It is necessary to know more concerning the precise conditions under which the images referred to above were obtained before one can discuss them with safety; but they are interesting as apparently indicating that the axis of the trunk discharge may be free from metallic particles.

In this connection, however, it must be added that when one directly observes a negative discharge over a photographic plate from an electrode of zinc or magnesium, every line in the fan-like discharge is seen to have the bluish tint characteristic of the metal. Whatever, then, may be the reason for the absence of these fan-like figures from Mr. Lermantoff's images, it must certainly not be attributed to the absence of metallic particles from them.

ALFRED W. PORTER.

An Interesting Occultation.

MAY I direct attention to an interesting phenomenon which will take place on the morning of July 27, viz. the occultation of the star η Geminorum by the planet Venus, the particulars of which are as follows:—

Apparent place of η Geminorum (mag. 3.2-4.2), July 26, R.A. 6h. 9m. 26.6s.; dec. 22° 32' 6.24" N. Apparent place of Venus (geocentric), July 26, 14h. 57.7m. G.M.T., R.A. 6h. 9m. 26.6s., dec. 22° 32' 7.2" N. Declination at Greenwich, corrected for parallax, 22° 32' 2.3". Semidiameter 6.14". At Greenwich the occultation commences at 14h. 55m., and ends at 14h. 58m. The planet rises at 13h. 43m., and the sun at 16h. 17m.

On the afternoon of July 28, Venus is in very close conjunction with μ Geminorum, the positions of the two bodies at 4h. 27m. being as follows:—

η . R.A. 6h. 17m. 30.9s., dec. 22° 33' 58" N., declination (corrected for parallax) 22° 33' 53". μ Geminorum, R.A. 6h. 17m. 30.9s., dec. 22° 33' 43". As the semidiameter of the planet is 6.1", the star will be within about 4" from the southern limb. This, of course, occurs during daylight, but the planet will be above the horizon at the time. It sets about 6h. 8m.

Dr. Crommelin has kindly looked through these figures and verified them.

ARTHUR BURNET.

52 Prospect Terrace, Hunslet.

Pwdre Ser.

THE curious belief that shooting stars, when fallen to earth, become lumps of jelly may possibly be explained in the following manner:—

The jelly is very probably the plasmodium of a Myxomycete, such as *Spumaria* or *Physarum*. The plasmodia occur most frequently in damp weather, but are found in lesser numbers throughout the year. Shooting-stars are also seen at all times in the year, but most plentifully in the autumn. In these islands, the greatest rainfall is also in the autumn months.

Consequently, by a purely fortuitous coincidence, meteors and plasmodia are most plentiful in the latter part of the year, the former because the main meteor swarms, in their annual revolution, cross the earth's track at that time, and the latter on account of the greater rainfall. Two striking phenomena are forced on the rustic attention at the same time, the brilliant display in the sky and the mysterious jelly on the grass. Very naturally the two are considered as causally connected, and so the belief may have arisen. An analogous case is that of "cuckoo-spit," the frothy exudation of the larval frog-hopper, *Philaenus spumarius*, which appears at the time of the arrival of the cuckoo and disappears about the period of the bird's departure.

W. B. GROVE.

B. MILLARD GRIFFITHS.

University Botanical Laboratory, Birmingham.

In connection with the article on "Pwdre Ser" in NATURE of June 23, it is interesting to find, in Admiral Smyth's "Sailor's Word-Book"—one of the richest repositories of quaint facts and fancies—the term "fallen-star" defined as "A name for the jelly-fish or *medusa*, frequently thrown ashore in summer and autumn."

C. FITZHUGH TALMAN.

U.S. Department of Agriculture, Central Office of the Weather Bureau, Washington, D.C., July 11.

NO. 2125, VOL. 84]

HOUSE-FLIES AND DISEASE.

ALTHOUGH the verification of the belief that the commonest, most widely distributed and truly domestic of insects, *Musca domestica*, Linn., was capable of carrying the germs of certain infectious diseases has been one of the noteworthy accomplishments of medical science in the last decade, it is a mistake to attach all the credit to those who, within the last few years, have removed the idea from the realms of hypotheses into the world of facts.

As early as the seventeenth century, Sydenham associated unhealthy conditions with flies. Lord Avebury, in 1871, regarded flies as "winged sponges spreading hither and thither to carry out the foul behests of contagion." In addition to other early suggestions, Nicholas, in 1873, indicated the possible connection of flies with the dissemination of cholera from a case observed by him in 1850; Raimbert in 1869 experimentally proved that the house-fly and blowfly were able to transmit the anthrax bacillus; Davaine in 1870, and Bollinger in 1874, also showed that the blowfly could carry the anthrax bacillus, an important practical observation. Laveran in 1880 demonstrated the ability of flies to carry the infectious discharge of conjunctivitis in Egypt on their proboscides and legs. All these observers assisted in

FIG. 1.—*Musca domestica*, Linn.

the gradual growth of the belief; but it was in the 'eighties of last century, however, that several investigators adduced more convincing bacteriological proof as to the ability of flies to carry pathogenic and other bacteria. In 1886, Tizzoni and Cattani obtained the cholera spirillum from flies caught in cholera wards. In the same year, Hoffmann found tubercle bacilli in the excreta of flies caught in a room which had previously contained a phthisical patient. Two years later, Celli showed that the typhoid bacillus was able to pass in a virulent condition through the digestive tract of the fly.

Since the above observations, which are selected from many others, were made, it has been repeatedly shown and proved that house-flies are able to carry these and other bacterial and fungal organisms. What has not been demonstrated is the extent to which flies are *not* able to carry such micro-organisms. When the habits of flies are considered, it is not a little remarkable that no serious attention was paid to the possibility of flies having any considerable relationship to the dissemination of disease until within the last twelve years. The excessive mortality from typhoid which occurred in the Spanish-American war was the means of directing the attention of such observers as Vaughan and Veeder to the possible relationship of flies to this disease, especially as