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GEOPHYSICAL SOCIETY 1926···1975

by

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1. *Introduction*

The geophysical sciences deal with phenomena relating to the solid earth, its mantle of water and the atmosphere surrounding the Earth. As a member of the solar system the Earth, more generally taken, is a subject of primary importance to scientific investigation.

The beginning, and often the development, of research in various fields of geophysics in Finland aimed at achieving specific practical goals. Scientific results attained elsewhere at times also provided the inspiration and impetus for scientific work. This is evident from the history of the geophysical sciences, which can be followed through surveys published over about three centuries. An examination of historical development shows that at the beginning of this century systematic geophysical research was undertaken in Finland by scientific societies, the University of Helsinki and the Institute of Technology.

On Finland's becoming an independent state in 1917, work in the various fields of geophysical research was reappraised, and State research institutes were founded for research purposes. The following were thus established in 1918 and 1919: the Geological Research Institute [3], Institute of Geodetics [4], Institute of Oceanography [2] and Institute of Meteorology [2, 5]. The Hydrographical Bureau continued to operate under the National Board of Public Roads and Waterways [6]. It should be mentioned in this connection that geomagnetic research came under the Institute of Meteorology for reasons of historical development. Seismological work began

*) A more comprehensive description of the history of Geophysical Society will be published separately in Finnish.

at the seismological station of the University of Helsinki in 1924 [7]. Measuring of solar radiation was begun at the University's department of physics at the beginning of the '20s [8].

2. *The Geophysical Society is founded*

Considerable scientific activity went on at the institutes mentioned and the University at the beginning of the '20s. For instance, three theses (1921 LAITAKARI [12], 1923 SAKSELA [13] and 1924 METZGER [14]) were accepted on geology, one (1924 HEISKANEN [15]) on geodetics and one (KERÄNEN 1924 [16]) on geomagnetism.

Fig. 1. Professor Osc. V. Johansson, the first chairman of the Department of Meteorology, University of Helsinki.

Teaching of meteorology as a separate examination subject began in 1921 when OSC. V. JOHANSSON was appointed professor of meteorology at the University of Helsinki [1]. Teaching was reinforced by appointing V. VÄISÄLÄ docent in

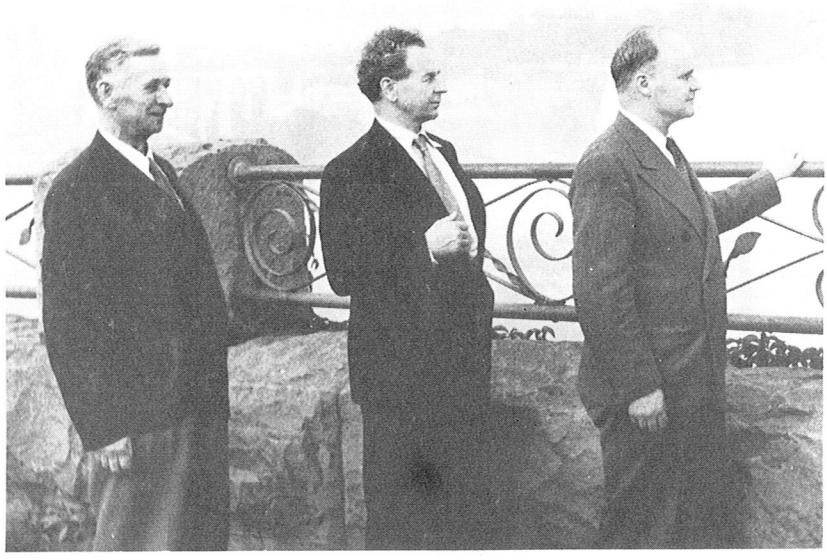

Fig. 2. Professors J. Keränen, V. Väisälä and E. Palmén (from left to right) at Niagara Falls in 1947.

meteorology at the beginning of 1926 [1]. H. RENQUIST was simultaneously appointed docent in geophysics at the University of Helsinki [1].

