INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

GOVERNMENT ORGANIZATIONS.

Geological survey.

Work in California. — During March, rainy weather interfered very much with the field-work in the division of the Pacific. The study of the Knoxville region, however, was completed by Mr. Becker, who made two cross-sections of the area mapped, and finished his notes of the surface-geology.

Four sections were made of the Redington quicksilver-mine, and notes of others also taken. The first half of April was very stormy, rendering a camping-trip inexpedient. On the 1st of the month, however, Mr. Turner proceeded to Tres Pinos, to make observations on the granite reported to be in that neighborhood by Antisell and others. Between the first and the middle of the month, Mr. Turner occupied the intervals between the storms in making a reconnoissance of the region adjacent to Tres Pinos.

About the middle of April, Mr. Becker and a party, including Mr. Turner, proceeded from Tres Pinos to New Idria, making excursions on both sides of their route, and reaching New Idria the latter part of the month. Mr. Becker hopes to complete the New Idria district during May. He reports that the granite between San Francisco and New Idria, of which there is a considerable amount, is, so far as he has seen it, of one character, and does not differ from that of which the Farallone Islands are composed. It presents lithologically no evidence of recent origin, but has all the appearance of ancient granite. He reports, also, the existence of large areas of basalt at no great distance from Tres Pinos, and an important area of the same rock immediately south-west of Panoche valley. He says, also, that the most cursory study of the pebbles of the recent stream-beds, and the extensive gravel-deposits of the area passed through, renders it evident that there are other important areas of basalt. The same sources of information also prove that andesite eruptions must have taken place abundantly, although in his hasty trips he did not come across the rock *in situ*. He thinks that a thorough examination of the coast-ranges north of New Idria would show a considerable area of andesite. The sedimentary deposits noted were of three classes: 1°, highly metamorphosed and sometimes contorted beds, similar to those of the Clear Lake and Knoxville districts; 2°, lying unconformably upon the latter, considerably tilted, very slightly contorted, unaltered beds, mainly sandstones, exceedingly fossiliferous in places, and corresponding to Whitney's miocene; 3°, resting unconformably on these, again, uncompacted conglomerates, very slightly tilted, and, so far as examined, without fossils.

In the laboratory at San Francisco, Dr. Melville has been engaged in routine analyses.

Mr. Curtis has been in Washington for some time, revising proof of his monograph (No. 7) on the silver-bearing lead-deposits of Eureka, Nev., which is in press.

Mr. Hoffmann finished the corrections and additions to the topographic work at Clear Lake in April, and early in May reported at Washington, where he will map the work done by him in 1882 in northern California.

Miscellaneous. — Nearly all the rocks collected by Mr. J. S. Diller in the Cascade Range, in northern California, have now been identified; and the labelling and cataloguing of the collection, so far as thin sections of the rocks have been prepared, have been completed. The hypersthene andesites are found to be the most abundant. Members, also, of a new group of rocks have been found, which promise to be of especial interest. —— Mr. Vanhise, assistant to Prof. R. D. Irving, made, in March, seventy-two new thin sections of rocks; and descriptions were prepared of forty of that number. In April, Mr. Newman, at Washington, prepared eighty sections for Professor Irving, and also of a few rocks from the Cascade Range. —— Through the kindness of the superintendent of the Naval observatory, Capt. C. E. Dutton has begun a study of the moon's surface in connection with the study of the volcanic features on the earth. —— Mr. Diller has prepared about a dozen sections of fulgurite and its fusion-products, and is making a special study of them, with results of exceeding interest.

Engineers' school of application, Willets Point, N.Y.

Aurora borealis. — The regular series of records of the displays of the aurora borealis, begun in 1870, has been continued as heretofore. Three sentinel-posts, widely separated from each other, are guarded nightly by soldiers of the Battalion of engineers, specially selected as watchmen. Eight men are thus permanently detailed. Three of them remain on duty from sunset to sunrise, and are required to report, when relieved, whether they have seen any auroral light during the night, and, if not, whether the sky has been sufficiently clear to permit any to be visible. These records for the past year are presented in the following consolidated table, which,

AURORAL DISPLAYS IN 1883.

Name of month.	Auroras.				Clear nights.				Cloudy nights.			
	Post No. 1.	Post No. 2.	Post No. 3.	Mean.	Post No. 1.	Post No. 2.	Post No. 3.	Mean.	Post No. 1.	Post No. 2.	Post No. 3.	Mean.
January . . .	0	0	0	0.0	11	8	11	10.0	20	23	20	21.0
February . .	2	3	2	2.3	16	15	15	15.3	12	13	13	12.7
March . . .	4	4	2	3.3	22	23	21	22.0	9	8	10	9.0
April	3	3	2	2.7	16	15	15	15.3	14	15	15	14.7
May	0	0	1	0.3	17	16	17	16.7	14	15	14	14.3
June	1	1	1	1.0	16	17	18	17.0	14	13	12	13.0
July	5	6	5	5.3	22	22	21	21.7	9	9	10	9.3
August . . .	1	1	2	1.3	26	26	27	26.3	5	5	4	4.7
September . .	4	3	3	3.3	15	16	17	16.0	15	14	13	14.0
October . . .	2	3	2	2.3	20	18	17	18.3	11	13	14	12.7
November . .	2	2	2	2.0	17	19	20	18.7	13	11	10	11.3
December . .	0	1	0	0.3	19	17	17	17.7	12	14	14	13.3
Total for year.	24	27	22	24.1	217	212	216	215.0	148	153	149	150.0

considering the difficulty of distinguishing the fainter displays, is regarded as establishing the trustworthy character of the record by the general accordance between the three independent observers. It appears, that, out of 215 favorable nights, 24 auroras were noted; and, if we may assume the same ratio to apply to the cloudy nights, about 41 auroral displays occurred during the twelve months.

