A RHENISH Fishery Society has just been founded at Cologne. It will direct its attention not only to the Rhine fisheries, but its programme is a most universal one, comprising even the furtherance and support of ichthyological research as well as the establishment of ichthyological stations in various countries.

MR. BALLER of the China Inland Mission has lately made a journey in the little-known province of Kweichow at the time when the people were engaged on their opium harvest, and he thus describes the process:—A small three-bladed knife is used to make an incision in the poppy-head as soon as the petals fall off. The drop or two of milky juice that oozes out is after a little while scraped off with a small curved knife into a bamboo tube, and a fresh incision made. The process is repeated until the supply is exhausted. The juice thus collected is dried in the sun, when it turns jet black, and is then ready for the market.

OUR ASTRONOMICAL COLUMN

THE COMETS OF HARTWIG AND SWIFT.—MM. Schulhof and Bossert have investigated the elements of comets 1880 *d* and *e*, discovered respectively by Dr. Hartwig at Strasburg on September 29, and Mr. Lewis Swift at Rochester, New York, on October 11. Prof. Winnecke had conjectured that Hartwig's comet might have been identical with the comets of the years 1382, 1444, 1506, and 1569, with a period of revolution of 62⅓ years. MM. Schulhof and Bossert formed six normal positions between September 30 and November 29 from observations at Paris, Strasburg, Berlin, Leipsic, Kiel, Kremsmunster, Lund, Florence, Marseilles, O'Gyalla, Clinton, and Washington, and on varying the distances from the earth at the first and fifth place until the other normals were represented as closely as possible, arrived at an elliptical orbit, but with a period of 1280 years: this result is necessarily uncertain under the circumstances, but it nevertheless appears to render so short a revolution as 62⅓ years in the highest degree improbable.

With respect to Swift's comet, taking as the fundamental data the Odessa observation on October 31, a mean of Dunecht, Paris, and Strasburg on November 9, and an observation at Paris on November 27, it is found that, assuming only one revolution to have been accomplished between 1869 and 1880, or that the period is 10·96 years, the middle place cannot be represented with sufficient precision; when the error is diminished in longitude, it is increased in latitude. On the hypothesis that the period is 5½ years, or that two revolutions are included in the above interval, the error in latitude is greatly diminished, but still exceeds thirty seconds of arc. This, while indicating that the second hypothesis is more probable than the first, is regarded by MM. Schulhof and Bossert as rendering so short a period as 3⅔ years possible, though it is admitted that it may well be due to errors of observation. It must be borne in mind that the comet has always presented itself as a faint diffused object, without that degree of condensation necessary to insure precise observation. The following is the ellipse of 5½ years' period:—

Perihelion passage, 1880, November 8·00011 G.M.T.

	°	′	″	
Longitude of perihelion	43	4	33	M. Eq. 1880·0
,, ,, ascending node	296	51	33	
Inclination	5	23	32	
Angle of excentricity	41	3	25	
Logarithm of semi-axis major	0·492684			

With these elements the perihelion distance will be found to be 1·0671, and the aphelion distance 5·1518, and the heliocentric latitude at aphelion − 4° 6′·6, whence we find the distance from the orbit of Jupiter to be 0·53.

MM. Schulhof and Bossert propose to continue their investigation when further observations are available: meanwhile it may be remarked that their ellipse of five and a half years is likely to afford positions sufficiently near the truth to insure the observation of the comet as long as it is within reach of our telescopes, and it may be suggested to those who are in possession of powerful instruments that they will render an important service in determining places of this comet as long and as accurately as practicable.

THE NOVEMBER METEORS.—Notwithstanding much interference from clouds the observers at Moncalieri, who watched for meteors during the nights of November 12-14, consider that they obtained evidence of the increasing density of the Leonid-stream, thus confirming observations made last year in England and the United States. One of these meteors appeared larger than the planet Jupiter, with an intense blue light, and a bright train of the same colour. It is added: "La lumière zodiacale d'opposition était très brillante vers l'orient, sur le fond pur de ciel, s'élevait jusqu'au delà de la queue de Lion."

