3. "On *Fumaria micrantha* and *F. calycina*." By Mr. C. C. Babington, M.A., F.L.S. &c.*

4. "On two new species of *Jungermanniæ*, and another new to Britain." By Thomas Taylor, M.D.: communicated by Mr. William Gourlie, jun., Glasgow.

5. "Notice of the new fossil plant, *Lyginodendron Landsburgii*, Gourlie." By Mr. William Gourlie, jun.

Mr. James Macnab exhibited a magnificent cluster of the male catkins of a palm from one of the South Sea Islands, which Lady Harvey had obtained from the captain of a vessel, and kindly allowed to be shown to the Society. Its dimensions, when expanded, were about three feet by three and a half, and it somewhat resembled an ornamental grate-screen formed of shavings.

April 13th.—Professor Graham in the Chair.

The attention of the Society was chiefly directed to a donation by William Brown, Esq., R.N., consisting of a miscellaneous collection of plants and fruits from Canton river and Chusan, and from the Cape and Prince's Island, including a collection of forty species of *Ericeæ* from Simond's Bay and Table Mountain.

The following papers were read:—

1. "Two Botanical Visits to the Reeky Linn and Den of Airly, in April and June 1842." By Mr. William Gardiner, Dundee.

2. "On the *Diatomaceæ*." No. VI. By Mr. Ralfs, Penzance.

MISCELLANEOUS.

Note on a Verminiferous kind of Blood of a Dog, caused by a great number of Hæmatozoa of the genus Filaria. Communicated by MM. Gruby and Delafond to the French Academy of Sciences.

Physiologists and anatomists have long since detected the presence of certain entozoa in the nutritive fluid of cold-blooded animals, as, for instance, frogs and fish. In the mammiferæ, worms have sometimes been found in the blood; but these worms had probably only come there after having perforated the organs in which they had developed themselves. It is of very great importance to physiology, pathology, and natural history, to demonstrate, not merely the existence of entozoary worms in the blood, but moreover to prove their constant circulation in that fluid, in animals which come near to man. Now, since science is not as yet in possession of any example demonstrating conclusively the circulation of worms in the blood of mammiferous animals, we are most anxious to communicate to the Academy the discovery which we have made of Entozoa circulating in the blood of a dog of a vigorous constitution, and in a state of apparent good health.†

These worms are from 3 to 5 milliémes of a millimetre in diameter, and about 25 in length. The body is transparent and colourless. The anterior extremity is obtuse, and the posterior or caudal

* See last Number of Annals.—Ed.

† Observations, however, of this kind will be found described at pp. 48 and 49 of the 10th vol. of this Journal.—Ed.

extremity ends in a very fine thread. At the fore part a small short furrow 5 milliémes of a millimetre in length is observed, which may be considered as the mouth.

By all its characters, this species of hæmatozoa must rank in the genus *Filaria*.

The motion of these animals is very lively. Their life continues even ten days after the blood has been drawn from the vessels and deposited in a vessel placed in a temperature of 59° Fahr.

By examining a drop of blood under the lens of the microscope, we see these hæmatozoa swim with an undulatory movement between the globules of blood; they curl, uncurl, and twist about with great vivacity.

In order to be certain whether these worms existed in the whole circulatory current, we examined the blood of the coccygeal arteries, those of the external jugular veins, of the capillary, of the conjunctiva, and of the mucous membrane of the mouth, of the skin and of the muscles, and we were always able to detect entozoa.

For the last twenty days we have daily opened the capillaries of the different parts of the skin and of the mucous membrane of the mouth, and always find these animals present.

The urine and excremental matters do not contain them.

The diameter of the globules of the blood of the dog is from 7 to 8 milliémes of a millimetre; that of the *Filaria* is from 3 to 5. There is therefore not the least doubt but that this worm can circulate wherever the blood has to pass. We reckon, according to several investigations made in order to ascertain the quantity of blood existing in the vessels of dogs of moderate size, that the dog in question has $1^{kil}{\cdot}500$ of blood in circulation. Now a drop of this blood weighs $0^{kil}{\cdot}067$, and in this drop we are able to detect from four to five *Filaria*. This dog would therefore contain more than 100,000 of these worms in the whole of its blood.

