

INSTITUTE OF CURRENT WORLD AFFAIRS

WGM-14
UNESCO and the Sub-Arctic - II
A Trip to Lapland

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Denmark
5 December 1966

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Dear Dick,

Early in the morning following the final symposium session in Turku, a chartered plane whisked the field trip participants off to Finnish Lapland. Because the plane could not hold everyone, a small group of us returned to Helsinki and traveled by the regular Finnair flight the next day.

This arrangement suited me well because I wanted to see more of Turku (Åbo in Swedish) and, if possible, locate my former University of Iceland roommate, who is now a Lutheran pastor in Turku. This search was unsuccessful, but I did see a lot of Turku and visited the famous, old (13th century) Cathedral before the three-hour bus ride back to Helsinki.

Turku is Finland's oldest city and has a population of 140,000. As a port city it has Finland's best winter harbor; it is also important as a center of culture, commerce and industry. The University of Turku, where the final session of the UNESCO Symposium met, is a good example of modern Finnish architecture. Since I had forgotten my camera the previous day, I wanted to get a few pictures of the university buildings, designed by architect Aarne Ervi (p. 2). And so the architectural feast continued (Alvar Aalto's congress halls at Otaniemi should have been mentioned earlier) and did so up to Kevo and beyond, the length of the country.

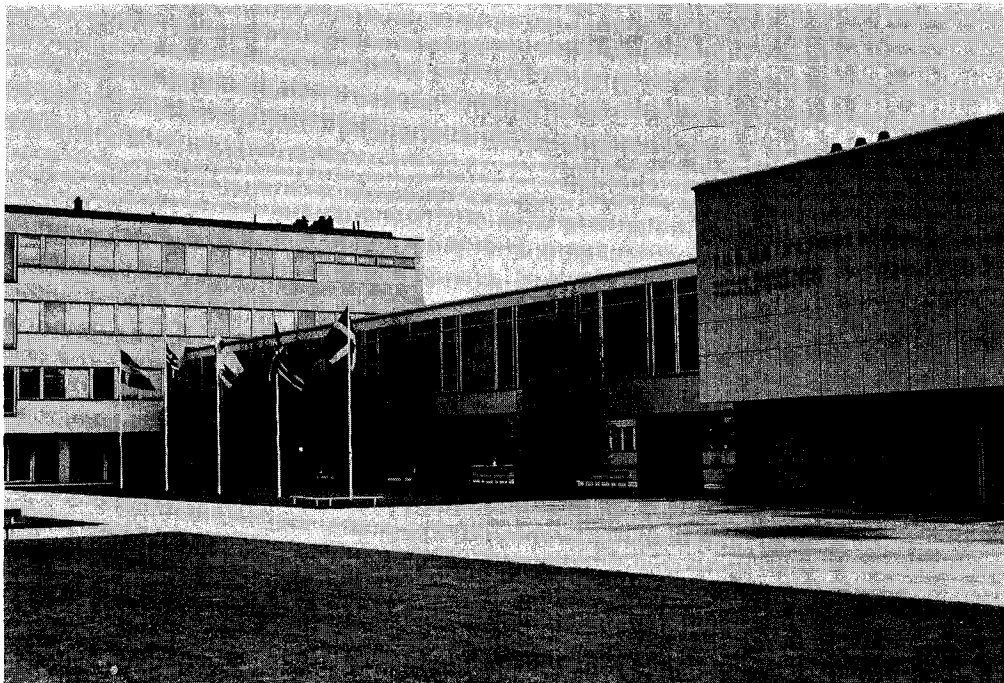
A leisurely stroll about the University on that still Sunday morning brought back some of the things said at the final meetings the day before. Although I felt the session became too bogged down in semantics, many good points were raised which came back to me in force as I stood beside the sculptures and reflecting pool of the University's hillside spot. Professor Paavo Kallio stressed the need for more sub-arctic research facilities; I can personally vouch for the frustration he must feel at the dearth of contact between the few stations that do exist. The needs and uses of remote sensing were outlined, with emphasis on training and the exchange of information. Bill Pruitt added a bit more on snow studies. I felt that his words had application on a broader spectrum: we need a system of instrument exchanges, also an attempt to standardize data collection (and, incidentally, how much easier and time-saving things would be if we all operated in the metric system). We need to get students doing

winter field work, which has lagged behind presumably because of our tradition of summer vacations or dislike of cooler weather. Snow surveys, as they are presently carried out, remain useless for biological purposes; when will we rectify this situation?