NEAR APPULSE OF JUPITER TO A FIXED STAR.—On the evening of November 20 Jupiter must have approached very near to the star B.D. + 2° No. 97, rated 7·7 in the *Durchmusterung*, and 7·9 on December 17, 1856, when it was observed on the meridian at Bonn, indeed the resulting place of the star would bring it almost into contact with the limit of the planet about the time of conjunction in right ascension (9h. 4m.), but small errors of the star's position and tables of Jupiter may have combined to leave it at an appreciable distance from the limb; perhaps some reader of NATURE may have determined micrometrically the nearest approach. The apparent place of the star on November 20 was in R.A. 0h. 38m. 49·44s., Decl. + 2° 32′ 59″·9.

BIOLOGICAL NOTES

ANABÆNA LIVING IN BOTRYDIUM.—It is now well known that many plants belonging to the group of the Nostocs flourish within the cells of other plants. Thus they are to be found in the petioles of the leaves of Gunnera, in Lemna, in Anthoceros, in Blasia, and in Azolla; and it was to be expected that they would equally find themselves at home in the cells of even more lowly organised plants. An instance of this latter, not without interest, has been noticed by Dr. L. Marchand, who recently collected a Botrydium at Montmorency, which, on being examined under the microscope, was found, instead of containing the usual mass of granular chlorophyll, to be filled with a chain of moniliform filaments, presenting all the characters of the chaplets of a Nostoc or Anabæna. These filaments were composed of cells, some oblong with yellowish heterocysts, and they did not fill the entire cavity of the Botrydium cell, but seemed to adhere to its inner walls. The Botrydia plants were perfect; the root-like prolongations, as well as the rest of the plant, were perfectly closed. How then did these foreign bodies get in? This is not a question easy to answer, but it is one well worthy of being investigated. Dr. Marchand calls attention to the remarkable figure of Mr. E. Parfitt in "Grevillea" (vol. i. p. 103, pl. vii.), in which there is now little doubt, with the light thrown on the subject by Dr. Marchand's specimens, that there is represented our common species of Botrydium with a parasitic, or better, an endophytic Anabæna. No doubt the cells of the Anabæna in Parfitt's figure are badly represented, but the observation made in Parfitt's paper would seem now not to be without a special interest of its own.

MESEMBRIANTHEMUM NOT MESEMBRYANTHEMUM.—Prof. Asa Gray, in the *Botanical Gazette* (Indiana), vol. v. Nos. 8 and 9, p. 89, thus writes:—This word is properly written Mesembrianthemum, by Jacob Breyne, who made the name, and by Dillenius, who took it up, both giving the derivation from *Mesembria*, mid-day, alluding to the time in which the blossoms open. But both Breyne and Dillenius themselves very often wrote it Mesembryanthemum; Linneus, adopting this latter, became consistent by making a wrong and far-fetched derivation to match the orthography. Among systematic writers Sprengel almost alone keeps to the correct orthography, but Webb insists on it. The younger Breyne, in his edition of his father's "Prodomus," has a note about it (p. 81). He mentions an excuse for changing the orthography, namely, "that some species do not open their blossoms at noontide," but intimates that Linneus' derivation from the insertion of the corolla around the middle of the germ is open to the same objection. Prof. Asa Gray adds, "if heeded, this kind of objection would be fatal to very many generic names."

CHLOROPHYLL IN THE EPIDERMIS OF PLANTS.—Adolf Stohr contributes to the *Scientific Proceedings* of the Vienna Academy a very interesting paper on the occurrence of chlorophyll in the epidermal tissue system of the leaves of flowering plants. He sums up a detailed account as follows:—While the epidermis of the aquatic submerged Phanerogams is usually regarded as containing chlorophyll, the epidermis of the green organs of the terrestrial Phanerogams is, on the contrary, considered to be