The prodigious number of the animals is the more astonishing, as the dog seems to be in good health. We should however remark, that the entozoa of the digestive canal of dogs, the *Tænia*, even in very great numbers, very seldom disorder the vital functions.

During a year we have examined the blood of from seventy to eighty dogs without meeting with the *Filaria*, and dating from its discovery, we have sought for it, but in vain, in the blood of fifteen dogs.

We have now the honour of presenting to the Academy—

1. A drawing of the *Filaria* of the blood of the dog.
2. Some blood containing some of these worms alive.
3. The dog whose blood is verminiferous; and we can, if the Academy desire it, make an incision in the lip of the animal and show, with the microscope, the *Filaria* which circulate with the blood.—*Annales de Chimie et de Physique* for March.

On the Cotton called "Nurma," in Guzerat. By A. Burn, Esq.

The plant yielding what is called Nurma cotton in this part of the country, is the same as is described by Dr. J. F. Royle as *Gossy-*

pium arboreum. It is to be found growing wild, I believe, in different parts of India; and from some experiments I made when at Kaira, I have very little doubt that it will be found to be the original stock from whence the Barbadoes, Bourbon, Egyptian, and Sea Island varieties have originally sprung.

It grows in every kind of soil that is met with in Guzerat. But it obtains the greatest perfection in light sandy soils, to which a little old cow-dung manure has been added, and where it can have a *proper drainage*, in the black clayey soil known as "the cotton soil" of the indigenous *G. herbaceum*; it grows, but with diminished vigour, in proportion to the purity of that soil. In a state of nature, and when fully developed, the seeds are nearly as large as a grain of wheat, and are closely covered all round by a strongly-adhering bright pea-green coloured fur, and enveloped in a fine silky wool of considerable strength, and fully an inch in length.

Hedge-rows, gardens, groves of trees about the abodes of devotees and temples, are the places where this plant is found. I do not know of its being cultivated in any other way. In these places it is a perennial, lasting for four or five years or more, and being cut down to within 2 feet of the ground in the end of June, or a little before the setting in of the annual rains; this also is the best time for sowing the seed.

The natives appreciate this cotton, from its fine staple enabling them to spin finer thread than from any other kind with which they are acquainted. Muslins and long pugries for the head are made from it; but since the introduction to this country of European products of the loom, its use and its culture have been so reduced, as hardly at this day to afford sufficient evidence to save their being classified along with the fabulous stories of Hindoo history.

Of the quantity produced per acre I can give no estimate, but in the first year it could not be over 100 lbs. of clean cotton. In the second year, as the plant then comes into full bearing, it might be from 300 to 400 lbs. The great extra labour and expense over the common crops, of protecting the fields during the whole year, which the cultivation of this plant would entail, is, I believe, the main obstacle to any attempts being made to cultivate it. Here we have no hedge-rows, and nothing that is well calculated for such a purpose; all the agricultural produce being from annuals, the ryot protects them from cattle, thieves, &c., by living in his fields during the few months they are ripening, and which he could not do for a longer period. The price of this cotton in the bazaar is always double that of the common country article. However, there is never more than a few pounds procurable.

I have for several years back entertained great hopes in regard to this cotton, particularly that it may be improved, so as to become of value, by attending to modes of culture. That from it new varieties, suited to different soils and situations as regards climate, may be obtained, is more probable than from any of the cultivated kinds, and I have hoped that circumstances might some day admit of my

being able to attempt its culture as a perennial, in the same way as cotton is grown in Peru.

ON DIPHYA SAGITTAIRIA.