My ruminations were interrupted by a dash for the bus to Helsinki-- and a fine ride past fields, lakes, and cool green forests. My thoughts switched to Lapland. I looked forward with excitement to my first trip there and a chance to see another part of the sub-Arctic with a research station in full swing.

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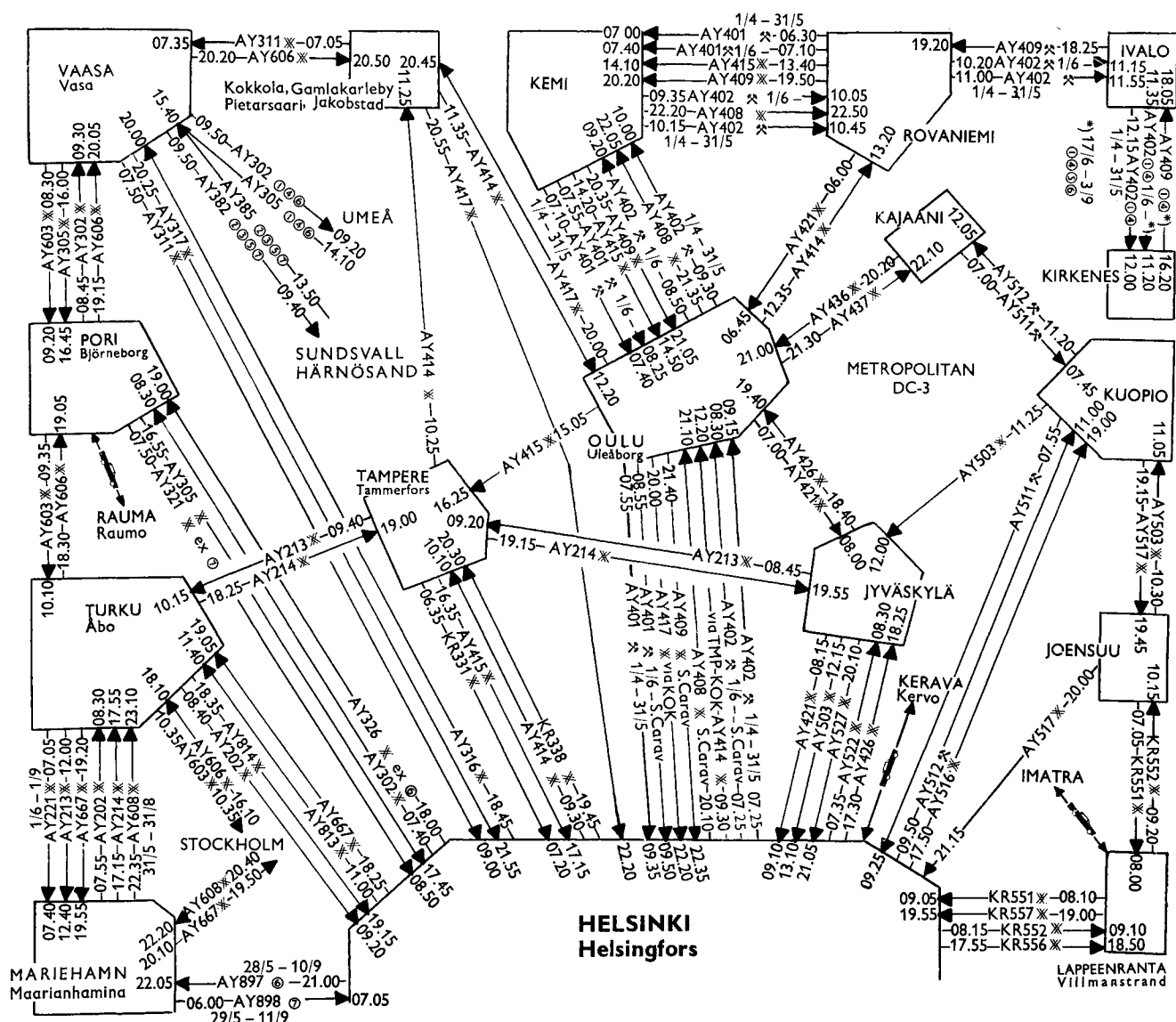
Mondays for me often begin in confusion. Monday morning, starting for Lapland, was no exception. The plane was an early one and I was up at 5 to pack and catch the airport bus. Everything went smoothly and I thought the confusion habit had perhaps been broken, but then I glanced at the Finnair timetable and everything reverted



