

6327 stars have been selected from the catalogue plates, and roughly reduced for observation with the Melbourne transit circle, to serve as standard stars for the reduction of the Melbourne regions, and of these 3944 have already been completely observed with the meridian circle three times or more.

There are now 760 meteorological stations in communication with the Observatory, and all the records for the last forty years are, at present, being completely rearranged and classified in convenient forms for easy reference. The terrestrial-magnetism work has been carried on as hitherto, and the special observations in connection with the Antarctic expeditions are being made at the required intervals. In the reduction of the magnetograph curves for the past thirty years, 21,877 curves had been measured up to March 31.

NEW MINOR PLANETS.—The following five minor planets, with their positions, are recorded by Prof. Max Wolf in No. 3815 of the *Astronomische Nachrichten*:—

1902. Sept. 3d. 12h. 55m. '8 (Heid).	Sept. 7d. 10h. 38m. '9 (Heid).		
α	δ	α	δ
1902 J.O. 23h. 54m. '7	-0° 13'	23h. 51m. '7	-0° 44'
1902 J.P. 23h. 56m. '7	+1° 14'	23h. 54m. '5	+0° 47'
1902 J.Q. oh. 13m. '4	+1° 20'	oh. 11m. '3	+0° 44'
1902 J.R. oh. 9m. '2	-1° 21'	oh. 6m. '6	-1° 36'
1902 J.S.		oh. 10m. '3	-0° 13'
			Mag.
			13
			12
			12.5
			13
			12

THE RETURN OF THE ARCTIC EXPEDITIONS.

SINCE we went to press with our last issue, the Arctic expeditions of Lieut. Peary and Captain Sverdrup have returned, and accounts of their work, as well as of that of the Baldwin-Ziegler expedition, have appeared in the daily papers. The following brief account of the scientific results obtained by the three expeditions is obtained from telegrams received through Reuter's Agency, and from the personal narrative of Captain Sverdrup which is to be found in the *Times* of Monday last.

Lieut. Peary reached Payer Harbour on September 16, 1901, and within a week the Eskimos with the expedition began to sicken, and not one escaped illness. Of the number, six adults and a child died. Further sickness among the Eskimos occurred in the following January.

An advance party, in charge of Hensen, started for Conger on March 3. On March 6, the main party started, leaving Peary in charge at Payer Harbour. Conger was reached in twelve marches, shortly after the advance party had arrived there. The Eskimos supporting the expedition went back on reaching Conger. Eight marches more took the expedition to Cape Hecla, at the north end of Robinson Channel, which was all open across to Greenland, while there were lakes of water extending northward as far as could be seen, from Black Cape to Cape Ransome. On April 1, Lieut. Peary started northward over the Polar Sea with Hensen, four Eskimos and six sledges. The old floes were covered deeply with snow and intersected by rubble ridges, and lanes of young ice were encountered.

The travelling, except for the lanes of young ice, was similar in character to that experienced by the English expedition of 1876. After a number of difficult marches, which became more and more perilous, the pack, in latitude 84° 17', to the north-west of Cape Hecla, became impracticable, and further efforts to advance had to be abandoned. New leads and the pressure ridges, with fogs, made the return in some respects more trying than the advance. Cape Hecla was regained on April 29 and Cape Sabine on May 15. The ice broke up earlier than in 1901, and Payer Harbour was blockaded almost continuously. The *Windward* bored through, entered the harbour on August 8, and left the same afternoon.

The leader of the expedition states that he has a deep-rooted conviction that it is possible to reach the North Pole. In all his attempts during the last four years, he points out, he has not had a suitable starting-point, but he believed that the Pole can be reached on sledges by any adequately equipped expedition which makes latitude 83 its winter quarters. If he had means of his own to continue the work, he would certainly not give it up, but he must now bow to circumstances. It has been demonstrated to his satisfaction, he declares, that there is no open ocean in the voyage to the Far North. On the other hand, there is no foundation for the idea that there is an eternally frozen sea, though the waters are practically always

covered with ice. He has shown, he thinks, that Greenland's shore is the most northerly land of the earth's surface, and that all beyond it on the other side is ocean.