Scientific work of both the State institutes and the University sought means by which to intensify research in various fields of geophysics and to develop a varied system of further education. With this in mind, relatively small scientific clubs had in fact been founded. These include the club [17] headed by V. VÄISÄLÄ in 1922–23 in the aerological department of the Institute of Meteorology and the club [18] headed by R. WITTING in the Institute of Oceanography.

In the winter of 1926 V. Väisälä proposed the establishment of a meteorological society to the professor of meteorology at the University. The proposal was primarily discussed among scientists interested in meteorology. As a result of this discussion representatives of other fields of geophysics were also invited to a meeting held on March 17, 1926, in the University's department of meteorology [18]. It was decided at this meeting to found a society representing the various fields of geophysics on a broad basis. An elected committee, with R. WITTING as chairman, R. JURVA as secretary and OSC. V. JOHANSSON, V. VÄISÄLÄ and H. RENQUIST as members, was given the task of drawing up the rules. It was decided at a meeting on April 22, 1926, to found a society representing all the

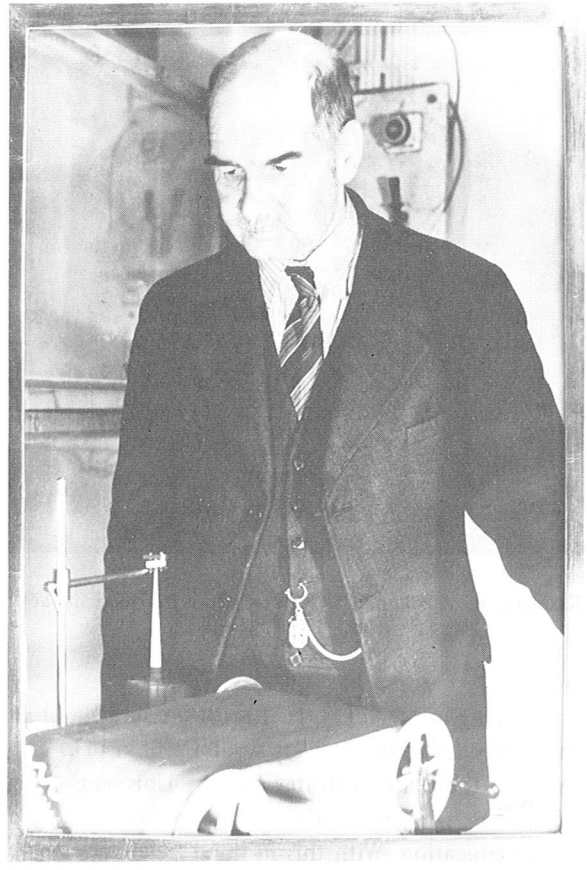

Fig. 3. Professor R. Jurva, who initiated the seismological research in Finland and investigated statistically the ice conditions of the Baltic Sea.

fields of geophysics [1, 18]. *Geofyysillinen Seura – Geofysiska Sällskapet r.y.* (Geophysical Society) was adopted as the society's name and the society's rules were also approved. The rules were confirmed on December 10, 1926, and the society was entered in the register of associations.

3. *Rules*

The aim of the Society is to promote research in geophysics and to function as the connecting link between people interested in the subject. In order to carry out

its aims the Society holds meetings, issues publications, supports research in geophysics, keeps in touch with institutions concerned with geophysics and participates in international geophysical activities.

Membership of the Society is open to researchers in geophysics or closely related sciences or those interested in these fields.

The rules of the Society were amended in 1950. The name of the Society was then changed to Geofysiikan Seura – Geofysiska Sällskapet r.y. The new rules took account of developments in the Society's activities. The amended rules were entered in the register of associations on November 16, 1950.

4. *Administration and activities of the Society*

According to the rules, the Society's activities are run by an administrative board elected at the Society's annual meeting. A vice-chairman is then elected to the Board and the vice-chairman elected in the previous calendar year moves to the chairmanship, with the chairman for the year becoming a Board member. The Board also includes two other annually elected members as well as a secretary and a treasurer.

The chairman of the Society has been a different person every year. The list of chairmen shows, however, that the same person has been chairman of the Society more than once.

5. *Society members*

According to the list drawn up by the manager, N. KALLIO, 44 people joined the Society in the founding year of 1926. Since then membership of the Society has increased.