M. Hollard read before the Society some facts relative to *Diphya sagittairia*, a singular animal, and as yet but little known, which, living in the open sea, is blown upon the coast by stormy winds which mutilate it, as its structure is very fragile. He also presented some details on the anatomy of the *Velellidæ*, radiated animals, the order of which is not yet determined. M. Hollard submitted to the Society several curious anatomical objects, and particularly a Torpedo from the Mediterranean, in which the electric apparatus was laid bare.—*Bulletin des Sciences de la Société Vaudoise, as inserted in the Bibliothèque Universelle*, Nov. 1842.

EXPERIMENTS ON THE TORPEDO.

M. Matteucci communicated to the French Academy of Sciences, on the 20th of Feb. last, the results of some experiments on the torpedo, illustrative of the theory entertained by himself and M. de Blainville on the analogy between muscular contraction and electricity. He introduced a small quantity of the aqueous solution of opium into the stomach of the living torpedo; the tincture of nux vomica was likewise introduced into the stomach of another live torpedo. The two fishes, apparently dead, were soon afterwards removed from the water, and on their backs were placed two frogs (prepared in the way already described by the author) and the galvanometer. When the animal, or any part of it, was slightly touched, it contracted, and the torpedo furnished an electrical discharge, although before the experiment it required strong irritation to produce any effect.

The brain of a torpedo, much reduced in strength, was exposed, and an alkaline solution of potash applied on the fourth lobe. The torpedo died, giving forth very strong discharges.

The electrical organ was rapidly removed from a living torpedo, and prepared frogs were placed on the organ. On passing a knife into the organ, and dividing the smallest nervous filaments, the frogs leaped up, sometimes one, sometimes the other, according to the point of the electrical organ which was cut. I had never before (says the author) seen in so perfect a manner the localised action of nervous filaments, nor had I ever witnessed so clearly the curious action of the electrical lobe of the brain. I received six torpedos, which were brought to me in a state of apparent inanition; the most active irritants failed to produce a discharge, for the animals seemed to have been destroyed by the cold. I exposed the brain, and on irritating the fourth lobe I obtained very powerful discharges. I cut up the electrical organ of a live torpedo in all directions, and applied the galvanometer to different points; the direction of the electrical current was invariably from the points nearest the back, towards the lower part of the belly. It is impossible to admit any analogy between the organ, and piles, batteries, &c.

Bibliographical Notice.

To be published by subscription, the Genera of Birds; comprising their Generic Characters, a notice of the Habits of each Genus, and an extensive List of Species, referred to their several Genera. By George Robert Gray, Senior Assistant of the Zoological Department, British Museum, and author of the 'List of the Genera of Birds,' &c. Illustrated with Figures by David William Mitchell.

The Illustrations of this work, amounting to about 200 plates, will be from the pencil of the author's colleague, Mr. Mitchell; whose knowledge of the science, and zealous wish to facilitate its acquirement by others, will guarantee the faithful and spirited performance of his department of the work.

It is proposed to commence the publication as soon as 100 subscribers are obtained, in Monthly Parts, each Part to consist of Four imperial-quarto coloured plates, and accompanying letter-press; giving the generic characters, short remarks on the habits, and a list of species of each genus as complete as possible. Each plate will contain, as far as practicable, the characters of all the groups of an entire subfamily, illustrated by a complete figure of a species not hitherto figured; or, in the few cases where this is not to be obtained, of one that has only been given in some expensive work, accompanied with numerous details of heads, bills, wings and feet of the other genera, as the case may require, for pointing out their distinguishing characters.

METEOROLOGICAL OBSERVATIONS FOR MARCH 1843.