Lieut. Peary made a close study of the Eskimos living on Whale Sound, the most northerly people in the world. Their complete isolation has differentiated them from every other race. They are a small tribe, not exceeding 200 in number, and are being rapidly destroyed by an unknown disease, apparently a malignant slow fever. He collected specimens of everything pertaining to their habits, knew every man, woman and child personally, learned their characters and capacities, and taught them to work.

The first intimation of the return of Capt. Sverdrup in the *Fram* came in the shape of the following telegram (dated Stavanger, September 19) from Captain Sverdrup to the secretary of the Royal Geographical Society:—

"Arrived here to-day with the *Fram*. Our exploring work consists in the southern and the western shores of Ellesmere Land and other unknown fields to the westward. Braskerud died autumn 1899, otherwise all well."

The *Fram*, it will be remembered, left Christiania in June, 1898, its principal geographical object being to ascertain the extension of Greenland towards the north, to determine the yet unknown configuration of the mainland, and, if possible, to discover whether this great Arctic land finally breaks up into groups of islands in the north. It was also understood that, if circumstances were favourable, Captain Sverdrup, like Lieut. Peary, would make an attempt to reach the North Pole.

The personal narrative of the leader of the expedition, already referred to, gives an interesting account of the work accomplished and the way in which the great difficulties which presented themselves were overcome. As so much care and attention had been paid to the scientific equipment of the expedition, valuable scientific results may be expected to accrue from it, particulars of which will be eagerly awaited. The narrative, however, gives information as to some of the work done in the interests of science. Hayes Sound was completely mapped. The unknown west coast of Ellesmere Land was explored. Between Ellesmere and North Kent, a large bay was seen to extend eastward and to be about 100 miles broad. On the northern side of the same, some large, complicated fjords were found. The land extended about fifty miles westward from these, after which it ran in a north and north-westerly direction. Part of the land which was traversed was very hilly and intersected by large fjords, several of which were from fifteen to twenty miles broad at the mouth.

Much other new land was explored and the numerous fjords investigated. All the members of the expedition appear to have worked heartily and harmoniously together, and returned safely to Stavanger on Friday last, with the exception of the surgeon, who was to have taken charge of the meteorological observations and who died in the course of the expedition.

Mr. Baldwin, in the course of an interview, claimed to have accomplished, in the course of nearly a year and a half's incessant work, more than the unfavourable conditions which surrounded his expedition really warranted, and to have brought back data which ought materially to assist subsequent explorers. For the first time in the history of North Polar exploration, a photographic record had been secured of the ice and snow conditions of the Arctic and of the animal life of those regions. The kinematograph had been for the first time successfully employed in the far North, and as a result there were more than 1000 perfect photographic representations of their work, and in addition more than 200 drawings and paintings had been made.

The main object of the expedition was to plant the American flag at the North Pole, and the result being what it was, the explorer is naturally somewhat disappointed. He maintains, however, his belief that his objective can be reached in accordance with his original plan. He attributes his non-success to the condition of the ice in the Franz Josef Land Archipelago in the autumn of 1901, which prevented the navigation of the *America* far enough north to be of practical advantage in establishing headquarters so as to facilitate sledge-work in the winter and spring of the present year, and to the sickening and death of many of the dogs from internal parasites, which ultimately proved fatal to more than half the pack.

A hut was found by the party, and in it a small brass cylinder

3 inches in length containing a record of Dr. Nansen's work, dated May 19, 1896, the hut proving to be that in which Nansen had stayed. In the place of the document, Mr. Baldwin left a record by himself of his own work and visit.

During the period spent by the expedition in the far north, some fifteen balloons were released containing messages, addressed to the nearest American Consul, respecting both air and sea currents.

After an adventurous and trying journey, the expedition, on July 17, reached a place of safety to the southward of Cape Flora, and eventually home. In Mr. Baldwin's opinion, the old idea of an open Polar sea is baseless. "We know," he says, "that land extends as far as the 82nd degree on the Franz Josef Land side, and it is from here that I believe the Pole will be reached. I quite agree with Lieutenant Peary that the most practical way of attaining the Pole is by sledging from this point."

