

with the Patent Office. That a firm of patent attorneys doing a large business should be specifically charged with the offenses here made the subject of a trial is not only calculated to reflect discredit upon all trustworthy practitioners, but is a matter of serious concern to all who believe that the progress of inventions is facilitated and greatly promoted by our patent system.

#### AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The forty-sixth annual meeting of the association is to be held in the city of Detroit, Mich., on Monday, August 9, and is to continue to August 14.

The place of the meeting is the spacious Detroit high school building, having a large auditorium, near which are several class rooms where the different sections will meet.

The meeting on the first day in the morning will be given up to the organization of the several sections. In the afternoon at the different rooms the following papers are announced to be read by the respective vice presidents: in physics, "Long Range Temperature and Pressure Variables," by Carl Barus; in anthropology, "The Science of Humanity," by W. J. McGee; in geology and geography, "The Pittsburg Coal Bed," by I. C. White; in mathematics and astronomy, "A Chapter in the History of Mathematics," by W. W. Beman; in social and economic science, "Improvement Civilization," by Richard T. Colburn; in chemistry, "Sanitary Chemistry," by W. P. Mason; in botany, "Experimental Morphology," by George F. Atkinson; in mechanical science and engineering, "Applied Mechanics," by John Galbraith; in the zoological section L. O. Howard will read a paper in place of Prof. Goode, who died during the year.

The general session will meet in the evening in the auditorium, when a memorial address on the life and work of the late president, Edward D. Cope, will be given by Prof. Theodore Gill, of Washington, D. C.

On August 10, 11, 12 and 13 there will be meetings of the general session in the morning and of the sections in the afternoons. On Saturday, August 14, a complimentary excursion is arranged to inspect the United States ship canal in Lake St. Claire Flats.

About the same time or shortly after, the British Association of Science will hold its annual meeting in Toronto, and there is to be a visitation of members of the American Association and a general interchange between the members of both associations. The meeting of this year promises to be full of interest to all who are able to attend.

#### PREPARING FOR CIVIL SERVICE EXAMINATIONS.

The recent action of President McKinley, requiring removals to be for cause only after proper examination of complaints in a large number of positions under the government, gives greater importance to the matter of civil service examinations, the whole scope of which is yet but partially apprehended by the general public. The qualifications required and the nature of the questions to be asked of one who desires to qualify for any of the offices which have thus been opened to public competition may be learned without difficulty, but in large numbers of cases the applicant does not realize the absolute necessity there is of proper preparation until he fails to pass the examination. The National Correspondence Institute, of Washington, D. C., organized in 1893, undertakes to prepare applicants for examination on the correspondence plan, in this way drilling them in just the line of information and knowledge they will be required to possess in any particular place for which they apply. The Institute is conducted by a combination of specialists familiar with the classifications made in the different departments of the public service, and its scope is so extended that it undertakes even to prepare applicants for examination for the position of examiner in the Patent Office. The position is not an easy one to obtain, the examination embracing physics, technics, mathematics and mechanical drawing and chemistry, but the course of instruction by correspondence, as carried on by the Institute, is arranged to prepare an applicant for this as well as any of the other numerous positions open to public competition.

#### THE AUTOMOBILES RACE IN FRANCE.

Under the auspices of the Figaro and the Journal des Sports, the race for automobile vehicles between St. Germain and Dieppe, a distance of 170 kilometers (105 miles), was run on July 24. The weather was splendid and the roads were in perfect condition. The organization of the race was perfect, mounted gendarmes keeping order at the start. Fifty-six competitors were checked at the start alone, and others left at a later hour. Nearly all forms of the horseless carriage were represented, and some of them carried as many as six passengers. The race took place under the most successful conditions throughout the whole length of the course. Crowds of people eagerly waiting for them were at the towns and cities through which the vehicles passed. The start was made promptly at nine o'clock, and the competitors were expected at Dieppe

