

yet we must recognize that the present kites and accessories ordinarily employed in the work are essentially the same as the perfected forms developed by Prof. C. F. Marvia when he was in charge of the investigations from 1895 to 1898.—[C. A.]

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**RESULTS OF THE KOCH EXPEDITION ACROSS GREENLAND, 1912-13.**

The scientific results of the Koch expedition across Greenland in 1912-13 are presented in abstract by Dr. Alfred Wegener in the *Zeitschrift der Gesellschaft für Erdkunde zu Berlin*, 1914, No. 1. Among the many subjects investigated on that trip the following will be of interest to our readers.

Temperature measurements of the Ice Cap, made at different depths in borings into the ice, showed that at a depth sufficient to get below the level of annual variations the temperature is about  $-15^{\circ}$  C., departing but very little from the average annual air temperature of the locality. At increasing depths below this level there is a slight but distinctly measurable rise in temperature at the rate of  $1^{\circ}$  C. per 20 meters. The deepest boring attained a depth of 24 meters below the general surface of the ice. The temperature measurements in general indicate an average air temperature of  $-32^{\circ}$  C. for the central portion of Greenland.

Studies in the granular structure of the snow and of the ice enabled the travelers to determine quite accurately the relative snowfall on either coast and in the interior. At an altitude of 2,000 meters, along either coast, there is no longer any evidence of summer melting of the snow and here the winter snow may be differentiated from the summer fall by the finer-grained structure of the former. The depth of the winter [?] fall decreases from about one-half meter on the east coast to about 30 centimeters in the interior, and then increases westward to its maximum of about 1 meter near the west coast.

A visit to the Jakobshavn glacier in west Greenland showed that this ice stream has receded several kilometers from where its retreating front stood at the time of the last visit.

A meteorological station was established at Borg ( $22^{\circ} 12'$  W. long.,  $76^{\circ} 40'$  N. lat.) on the Storstrommen, a great glacial tongue reaching down to the Stors-fjord from the inland ice of Queen-Louise Land. The observations here will prove of particular interest, when pub-

lished, since they are the first series from a station located on the inland ice proper, and thus will furnish interesting comparisons with the stations Danmarkshavn and Pustervig of the Danmark-Expedition of 1906-8. In passing it is of interest to note that Borg has a mean temperature  $5^{\circ}$  C. lower than that of Danmarkshavn on the coast, and the precipitation is considerably less.

Special microphotographic investigations were carried out in the forms and structure of the various ice crystals met with at Borg; and the aurora was successfully photographed many times. Observations on the three twilight arches resulted in determinations of the altitude of the so-called geocoronium sphere, the most distant observable evidences of our atmosphere, at 600 kilometers. With these observations on the twilight arches go necessarily efforts to identify the zodiacal light, and Wegener succeeded in doing so even at this very high latitude. This is probably the first set of observations of the zodiacal light from a point so near the earth's poles.

Not least interesting among the results of this expedition are the observations on polarization of blue sky light, and the discovery that even as late as the spring of 1913 the Babinet and Arago neutral points still showed in those latitudes an observable though weak influence of the optic-atmospheric disturbance of 1912. Wegener even succeeded in securing for the first time photographic records of the interference bands, or "Polarisationsstreifen" appearing in the field of his Savart-Jensen polariscope.

Undoubtedly the publication in full of these Greenland observations (perhaps in "Meddelelser om Grönland") will give most interesting details to both meteorologists and geographers.—[C. A. JR.]

**OBSERVATIONS OF EARTHQUAKES.**

The Secretary of Agriculture has received from the Secretary of State an interesting report on the earthquake of January 15, 1914, at Leghorn, Italy. Unfortunately, a recent decision of the comptroller forbade the Weather Bureau to utilize its important apparatus for the observation and record of earthquakes, until the Weather Bureau is specifically authorized by Congress to engage in seismological work. The Editor believes there is no other institution in the country so well qualified as the Weather Bureau to carry on this important work.—[C. A.]