The Society's members are people working in geology, geodetics, seismology, geomagnetism and aeronomy, oceanography, hydrology and meteorology. There are also members whose main work is done outside these fields. These Society members are included in the »others» group. The following table on the distribution of the Geophysical Society's membership was thus obtained.

Table 1. Number of Society members representing the various fields of geophysics.

	Geol.	Geod.	Seis.	Aeron. geomagn.	Ocean.	Hydr.	Met.	Others	Total
1926	3	4	2	2	4	6	12	11	44
1951	4	9	4	5	8	10	37	19	96
1975	32	12	8	28	14	23	99	71	287

The table shows that the number of Society members roughly doubled during the first 25-year period. It roughly tripled during the next 25-year span.

An examination of representation by various scientific fields shows that there was fairly similar growth in all fields to begin with. In the second 25-year period, the fields of geology, aeronomy, geomagnetism and hydrology experienced considerable growth. The proportion accounted for by meteorology – about 1/3 of the members of the Society – has grown steadily.

Table 2. Number of meetings (N) and of lectures held at meetings, in 10-year periods (k = Finnish scientists, u = foreign scientists).

	N	Geol.	Geod.	Seis.	Aeron. geomagn.	Ocean.	Hydr.	Met. Syn.	Met. Clim.	Others	Total	
1926–35	50	3	4	6	2	12	8	23	21	20	99	k
–»–	–	–	–	–	1	–	–	1	1	–	3	u
1936–45	[1]	–	–	–	–	–	–	–	–	–	–	–
–»–	–	–	–	–	–	–	–	–	–	–	–	–
1946–55	86	–	9	9	16	9	13	22	20	29	126	k
–»–		1	–	1	–	3	–	10	6	–	21	u
1956–65	94	4	5	11	15	14	10	10	16	33	120	k
–»–		2	2	–	2	2	1	20	8	–	37	u
1966–75	91	8	9	11	11	10	17	13	–	11	90	k
–»–		–	3	1	7	1	5	13	5	–	35	u

[1] very scanty information

It is natural that increases in the number of members representing different fields also reflect the growth in research in these particular spheres of geophysics in Finland. At the same time they are associated with the development of research institutes and of teaching at university level.

6. *Society meetings*

Lectures and discussions

Society meetings are generally held monthly from September to May, usually in the large lecture room of the University of Helsinki's department of physics. One or more lectures are on the programme for each meeting. The connection of the subject with problems encountered by other fields of geophysics often becomes evident in the discussion held immediately after the lecture. Thus crosswise scien-

tific interaction within geophysics broadens researchers' views, and also influences Society activities.

The subjects of lectures held at Society meetings cover the entire field of geophysics. The distribution of lectures among different fields in 1926–1975 is shown in the table.

Table 3. Number of articles published (K = Finnish authors, U = foreign authors).

		Geol.	Geod.	Seis.	Aeron. geomagn.	Ocean.	Hydr.	Met.	Others	Total	Pages
Geophysica	K	6	6	35	19	31	18	85	19	263	3085
1–13	U	–	2	4	7	1	–	29	1	44	
Geof.	K	8	22	35	48	6	11	34	15	179	1596
Päivät 1–7	U	1	1	–	3	–	–	–	1	6	

At first, the number of meetings averaged 5 annually, but the figure has averaged 9 since 1946. The number of lectures in 1926–1935 averaged 10 annually, and has averaged 15 since 1946. The table shows the number of lectures in different fields. Accordingly, a continued evening-out process among the different fields of science