any time after one o'clock. Unfortunately, the special train which left St. Germain at the same time as the automobiles only arrived twelfth at Dieppe, the engine breaking down beyond Rouen. As might naturally be expected, the motorcycle arrived first, that of M. Jatin reaching Dieppe in 4 h. 13 m. 33 s. The motorcycle of M. Pellier arrived 4:43:55. The first horseless carriage to arrive was that of MM. De Dion et Bouton, which arrived in 4 h. 18 m. 34 s. The second to arrive was the carriage of M. Gilles Hourgieres, the time being 4:36:00. M. Gilles Hourgieres wins the first prize for carriages of two seats and MM. De Dion et Bouton won the prize for the carriage with four seats. The race was free from incidents and there were no accidents of any importance. The Paris-Dieppe race of 1897 is considered to be the most successful one which has ever been held. This is largely owing to the excellence of the arrangements in regard to the race.

#### PROF. LIBBEY CONQUERS THE MESA.

In our issue of June 19 we described the preparations which Prof. William Libbey, of Princeton University, had made to scale the "Mesa Encantada," which is near the Indian village of Tacoma, in New Mexico. Prof. Libbey was entirely successful in his efforts and reached the top of the famous height. By means of a  $2\frac{1}{2}$  inch brass cannon he succeeded in throwing a cord over the crest of the Mesa, and by means of this cord the ropes required in making the ascent were pulled up. Fifteen hundred feet of rope was required to reach from one side to the other, and when all was in readiness a traveling block was attached to the pulley which had previously been spliced to the main rope, and pulled up to the edge of the overhanging ledge. A chair was then rigged on the traveling block and it was filled with pieces of rock which equaled the weight of a man. This was then sent up to the crest of the ledge, and the experimental trip was found to be entirely successful. Prof. Libbey then took his place in the chair and was raised to the top of the Mesa. All that was found at the top which indicated that it might have been inhabited was a monument of rocks which looked as if it were erected by man. With this exception, there were absolutely no indications that it had ever been inhabited, so that there is now authoritative proof that there is absolutely no ground for the romantic legends which have always clung about this mysterious table land.

#### THE CURIOUS DEATH OF A WHALE.

The white whale which was brought from Canadian waters to the New York Aquarium on June 5 died on July 24, of oedema of the lungs. On July 23 one of the keepers noticed that something was wrong with the whale, as he was attracted by the loud wheezing that accompanied each blow the whale made when he came to the surface for fresh air. It was thought that the lungs of the whale had become diseased, but it was afterward found out that some foreign substance had got into the blowhole, and one of the keepers found a piece of eel floating on the surface of the water. The true cause of the whale's trouble was then found. It was discovered that a piece of an eel was hanging from the blowhole. The water was at once drawn off from the tank, but this did not save the whale, which died in the evening. The whale's blowhole was examined after his death, and what appeared to be part of an eel was found protruding from it. One of the men started to pull this out, and he pulled until he got to the end of an eel about two feet long, which had become partially digested in the whale's stomach. The eel was preserved in alcohol.

A whale is obliged to come to the surface every ten seconds to blow. There is a valve in the blowhole which works very rapidly as the whale exhales the impure and inhales the fresh air. The whale Seltzer took the whole eel into the air passage, thus preventing the air valve from closing tightly. By continued wheezing he pushed more and more of the eel upward, thus opening the air valve wider. Finally the valve became so open that the water rushed in and flooded the lungs, and Seltzer drowned.

#### PULUJ'S PHOSPHORESCENT LAMP.

Puluj, the Austrian scientist, some fifteen years ago invented what he called a phosphorescent lamp, but, as it seemed a sort of imitation of Crookes and Geisler, it did not attract attention. He has, however, been pushing forward with the idea. The lamp is lighted by means of an induction coil or a glass plate electric machine. The static electricity thus produced is the same in every respect as lightning. The lamp can be operated even though only one terminal of the induction coil (the negative pole, for instance) is connected to it. The lamp itself is shaped very much the same as an ordinary Edison incandescent lamp, except that the wires leading into the lamp do not extend up the neck from a socket. They extend directly through the side of the bulb. They are made of aluminum. The negative pole of cathode ends in a small reflector-shaped disk. Hanging from the point or apex of the lamp globe is a small square sheet of mica. The piece

