sort of Abbazia will give the chauffeurs a cordial reception. The route will be covered in several stages. Starting on the 8th of April, a run will be made from Nice to Turin, and during the following days from Turin to Padua, and Padua to Abbazia, from where the chauffeurs will have an opportunity to visit Venice, which is not far off. Venice cannot be conveniently reached by automobile on account of the routes. A nautical fête will be held at Fiume, and another at Abbazia. The same route will be followed on the return trip, and at Nice an exposition will be held in which the racers will figure. Another feature is the touring race. A caravan of chauffeurs started from Paris about the first of April to travel via Dijon and Lyons to Marseilles and thence to Nice, where it will join the racers and follow them as tourists over the same route. The touring vehicles will in general be the standard types of automobiles, but a De Dietrich omnibus which holds eight persons has been entered and is expected to cover the whole Paris-Nice-Abbazia and return route.

The Paris-Vienna race, which it was hoped could be run off this summer, has had to be abandoned owing to the failure to obtain permission to run through Bavaria. When the Swiss authorities forbade the race to be run through their country, it was hoped the route could be planned through Bavaria; but since this was the only other way, and as permission could not be obtained, and the race has of necessity been called off. It is hoped that next year a Paris-St. Petersburg race can be arranged.

SCIENTIFIC NOMENCLATURE.

A scientist who discovers a new chemical element, a planet that has managed to elude the searching telescope, or a plant or animal unknown to the world, has the right to name the object discovered. To be sure the privilege is merited, but what racking of brains it often entails was recently proven by the difficulty which Charlois of Nice experienced in baptizing the thirty-four planetoids which he had discovered. When Piazzi on New Year's day of the nineteenth century saw the first of these small planets, it was easy enough to follow the old rule of giving to celestial bodies the names of the Greek and Roman deities. For a long time the catalogue of mythological personages was quite capable of supplying the necessary names. But when celestial photography relieved the astronomer of much of the labor of telescopic observation, and the planetoids began to be numbered by hundreds, the list of mythological names was soon exhausted. Following the example of the Romans, Charlois personified the virtues, and thus created Amicitia, Fiducia, Modestia, Gratia, and Patientia. When he had no more virtues to fall back upon, he started with the city gods of those towns in which observatories are located, and was finally compelled to adopt proper names such as Ursula, Cornelia, Malusina. Charlois did not even shrink from giving some of his astronomical children the names of Charybdis, Industria, and Geometria. Not so long ago, Dr. Schwassmann, of Heidelberg, who in conjunction with Prof. Wolf discovered six planets, used the names Ella, Patricia, Photographia, Æternitas, Hamburga, and Mathesis.

At one time it was suggested that the planetoids be simply designated by number. Had that suggestion been followed, every one would immediately know the order of discovery.

When the spectroscope revealed the existence of a host of new chemical elements, some patriotic but ill-advised chemist found it necessary to nationalize the new bodies, with the result that our chemical nomenclature has been enlarged by the names Gallium, Germanium, Skandium, and Polonium.

When we enter the field of botany, the baptismal task becomes positively appaling. The efforts expended by Linnæus or Ehrenburg in finding names for thousands of new organisms must have been enormous. Even Haeckel had to coin names for a few thousand organisms which he was the first to describe.

When it becomes necessary to rechristen a botanical species which has been divided into several new species because later research proves it to be heterogeneous, and which bears the name of its discoverer, baptizing becomes a rather puzzling matter. Out of scientific piety the later investigator must give the first discoverer credit, and yet he must do himself justice. In such a case anagrams are sometimes formed. From the species *Hermannia*, for example, discovered by Paul Hermann, a small group is separated and called *Mahernia;* and the species *Malpighi*, named for a famous old botanist, supplied the species *Galphimia*—a name which would deceive the most skilled etymologist who tried to trace its derivation without knowing its antecedents. Often by some capricious accident an anagram receives a Greek tone. Urobenus, for example, conceals the name of the botanist Bourne (Bournerus).