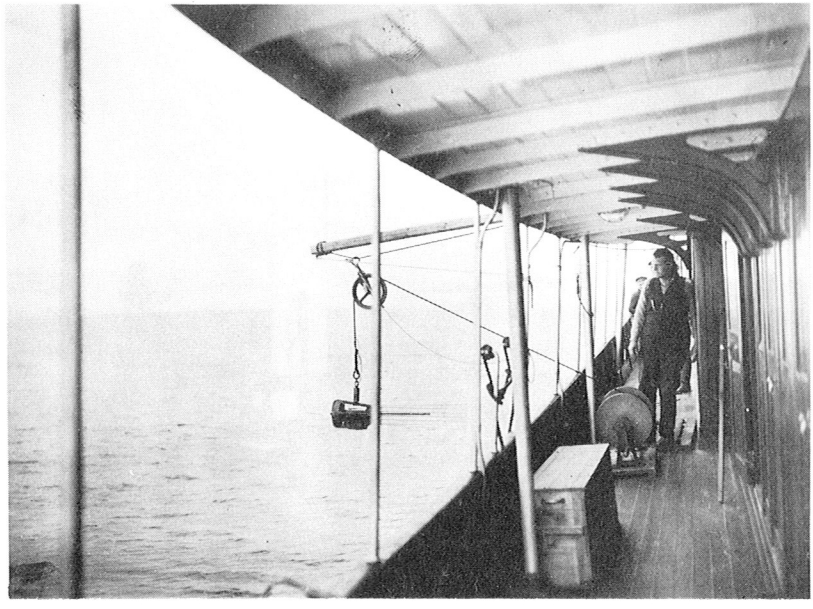

Fig. 4. The Witting marine current meter with multibladed propeller vane.

can be observed. Meteorology accounts for the greatest share. Within it, however, lectures concerned with climate have decreased considerably.

7. *One example lecture and its consequences*

At the Society meeting on November 7, 1929, Dr. H. KARSTEN gave an account of the structure of a Russian radiometeorograph (Moltchanoff). This lecture inspired Dr. V. VÄISÄLÄ [19] to construct an original, radio-operated aerological measuring device.

The first observation with the device constructed on the basis of his idea was made at the end of 1931. Väisälä's lecture on this was heard at the meeting of the

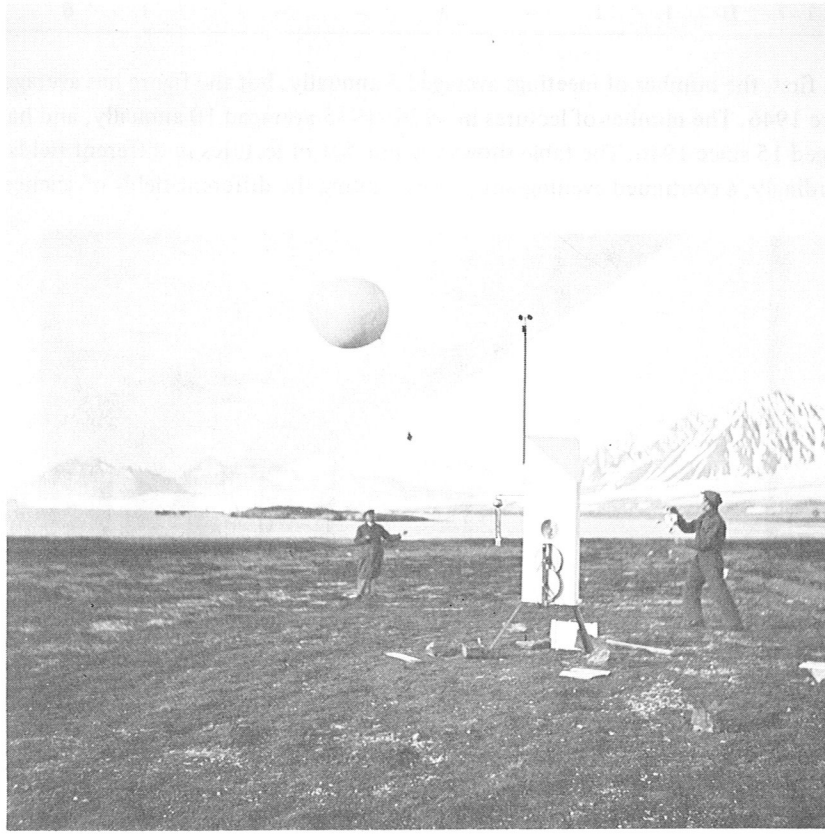

Fig. 5. Rawinsonde launch during the expedition to Spitzbergen in 1937.

