustive experiments.

Miss Lilias Hamilton, who is private physician of the Emir of Afghanistan, has succeeded in convincing her royal patient of the utility of vaccination, says the Medical Record. Smallpox ravages Afghanistan every spring, killing about one-fifth of the children. The Emir has decreed obligatory vaccination in all his states. The order has been given to construct stables and to raise vaccine heifers. Miss Hamilton has been deputed to organize a general vaccination service.

In the Journal of Physiology, Dr. L. Barlow has pointed out that before the laws of osmosis, deduced from the final osmotic pressure, freezing point, etc., can be applied to the explanation of biological problems, it is necessary to determine whether the initial rates of osmosis of substances bear constant ratios to their final osmotic pressures, and whether the presence of proteid substances in the solutions affects the initial rate of osmosis. The author has found that the initial rates of osmosis cannot be determined from observations of the freezing points of solutions, and that proteid substances, even when present only in minute quantities, markedly diminish the rate of osmosis.

M. Lavalard, of the Société Nationale d'Agriculture, has communicated the following note on the mean weight of horses to Le Chasseur Francais: Excluding ponies, which have an average weight of 440 pounds, the weight of horses varies between 660 pounds and 1,540 pounds. The weight of omnibus, train, and cart horses varies between 1,100 pounds and 1,540 pounds. The boulonnais and percheron horses, which are employed for the heaviest work, weigh between 1,760 pounds and 1,980 pounds. Horses attaining the weight of 2,200 pounds are rare. The weight of victoria and coupe horses, which is about the same as that of cavalry horses, varies between 990 pounds and 1,056 pounds. These weights are all for adult animals.

A Japanese scientist, Mr. Muraoka, says the English Electrical Engineer, believes that he has discovered that glow worms give off a radiation which is more paradoxical in its behavior than any of the "invisible lights"—Roentgen, Becquerel or other—that have been hitherto discovered. From what particulars are available, however, it looks as though another explanation of the matter were feasible; and the experiment cannot be checked or repeated just at present, anyway. The visible light from glow worms has no special peculiarities, and from what the writer has seen does not even present a particularly interesting spectrum. There is, however, a French observation—which also requires repetition—that the light of a glow worm will affect a sensitized plate through paper opaque to ordinary light.

The Imperial Institute, Edinburgh, has had brought to its attention some interesting phenomena relating to the method by which gold was originally deposited in auriferous quartz. On this occasion Mr. J. C. Johnson, of Adelaide, Australia, who has given great attention to the subject, exhibited specimens of non-goldbearing stones in which he had artificially introduced gold in interstices and on the face in such a manner as to defy detection, even by skilled experts. Some of these specimens were shown privately to several distinguished geologists, who expressed great surprise at the remarkable character of the same. It seems that the discovery, some years ago, that gold could be induced to deposit from its mineral salt to the metallic state on any suitable base, such as iron sulphide, led Mr. Johnson to experiment with various salts of gold, and by which he found himself able to produce the most natural looking specimens of auriferous quartz from stone which, from previous assay, contained no trace of gold; moreover, the gold, which penetrates the stone so thoroughly, assumes some of the more natural forms.

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