THE

PHILOSOPHICAL MAGAZINE AND JOURNAL:

COMPREHENDING

THE VARIOUS BRANCHES OF SCIENCE,

THE LIBERAL AND FINE ARTS,

GEOLOGY,

AGRICULTURE,

MANUFACTURES, AND COMMERCE.

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"Nec aranearum sane textus ideo melior quia ex se fila gignunt, nec noster vilior quia ex alienis libamus ut apes." JUST. LIPS. *Monit. Polit.* lib. i. cap. 1.

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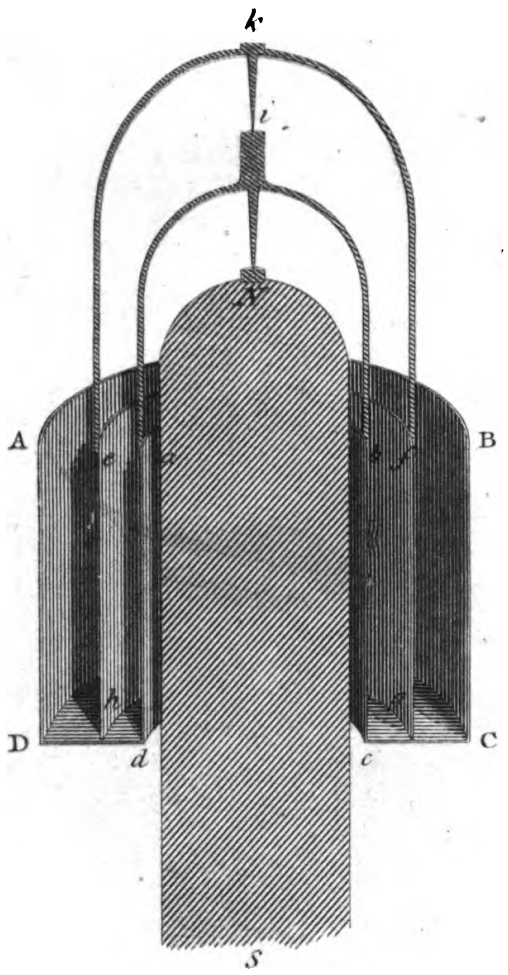
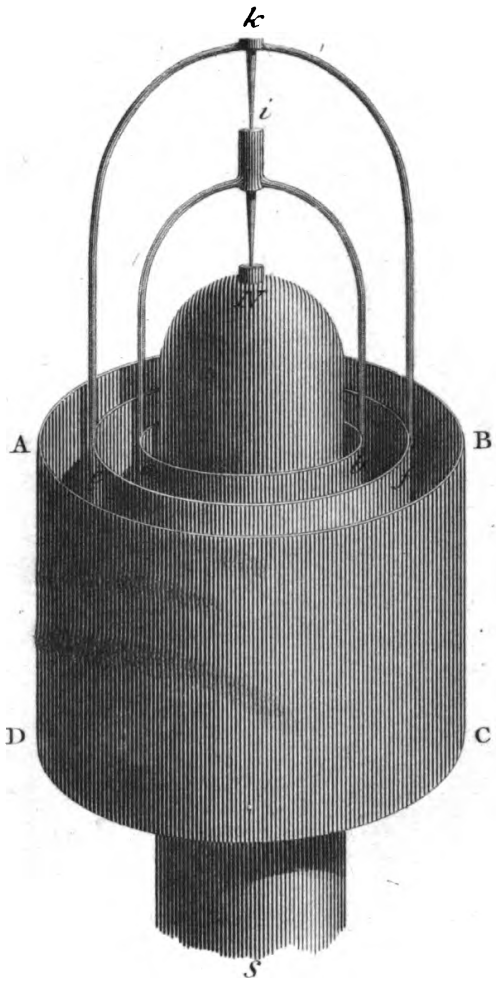
Fig. 2.



Section

Fig. 1.



Perspective Elevation.

S. Porter sc.

State of the Barometer and Thermometer from the Beginning of December to the End of February, at Næss, near Reikiavig, in Iceland. By Dr. THORSTEINSON. (Reduced to English Measures and Fahrenheit's Thermometer.)

1821.	Barom	Ther.	1822.	Barom.	Ther.	1822.	Barom.	Ther.
Dec. 1	28·99	23½	Jan. 1	29·75	39	Feb. 1	29·34	12
2	28·64	23½	2	29·84	27½	2	29 35	14
3	28 75	12	3	29 90	27½	3	29·23	17
4	29·32	3	4	30·15	23½	4	29·07	23½
5	29·38	23½	5	30·18	34	5	29 05	17
6	29·43	27	6	30·18	34	6	27 99	17
7	29·46	20½	7	30·12	33	7	27·88	18½
8	29·49	18½	8	30·08	33	8	27 25	23½
9	29·55	18½	9	29·32	25	9	28·70	34
10	29·61	27	10	29·62	25	10	29·05	27
11	29·03	34	11	29·68	25	11	29·42	27
12	29·18	36	12	29·63	23½	12	29·32	21
13	29·12	39	13	29 49	25	13	29·16	34
14	29·18	27	14	29·48	23½	14	29·05	27
15	29·25	32	15	29·25	32	15	28·99	27
16	29·10	39	16	29·23	23½	16	29·57	25
17	29·12	41	17	29·60	25	17	28·56	27
18	29·16	41	18	29·52	23½	18	27·72	27
19	29·14	34	19	29·05	25	19	28·25	27
20	29·04	30	20	29·15	25	20	28·33	36
21	28·70	25	21	29·34	20	21	28·49	25
22	28·53	23½	22	29·78	23½	22	28·63	23½
23	28 57	25	23	29·84	25	23	28·45	18½
24	28·54	25	24	30·05	32	24	29 66	8
25	28·52	27	25	30·06	23½	25	29·68	9
26	28·49	30	26	30·02	30	26	29·60	11½
27	28·58	27	27	30·00	27	27	28·76	36
28	28·99	54	28	29·40	30	28	29·11	25
29	29 12	34	29	29·13	25			
30	29·13	36	30	28·96	25			
31	29·83	36	31	29·06	21			

