plosion of a fulminate, does not propagate itself to an appreciable distance. Hence it would seem that local acetylene generators, where the gas is not exposed to a pressure much above that of the atmosphere, are free from danger of explosion. When, however, the pressure on the gas is greater than two atmospheres, the decomposition induced by an incandescent wire, or otherwise, is propagated through the whole mass, the rapidity of propagation and the pressure of explosion increasing rapidly with increased initial pressure. Thus acetylene, at a pressure of twenty-one atmospheres, when exploded, generated a pressure of two hundred and twelve atmospheres and a calculated temperature of 2750° C. The acetylene is decomposed quantitatively into hydrogen and compact amorphous carbon. Acetylene condensed to a liquid may be similarly exploded by spark, incandescent wire, or detonator, and in one experiment 18 grams of acetylene exploded in a bomb of 49 c.cm. capacity showed a pressure over 5000 atmospheres, an explosive force about that of gun cotton. Experiments as to the effect of shock showed that acetylene is not thus exploded. In one case where the receptacle was broken by the shock, the acetylene was ignited, evidently by the friction of the shattered pieces, the mixture of the liberated acetylene and air forming an easily ignited explosive mixture. In this case no carbon was deposited, the gas burning and not decomposing. There seem to be two prominent dangers in compressed acetylene: the heat generated in the rapid compression of the gas may be sufficient to explode it; in case of fracture of the receptacle the explosive mixture of acetylene and air may be ignited by friction.

The authors conclude that the advantages in the use of the gas more than compensate for the dangers attending its use, which, with sufficient care, may be reduced to a minimum.

Another question has been raised regarding the use of acetylene which is not touched upon in this article. Acetylene forms, with certain metals, very explosive compounds. Whether in its use as an illuminant there is danger of such compounds being formed, is a point which deserves investigation.

In the last *Chemical News*, Dr. Geo. F. Payne, of the Georgia Department of Agriculture, offers a just criticism of a statement in the last edition of Blyth's 'Poisons.' Dr. Blyth states that cotton seed is poisonous to animals, and its use as an adulterant of linseed cake has caused the death of sheep and calves. Dr. Payne calls attention to the extended and successful use of whole cotton seed, cotton-seed meal and cotton-seed hulls in the South for fattening cattle, and suggests that the cases cited by Dr. Blyth may be due to castor-oil pomace, either accidentally mixed with the cotton-seed meal, or in a mixture intended for fertilizing purposes and inadvertently used for feeding animals.

In the recently published second edition of 'The Cyanide Process of Gold Extraction,' by James Park (Auckland, N. Z., Champtaloup and Cooper), it is stated on the authority of Johann Antal, a Hungarian toxicologist, that a solution of cobalt nitrate is a perfect antidote to cyanid poisoning. A matter of so much importance if true, deserves very careful investigation and confirmation. J. L. H.

ASTRONOMICAL NOTES.

The *Astronomical Journal* of October 16th contains a determination by Mr. Eric Doolittle of the secular perturbations of Mercury arising from the action of Jupiter. Gauss's method was employed.

In the *Astronomische Nachrichten* of October 8th Dr. Marcuse, of Berlin, publishes an account of the new photographic zenith telescope recently constructed for the Geo-

detic Commission, and gives an extended trial series of observations which he has made with it. The instrument is used like an ordinary zenith telescope, except that the stars are allowed to trail across a photographic plate in the focal plane, instead of being bisected with the usual filar micrometer. The distance between the trails can then be measured under a microscope. For the determination of the scale-value Dr. Marcuse uses Pleiades trails, and for the Pleiades stars adopts places based on the Yale triangulations of Elkin and the photographic observations made at New York by Rutherfurd. Dr. Marcuse finds as the result of the whole research that the photographic method is capable of about the same precision as the visual method. The output of work seems to be about the same for the two methods also; and in this respect the zenith telescope would seem to be an exception. For in most other applications of photographic astrometry the great advantage of the photographic method has been found to be the immense saving of labor permitted by it.

WE have received the first volume of the Annals of the Strassburg University Observatory. It is a large quarto containing xcviii. and 340 pages. After a description of the new observatory, there follows an elaborate investigation of the Repsold meridian circle and the observations made with it between 1882, March 15, and 1886, September 9. The volume closes with a series of plates illustrating the construction of the meridian observatory. The next volume is stated to be in course of publication, and will contain a definitive catalogue of stars derived from the Strassburg meridian observations.

THE Observatory of the University of Virginia has issued Part 7 of its publications, containing observations of the nebula in Orion, by Ormond Stone.

THE second part of the proceedings of the 1895 meeting of the International Geodetic Commission has been issued. It contains the usual reports upon the present condition of geodetic work in Europe.

H. J.

SCIENTIFIC NOTES AND NEWS.

M. AUG. LUCIEN TRÉCUL, botanist, member of the Paris Academy, died at Paris on October 15th, aged 78 years.

WE regret to notice, among other recent deaths of men of science abroad, those of Dr. R. E. Kerry, director of the bacteriological laboratory of the Vienna Veterinary Institute, at the age of 34; of Dr. Eugen Sell, associate professor of chemistry in the University of Berlin and director of the chemical laboratory of the Imperial Health Office, on October 13th, at the age of 54; of Dr. Julius Theodor Wolff, astronomer at Bonn, on October 11th, at the age of 70 years; of Dr. E. Czerkawski, formerly professor of philosophy at Lemberg, on September 21st, at the age of 74, and of Dr. Saul Kowner, formerly medical director of the Njeschin District Hospital (Russia), author of a work on the philosophy of Spinoza and of a history of medicine, in three volumes, aged 58.

WE regret to record the death of Dr. H. Newell Martin, which occurred at Burley, England, on October 29th. Martin was born, in 1848, in Newry, Ireland. He studied at University College, London, and received the degrees of B. S. in 1870, of M. B. in 1871, and of D. Sc. in 1872. From the University of London he went to Christ College, Cambridge, where he took the degree of B. A. in 1874, and that of M. A. in 1877. He became a fellow of his college, and lecturer on natural history. On the organization of the Johns Hopkins University, in 1876, Martin, on the recommendation of Huxley, was made professor of biology, and retained this office till 1893, when his health became impaired. Martin belonged to the faculty of the Johns Hopkins University when its six or seven members gave the University its great reputation and trained a large part of the American students now engaged in university teaching. Martin did his