Chiswick.—March 1. Clear: some snow-flakes: frosty. 2, 3. Clear and frosty: fine. 4. Cloudy and fine: frosty at night. 5. Sharp frost: cloudy. 6. Cloudy: clear and frosty at night. 7. Frosty and foggy: cold with easterly haze. 8. Light clouds: fine: frosty. 9. Dry haze. 10. Hazy: overcast. 11. Slight haze. 12. Uniformly overcast. 13. Clear: cloudy and fine. 14. Fine. 15. Hazy: cloudy and fine. 16. Hazy and mild: clear and fine. 17, 18. Mornings foggy, clear and fine. 19. Foggy: fine. 20. Foggy: very fine: rain. 21, 22. Very fine. 23. Cloudy and mild. 24. Hazy: fine. 25. Dry and windy. 26. Cold and dry. 27, 28. Cloudy and cold. 29. Dry cold haze. 30, 31. Overcast and fine.

Boston.—March 1. Fine: snow early A.M.: rain P.M. 2, 3. Fine. 4. Cloudy. 5. Fine. 6. Cloudy. 7. Fine. 8—10. Cloudy. 11. Fine. 12. Cloudy. 13. Fine. 14. Cloudy: rain early A.M. 15. Fine: rain early A.M. 16. Cloudy. 17, 18. Fine. 19. Cloudy. 20. Fine. 21. Fine: rain early A.M. 22. Rain: rain early A.M. 23, 24. Cloudy: rain early A.M. 25. Windy. 26. Stormy. 27, 28. Windy. 29, 30. Fine. 31. Cloudy.

Sandwick Manse, Orkney.—March 1. Snow-showers: frost. 2—5. Cloudy: thaw. 6. Clear: aurora. 7, 8. Clear: hoar-frost: aurora. 9. Clear: cloudy. 10. Cloudy: damp. 11. Damp. 12. Showers. 13. Snow: showers. 14. Snowing: clear. 15. Snow: showers: clear. 16. Cloudy: snow: rain. 17. Rain: drizzle. 18. Showers: clear: aurora. 19. Cloudy. 20. Cloudy: damp. 21, 22. Damp. 23. Damp: showers: damp. 24. Damp. 25—29. Bright: clear. 30. Cloudy: rain. 31. Drizzle: rain.

Applegarth Manse, Dumfries-shire.—March 1—4. Frost: fair. 5. Slight frost: thaw P.M. 6. Thaw and drizzle. 7. Fair and fine: spring day. 8. Frost. 9. Frost: dull P.M. 10. Rain. 11. Very damp. 12. Wet A.M.: cleared up. 13. Fair and fine: drizzle. 14. Frost: threatening. 15. Frost: fine. 16. Drizzle. 17. Moist, but not rain. 18—20. Fair and fine. 21. Fair and fine: shower P.M. 22. Wet A.M.: cleared. 23, 24. Wet A.M. 25, 26. Fair. 27—29. Fair: slight frost. 30. Heavy rain: thunder. 31. Rain A.M.

Meteorological Observations made at the Apartments of the Royal Society, LONDON, *by the Assistant Secretary,* Mr. Roberton; *by* Mr. Thompson, *at the Garden of the Horticultural Society at* CHISWICK, *near London; by* Mr. Veall, *at* BOSTON; *by the* Rev. W. Dunbar, *at Applegarth Manse,* DUMFRIES-SHIRE; *and by the* Rev. C. Clouston, *at Sandwick Manse,* ORKNEY.

