So far the many analogies between the mandrake- and the Phytolacca-stories appear to militate against the probability of the independent growths, if not origins, of the folk-lores connected with the two plants.

Further, it may be worthy of notice that, while the ancient Europeans possessed a hazy knowledge of the anthropomorphous Ginseng (21), the Chinese of middle ages had an equally circuitous acquaintance with the mandrake. The fact is well evinced in the following passage of Chau Mih (1232–1308) (22): "Several thousand miles west of the Region of Moslem,[1] the land produces one substance extremely poisonous, which is shaped like man as our Ginseng is. It is called 'Yah-puh-lü,' and grows under the ground several *chang* deep [1 *chang* = 10 Chinese feet]. Should a man bruise its skin, its poison would adhere to and kill him. The only method of gathering it is this: dig around the said substance a hollow deep enough for a man's management therein; with one end of a thong tie up the substance lightly, and with other end bind round a big dog's leg. Now flog the dog; he will, striving to avoid the danger, pluck the substance from the ground, but he will die instantly. The stuff thus procured is buried under other ground, whence it is taken out a year after; then it is dried and prepared with another medicine. When man takes internally a bit of this mixed with wine, it makes him soon fall down unconscious even of cuts and chops; still there is a certain drug which, if used within three days, can recover the man. It is very likely that the celebrated Hwa To [a surgeon who flourished in the third century, A.D.] barely resorted to this drug when, as is traditionally said, he cut open his patients' bellies to cleanse viscela without harm. Presently we learn our Imperial Hospital possesses two pieces of this drug."

The readers of the above passage scarcely need my annotations that the story is obviously composed of what Josephus and Dioscorides record (23), and also that the name "Yah-puh-lü" is nothing but "Ybruh," the Arabic word for the mandrake[2] (24).

References.—(1) In "Hai-shan-sien-kwan-tsung-shu," tom. xlvi. (published 1847), pt. i., fol. 76, *b*; the Imperial Cyclopædia, "Yuen-kien-lui-han," 1701, *passim*. (2) "Encyclopædia Britannica," 9th ed., vol. x p. 605. (3) *Cf.* Folkard, "Plant Lore, Legends, and Lyrics," 1884, p. 427; also my letter in NATURE, *op. cit.* (4) Sie Tsai-Kang, "Wu-tsah-tsu," *c.* 1610, Jap. ed., tom. x., fol. 41, *b*, quoted in my letter, *ubi supra*. (5) Folkard, *l. c.* (6) "Hau-ngan-hien-hwa," Brit. Mus. copy, 15316, *a*, tom. i., fol. 4, *b*. (7) Same as (5) and (8). (8) "Encyc. Brit.", vol. xv. p. 476. (9) and (10) Li Shi-Chin, "Pan-tsau-kang-muh," art. "Shang-luh." (11) Ching Tsiau, "Tung-chi," Brit. Mus. copy, 15281, *a*—*d*, tom. lxv., fol. 28, *a*. (12) Same as (9). (13) Josephus, "Jewish War," trans. Traill, 1851, book vii. p. 230. (14) Same as (6). (15) and (16) Folkard, *op. cit.* (17) Wu Ki-Siun, "Shih-woh-ming-shih-tu-kau," completed *c.* 1848, ed. Ono, Tôkyô, 1884, tom. xxiv., fol. 16. (18) "I Discorsi, &c.," Venetia, 1568, p. 1136. (19) Same as (9). (20) *Cf.* W. Rhind, "History of the Vegetable Kingdom," 1874, p. 552; same as (8) and (9). (21) *e.g.* Cruden, "A Complete Concordance to the Old and New Testament," 20th ed., p. 436. (22) "Chi-ya-tung-tsah-chau," Brit. Mus. copy, 15316, *a*, tom. i. fol. 41-42. (23) Josephus, *l. c.*; Mart Mathée, "Les six Livres de Pedacion Dioscoride," Lyon, 1559, l. iv., ch. lxv. p. 274. (24) Pickering, "Chronological History of Plants," Boston, 1879, p. 247.

KUMAGUSU MINAKATA.
15 Blithfield Street, Kensington, W., July 16.

P.S.—In writing the present letter, I have not consulted the late Prof. Veth's exhaustive account of the mandrake-stories referred to in NATURE (vol. li. p. 573.) To my great regret it is written in Dutch, a language which is beyond the reach of my understanding. K. M.

[1] In another work by same author, "Kwei-sin-tsah-shih," quoted by Li Shi-Chin, *op. cit.*, sub. "Yah-puh-lü," this herb is said to grow in the "Region of Moslem, north of the Desert," and there it is indicated that the degraded officers of an extreme ignominy used this drug [to feign self-murder]. The Imperial "Yuen-kien-lui-han," *op. cit.*, tom. ccccxi., gives a proverb: "Eat the herb by name Yah-puh-lü; you die, still you are not dead."