Part of the administration building of the University of Turku (Turun Yliopisto), designed by Aarne Ervi, who also was architect for the famous town center of Tapiola near Helsinki.

to style. I cannot resist including the domestic timetable here: the first geographically-based air schedule I have seen! The international one is an even greater work of art, but is printed partly in green ink and would not meet copying requirements.

DOMESTIC SERVICES - KOTIMAAN LIIKENNE - INRIKESTRAFIKEN



✕	✕	✕	✕
06.50	15.55	RAUMA, Matkat. Oy Area	09.20
07.35	16.40	Raumo, Resebyrå Ab Area	19.55
		PORI, lentoasema	08.35
		Björneborg, flygstation	19.10

✕	✕	✕	✕
07.00	14.50	KERAVA, rautatieas.	20.20
07.20	14.30	Kervo, Helsingfors, lentoasema	20.00
		Helsingfors, flygstation	

✕	✕	✕	✕
07.15	18.05	IMATRA, matkatoimisto	09.55
07.55	18.45	resebyrå	19.35
		LAPPEENRANTA, lentoas.	09.15
		Villmanstrand, flygstation	18.55

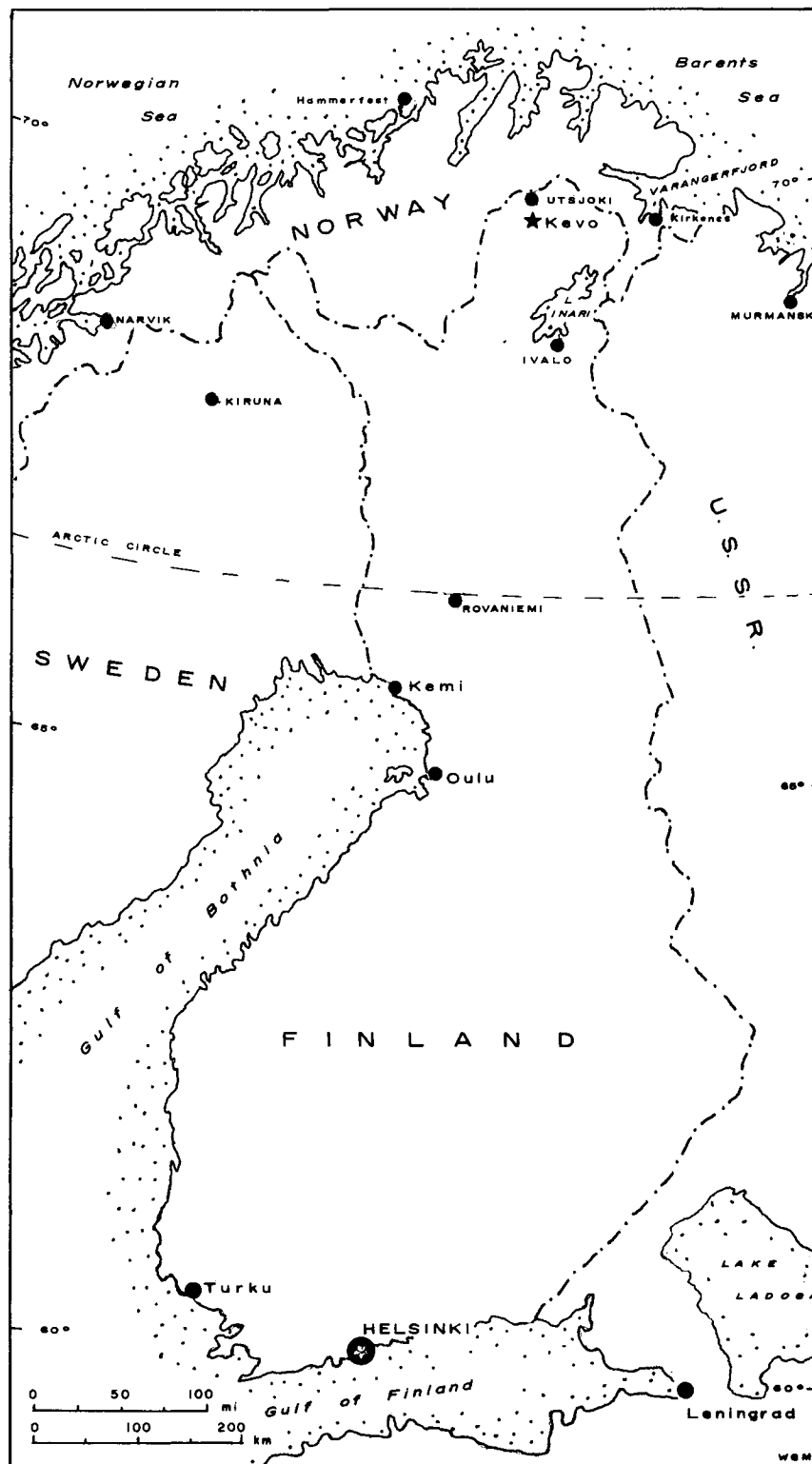
Despite the Finnair timetable I made the right plane, which was northward-bound. In reality it would have been difficult to miss the plane for, if the abstract art timetable of Finnair was perplexing, the set of directions provided by the UNESCO Committee was not. My personal instructions included, among other things, exact departure times for the 13 busses and 5 trains between Turku and Helsinki, a glossary in Finnish for the words Bus Station, Railway Station, etc., and addresses of all reserved accommodations until I left Finland. Such directions were provided each participant, a Herculean task by Paavo Kallio's tireless UNESCO Committee staff headed by Miss Pirkko Mela.

