

Pupa of *Papilio Machaon*

WHILST working at the colour patterns of Insects in November 1867, I very carefully dissected off a portion, about one-eighth of an inch square, of the hard integument from the side of a pupa of *P. Machaon*, near the anterior extremity. The portion of the interior thus displayed was filled with a clear colourless fluid, in which was floating a delicate membrane, to which were attached several tubes, trachea, formed by a spiral fibre. In the fluid were floating many roundish grains. Another pupa of the same brood was examined January 15, 1868, and another on April 15. The floating grains were now evidently made up of ganglia of the spiral fibre of the trachea, and were connected with the tube by long pedicels of the same kind of fibre. On May 20 the tubes had enlarged to such an extent that they were almost contiguous, and were covered with minute granules, apparently incipient scales; in fact, a few small but well-formed scales appeared on one portion. The specimen examined in November was laid in cotton; a perfect cicatrice was formed, and the butterfly in excellent condition appeared at the usual time.

Rainhill, December 23, 1871 HENRY H. HIGGINS

Lunar Calendars

IN reply to "Myops" in NATURE, No. III, p. 123, the English New Moon of the Jews is really the Month-Head (*Caput mensis*), formed from an artificial system. The true mean conjunction derived from the 19-year cycle is called the Molad or Moon-Birth, and generally differs from the festival-day.

Said artificial system consists in combining AZ, BY, CX, &c., as follows:—

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| 1st Day of Pasover has | Black Fast (9th Ab) on same week day. | |
| 2nd " " | " " 1st of Pentecost. | do. |
| 3rd " " | " " 1st of New Year (Tishri). | do. |
| 4th " " | " " Last of Tabernacles—Rejoicing of Law. | do. |
| 5th " " | " " White Fast (Atonement Day). | do. |
| 6th " " | " " Preceding Purim (Esther's Feast). | do. |

This actual Jewish Calendar depends on the Moveable Feasts, 1st Passover never falling on Monday, Wednesday, or Friday.*
39, Howland Street, W., Dec. 15, 1871 S. M. DRACH

Hints to Dredgers

APPEALED to by name—spirits from the vasty deep—I have waited for my elders, also named, to answer Mr. Hennah's queries about dredging, and, failing to see anything more, I venture to trouble you with a few lines, the more so as I felt the want of advice when I was fitting out the *Norna* in 1870. Details would be out of place here; I will only at present give a few hints. And first—to repeat Punch's advice to those about to marry—if about to buy a yacht, DON'T! Begin by hiring one of the tonnage you require, the proper price being 1*l.* 5*s.* per ton per month, including the wages of skipper and crew, but rarely of cook or steward. After your first season buy by all means if you like.

If bound on a long cruise your craft should not be under 80 to 100 tons. But for dredging in the Channel or round our coasts 25 tons and upwards are sufficient; but not on any account under that. A little boat of 25 tons makes up two good berths and two more possible ones, exclusive of the crew's sleeping quarters, and being decked stands a good chance in a gale of wind.

Beware the discomfort of a half-deck and a small boat, remembering that you may unavoidably have to face some nasty breezes which an ordinary yachtsman would run away from. You may, for instance, be caught in a bay offering rich results, and have to thrash out of it.

Hire a man knowing the locality in which you desire to try your fortune.

Take a particular line, say the comparative life on the borders of fresh and salt water junctions, or at spots where the depth suddenly increases. No better locality, with a good pilot, could be picked out to begin with than the Channel Islands.

Especially note the submarine geology. Exactly fix the spots you dredge in by cross bearings. A small prismatic compass is invaluable, both afloat and ashore. Take carefully temperature, current, tidal observations, a multitude of soundings, and keep specimens of all. Fill a private log-book with the most trivial and infantile details. You will afterwards laugh at much you have noted; but it is a great gain, and, unlike partridges, impressions are best fresh.

* For Mahomedan Calendar inquire of a Moslem, or such an authority as Capt. R. J. Burton, the famous Hajji El-Iraki, and Consul to El-Sham.

This is not the occasion to go into matters of outfit. One thing I must name, on no account let any man on board be without a life-belt for his own use.

Any intending dredger writing to me at this club will be cordially answered. A small squadron of yachts working together under a commodore of their own election would partition the labour, and produce a little emulation among the crews. Make a rendezvous every few days, and talk results over.

MARSHALL HALL

New University Club, St. James's Street, S.W., Jan. 6

Anacharis Canadensis (A. Alsinastrum)

I SHOULD esteem it as a favour if you would allow me to ask, through the medium of NATURE, if there be any published account of observations, confirmatory or otherwise, of Mr. Wenham's notes on the free-cell formation which he has described as being carried on at the terminal growing point of *Anacharis*, quoted by Dr. Carpenter in "The Microscope and its Revelations," p. 405, *et seq.* (3rd ed.) H. POCKLINGTON

FIGHT BETWEEN A COBRA AND A MONGOOSE*

THE snake was a large cobra 4 ft. 10½ in. in length, the most formidable cobra I have seen. He was turned into an enclosed outer room, or verandah, about 20ft. by 12 ft., and at once coiled himself up, with head erect, about ten or twelve inches from the ground, and began to hiss loudly. The mongoose was a small one of its kind, very tame and quiet, but exceedingly active.

When the mongoose was put into the rectangle, it seemed scarcely to notice the cobra; but the latter, on the contrary, appeared at once to recognise its enemy. It became excited, and no longer seemed to pay any attention to the bystanders, but kept constantly looking at the mongoose. The mongoose began to go round and round the enclosure, occasionally venturing up to the cobra, apparently quite unconcerned.

Some eggs being laid on the ground, it rolled them near the cobra, and began to suck them. Occasionally it left the eggs, and went up to the cobra, within an inch of its neck, as the latter reared up; but when the cobra struck out, the mongoose was away with extraordinary activity.

At length the mongoose began to bite the cobra's tail, and it looked as if the fight would commence in earnest. Neither, however, seemed anxious for close quarters, so the enclosure was narrowed.

The mongoose then began to give the cobra some very severe bites; but the cobra after some fencing forced the mongoose into a corner, and struck it with full strength on the upper part of the hind leg. We were sorry for the mongoose, as but for the enclosure it would have escaped. It was clear that on open ground the cobra could not have bitten it at all; while it was the policy of the mongoose to exhaust the cobra before making a close attack. The bite of the cobra evidently caused the mongoose great pain, for it repeatedly stretched out its leg, and shook it, as if painful, for some minutes. The cobra seemed exhausted by its efforts, and putting down its head, tried hard to escape, and kept itself in a corner. The mongoose then went up to it and drew it out, by snapping at its tail, and when it was out, began to bite its body, while the cobra kept turning round and round, striking desperately at the mongoose, but in vain.

When this had continued for some time, the mongoose came at length right in front of the cobra, and after some dodging and fencing, when the cobra was in the act of striking, or rather, ready to strike out, the mongoose, to the surprise of all, made a sudden spring at the cobra, and bit it in the inside of the upper jaw, about the fang, and instantly jumped back again. Blood flowed in large drops from the mouth of the cobra, and it seemed much

* The following interesting narrative has been obligingly forwarded to us by Prof. Andrews, of Queen's College, Belfast.