Benjamin E. Washburn, head of the West Indies branch of the foundation, has received the formal thanks of the government for the work of the foundation, which has resulted in a decreased death rate and other benefits.

LORD NUFFIELD, who recently made a gift of £5,000 to the National Hospital for Nervous Diseases, Queen Square, London, for the building of a new research department, has made a further gift of £24,000 for the same purpose. The rebuilding scheme was made possible by the offer of the trustees of the Rockefeller Foundation to give £60,000 towards rebuilding the laboratories, the department of pathology and the surgical unit, and £60,000 for the endowment of research work, provided that a similar amount be raised by December 31.

AN Associated Press dispatch printed in the *Los Angeles Times* states that the Norwegian iceship Gudrun returned on September 4 from the Arctic with a receptacle, which it is believed contains the diary of the Swedish explorer, Salomon August Andree, who was lost on an attempt to reach the North Pole by balloon forty years ago. The copper and cork container was found on a small island near Spitzbergen by a fisherman. The diary is said to be in good condition.

AN aeronautical museum has been established at Ottawa with the purpose of illustrating the development of aviation and particularly the part Canada has played in this development. *Museum News* states that a large hall in the basement of the National Research Building has been set aside for the museum and exhibits are now being installed. The material already acquired includes exhibits dealing with the work of Alexander Graham Bell in aeronautical science and in practical flying. So far all exhibits have been donated and necessary cases have been paid for out of funds of the National Research Council. Organizations cooperating in the establishment of the museum are the National Research Council, the Associate Committee on Aeronautical Research of the Council, the Canadian Flying Clubs Association, the Canadian Department of National Defense and the Civil Aviation Branch of the Department of Transport.

FIFTY-TWO survey and exploratory parties were placed in the field this year by the Mines and Geology Branch, Department of Mines and Resources, Ottawa. Forty-one of these parties have been engaged in geological investigations and eleven in topographical mapping. The field force, of about 300 men, worked every mineral producing province in the Dominion, and in Yukon and the Northwest Territories. Nine geological parties were sent to British Columbia, while Ontario and Quebec each had seven. The Prairie Provinces had eleven; the Maritime Provinces four; the Northwest Territories two, and Yukon one. Three topographical parties have worked in British Columbia, three in Alberta, two in the Northwest Territories, and Ontario, Nova Scotia and Yukon each have one. The National Museum of Canada placed nine parties in the field for the purpose of making investigations dealing with the migration and nesting habits of Canadian birds; the distribution of plant and animal life, and the preservation of game, particularly in the Northwest Territories. In addition, ethnological studies were planned of certain Indian tribes. In this last connection excavations have been made in a number of old Indian village sites in Quebec and in Prince Edward Island.

DISCUSSION

OBSERVATIONS OF A BRILLIANT AURORA

ON the night of August 1 to 2, while obtaining spectrograms with the 69-inch reflector of the Perkins Observatory, I stepped out on the deck to the northeast at five minutes past midnight, E.S.T., to look for Finsler's Comet. My attention was immediately arrested by an unusually brilliant display of the Aurora Borealis. At this moment two distinct arches were visible, of which the lower was the brighter and the more irregular in outline. Several bright streams of different widths and intensities projected upward from the north point, like beams from a giant searchlight. The two arches gradually merged into one.

At 12:15 A.M. the streamers were much more brilliant and numerous. Eighteen were counted, and in addition several fainter ones were suspected. Some were several degrees wide, and some were not more than half a degree in width. The brightest extended fully forty-five degrees above the horizon. No motion was apparent at this time, the streamers simply brightening and gradually fading away. Most of the auroral light was of the customary white color with pale greenish tinge. However, the brightest group of streamers, rising in the north-northeast, was distinctly pink in hue. The intensity of the color increased toward the extremities of the streamers, where they appeared quite red.

At 1:25 a brilliant white bow was observed projected like the beam of a powerful searchlight across the zenith from west by north to east by south. It

extended almost from horizon to horizon. At this instant the western half of the bow was very bright. Gradually this portion split into two fainter bows, while the eastern half increased in intensity until its light predominated. A slow, swirling movement was detected in the portion of the bow overhead as it drifted lazily southward. Fully fifteen minutes passed before the bow disappeared.