Our first stop after an hour's flight out of Helsinki was Oulu (Uleåborg), an old trading center of 68,000 inhabitants at the mouth of Oulujoki (Oulu River, joki = river). Oulu is the largest industrial center of northern Finland, mainly wood pulp and chemicals. We changed planes at Oulu, from a sleek Caravelle to a turbo-prop Metropolitan and then continued on to Kemi. This industrial town, like Oulu, is on the Gulf of Bothnia and is also important in the woodworking industry.

From the air, Finland appears to be a very flat land with little rugged relief. On the ground, one's impression of flatness does not change much--although the gently-rolling countryside presents a bit more variety than expected. In addition to flatness, Finland is also low-lying, with two thirds of the country at below 200 meters elevation above sea level. Results of this low average elevation are a general monotony of the landscape, many lakes and slow-flowing rivers, with large areas of swampland. Also most of Finland up to 67°N. was below the upper marine limit following the last glacial period. Post-glacial phases of the Baltic Sea, therefore, covered the land and left marine deposits on which present agriculture is based. But because much of the land is low, one third of the area (or 97,420 sq. km.) is bog and swampland. Draining bogs and lakes has enabled the Finns to increase the land under cultivation. In the past 50 years about 500 lakes have been drained yielding over 500 sq. km. of former lake beds for agricultural use.