Days of Month.	Barometer.								Thermometer.									Wind.					Rain.					Dew-point.
	London: Roy. Soc. 9 a.m.	Chiswick.		Boston. 8½ a.m.	Dumfries-shire.		Orkney, Sandwick.		London: R.S.			Chiswick.		Boston. 8½ a.m.	Dumf.-shire.		Orkney, Sandwick.											
1843. Mar.		Max.	Min.		9 a.m.	9 p.m.	9½ a.m.	8½ p.m.	Fahr. 9 a.m.	Self-reg. Mx.	Self-reg. Mm.	Max.	Min.		Max.	Min.	9½ a.m.	8½ p.m.	London: R.S. 9 a.m.	Chiswick. 1 p.m.	Boston.	Dumfries-shire.	Orkney, Sandwick.	London: R.S. 9 a.m.	Chiswick.	Boston.	Dumfries-shire.	Orkney, Sandwick.	Lond. R.S.
● 1.	29·698	29·851	29·676	29·36	29·65	29·86	29·85	30·00	35·8	42·2	34·2	40	23	34	38½	24	32	32	nnw.	ne.	calm	n&ne.	n.	.....	.....	.....	.....	·08	34
2.	29·976	30·029	29·961	29·63	29·95	30·00	30·14	30·21	33·7	39·4	31·2	42	24	31·5	38	26	34½	35	nw.	ne.	n.	nne.	nne.	.....	.....	·20	.....	.....	31
3.	30·092	30·159	30·070	29·90	30·04	30·16	30·22	30·25	32·3	40·2	31·3	42	30	27	40½	27	37	37½	n.	n.	calm	ene.	nw.	.....	.....	.....	.....	.....	31
4.	30·336	30·378	30·298	29·94	30·22	30·20	30·23	30·14	35·7	40·0	32·2	41	18	33	42½	20½	37	36	nw.	n.	calm	sw.	sw.	.....	.....	.....	.....	.....	32
5.	30·416	30·370	30·331	30·02	30·12	30·07	30·00	30·00	34·2	41·8	30·5	46	31	33·5	44	31	43	41	n.	sw.	calm	s.	sw.	.....	.....	.....	.....	.....	30
6.	30·286	30·269	30·231	29·90	29·99	30·01	30·02	30·09	39·2	43·0	34·0	44	20	36·5	46	37	44	37	s.	s.	calm	s.	wsw.	.....	.....	.....	.....	.....	32
7.	30·218	30·295	30·182	29·86	30·04	30·09	30·14	30·18	35·7	44·0	32·0	46	24	37	46½	38½	42	38	s.	e.	calm	ese.	s.	.....	.....	.....	0·10	.....	30
8.	30·292	30·328	30·264	29·97	30·20	30·24	30·31	30·29	37·7	47·8	33·0	45	28	37	45	25	38½	35½	n.	ne.	calm	sse.	se.	.....	.....	.....	.....	.....	34
☽ 9.	30·396	30·380	30·318	30·02	30·22	30·12	30·20	30·10	34·8	43·8	33·3	38	24	35	42½	26½	42½	34½	e.	se.	calm	ese.	s.	.....	.....	.....	.....	.....	31
10.	30·186	30·176	30·050	29·82	29·88	29·90	29·88	29·96	39·3	40·4	34·8	44	28	34	40	34½	43	44	sse.	s.	w.	sse.	s.	.....	.....	.....	.....	.....	33
11.	30·192	30·153	30·086	29·78	30·00	29·90	30·04	29·78	40·3	44·0	37·6	47	40	38	45½	37	43½	41	s.	sw.	calm	ssw.	n.	.....	.....	.....	.....	·08	34
12.	29·952	29·943	29·700	29·53	29·59	29·42	29·56	29·27	43·7	45·6	40·0	50	32	43·5	50½	40½	43½	41	s.	sw.	calm	sw.	sw.	.....	.....	.....	.....	·09	39
13.	29·744	29·725	29·585	29·17	29·40	29·28	29·20	29·24	42·7	51·0	39·0	52	43	44	47	37	37½	37½	w.	sw.	w.	wsw.	wnw.	.....	·06	.....	.....	·49	39
14.	29·488	29·605	29·426	28·98	29·30	29·35	29·31	29·55	50·5	51·8	42·7	56	45	47	46	30	35	34	w.	w.	calm	w.		·069	.....	·19	.....	·20	44