[2] Fang I-Chi, the most erudite Chinese of Christian faith, referring to a work of the thirteenth (?) century, "Fang-yu-shing-loh," gives the habitat of the narcotic "Yah-puh-lü-yoh" in the country of Medina ("Tung-ya," 1643, tom. xli., fol. 8, *b*). Conventionally the latter name might be interpreted as the "Drug named Yah-puh-lü," but I am rather inclined to trace it to the name "Yabrochak" used in Palestine for the mandrake (Pickering, *loc. cit.*)

THE ECLIPSE OF THE SUN.

IF it be true that science advances through failures, the clouds which prevented the observation of the total eclipse of the sun last Sunday may be a blessing in disguise. During the past quarter of a century, several astronomers have taken up the problem of discovering a means of photographing the corona in broad daylight, but the results have not been very encouraging. In the photography of solar prominences, Prof. Hale and Dr. Deslandres have obtained distinctly valuable pictures, and, were it possible to delineate the corona with the same success on any day when the sun is shining, our knowledge of the nature of that solar appendage would increase much more rapidly than it can at present, when the only opportunities for studying it are afforded by the brief moments of totality of a solar eclipse. Perhaps last Sunday's experience will induce solar physicists to give further attention to the artificial reproduction of eclipse conditions. It is, of course, not suggested that every-day observations will make eclipse expeditions unnecessary—there will be work for astronomers during solar eclipses for a long time to come—but if it were possible to carry out systematic researches on the structure and constitution of the solar surroundings, instead of depending entirely upon the rare intervals when the photosphere is obscured, several moot points might be settled before the end of this century.

Observations of the total eclipse of Sunday last were made impossible by clouds. From all along the line of observers, the same report of foiled intentions has been received. At Vadsö, and in the neighbourhood, the sun was entirely obscured during totality, and no observations of scientific importance were obtained. The party of Russian astronomers who stationed themselves at the village of Orloffskoe, on the Amur, were equally unsuccessful in making observations. The eclipse was visible as a partial eclipse at Tokio, but at Akeshi, in the island of Yezo, where the Japanese, American, and British observers had set up their instruments, the weather was wet and the sky cloudy, and it is reported that the preparations made ended in a fiasco. It is not definitely known what happened at Esashi, where Prof. Todd and Dr. Deslandres were stationed, but little hope of success is entertained. A telegram received at Copenhagen from Bodö, Norway, states that a photographer from Flensburg has taken eleven photographs of the eclipse at Bredvik, on the Skjerstad Fiord, but more details are needed before an opinion can be expressed as to their value. News has yet to be received from the British observing party at Nova Zembla, and from the expeditions of the Russian Astronomical Society stationed at Enontekis (Finland), the mouth of the Obi, and Olekminsk, on the Lena.

Mr. Norman Lockyer has sent us the following telegram from Kiö Island, where he established a station to observe the eclipse: "Although the sun was clouded during totality, the sight was most impressive. The darkness was so great that lamps were needed. The party from H.M.S. *Volage* consisted of seventy-seven observers all trained to make notes or drawings of particular characteristics of eclipse phenomena, such as coronal structure, extent of the corona, and the colours of sky, cloud, and land and water surfaces, and to take the times of contact. The party was also provided with spectroscopes for analysing the lights of the corona and prominences, prismatic cameras for photographing the spectra of these objects, and polariscopes." With such an army of organised observers, an immense amount of valuable information would have been accumulated had the eclipse been visible. The exceptional opportunities for accurate observation offered by the presence of the Training Squadron gives astronomers reason for keen disappointment at the failure of the eclipse as an observable event; but students of science are used to the

destruction of their hopes, and the next total solar eclipse will be as eagerly looked forward to as the one just hidden from them.

An interesting description of the scene in the neighbourhood of Vadsö appeared in Tuesday's *Times*, and the following is an abridgement of it.

On Sunday morning the Varanger Fiord in the north-east of Norway presented a scene which has probably never before been equalled in a latitude of 70°. The anchorage at the port of Vadsö was crowded with men-of-war, yachts, and passenger steamers, brought together by reason of the total solar eclipse. For several days the numerous astronomers on these ships have been engaged in landing their delicate and elaborate instruments, and transporting them to the beautiful sites which here abound.

By last night the laborious preparations of the different observing parties had been completed, and they awaited with what composure they might the momentous events of the morrow. In any circumstances an Arctic summer night, where broad daylight reigns throughout, is very different from a night in a temperate region. But on this occasion there were so many interruptions, partly by the arrival of friends in the various ships, that rest was but little thought of, and indeed from two to five and even earlier a succession of boats brought hundreds of passengers from the ships to the shore.

The fence which marked out the ground occupied by the observers was guarded by bluejackets, charged with the duty of keeping at a suitable distance the groups of picturesquely-clad Finns and Lapps, who gazed with astonishment on the strangers who had travelled so far, and on the wonderful appliances they had brought with them. Many of these Arctic inhabitants were, however, sufficiently sophisticated to be provided with the traditional pieces of smoked glass with which to make their own observations.

The sun could not be seen at the moment when the moon first made contact, though almost immediately afterwards it was visible with a slight encroachment on the brilliant edge, showing that the eclipse had commenced. For nearly an hour hope and fear then alternated. Everything, of course, depended on the condition of the sky at the moment of totality, and it was hoped that some of the characteristic phenomena of a total eclipse might be presented. This hope was strengthened as the crescent sun waned thinner and thinner and still remained visible.