Cassini used the anagrammatic method, not for reasons of scientific piety, but merely because he liked it. From the old species of *Filago* he created four new species which he called *Logfia*, *Gifola*, *Iglofa*, and *Ogilfa*. Adanson is said to have resorted to the method of throwing dice to coin a new name. No doubt each die bore at least two vowels; otherwise the names would have been charged with consonants to such an extent that only a Russian or Hungarian could pronounce them.

A BRIEF HISTORY OF STREET GAS.

The beginning of the last century was marked by an invention which, although of no apparent promise at first, did much to change our methods of illumination. The invention in question was the industrial production of gas from vegetable and mineral fuels, and was the culmination of a series of investigations instituted by the French engineer Philippe Lebon d'Hambersin, whose name is now almost forgotten.

Combustible gases were known before Lebon's day. The existence of gaseous fluids was known, even to the ancients, notably atmospheric air. Other gases were recognized by their effects upon various bodies. Carbon dioxide, for example, was a familiar gas by reason of its destructive effects; combustible marsh gas was also known. Coal-mining, with which mankind has been more or less familiar for thousands of years, undoubtedly revealed combustible gases; but since there were no means of ascertaining the chemical nature of these gases, they were simply regarded as modifications of ordinary air, which had acquired new properties.

Van Helmont was the first who discovered the existence of gaseous fluids of constant chemical composition —fluids which were to be sharply distinguished from ordinary air, and which he called "gases." The name applied by Van Helmont to these fluids is still used to-day in modern chemistry. In the Philosophical Transactions of 1667, a spring in the vicinity of Wigan, Lancashire, is described from which inflammable air arose. In the volume of the Transactions for 1733 a gas is mentioned, which was produced in a coal mine in Cumberland, and which was collected in a vessel in such a manner that it could be ignited by means of a burner-pipe.

Nothing more was done to ascertain the nature of these combustible gases until Dr. John Clayton distilled hard coal in a closed vessel and obtained a black oil and a constant gas, which latter he collected separately in a closed vessel, from which burner-tubes led. An account of these experiments may be found in the Philosophical Transactions for 1739.

After a series of experiments with vegetable material, Dr. Hales found that fully a third of a distillate of oil was lost in the form of an inflammable vapor.

Watson, Bishop of Llandaff in 1767, studied the nature of this vapor and of the gaseous products of the distillation of coal. He found that the volatile product could be ignited, not only as it was discharged from the distilling apparatus, but that the inflammable properties were preserved even after the gas passed through water and through two long coils of pipe Watson's constant products were obtained from ammoniacal fluids, from a viscid, tar-like oil, and a spongy coal which we now call coke. These were only laboratory experiments, for the purpose of determining the constituents of the oil. No one dreamed of practically using the volatile inflammable products.

The first investigator who laid claim to the discovery of illuminating gas was undoubtedly Philippe Lebon. The idea of using carbureted hydrogen gas for illuminating purposes seems to have had its birth in Paris in 1786. But the laboratory experiments made in England and France up to the year 1799 yielded no practical results. In the year VIII. of the Republic (1799) Philippe Lebon, who at that time was well known for his improvements in steam engines, described an invention for the utilization of inflammable gas as an illuminant. Lebon generated his carbureted hydrogen gas by distilling wood, obtaining as a by-product tar, wood alcohol and all the other substances found in a retort after the destructive distillation of vegetable material. The first carbureted hydrogen apparatus was installed at Havre for the illumination of the lighthouse. In the same year Lebon took out a patent on his invention. He exhibited his apparatus at his house between 1799 and 1802. The odor of illuminating gas, when it first comes out of the retort, is by no means agreeable. Frenchmen, therefore, immediately condemned the new system of illumination.

In order to overcome this objection as well as others, and to make the invention of Lebon more practicable, it was necessary to wash the gas. Had Lebon not died in the midst of his labors, he would undoubtedly have devised a method of ridding the vapors of some of their impurities. His widow in the year X of the Republic received a patent on an improved process. She died soon after her husband.