Although Finland has many lakes and rivers, lack of local relief limits the hydroelectric potential. Not many minerals have been found so far (unlike surrounding areas of Norway and USSR), but geophysical prospecting may uncover hidden wealth.

No other land in the world situated so far north has been as intensively developed as Finland, but its northern position gives serious drawbacks, especially in agriculture. Great risk of failure plagues all agricultural effort in Finland. Complete crop failures after severe killing frosts occur on the average of every 40 years; less severe frosts in the growing season occur every 10 years. Hay and fodder crops, vegetables and potatoes are raised throughout the country--but north of 69°N. (Lake Inari area) only hay and potatoes are found.



FINLAND & NEIGHBORING STATES

The big resources in Finland are wood and an impressive array of brains and skill imbued with a pioneer spirit of steely determination. In Finnish, a special word (sisu) describes this quality of resolution in finishing a given task, however hard it might be. The Finns, in short, exemplify the importance of human resourcefulness under difficult conditions--impossible to quantify, but a key to success in northern development.

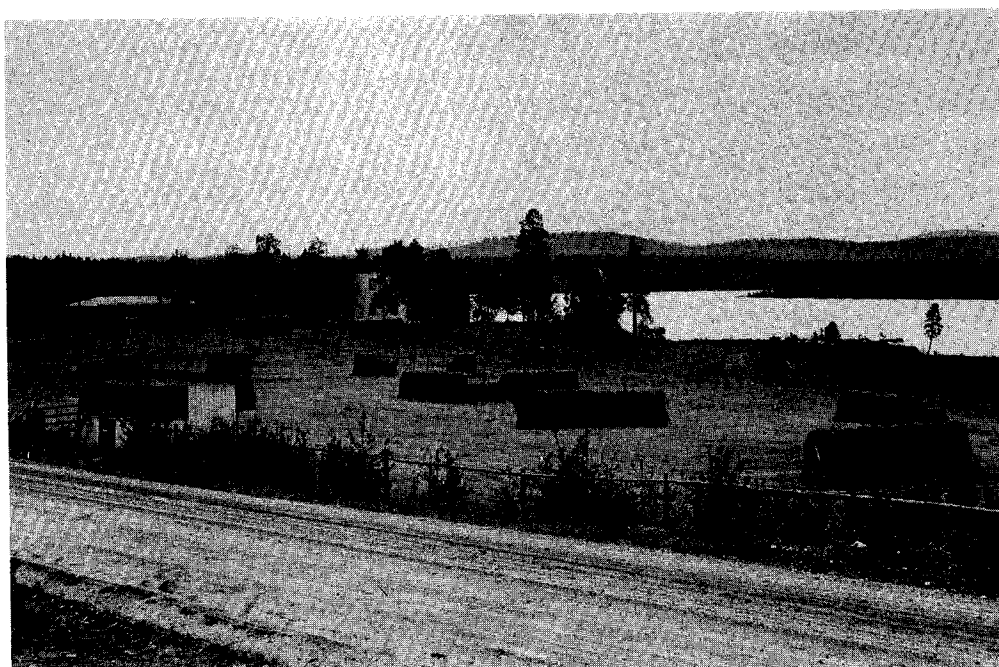
Out of Kemi, the most southerly town of Lapland, we flew along the river valley to Rovaniemi. The Kemi River (Kemijoki), and its watershed of over 50,000 sq. km., is the site of a large hydroelectric power development to be completed by 1975. We landed at Rovaniemi, whose airport sits on the Arctic Circle. Because the plane continued on immediately, we had no chance to see this administrative center of Lapland which has been completely rebuilt after total destruction during World War II. Once a trading center for Lapps, Rovaniemi now has a population of 25,000. Lapland is Finland's largest province (ca. 30% of the total area), but surprisingly few Lapps live there. The 3,000 Lapps make up about 1.2% of Lapland's total population. Most of the Lapp population in Fennoscandia is to be found in Sweden and Norway.

