ASTRONOMICAL NOTES.

SINCE the resignation of J.-C. Houzeau as director of the Royal observatory of Brussels, the management of its affairs has been in the hands of a commission consisting of Liagre, Mailly, and Stas. Mr. F. Folie, of the university of Liége, has lately been appointed the director of the observatory.

The journal *Ciel et terre* claims for Royers, a Belgian engineer, the credit of the first suggestion of the device now known as the 'floating dome,' of the form lately built for the observatory at Nice, France. Royer's connection with the subject dates from the year 1880, while letters-patent were issued to a well-known American engineer, covering a device much the same in principle, as long ago as 1863.

The bi-annual meeting of the Astronomische gesellschaft of Leipzig will this year commence on the 19th of August, and continue several days. Several American members of the society will be present at the session, and among them Professor Newcomb, who is now making a tour of the north European observatories. The society meets this year at Geneva.

We learn from *The observatory* that a very laudable effort at teaching the general public astronomy is being made in Christiania. An optician, A. Olsen, has erected a great refracting telescope in the Royal park. For a small fee, any one can observe the celestial bodies with this instrument, and receive instruction and explanations of their nature. The interior of the pavilion in which the telescope is mounted is hung with celestial charts and diagrams, also views of the sun, moon, and planets for facilitating the study of the various objects. This telescope is said to be the fifth in size at present in existence, and its cost was nearly ten thousand dollars.

In *The observatory* for July, Prof. E. C. Pickering of the Harvard-college observatory publishes the results of photometric observations of Ceres ①, Pallas ②, and Vesta ④, with the meridian photometers of the observatory. For Ceres, the mean result for nine observations is 7.71 ± 0.05 magnitude; and for Pallas, 8.55 ± 0.02. These observations were made in April and May of the present year, while in 1880–82 observations of Vesta were made which gave the result 6.47 ± 0.04 as the magnitude of the planet for mean opposition.

In addition to minor matters, the last annual report of Prof. C. Pritchard, the Savilian professor of astronomy at the Oxford university observatory, states that the memoir on the evidences of mutual gravitation among the components of the group of the Pleiades has been published by the Royal astronomical society; that the photometric survey of the relative lustre of all stars visible to the unaided eye between the north pole and 10° of south declination has been completed with the wedge photometer; and that an examination is now being conducted with reference to ascertaining the relative capacity of two large telescopes — the one a refractor of twelve and a quarter inches aperture, and the other a silver-on-glass reflector of thirteen inches aperture — for the transmission of light.

In the correspondence of a late number of *The observatory*, Mr. W. T. Lynn directs attention to the fact that an erroneous impression has widely prevailed, and is still to be found in many even of the most modern works in astronomy, that Bayer, in affixing Greek letters to the principal stars in the different constellations, arranged them strictly in the order of the alphabet. This error is to be found in Dr. Ball's 'Elements of astronomy,' in the article 'Astronomy,' of the ninth edition of the 'Encyclopaedia Britannica,' and in Chambers's 'Handbook of descriptive astronomy,' and elsewhere. An examination of Bayer's 'Explicatio' sufficiently indicates that such was not the course adopted by him; and this was also pointed out by Argelander in his academic dissertation, 'De fide Uranometriae Bayeri,' published at Bonn in 1832. Bayer divides the stars in each constellation into classes of magnitude, according to the ordinary principal divisions. The stars of the highest order of magnitude in each have assigned them that number of the first letters of the Greek alphabet; those of the next, their number of the next following letters; and so on. But no attempt was made to arrange the stars in each class according to their respective magnitudes; or rather, as Dr. Gould expresses it, "For the stars of each order, the sequence of the letters in no manner represented that of their brightness, but depended upon the position of the stars in the figure, beginning usually at the head, and following its course until all the stars of that order of magnitude were exhausted."

The Rev. Mr. Saxby of the Royal astronomical society has arranged for a summer's outing in the high Alps, and will use a six-inch equatorial at an elevation of 5,300 feet; also he has arranged for a series of observations on the Schwarzhorn, at an altitude of 10,400 feet, and is supplied with a spectroscope ranging from A in the red to well below the H lines, and calculated to do good work.

LATE NEWS FROM ALASKA.

MIDSUMMER advices from Alaska report that the military party on the Copper River are advancing toward the Yukon. The navigation of the stream is said to be very difficult. Copper ore had been found, but not conveniently situated, nor in so large quantities as had been supposed. The salmon-canning industry was flourishing, especially at Karluk and Cook's Inlet. The first shipment was made July 1. Robert King, formerly of Unalashka, noted for his kindness to scientific travellers in the territory, and who had made useful contributions to local meteorology and geography, died suddenly, May 29, at Sannakh Island. He was an Englishman by birth, and leaves seven orphan children.