These observations were undertaken to throw light upon the supposed connection between the number of solar spots and the frequency of auroras and of magnetic disturbances. They have now been continued long enough to give interest to the following summary, compiled from the annual astronomical orders. It will be noted that there is a marked correspondence between the epochs of maximum and minimum auroras, and of maximum and minimum solar spots, as given by Prof. Fritz of Zurich; viz., —

Epoch of maximum solar spots	1870.6
" minimum " "	1878.9
" maximum " "	1882.4

The column headed 'Average number of sun-spots' is derived from the observations of Prof. D. P. Todd, published by the U. S. signal-office.

SUMMARY OF AURORAL RECORDS FOR FOURTEEN YEARS.

Year.	Clear sky.		Cloudy sky.		Total for year.	Average No. of sun-spots.	Remarks.
	Nights.	Observed auroras.	Nights.	Probable auroras.			
1870	184	50	150	41	99	–	11 mos.
1871	211	60	154	44	104	–	
1872	234	60	132	34	94	–	
1873	214	54	151	38	92	–	
1874	190	18	175	17	35	–	
1875	189	14	176	13	27	–	
1876	195	9	171	8	17	–	
1877	191	7	174	6	13	2.6	Began
1878	185	2	180	2	4	2.2	June,
1879	204	9	161	7	16	2.0	1877.
1880	216	13	150	9	22	14.3	
1881	191	23	174	21	44	26.7	
1882	201	55	164	44	99	28.3	
1883	215	24	150	17	41	27.4	

RECENT PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Albany institute.

May 13. — Dr. James Hall gave a description of some forms of newly discovered fossil sponges of the family of Dictyospongidae. Fossil sponges begin in the paleozoic rocks, and continue upwards through the coal-measures. The divisions of the fossil sponges are by fours : that is, some had four marked longitudinal lines or ridges; others, eight, and twelve, and sixteen. The most remarkable form was one with thirty-two radiating lines connected by concentric rings resembling a spider's web. Of this there are only two specimens in the world, yet discovered; and these are in the New-York state museum. Until within a few years the fossil sponges had been undetermined, and many had regarded them as the remains of true vegetable forms of life. Europe, up to 1883, had produced but five species of fossil sponges of the family Dictyospongidae. From New-York state, Professor Hall has secured thirty-five species, thirty-one of which he has been the first to discover and to describe. A notice of the family Dictyospongidae was read at the meeting of the American association for the advancement of science, in Montreal in 1882, and plates from the thirty-fifth Report of the New-York state museum of natural history were exhibited. The paper at present in press gives descriptions of the genera Cyathophycus, Dictyophyton (= Hydnoceras Conr. 1842), Ectenodictya, Lyriodictya, Thamnodictya, Phragmodictya, Cleodictya, Physospongia, and Uphantaenia, with numerous illustrations.

Academy of natural sciences, Philadelphia.

May 6. — Professor Joseph Leidy directed attention to some little tape-worms which had recently been submitted to his examination. They were expelled, after the use of santonin, from a child of three years. The specimens, consisting of a dozen fragments, appear to be portions of three worms, which probably reached a length of from twelve to fifteen inches. Unfortunately the head is lost. The joints, or proglottides, are several times broader than long. The eggs occupy a simple uterus, defined by the walls of the joints, and not divided into pouches diverging laterally from the main stem, as in most Taeniae. A singular feature of the worm is the interruption of the series of ripe joints, here and there, by one or more completely sterile ones. The generative apertures open in the usual way on the lateral margin of one side. The mature eggs are spherical, measure 0.072 of a millimetre diameter, and contain fully developed, six-hooked embryos. While differing greatly from the ordinary tape-worms infesting man, they approximate nearly the description of Taenia flavopunctata, and probably pertain to this species. This has been but once previously observed, and was described in 1858 by Dr. Weinland, from specimens in the museum of the Medical improvement society of Boston. These also were discharged by a child. It is probable that the worm is more common than would be supposed from the instances of its observation, and has perhaps escaped notice from its small size, and from the general ignorance of the distinction, not only of this, but of the ordinary species of tape-worms. —— Prof. J. T. Rothrock referred to the structure of the common violet, and remarked that he had observed that in the flower, the so-called path-finders, or lines of the petals leading to the ovaries, are much more conspicuous on the lower and side petals than on the others, thus rendering them of most use to insects, which are supposed to be guided by them to the ovaries.