Our final stop on Finnair's northern route was Ivalo, about 150 km. by road south of Kevo. Ivalo is itself in a region of ancient Lapp culture, the evidence of which seems to be disappearing rapidly today. The only Lapp I met on the trip was the taxi driver who took us north to Kevo from Ivalo. This good-humored fellow, whose name was Edmund, maneuvered his Peugeot station wagon with great skill along the gravel roads. He spoke Lapp and some Finnish, but Swedish and English drew a big blank.

North of Ivalo we soon left the spruce forests and drove through pines, which gradually became mixed with birches. We passed around the western shores of the great Lake Inari, past small farms with hay drying on racks (p. 7). Even though the amount of land under cultivation increased by 50% from 1950 to 1959, the forest is the main basis of Lapland's economy--as it is in the rest of Finland.

The section of gravel road from Lake Inari to Utsjoki and the Norwegian border is only ten years old and has certainly been of key importance to the development of the area. Up over the Petsikko mountain area we crossed the divide between drainage into Lake Inari and into the Utsjoki, a river tributary to the Teno River (Tenojoki). The Teno River for a while is the boundary between Finland and Norway.

As the Utsjoki flows north, it expands at intervals into a chain of lakes, one of which is Kevojärvi. This lake is 150 km. north of Ivalo and 15 km. south of the town of Utsjoki. On a point of land jutting from Kevojärvi's western shore, Kevo Research Station appeared through the trees (p. 7).



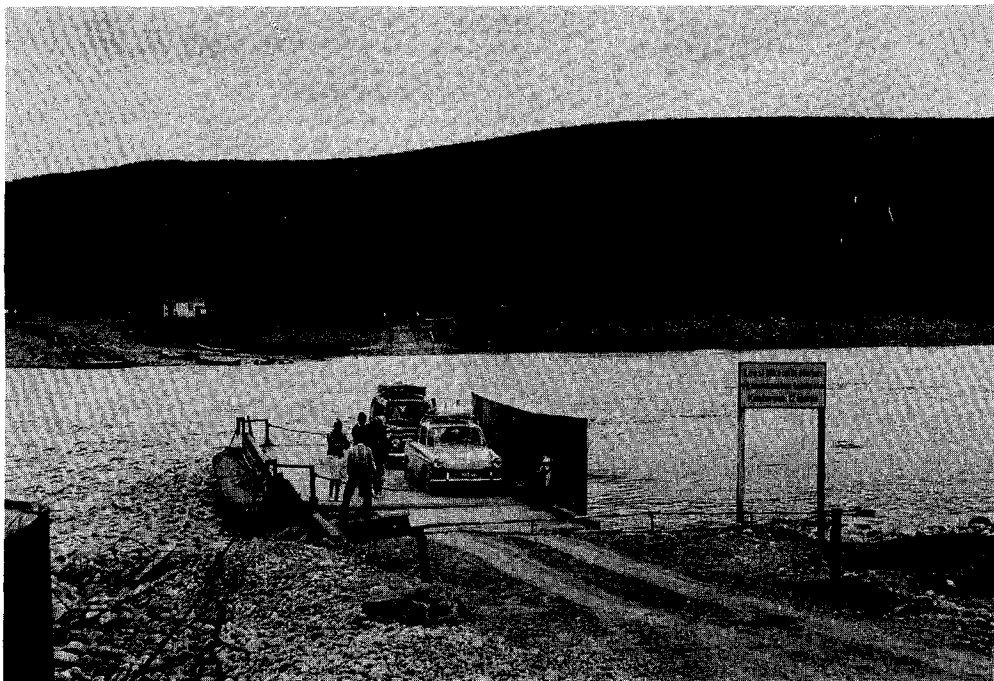
A farm near Kaamanen, north of Lake Inari



Kevo Subarctic Research Station from the east

After a long journey (or anytime for that matter), one of the most relaxing experiences is a Finnish sauna, or steambath. I had no sooner thrown my bags in my room at Kevo than I was accompanying Professors Paavo Kallio and Tauno Nurmela (Rector of Turku University) down to the sauna. In keeping with most pioneering efforts in Finland, the sauna was the first building erected at Kevo. And what a good idea! Cares and body fatigue seem to ebb away as the temperature rises and perspiration falls. After a suitable interval (the careful Finns made sure no one remained too long), four hops and a leap into the icy waters of Kevojärvi provided the ultimate in pleasurable contrasts. During leisurely talks after this and the following days' saunas, I was able to learn about the origins of Kevo and how the station grew.