LXXXVIII. *On a particular Construction of M.* AMPERE'S *Rotating Cylinder. By Mr.* JAMES MARSH, *of Woolwich. Communicated by* P. BARLOW, *Esq. Royal Military Academy.*

To Dr. Tilloch.

DEAR SIR,—THE inclosed communication from Mr. Marsh relates to one of the most pleasing experiments in Electro-magnetism. In its original form it is due to M. Ampere; but it is much

much improved by the construction explained in the letter. As it has not yet, I believe, been given in any English work, it will, I am sure, be interesting to many of your readers.

I remain, dear sir,

Yours very truly,

Royal Military Academy, June 11, 1822. PETER BARLOW.

May 31, 1822.

SIR, — HAVING been lately employed in constructing for Mr. Barlow one of M. Ampere's rotating cylinders, a new form of suspension suggested itself to my mind, which, upon trial, succeeded admirably; and as it seems to add much to the interesting nature of the experiment, I have been induced, by the advice of the above gentleman, to give you the following description of it, under the hope that you may be disposed to give it a place in your valuable publication. I remain, sir,

To Dr. Tilloch. Your obedient servant,

JAMES MARSH.

The instrument alluded to is represented in Plate V. fig. 1 being a perspective, and fig. 2 a section of it. A B C D is a cylinder of very thin copper, about one inch and a half high, and two inches in diameter; *a b c d* is another copper cylinder of less diameter, soldered to the bottom of the former at *dc*, where there is a circular hole to receive it; so that within the space A *a*, D *d*, B *b*, C *c*, a quantity of diluted nitric or sulphuric acid may be introduced; *e f g h* is a very light hoop or cylinder of rolled zinc. To the copper vessel *a b c d* is soldered a thin copper wire *a i b*, having a small socket at its upper part *i*, to receive the point proceeding from the other copper wire *e k f*, soldered at *ef* to the zinc cylinder. N S is a cylindrical magnet, which is represented as broken in the figure, but which (when the instrument is used) has its lower end inserted in a foot or stand; at its upper end is a small agate cap to receive the point proceeding downwards from *i*. If now (the magnet being first placed vertical) the cylinders be suspended, as shown in the figure, and the copper cell A B C D be nearly filled with diluted acid, the two cylinders will begin to revolve; the one from left to right, and the other from right to left; the rotations under favourable circumstances amounting to 120 in a minute with the zinc cylinder; but the motion of the copper cell, from its greater weight, is not so rapid. With the north end of the magnet upwards, the zinc cylinder revolves to the left, and the copper vessel to the right; and if the magnet be inverted, the motions of the two cylinders will be inverted also.

It is proper to observe, that M. Ampere's construction is the same

same as the above, with the exception of the lower descending point and agate; and consequently in his machine only one motion can be produced; whereas, by the second suspension, we exhibit at once the compound motion, and show the opposite effects of the connecting wire proceeding from the opposite sides of the galvanic apparatus. It will, of course, be understood that the magnet is of such diameter as to admit a perfect freedom of rotation about it.

LXXXIX. *Description of the Gooseberry Caterpillar; and practical Means for preventing its Ravages.*

To the Editor.

As the season has now arrived when that voracious little animal, called the gooseberry caterpillar, commits such universal devastation in our gardens, I have taken the liberty to send you a particular description of the fly from whence it proceeds, together with a remedy for preventing its ravages; and, if you think that so much said about so diminutive a creature is worthy of a place in your Magazine, it is at your service for publication.

The caterpillar is too well known to need any description, but it does not seem that the fly from which the caterpillar proceeds is: I am sure that it is not; and that many people imagine that it comes from a moth or butterfly, which I know it does not; and I am quite sure that the following account is correct. Nor has there been, that I have ever seen, any published account how its depredations may be prevented; and, from the observations which will be presently made, if the suggested remedy should not prove effectual, it may open the subject to the minds of those who may discover something that will.

In the first place, I will give the description from Sturt's "Natural History of Insects," 2. b. 166:

"93. *Phalæna wavaria*, Gooseberry M.—Wings cinereous*; the upper ones with four abbreviated unequal black *fasciæ*†. Inhabits Europe. B. The caterpillar feeds on the currant and gooseberry: it is somewhat hairy, green, and dotted with black; having a yellow line along the back, and two on the sides. About the middle of May it goes into the ground, to change into a naked brown-pointed *pupa*‡. About the middle of June the moth appears, which is very common."

Now the above description is extremely imperfect, as well as

* Cinereous—having the appearance of being covered with ashes.
† *Fascia*—a broad transverse line.
‡ *Pupa*—the *aurelia* .....