Lebon's memorial was published in 1801, and bore the title "Thermo Lamps or Stoves, which Heat and Light Cheaply and which generate Power, useful for all Machines." Lebon's invention was developed in England, and was first practically utilized in that country by an engineer named Murdoch, in Soho, near Birmingham, at the large factory of James Watt, the inventor of the steam engine. In 1802 the entire façade of this large building was illuminated by gas in honor of the peace of Amiens. Shortly after this event a German named Winsor, who had translated Lebon's memorial into German, came to London, collaborated with Murdoch, and received from King George the exclusive privilege of lighting London by gas. On July 16, 1816, his privilege was confirmed by Parliament; and by 1823 England had adopted gas.

After Winsor had assured himself of the success of gas illumination in England, he went to France in 1815, rented an establishment in the Passage des Panoramas, and in a short time had the whole Passage lit by gas as well as the Palais Royal. After these successes, Winsor succeeded in founding a company, which was, however, by no means successful. Other companies soon followed, and in a short time gas became one of the most widely used illuminants.

Lebon was born in Brachay (Departement Haute Marne) in May, 1767. He studied in Paris, and graduated from the Ecole des Ponts et Chaussées. As we have already remarked, his first scientific successes were achieved in the field of steam engineering. His improved steam engine received a prize of 2,000 livres in 1792. Lebon was murdered on December 2, 1804, under circumstances that have never been cleared up.

SCIENCE NOTES.

The firm of E. I. Du Pont de Nemours & Co. is celebrating the centennial anniversary of the establishment of its powder industry in the valley of the Brandywine near Wilmington, Del., where it is still in operation. In recognition of the event the firm is issuing a brochure giving a sketch of the works' very interesting history.

The University of Pennsylvania recently came into possession of what is regarded as the oldest piece of writing in the world. It is not a manuscript, but a fragment of a vase which was broken in the raid on the ancient city of Nippur. The inscription is in picture writing, and indicates that the piece dates back to forty-five hundred years before the Christian era.

Dr. J. H. T. Stempel, of New York, who has lived in Manila for a considerable period of time during Spanish rule, has prepared the first Tagalog grammar and a complete English-Tagalog and Tagalog-English dictionary. The manuscript is about ready for the press. Dr. Stempel has embodied in his work not only the Malayan roots of the various Philippine dialects, but also Spanish derivatives that have been adopted by the natives during the Spanish rule of three centuries. The book will probably be very useful to American officials and military men whom duty calls to the Philippine Islands.

MM. Berthelot and André state that the intensity of the acid reaction of the sap is not a certain test for the amount of acid present, the proportion which exists in the form of neutral salts being very variable. The sap of plants has most commonly an acid reaction. According to M. Astruc the maximum amount of acid is always found in the youngest part of the plant; it it connected with the vigor of growth and the activity of cell division. Thus the acidity of the stem increases toward the apex. The leaves contain more acid than the stem, and the largest amount is near the zone of most active growth. The acidity of the flower decreases from the bud-condition up to the period of complete expansion.—Comptes Rendus.

The stunted trees and shrubs of the Japanese have been the wonder and envy of gardeners the world over. But a German chemist now comes along and does something which even the Japanese could hardly be expected to do. He has prepared a fluid that has the power, when injected into the tissues of a plant, near its roots, of anesthizing the plant. As a result of this injection, the plant does not die, but stops growing, maintaining its fresh, green appearance, though its vitality is apparently suspended. Changes in temperature seem in nowise to affect the foliage, for the plant blooms in the open as well as in the most carefully constructed hothouse. As might be expected, the composition of the fluid is shrouded in the greatest mystery.

While M. Santos-Dumont was inflating the balloon of his No. 6 airship at Monaco, he was commanded by the authorities to cease immediately the process of hydrogen making, on account of the extraordinary effect that the drainage of refuse acids and chemicals into the bay was having on the water, which had turned a brilliant orange, and which it was feared might have an injurious effect on residents near the sea front, besides poisoning the fish. Subsequent investigations of the curious phenomenon, however, proved that the refuse sulphates running from the Dumont gashouse into the sea had, on contact with the chloride of sodium or common salt of the ocean, precipitated enormous quantities of oxide of iron. This pure rust had dyed the waters and the shore a most brilliant orange carmine, but except for this no harm was done. Beyond acting as a tonic for the fish, the rust was absolutely innocuous, and the work of inflation was forthwith resumed.