At 1:40 the upper arch across the northern horizon faded, while the lower one increased in intensity. It became extremely bright, rising to a height of fifteen degrees at its greatest altitude. Since the area beneath it was quite dark it appeared unusually brilliant by contrast. It was most irregular in outline, being shot through and through with streamers both dark and bright. Never before have I seen an arch which resembled so closely the pictures of aurorae as observed in polar regions. As I watched, bright arches suddenly formed at an altitude of twenty degrees above the north. Almost instantly they rose to a height of some thirty degrees, where they vanished. Arch after arch appeared, sped upward, and vanished. Their behavior was similar to that of the high-voltage coronal discharge between vertical, nearly parallel metallic bars, in which the flaming arc is carried upwards by convection currents arising from its own heat. At the same time bright areas flashed forth here and there all over the northern sky, giving the appearance of far-away lightning reflected from numerous clouds. This lively activity continued for five minutes and slowly subsided, leaving only the bright lower arch and several vertical streamers.

At 2:00 the northern arch was very bright. It extended some forty-five degrees across the horizon, and its central boundaries lay ten degrees and twenty degrees above the north point. Numerous brilliant, cloud-like areas were seen above it, interspaced by irregular dark streaks which gave the appearance of moonlight coming from behind clouds of varying density. (The weather map, prepared a few hours after these observations, showed no clouds within two hundred miles to the north of us.) Several wide and somewhat indefinite streamers rose almost to the zenith where they blended with the Milky Way.

At 3:15 both northern arches were very bright. They extended along the horizon forty-five degrees and sixty degrees respectively and rose to central altitudes of fifteen degrees and twenty-five degrees respectively. In the north-northeast a brilliant white shaft one and one half degrees wide extended fully sixty degrees above the horizon in spite of illumination now introduced by the crescent moon which was now well above the horizon. Ten minutes later the bright shaft had faded away. In its place was seen a dark streak fully five degrees wide which extended up through both arches. The lower arch then increased greatly in brightness. Simultaneously the upper arch dimmed and disappeared. At this time arcs began to rise again in a fashion similar to that noted at 1:40. For several minutes they swept upward, taking about one third of a second to reach the position formerly occupied by the upper arch. There they vanished instantly.

At 3:55 the two bright arches were seen again, and eleven sharp streamers about one degree in width could be followed to a height of forty-five degrees above the horizon where they faded off into the moon-lighted sky. They dimmed slowly until only two were left, one northeast and the other north-northeast. Each was about two degrees wide.

Finally at 4:25 the upper arch and the eastern half of the lower ones were lost in the light of the coming dawn. The western half of the lower arch was still very bright, and in the north one brilliant streamer two degrees wide could be followed upward as far as Polaris.

The display evidently began between 11:45 o'clock and midnight, and it probably continued for some time after the light of the rising sun obscured it from our view. Since, of course, most of my time during the night was devoted to tending the spectrograph and adjusting the telescope, I undoubtedly missed a large part of the phenomenon. However, the above account is probably a fair sample of what took place. When one recalls that the Perkins Observatory is located in latitude forty degrees north, it is evident that a magnificent sight must have been presented in the higher latitudes of North America on that night.

The following day I observed the sun with a small telescope and found on its disc three large groups of spots and several isolated spots of moderate size. The group containing the largest sun-spot of all occupied a position southwest of the center of the disc. The position of this spot was such as to indicate that it had passed near the center of the disc some twenty-four hours before the display was observed.

No recurrence of the phenomenon was noted during the following night, although the northern sky was scanned many times.

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PROGRESS IN THE CONTROL OF WHITE PINE BLISTER RUST

THE director of the Brooklyn Botanic Garden in a recent interesting article[1] on the scientific value of botanic gardens refers to several problems in forest pathology. Among the comments on white pine blister rust occurs this sentence: "The only way yet known

[1] C. Stuart Gager, SCIENCE, April 23, 1937.