But not all our time was spent at the station. We had a fine outing on the shores of Varangerfjord over in Norway one day. Crossing the Tenojoki from Finland into Norway (see photo below) on a cable ferry was interesting and completely free of formality--probably a surprise to some of our group. Another day was taken up by field excursions to look at palsa bogs (frost mound features), but I was more interested in Kevo, so I wandered about the station area on my own.



Crossing the Teno River (Tana in Norwegian) from Finland into Norway (opposite bank).



Soviet scientists on the field trip to Norway (l-r):
B. Tikhomirov (botany), I. Dolgin (meteorology), and
S. Evteev (geology).

Between post-sauna talks and a formal orientation by Professor Kallio, the story of the Kevo station emerged. The Kevo Subarctic Research Station of the University of Turku--better and more easily known as Kevo, or the Kevo Station--was established in a series of stages beginning about 1957. The feasibility of setting up such a research station in Finnish Lapland was pointed out to the authorities of the University of Turku after a series of field excursions by scientists in the years 1954 and '55. Basic field research in biology, with the aid of students, was carried out under difficult conditions during these excursions. The need for a permanent center to guarantee rational development of the research possibilities in Lapland was shown.

In searching for the best site, an attempt was made to choose an area with the greatest biological variety offering a wide range of research problems. The waters of Kevojärvi are at 75 meters above sea level and the surrounding hills rise to about 380 meters. In places, therefore, especially in the valley of Kevojoki, the local relief is quite rugged offering special problems to botanists and zoologists. In the river valleys of Utsjoki and Kevojoki near the site eventually chosen for the station, a pine forest, one of the most northerly in the world, flourishes in a favorable local climate.

The subalpine birch zone and alpine zone are also found near Kevo. Until recently, the rare gyrfalcon nested on a nearby cliff. Because of the variety of local features and access to the Utsjoki-Ivalo highway, the site chosen for the Kevo Station is on the western shore of Kevojärvi in Utsjoki commune.*

In 1957, the Finnish Government granted 15 hectares (ca. 37 acres) of land for the station on a 100-year lease. All connection with the station is by boat across Kevojärvi. To get access to the main road, four hectares of land running from the lake's eastern shore up to the road were purchased (for 9,000 F. marks--3.2 F.M. = US \$1) by the University.

