

The readings are expressed graphically in Fig. 4. Most of the movement recorded took place between 06.00 hr. and 12.30 hr. and this movement was spasmodic. Other workers³⁻⁹ have demonstrated that the speed of glacier motion may fluctuate considerably within a short space of time and Battle¹ even detected rearward motion on a glacier in Greenland. It would be unwise to draw too many conclusions from these readings which were taken over only a short period and unsupported by corroborative theodolite measurements, but they show (a) that Lyngsdalsbreen at the point where the measurements were made moves at widely varying speeds, and (b) that the instrument has potentialities for the study of glacier movement by small parties. It can match neither the accuracy of photogrammetry nor its ability to measure movements, including vertical movements, at many points on the glacier surface simultaneously, but its simplicity and its ability to record automatically for days on end make it suitable for small expeditions. The experience gained suggested that an improved apparatus could be devised using two wires of differing coefficients of thermal expansion and further work on these lines should produce interesting results.

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REFERENCES

1. Battle, W. R. B. Glacier movement in north-east Greenland, 1949. *Journal of Glaciology*, Vol. 1, No. 10, 1951, p. 559-63.
2. Bossolasco, M. Ein Vorschlag für die Messung der Gletscherbewegung. *Zeitschrift für Gletscherkunde*, Bd. 20, 1932, p. 82-84.
3. Chamberlin, R. T. Instrumental work on glacier motion. *Journal of Geology*, Vol. 36, 1928, p. 1-30.
4. Finsterwalder, R., and Pillewizer, W. Photogrammetric studies of glaciers in high Asia. *Himalayan Journal*, Vol. 11, 1939, p. 107-13.
5. Kinzl, H. Bemerkung über tägliche periodische Schwankungen der Gletscherbewegung und ein Hilfsmittel zu ihrer Untersuchung. *Zeitschrift für Gletscherkunde*, Bd. 17, 1929, p. 205-09.
6. Krasser, L. Über eine neue Form der Gletscheruhr und den Tagesrythmus der Fließgeschwindigkeit. *Zeitschrift für Gletscherkunde*, Bd. 26, 1938, p. 298-302.
7. Mercanton, P.-L. Le cryocinémètre de la Commission Helvétique des Glaciers. *Zeitschrift für Gletscherkunde*, Bd. 22, 1935, p. 163-71.
8. Tollner, H. Untersuchungen über die Bewegung des Eises auf drei Spitzbergen-Gletschern. *Jahresbericht des Archivs für Polarforschung im Naturhistorischen Museum in Wien*, Bd. 1, 1938, p. 1-17.
9. Washburn, B., and Goldthwait, R. Movement of South Crillon Glacier, Crillon Lake, Alaska. *Bulletin of the Geological Society of America*, Vol. 48, 1937, p. 1653-64.

CORRESPONDENCE

The Editor,
The Journal of Glaciology

SIR, *The Depth of Crevasses*

In reference to the discussion of crevasse depths in the *Journal of Glaciology*, Vol. 2, No. 17, 1955, p. 511-14, I can add a little information from north-west Greenland.

During the summer of 1954 I had the opportunity to investigate in detail several crevasses on the ice cap in the Thule area. These occurred on both level portions of the ice cap and on the slopes of the various ice domes. The crevasses ranged in width from a 1 ft. crack to large ones 20-25 ft. (6-7.6 m.) wide. The greatest depth recorded was 85 ft. (26 m.); the least, 30 ft. (9 m.). Most of the crevasses were V-shaped, being 4-10 ft. wide near the top, and pinching out 40-50 ft. below the surface. Descents were made in as many crevasses as possible, and the others were measured by hand line. . . .

The largest crevasse entered was 25 ft. wide at the surface and 80 ft. deep. This was found on the ice cap near a large outlet glacier, so that ice movement was more rapid in this area. This crevasse was bridged for most of its length, but it was partially filled by snow in one place where the bridge had collapsed.

Adjacent to this crevasse were several other much larger ones which were reported as being up to 100 ft. (30.5 m.) wide. Unfortunately, no depth measurements were made on any of these very wide crevasses, but some of them may possibly be over 85 ft. deep.

WESTON BLAKE, JR.

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22 May 1955

In reply to a communication Mr. Blake wrote further:—

In reply to your request for total depths of the ice in the crevassed areas near the margin of the ice cap I can say that the ice is usually about 1000–1500 ft. (305–457 m.) thick in these localities. Ice-depth measurements were made at several of these crevasses in 1953 by both seismic means and gravimeter surveys, and the results obtained coincided almost exactly. Further depth measurements were made in 1954 (including some in the vicinity of the largest—the 25 ft. wide, 80 ft. deep one I mentioned), but unfortunately I have not seen the results of this work. Neither do I have any temperature data on the crevasses.

It is to be noted that the possible existence of deeper crevasses in this area is not excluded. *Ed.*

Le premier emploi de la photogrammétrie

CHER MONSIEUR,

Dans le très intéressant article publié par le *Journal of Glaciology*, Vol. 2, No. 15, 1954, p. 306–12, M. le Professeur Finsterwalder fixe en 1913 le premier emploi de la photogrammétrie pour le levé de tout ou partie d'un glacier en dehors des Alpes. Cette indication n'est pas exacte: Alfred de Quervain, dans son premier voyage au Groenland en 1909, a déjà appliqué la méthode photogrammétrique à la topographie de l'effluent de l'Inlandsis, le Grand Karajak, dans le district d'Umanak. Au cours de l'Expédition Suisse transgroenlandaise, dirigée par de Quervain aussi, j'ai appliqué en 1912 la photogrammétrie terrestre d'une part au levé du front de l'Eqip Sermia et d'autre part à celui de l'extrémité du Sermeq Kujatdleq un autre effluent de l'Inlandsis, se terminant sur terre ferme, dans la même région. Je me suis alors servi précisément de la chambre photographique construite à Munich par le mécanicien Sedlbauer, suivant l'inspiration et sous le contrôle du regretté Sébastien Finsterwalder, l'éminent glaciologue, père de notre collègue Richard Finsterwalder.

Je crois utile de préciser ce début de l'emploi de l'application de la photogrammétrie à l'étude des glaciers polaires.

Veillez recevoir, cher Collègue, mes bonnes salutations.

Commission Helvétique des Glaciers (S.H.S.N.),
Lausanne, le 21 juin 1955

P.-L. MERCANTON

OBITUARY

PHILIPS CHRISTIAN VISSER, 1882–1955

H. E. DR. PH. C. VISSER was born at Schiedam and, in his early manhood, spent some years with the family business in that town. At the age of twenty he made his first acquaintance with high mountains and soon became an enthusiastic mountaineer. In 1913 he was made a member of the Alpine Club in London.

In 1914 he took part in an expedition to the Caucasus, but the First World War put a stop to such expeditions and soon after his return he became Secretary to the Netherlands ambulance in Russia. In 1919 he was appointed Secretary to the Netherlands Legation in Stockholm. In 1931