CONVENTION OF WEATHER BUREAU OFFICIALS.

ON August 27, 28 and 29 of last year, the second Convention of Weather Bureau Officials took place at Milwaukee, Wisconsin, and we have recently received the report of the proceedings, which has been published by the U. S. Department of Agriculture (*Bulletin* No. 31), being edited by Messrs. James Berry and W. F. R. Phillips under the direction of the chief of the Weather Bureau, Prof. Willis L. Moore. The report, which covers no less than 246 pages, will be found most interesting

Amongst other papers of particular interest are those referring to "the forecaster and the newspaper," by Mr. Harvey Maitland Watts, who points out the great value newspapers can be in publishing popular and accurate meteorological information and timely warnings to their readers. Dr. Oliver Fassig gives the results of a study of the diurnal variations of the barometer, and demonstrates the westward movement of the daily barometric wave, portraying it excellently by means of a series of charts which accompany the paper. In the subsequent discussion, Prof. Moore refers to the paper as "quite unique and entitled to great consideration." "Lightning Recorders and their Utility in Forecasting Thunderstorms," "Meteorology in Colleges," &c., are among other subjects touched upon, and the volume concludes with a good index and a capital photograph of a group of the members present at this Convention. There seems no doubt that such gatherings are most useful and valuable, and Prof. Moore tells us that these two conventions have demonstrated their usefulness by affording exceptional opportunity for exchange of views and discussion of methods and means for advancing the work of the Weather Bureau.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE technical schools and colleges throughout London are now beginning their winter's work. An examination of a batch of prospectuses which has reached us shows that year by year there is an increasing amount of attention paid to the varied wants of students engaged throughout the day in different



FIG. 1.—Fog Pyramid. This photograph was taken by Prof. Alex. McAdie on July 30, 1900, at 7.15 p.m. The conditions were normal so far as temperature, humidity and wind are concerned at Mount Tamalpais. The view in the foreground is the town of Mill Valley. The apex of the fog pyramid was (it is estimated) about five miles from the camera. The fog in the background overlies the Golden Gate and the Bay of San Francisco. The formation is peculiar, and it should be noted that the land under the fog pyramid is level, and the uplifting of the fog is not due to the existence of foothills at this point.

reading to meteorologists, for the numerous papers included in the seven sections of the volume refer to widely varied branches of work. To enter into anything like detail in this note is out of the question, but brief references may be made to a few of the papers read at this Convention.

Prof. Moore in his presidential address gave a brief survey of the weather service since its inception in 1870, showing its rapid growth and pointing out its increasing efficiency. "Fog Studies" was the subject of Prof. Alex. McAdie's paper, the author emphasising the point that fog "may be considered as a problem in *air drainage*, just as frost may be so considered." We reproduce one of the numerous excellent reproductions in the report with which he illustrated his remarks. Mr. E. J. Glass describes and illustrates the "chinook" winds so well known to those who live near the Rocky Mountains and which serve the useful purpose of storing the snow that supplies the water to the rivers during the summer season.

industries. At the Battersea Polytechnic, for example, we notice that in addition to the lectures and laboratory work in inorganic, organic and physical chemistry, classes have been arranged in gas manufacture, in the manufacture of oils, fats, soaps and candles, in iron and steel analysis, in paper making and testing, and in the chemistry of the kitchen and laundry. The same thoroughness is shown in the departments concerned with the building, engineering and other trades. The prospectus of the Chelsea Polytechnic, over which Prof. Tomlinson, F.R.S., presides, is published in four volumes dealing respectively with the day colleges for men and women, the day school for boys and girls, and the evening classes. It would be difficult to name a subject, commercial or technical, in which no class is provided at Chelsea. Moreover, every stage is looked after; there are classes suitable for the apprentice, and yet arrangements have been made by which advanced students may engage in research work under the supervision of the principal.