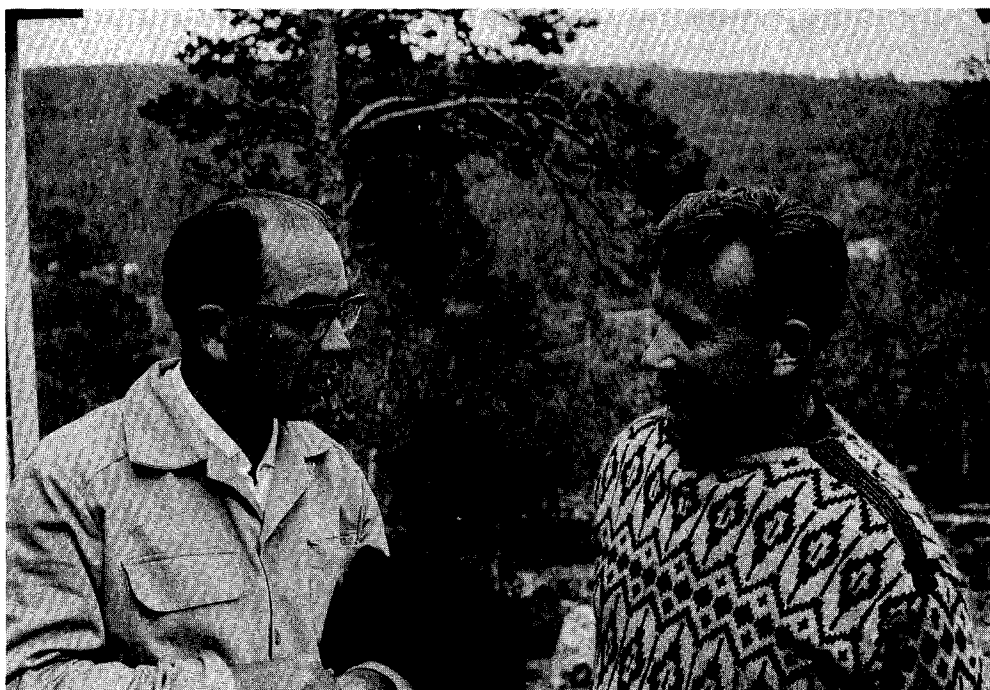
The station's first phase in 1957-58 was as a base for field excursions with the sauna building as headquarters and food-storage center.

During the second phase, permanent observations began in meteorology, seismology, limnology, forestry, geomagnetics, and photo-aurora. Most of these were summer programs, except for weather and seismology.

* coordinates: $69^{\circ}45'21''$ N. - $27^{\circ}00'45''$ E.



Looking north over Kevojärvi from the hills above the station.



A key Kevo supporter Professor Tauno Nurmela (Rector of Turku University) talking with Kevo's founder, Professor Paavo Kallio.



Professor Kallio addressing the UNESCO group near Kevo's new building.

The other sciences will no doubt benefit from the government decision to establish a first-order meteorological station at Kevo. The seismological laboratory is operated by Kevo for the University of Helsinki--illustrating that the scientific work is not monopolized by Turku, although it runs the show.

By 1961, the station was in year-round operation with the completion of several more buildings to house the supervisor and the technicians running the met and seismo stations.

The most recent addition was made in 1963-64--a large laboratory-cum-dormitory building (p. 11, bottom) which provides rooms for visiting scientists, library space, kitchens, and additional lab rooms. I also saw a new seismological tunnel, which will house standard equipment of the world seismology network.

The turning-point of the station's physical development was the provision of a steady electric power supply (from Norway); the station also has its own back-up generator in case of power failure. Telephone connections ease the feeling of isolation and provide the means for sending synoptic weather reports every three hours to Ivalo.

Most research carried out at the station has been in biology and physical geography. Research results in the area since 1954 (especially since 1957) have been collected in one volume, "Reports from the Kevo Subarctic Research Station", part of a Turku University publication series, and the start of what should become a unique series. The first volume, published in 1964, consists of 26 papers (21 in English and 5 in German) filling 358 pages. This volume is an impressive monument to Finnish field research.

As in all pioneer efforts, the Kevo Station has its problems. An initial exercise when starting field research in a new area is the inventory of local biota--a task which has been hampered by lack of manpower. Despite a large tract of land, some of which is fenced in, man's influence cannot be entirely excluded. The purity of the area is also threatened by private ownership of part of the lake shore. Nearby is Kevo Nature Park, a protected area of 346 sq. km. Kevo Station would dearly like to acquire the 8 km. of land separating its property from the Nature Park, but has not yet been able to do so. Although Kevo's land was given by the State, Turku University's budget has been insufficient to finance all the buildings. Paavo Kallio is clearly a man of considerable personal charm in addition to being a first-rate scientist. He has persuaded architects and businessmen to give their abilities and resources to build an excellent research station--to such an extent that the University has paid but 5% of the total cost (total = 500,000 F. marks). Now I know the sauna's function: what businessman could resist an LBJ-like urging: "Come, let us sit down and perspire together."

Sincerely,



W. G. Mattox