Society of February 16, 1932 [19]. On March 10, 1933, he introduced a complete theory for a Finnish radiosonde at a Society meeting [20]. Development work on all the apparatus involved in radio sounding took its time and it was not until the beginning of 1936 that fully tested equipment suitable for daily observation work was in use.

As aerological measurements with the radiosonde made observations at sea and in uninhabited regions possible, Väisälä planned a voyage of discovery to Spitzbergen with the researchers who had shared in the development work on the radiosonde. Financing for the expedition was provided by the Geophysical Society.

The journey was undertaken in the summer of 1937. The expedition leader was M. TOMMILA and the members NIILO RAUNIO and S. SIIMES. 28 observations were made in Spitzbergen between July 11th and August 4th.

The expedition's scientific results were reported at a meeting on October 15, 1938, arranged jointly with the Finnish Geographical Society. A film was also shown at the time, giving an account of the expedition and the aerological measurements undertaken during it.

Since then, Society members have been able to hear many lectures on the use of the Finnish radiosonde in synoptic work and also on the further development of the device.

8. *Meteorological Conference, May 18–22, 1953*

Towards the end of 1952 Society members E. PALMÉN and V. VÄISÄLÄ took the initiative in proposing that seminars and conferences dealing with achievements in meteorology be arranged in Helsinki in the spring of 1953. The plan was adopted at the meeting of the society on December 16, 1952. Implementation of the plan was made the responsibility of those behind the proposal, with L. VUORELA as secretary. The conference was held on May 18–22, 1953.

The conference was attended by 5 delegates from Sweden, 3 from Norway, 2 from Denmark, 2 from West Germany, 3 from the United States and about 40 from the host country.

A more detailed description of the proceedings and lectures at the conference can be found in the Society's publication Geophysica Vol. 4, No. 3.

This conference was of great significance for the activities of the Society, as it made the Society better known outside Finland's borders. As a result the Society has found it far easier to secure visits by foreign researchers representing not only meteorology, but other fields of geophysics, too. Geophysica, the publication of the Society, also became better known.

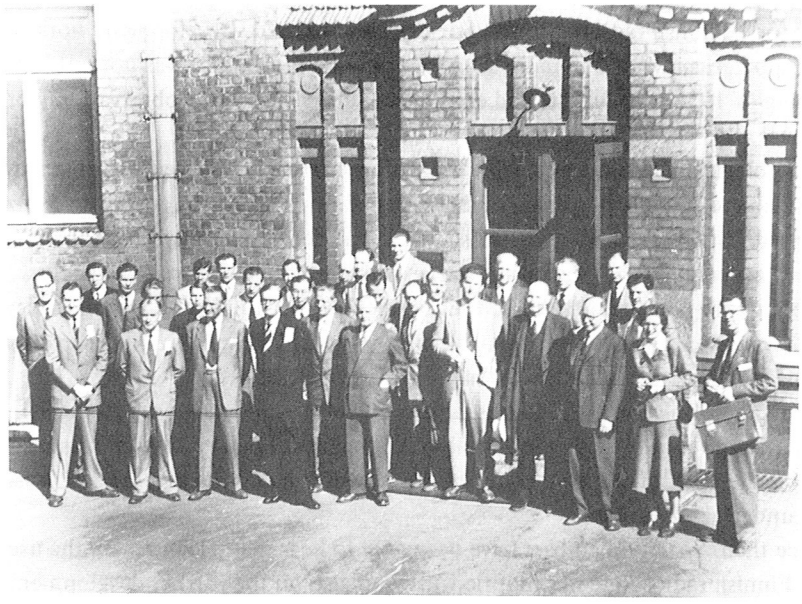

Fig. 6. A group of participants in front of the Institute of Physics. First row (from left to right): Hubert (USA), Franssila (Finland), Nyberg, Raab (Sweden) and Palmén (Finland). Second row (from left to right): Rossi, Ylinen (Finland), Lorentzen (behind Franssila), Jensen, Nielsen (Denmark), Mori (Japan), Eliasen (Denmark), Eliassen (Norway), Tuominen (Finland), Fjörtoft (Denmark), Raethjen (Germany), Rossby (Sweden) and Newton & Newton (USA). Third row (from left to right): Rapeli (Finland), Pedersen (Norway), Palosuo (Finland), Belmont (USA), Simojoki, Vuorela, Venho (Finland), Scherhag (Germany), Keränen, Väisälä (Finland), Fulks (USA) and Bolin (Sweden).

