

SEPTEMBER 7.

Dr. R. S. KENDERDINE, in the chair.

Fifteen persons present.

*On large Sphene from Canada.*—Dr. A. E. Foote recorded the occurrence of crystals of sphene of unusual size in the county of Renfrew, Canada, near the upper part of the navigable portion of the Ottawa River. The largest crystal collected weighed  $23\frac{1}{2}$  pounds or more than twenty times as much as the largest heretofore found.

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SEPTEMBER 14.

The President, Dr. RUSCHENBERGER, in the chair.

Twenty-eight persons present.

The death of Prof. S. S. Haldeman, a member, was announced.

*On the Timber Line of High Mountains.*—Mr. MEEHAN remarked that on the tops of most high mountains we find a total absence of ligneous plants. The highest alpine vegetation consists for the most part of acaulescent perennials. Lower down we may find some woody species, and often we come to dwarfed forms of trees of species, which, still lower down, form forests of considerable height, and which as timber trees make what is known to mountain travelers as the "Timber Line." Thus in the mountains of Colorado, the forests commence at about 7000 feet above the sea level, and continue up to about 11,000 feet, where they suddenly cease, and form at that elevation what is there known as the "Timber Line." On Gray's Peak he found *Pinus aristata*, *Pinus flexilis*, *Abies concolor*, and *Abies Engelmannii*, with some willows forming the timber line. The Coniferous trees were probably 30 or 40 feet high, and it was interesting to note that this tall timber as suddenly ceased, as if a wood had been cut half away by a woodman's axe. But at once commencing where the tall timber ceased, the same species exist as dwarf stunted shrubs seldom exceeding 3 or 4 feet in height, and often but a foot, though trailing widely over the ground. In this stunted condition the species would often extend some fifteen hundred feet higher up, or half way from the recognized timber line to the top of the mountain. Other observers have noted that the average of 11,000 feet marks the entire timber line of the Rocky mountain range.

So far as he knew this peculiar timber line has been referred wholly to climatic conditions, of which temperature and moisture



1880. "On Large Sphene from Canada." *Proceedings of the Academy of Natural Sciences of Philadelphia* 32, 341–341.

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