15.	29·790	29·924	29·715	29·33	29·65	29·79	29·75	29·98	46·3	55·5	46·3	57	45	44	48	31	34½	29½	n.	nw.	calm	w.	ne.	.....	·06	·07	0·28	·15	44
○ 16.	30·040	29·986	29·940	29·62	29·85	29·70	30·01	29·60	50·5	51·8	46·2	57	29	43	45½	35	33½	37½	sw.	s.	calm	ese.	sse.	·019	.....	.....	.....	.....	45
17.	29·920	29·891	29·836	29·39	29·60	29·64	29·46	29·65	46·8	54·2	43·6	64	31	47	46½	41½	45½	43	s.	sw.	w.	sse.	sw.	.....	.....	.....	.....	·37	45
18.	29·898	29·861	29·844	29·39	29·73	29·80	29·92	30·04	45·4	59·0	43·4	67	36	44	54	42	40	37	s.	sw.	calm	ese.	se.	.....	.....	.....	.....	·40	45
19.	29·920	29·867	29·771	29·54	29·82	29·80	29·97	29·95	43·3	61·0	41·3	55	41	41·5	56	42	41½	41	ne.	e.	calm	e.	se.	.....	.....	.....	.....	.....	45
20.	29·588	29·667	29·473	29·33	29·66	29·47	29·84	29·69	48·3	50·8	42·7	63	45	45	49	40	40	40	ne.	e.	calm	ene.	se.	.....	·04	.....	.....	.....	45
21.	29·512	29·467	29·379	29·05	29·22	29·24	29·50	29·50	53·8	58·7	48·0	59	47	52	57	40½	41	42	e.	s.	calm	ese.	ese.	.....	·21	·01	.....	.....	49
☾ 22.	29·440	29·409	29·341	28·99	29·15	29·30	29·41	29·43	51·8	59·0	50·4	61	46	50	59	46	44	43	e.	s.	calm	s.	ese.	·163	·02	·01	0·10	·02	52
23.	29·485	29·555	29·416	28·93	29·24	29·48	29·53	29·64	54·3	59·3	51·0	60	42	52·5	56½	47	43	43	sse.	s.	calm	e & s.	se.	.....	.....	·10	.....	.....	51
24.	29·604	29·699	29·538	29·19	29·51	29·70	29·93	30·08	53·7	57·6	46·8	64	41	47	51	39½	43½	41	e.	s.	e.	e.	se.	.....	.....	·04	.....	·09	51
25.	29·784	29·734	29·697	29·38	29·90	29·90	30·20	30·32	47·7	60·6	45·0	55	36	45	51	42	42	37	ne.	e.	e.	ene.	se.	.....	.....	.....	.....	.....	44
26.	29·798	29·756	29·710	29·63	29·98	29·85	30·30	30·32	45·5	53·4	38·7	51	36	44	50	33	42	36	ne.	e.	e.	e.	se.	.....	.....	.....	.....	.....	37
27.	29·836	29·719	29·700	29·48	29·82	29·81	30·26	30·17	40·0	51·8	37·3	46	38	37	37	34	38½	37	ene.	e.	e.	e.	e.	.....	.....	.....	.....	.....	35
28.	29·760	29·822	29·722	29·45	29·78	29·84	30·11	30·06	43·5	44·6	39·3	51	28	42	46	33	40	32	ene.	e.	e.	e.	e.	.....	.....	.....	.....	.....	38
29.	29·966	29·950	29·932	29·63	29·92	29·85	30·07	29·94	42·3	49·0	33·6	56	29	42·5	51½	27	38	32	n.	e.	e.	ese.	e.	.....	.....	.....	.....	.....	36
● 30.	29·866	29·848	29·602	29·50	29·63	29·20	29·76	29·34	48·8	52·0	38·5	54	42	45	53½	28	40	42	s.	s.	se.	ese.	ne.	.....	.....	.....	0·50	.....	39
31.	29·480	29·455	29·384	28·97	29·19	29·20	29·00	29·27	54·8	56·2	48·6	58	46	52	52	44	43	39½	s.	s.	se.	s.	n.	·036	·08	.....	.....	·49	48
Mean.	29·901	29·912	29·812	29·50	29·750	29·747	29·877	29·883	43·6	50·0	39·6	51·96	34·12	41·4	47·6	34·8	40·09	37·95						Sum. ·287	0·47	0·62	0·98	2·46	Mean. 39