(680); popular works, almanacs, 657 (642); fine arts, stenography, 627 (584); commerce, 583 (577); classical and oriental languages, archæology, mythology, 533 (481); modern languages, old German literature, 506 (485); agriculture, 433 (421); miscellaneous writings, 423 (378); architecture, railways, engineering, mines, and navigation, 403 (384); bibliography, encyclopædias, 377 (278); geography, travels, 356 (306); war, 353 (337); maps, 301 (300); mathematics, astronomy, 201 (158); philosophy, 125 (139); forests and game, 112 (103); freemasonry, 20 (21).

MESSRS. MACMILLAN AND CO. have in preparation, and will publish this year, "A Course of Instruction in Zootomy (Vertebrata)," by T. Jeffery Parker, B.Sc. Lond., Professor of Biology in the University of Otago. The work will consist of full directions for the dissection of the Lamprey, Skate, Cod, Lizard, Pigeon, and Rabbit, and will be illustrated by numerous woodcuts from the author's original drawings.

THE death is announced of Count Alexander Erdödy, a Member of the Pesth Academy of Sciences, vice-president of the Society for Plastic Art, and a liberal patron of science and art. His death occurred on January 24 at Vep (Hungary); he was eighty years of age. We regret also to announce the death of Herr Gabriel Koch, a Frankfort tradesman and an eminent lepidopterist, whose "Schmetterlingsbuch" has a wide reputation in Germany. He died at Frankfort-on-Main on January 22, aged eighty. On February 2 died Prof. Gorini at Lodi, well known by his works on volcanic phenomena. He was a teacher at the Lodi High School, and one of the warmest advocates of cremation in Italy.

EARTHQUAKES continue at Berne. A new shock, directed from east to west, was felt in the north of the town on February 8, at 5.25 p.m. Shocks of earthquake are reported from Braila on February 11 at 7h. 15m. a.m., and from Galatz at the same time.

IT was not difficult to foresee that the warm weather which prevails now in the Alpine region, together with immense quantities of snow fallen during the previous days, would occasion several avalanches. On February 13 a terrible one descended from the slopes of Mont Pourri, and covered with a mass of snow, thirty feet deep, the village of Brévières, in the Tignes commune. Thirty-two persons were buried under the snow, and no less than three hundred peasants from the neighbourhood were engaged in sinking pits to reach the buried houses. Of the buried, twenty-five were found alive, four were dead, and three are not yet discovered. Two days later, another avalanche descended from the same mountain, and covered a space 10,000 metres wide, with a mass of snow fifteen to twenty metres deep. The pressure of air displaced by the avalanche was so great that all the windows of the village were broken within a few seconds. The quantity of snow fallen during the previous days was so great that all communication was broken up between Brévières village and the bottom of the valley; a peasant from Tignes took thirteen hours to reach the next town, Bourg-Saint-Maurice, travelling in the snow more than one metre deep.

THE provincial governments of Navarre and Logroño (Spain) have received the royal sanction to the necessary outlay for constructing and maintaining meteorological stations in these provinces.

OUR ASTRONOMICAL COLUMN

ENCKE'S COMET IN 1881.—So far as can be judged without the calculation of the perturbations since 1878 this comet will again arrive at perihelion about November 8 in the present year. In 1848, when the comet passed this point of its orbit on November 26, it was detected with the 15-inch refractor at Cambridge, U.S., on August 27, as "a misty patch of light, faint and without concentration: its light coarsely granulated, so that were it not for its motion it might be mistaken for a group of stars of the 21st magnitude" (Bond). The theoretical intensity of light at this time was 0·21, and we find that, assuming the perihelion passage to occur on November 8, the comet should have this degree of brightness soon after the middle of August next, so that it may be anticipated observations will be practicable with the waning moon about the 20th of that month. The last perihelion passage took place on July 26, 1878, the period of revolution at that time being 1200·58 days according to the late Dr. von Asten. The aphelion distance is 4·c879, the perihelion distance 0·3335, and the minor semi-axis 1·1675 (the earth's mean distance from the sun = 1). The approach to the orbit of the planet Mercury is still very close (0·031) in about 126°·5 heliocentric longitude. The nearest approximation of the two bodies that has occurred since the discovery of the comet's periodicity took place on November 22, 1848, when their distance was only 0·038. It is known that from his investigations on the motion of Encke's comet, von Asten inferred a much smaller value for the mass of Mercury than had been previously assigned, viz. $\frac{1}{7636440}$.

CINCINNATI MEASURES OF DOUBLE STARS.—Mr. Ormond Stone has issued an important series of measures of double stars made at the Observatory of Cincinnati, which is under his superintendence, between January 1, 1878, and September 1, 1879. The number of stars measured is 1054, of which 622 are south, and 432 north of the celestial equator: 560 belong to Struve's catalogue, 171 were discovered by the Herschels, 162 by Mr. Burnham, and 85 were found with the Cincinnati refractor, which has an aperture of eleven inches. The measures of the southern stars have a special interest, as there are comparatively few previous ones upon record. In his introduction Mr. Stone points out the most notable differences between the Cincinnati measures of angle and distance, and those of Struve, Sir John Herschel, and others; we shall refer to several of these cases in a future column. The volume is published by the Board of Directors of the University of Cincinnati, and will be a necessary addition to the libraries of those who are making the double stars their special study. Mr. Stone acknowledges his obligation to the Manual of Double Stars lately published by Messrs. Crossley, Gledhill, and Wilson, and M. Flammarion's "Catalogue des Étoiles Doubles et Multiples en Mouvement relatif certain."

THE MINOR PLANETS IN 1881.—The usual supplement to the *Berliner astronomisches Jahrbuch* (1883), containing its specialty, elements and ephemerides of the small planets for the present year, has been issued. We have in it approximate ephemerides for every twentieth day throughout the year of 210 planets, the latest being No. 217, and accurate opposition ephemerides of 58. Three planets are omitted for want of proper data for computation, viz. No. 99 *Dike*, No. 155 *Scylla*, and No. 206 *Hersilia*. A glance at this long series of ephemerides shows how wide a range over the heavens the apparent tracks of these small bodies present: thus we find *Euphrosyne* in opposition in 52½° south declination, in the constellation Indus, and *Niobe* in the vicinity of ζ Persei, with 43° north declination. A favourable opportunity for repeating observations for determination of the solar parallax would have been afforded if, in the first place, the actual position of No. 132 *Æthra* were pretty accurately known, and if Mr. Gill were able to utilise his heliometer at the Cape of Good Hope: this planet on February 28 being distant from the earth less than 0·84 of the earth's mean distance from the sun, with 47° south declination and rather greater brightness than a star of the ninth magnitude.

CHEMICAL NOTES

HAUTEFEUILLE AND CHAPPUIS state (*Comptes rendus*) that when a high tension spark is passed through a mixture of nitrogen and oxygen, ozone and "pernitric acid" are produced, but the latter compound is readily decomposed with production of a less oxygenated body and oxygen. When the electric discharge is passed through air in presence of water vapour very noticeable quantities of nitric acid are formed. The same observers have examined the absorption-spectrum of ozone and have recognised certain bands which they state are also found in the solar