The volcano island of Chernabura, or St. Augustin, in Cook's Inlet, is reported to still pour out smoke and steam from innumerable fissures. A hunting-party stationed there this spring reports

great difficulty in securing water enough to quench their thirst, or fit to drink. Fragments of the rock are reported to be frequently permeated with sulphur, and to present the appearance of a calcined rather than a lava rock.

The hemlock of south-eastern Alaska has been favorably reported on by tanners as unusually rich in tannin. Important beds of white marble have been reported from several points, and will eventually be found, probably, scattered through the coast-region from Port Mulgrave to the eastern boundary. That at Sitka, though never worked, has been frequently visited. That near the surface is inferior, but experts predict an improvement farther in.

The extension of the government over the territory proceeds very slowly. Loud complaints are heard from various quarters, that, as at Kadiak, no official intimation of the organic act promulgated in May, 1884, has yet been received. There is no doubt, that, as in previous dealing with our northern colony, an official lassitude has prevailed, for which various explanations are confidently offered. It is to be hoped that new appointments, when made, will, as in the case of the new executive, be of men qualified by energy and acquirements to advance the interests of the region. It certainly cannot be a benefit to any territory, that officers who are drunkards, ex-convicts, or employés of a private monopoly, should represent the government. Meanwhile the eastern part of Alaska has become the scene of pretty active antagonisms between miners, traders, and missionaries. Theoretically, every man is in favor of missionary work; but when, as in the present case, they take up available land for their schools, teach the Indian to work, and to build civilized houses, to ask a good price for his furs and fish, and on no account to sell his young daughters to white men, as was formerly the practice, — such innovations do not meet with universal favor.

The Patterson is surveying in the eastern district for the coast survey. Commander Coghlan, U.S.N., has furnished a number of useful reconnoissance sketches of harbors, straits, etc., which are being issued by the coast survey, together with sailing-directions.

THREE PHYSICAL TEXT-BOOKS.

EVERY teacher of physics is familiar with the looks of the old-fashioned text-book of natural philosophy. In the early pages come a picture of a wagon on a hillside (a pretty picture, if not for the marring parallelogram hanging from the back), and an air-pump of a pattern only found now as a pair of dingy brass cylinders wabbling on what was a 'highly polished' mahogany base; and, further on, an electrical machine is figured, and such an electrical machine as Franklin might well have called 'a vaste improvement.' The text matches the cuts, — an array of facts and figures derived from experiments long since superseded.

The question has been raised whether the modern knowledge can be made to take the place, in the mental drill of the schools, of the course so long honored. In the old 'Natural philosophy' the facts were so baldly stated, and were served in such a convenient shape for memorizing by the measureful, that it is not strange that one not especially attracted to the study should be able to say, in his after-school years, that he did not remember one word of it all.

There have cropped up, of late years, two kinds of physical text-books in place of the one now fortunately passing off the stage. It is hard to say which is first. There is the book intended as a guide in the laboratory, and of this class is the 'Practical physics' of Stewart and Gee; and there are such books as 'Properties of matter,' and 'Recent advances in physical science,' by Tait, which are meant as true 'text-books' for the capable teacher. It would never do to place either of the last two books in the hands of a machine teacher. A fearful medley of ideas would arise if the pages of 'Properties of matter' were dealt out by the measured stint to be 'learned;' and with 'Recent advances,' it must be feared that the result would be *nil*, so far as the education of the pupil went.

But with a proper guide, one able to introduce a few experiments to illustrate the points in discussion, to refer occasionally to collateral matters, and to hold up one end of a discussion if such should fortunately arise, either of the books by Tait will be found a true natural philosophy. The 'Properties of matter,' treating as it does of hypotheses as to the structure of matter, time, and space, gravitation, elasticity, compressibility of gases, liquids and solids, and of capillarity, and the phenomena of diffusion, will be found full of pithy, suggestive material, — material which will give rise to discussion, and which can be reasoned upon and talked about. The book is one which can be readily used to give the subject of physics a live interest for the instruction in the classroom. It is to be regretted that the author has opened the book with two chapters which are of 'a very miscellaneous character;' and it is not easy to understand why reference to equipotential lines

Lessons in elementary practical physics. By BALFOUR STEWART and W. W. HALDANE GEE. Vol. i. General physical processes. London, *Macmillan*, 1885. 16+271 p., illustr. 12°.

Properties of matter. By P. G. TAIT. Edinburgh, *Black*, 1885. 8+320 p., illustr. 12°.

Lectures on some recent advances in physical science, with a special lecture on force. By P. G. TAIT. London, *Macmillan*, 1885. 3d ed. 20+368 p., illustr. 12°.