As the supreme moment of totality approached, the broad landscape sensibly darkened, and the fiord became more gloomy. It was as if some mighty thunder-shower was about to descend; but, alas! the clouds again thickened, and the observation of the moment of actual totality, if effective at all, could only be made by glimpses with a telescope through a very dense medium. Some observers were, of course, constrained to limit their attention to their instruments, and to the sole discharge of the duties which had been entrusted to them. But many were in the position of being able to look at the sun until the crescent of light was about to disappear, and then face round to the opposite point of the horizon. The object of this manœuvre was to permit the observer to see the impressive spectacle of the advance of the lunar shadow over the earth.

The situation at Vadsö lent itself admirably to the observation of this magnificent phenomenon. As the shadow advanced across the fiord, it enveloped the training squadron as it lay at anchor, the details of the ships' rigging disappeared from view, and their lights gleamed forth brilliantly. Still the shadow pressed on with its majestic speed of a mile in every couple of seconds. It moved as swiftly as a cannon-ball until it reached the observers at Vadsö, and then announced to them in the most impressive manner that the supreme moment of their visit had arrived, and that totality was complete.

The darkness that then buried Vadsö and its numerous observers lasted for a minute and forty seconds. The unwonted spectacle hushed every one to silence. A few startled birds hurried past the camp, and amid the canopy of cloud which covered the heavens at least one observer descried a star. But, though all the visitors felt that the magnificent phenomena were worthy of being remembered as a life-long experience, yet it is none the less true that, from a scientific point of view, the result of all the labours at Vadsö was hardly anything.

The object of the astronomers, who erected at such vast pains great photographic instruments, was to depict the corona and to analyse with spectroscopes the light which it dispenses. It is true that during the time of totality they exposed their plates in accordance with the careful drill and organisation which were indispensable if full advantage was to be taken of the brief period. But, unfortunately, during the time of totality the clouds were obdurate, and nothing could be seen. The innumerable telescopes directed to the sun showed no more than the same instruments would have done if they remained still covered.

The 100 seconds fled, marked only by the mechanical precision of the officer who counted them aloud. The astronomers might safely spare glances to the interesting view over land and sea. The light around them was not greater than that during a full moon, but in the distance mountain-tops could be descried which were not in the shadow and were shining brilliantly.

At last the darkness lifted, and the manner in which the light returned was almost startling in its suddenness. It was not that the sun became visible—this, indeed, did not at first happen—but when the moon had passed by, and when totality was over, the sun illumined the clouds, and this gave again the usual light of cloudy day when the orb itself is invisible. A few seconds later a glimpse was afforded of the crescent form of the sun, and then the clouds closed in once more, and did not withdraw until long after the moon had passed away from the disc.

THE PHYSICAL LABORATORY AT LEIDEN (HOLLAND).

WHEN a few years ago it appeared advisable to Prof Kamerlingh Onnes, the Director of the Physical Laboratory at the University of Leiden, to start the issue of a periodical paper which would contain a regular account of the research work that was going on in his laboratory, he decided upon the English language as being for various reasons the most suitable for the purpose. The "Communications from the Physical Laboratory at the University of Leiden" consist, as a rule, of more or less happy translations of contributions by Prof. Onnes and his pupils to the *Proceedings* of the "Koninklijke Akademie" of Amsterdam. They give short accounts of the researches that are carried out, and contain theoretical notes, as a rule, in direct connection with the experimental work. The full accounts of the investigations are mostly to be found elsewhere in various French, German or English periodicals.[1] No. 23 of the series appeared lately, and the whole set, containing everything that has been done in the laboratory since 1885, is now complete.

The most important characteristic which distinguishes the Leiden laboratory from most of its contemporaries is its installation for high-pressure and low temperature work. There are probably only one or two more places where an installation of this kind is permanently joined to a well-provided physical laboratory. Nos. 14 and 23 (especially the former) give a general idea of its gradual development and present arrangement.

Ever since 1883 Prof. Onnes has been working at this department. His object was in the first place to develop and improve the methods introduced by Cailletet, Pictet, Wroblewski, Olszewski, and to prepare larger quantities of liquid oxygen than before, so as to be able to decant it and use it as a cooling agent for experiments, especially on the liquefaction of hydrogen. The same object was, during the same years, striven after by Pictet, Olszewski and, in this country, by Dewar. Owing to want of sufficient funds and personal assistance, the work progressed very slowly, and it was not till June 1892, that a small quantity of liquid oxygen was decanted, while in December 1893 half a litre was obtained. It is interesting to notice how entirely independent the Leiden work is from the others. In the first place, Prof. Onnes uses Pictet's cycle method, while Olszewski developed the method used by Wroblewski in conjunction with himself. Instead of sulphurous acid, used by Pictet, he introduced methylchloride in the first cycle (a suggestion of Cailletet's), while ethylene remained

1 *Archives Néerlandaises, Wiedemann's Annalen, Beiblätter, Zeitschrift für Physikalische Chemie, Philosophical Magazine.*