9. *Geophysica, the Society journal*

The funds of the Society consisted exclusively of membership dues until the end of the first decade. The financing of a publication was therefore not possible until the Ministry of Education granted the Society an appropriation of 10,000 marks at the beginning of 1933. Following this, the Society elected a publishing committee. Its members were Osc. V. Johansson, V. Väisälä, H. Renquist and Risto Jurva. At the committee's suggestion, Geophysica was adopted as the name for the Society's publication series. Editing began in the latter half of 1933. The first volume of Geophysica was published in 1935. The second volume was issued in 1947 and the third in 1948.

When, in the course of 1949, the Society began to receive regular State aid, it

became possible to publish Geophysica regularly. Volumes 4–13 have since been published. Altogether, volumes 1–13 have 3,291 pages, including 206 pages of abstracts of studies and articles by Finns in 1930–44. There are 263 scientific articles covering 3,085 pages. The subjects of the articles are distributed among different fields as shown in table 3. The table makes separate mention of the number of articles by foreign and Finnish scientists. A total of 44 were written by foreign scientists and 219 by Finns.

10. *Geophysical Seminar*

On the initiative of PENTTI TUOMIKOSKI, professor of physics at the University of Oulu, a geophysical seminar was arranged in Oulu on June 21–22, 1965. 25 lectures covering various fields of geophysics were held during the seminar. The lectures or summaries of them were printed in a publication called Geophysical Seminar 21...22.06.1965, which was subsidized by the Society. Seminars of this kind were held in Oulu in 1966 and 1968 and the lectures published in the same manner. As of 1969 they have been held in Helsinki and Oulu, in alternate years, in cooperation with the Society.

The subjects of the lectures were distributed among the different fields as shown in table 3. A comparison between the articles in Geophysica and Geophysical Seminar reveals considerable differences, partly due to trends in geophysics at the University of Oulu. The part played by foreign scientists at the Geophysical Seminar is inconsiderable.

11. *Honorary members and the Professor E. Palmén medal*

The Society is a voluntary association, so the work of individual members may greatly influence its activities. The Society therefore values and respectfully rewards those who have shown particular merit in promoting the Society's aims.

The Society confers honorary membership. The first honorary member was Professor OSC. V. JOHANSSON, who was thus honoured at the Society's 25th anniversary on April 17, 1951, in recognition of his merits in founding the Society and his work as an active Society member. He was extended a grant at the same time to complete some scientific work.

On April 29, 1953, the Society made Professor V. VÄISÄLÄ its second honorary member and Professor E. PALMÉN was made its third honorary member at the Society's 40th anniversary on April 22, 1966. Both Väisälä and Palmén were founding members of the Society and greatly influenced the Society's activities.

The Society had a medal struck to commemorate Professor E. PALMÉN's 70th birthday on August 28, 1968. It was awarded to E. Palmén at a meeting on 15.10. 1968 and at the same time the Board of the Society requested his consent to its use as a reward and recognition for work bearing upon the Society's sphere of activities.

The rules drafted for the Palmén medal were endorsed on February 16, 1972. Palmén medal no. 2 was awarded to Professor L. VUORELA on November 21, 1972, for distinguished work on behalf of the Society, especially in international relations and publishing.

During its 50-year span the Society has done good service in its capacity as arranger of further education for scientists working in the field covered by the geophysical sciences. Its activities are varied and effective. Both publishing and the promotion of international relations deserve special attention.

The Society celebrated its 50th anniversary on January 27, 1976 having in addition to the annual meeting a reception for some invited guests representing governmental organs, newspapers etc. and a dinnerparty for the members with their ladies. At this meeting Palmén medal no. 3 was awarded to Professor H. SIMOJOKI for distinguished work within the field of scientific hydrology.

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