of mica faces the reflector disk or negative pole, and is painted with sulphide of calcium, an extremely phosphorescent substance. When the negative pole of the lamp is connected with an induction coil, the current is, as it were, concentrated by the little disk in the lamp, and a stream of radiant electricity flows from it to the painted sheet of mica, which immediately glows with an intensely brilliant phosphorescent light. This is Puluj's lamp as it is at present, but it is not, in its present stage, available for general lighting purposes. Puluj is experimenting with a view to arriving at a solution of this problem. He is carrying on a series of investigations to the end of producing a chemical lighting system. Not the production of light through the consumption of chemicals, but, as far as can be learned, the development of ethereal light vibrations by chemical means.—Photography.

#### THE PARTHENON INSCRIPTION DECIPHERED.

Mr George S. Horton, United States consul at Athens, Greece, has just transmitted to the State Department at Washington a most interesting report regarding the deciphering of an inscription on the architrave of the east end of the Parthenon. The face of the eastern architrave is thickly dotted with small holes, and for many years scholars have been under the impression that these holes were the traces of nails which had once held fast the letters of an inscription. It had also been suggested from time to time that a study of the nail holes might give some clue as to the letters themselves, which long ago were torn down, doubtless for the sake of the metal which they contained.

The difficulty of such a task, which has defied the archaeologists until now, is at once evident. The architrave is about 100 feet long, and the holes extend over 90 feet of its length. They dot thickly spaces from 3 to 4 feet in length, between which are circular blanks, where shields about 4 feet in diameter hung at fixed intervals.

Various attempts have been made, chiefly by German archaeologists, to read the nail holes. The most notable of the methods employed have been photography and transcribing with the aid of magnifying glasses. No attempts met with any success until Eugene Plumb Andrews, of the American School of Classical Studies at Athens, hit upon a practical method. He threw a rope over the eastern end of the ruined building and pulled up a rope ladder. Then he suspended a swing in front of the architrave 37 feet from the marble step below, and took what is known as a "squeeze" of the holes. His method was ingenious. Damp "squeeze" paper was first applied to the surface of the stone and patted well down with a brush. The paper broke through over the holes. Mr. Andrews then poked extra strips into each of the openings and lapped their ends down on the large sheet. When he had thus treated all the holes, he laid another sheet over the first, to hold the ends of the strips in place, and pounded all together into one solid sheet, on which the exact position of the nail holes was represented by protuberances or nipples. The time required in making these squeezes, twelve in number, was about one and a half months. The twelve squeezes represented the twelve spaces between the shields. He then arranged them in order and began studying. His greatest difficulty occurred at the start, for the reason that he did not know whether the inscription ran straight across all the squeezes or whether the squeezes were to be read separately, as the pages of a book. Moreover, the ancient workman who had nailed up the letters had made numerous mistakes, so that many of the holes were treacherous and confusing.

Mr. Andrews, however, persisted and light began to dawn. He found, for instance, that three holes placed thus . . . indicated either a Δ or a Λ the metal letter having been nailed at its three corners, and that three holes placed thus . . . showed where an O had been nailed. He made a transcript of the squeezes on a long strip of paper, marking the locality of the protuberances with dots, and then attempted to form the ancient letters by drawing lines from dot to dot. Finally he deciphered the word "Autokratora," which proved that the inscription had been Roman, and not, as formerly supposed, of an earlier date. The word "Nerona" threw further light on the matter. Here was evidently the dedication of a statue to the Emperor Nero, and the reading was simplified by a study of other similar inscriptions, as the same phraseology is used in all, much the same as in modern legal language.

The inscription translated is substantially as follows: "The council of the Areopagus and the council of the 600 and the people of the Athenians erect this statue of the very great Emperor Nero Cæsar Claudius Sevastos Germanicus, the Son of God, during the generalship over the hoplites for the eighth time of Claudius Novius, the overseer and lawgiver, son of Philenous, during the priestess-ship of —, daughter of —."

It appears, therefore, that the inscription recorded the erection of a statue to Nero, probably in the Parthenon. As it is known from another inscription that Claudius Novius was general for the eighth time in the year 61 A.D., we have the exact date of this inscription.