



The National Committees

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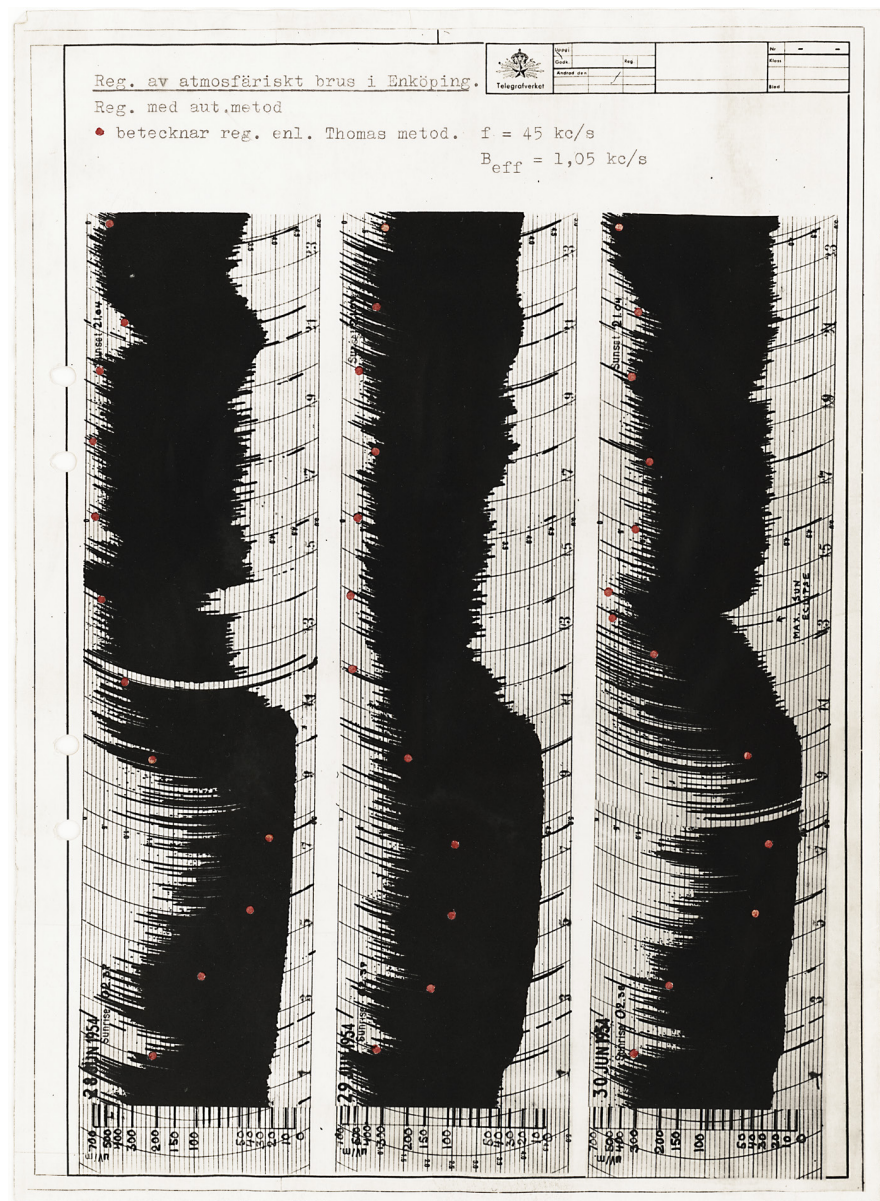
PROTECTIVE GLASSES
labelled “Solar eclipse
30 June 1954”.

Solar eclipses are one of the heavenly phenomena that have always fascinated humankind, causing awestruck contemplation of the order of things. There is something literally alien about a solar disc that suddenly and fundamentally changes, to then revert to form as if nothing had happened. It is no surprise that solar eclipses have mainly been regarded as inauspicious omens, for which one must prepare and find protection. However, they also offer opportunities to study elusive phenomena and to verify theories.

The *Nationalkommittén för vetenskaplig radio* [Swedish National Committee of Radio Science] spent a great deal of time equipping itself for the total eclipse of the sun that occurred in Sweden on 30 June 1954. The eclipse offered the opportunity to gain greater understanding of ionospheric layers, which had been shown to affect radio communication and were discovered in the 1920s by British physicist Edward Appleton, for which he received the 1947 Nobel Prize in Physics.

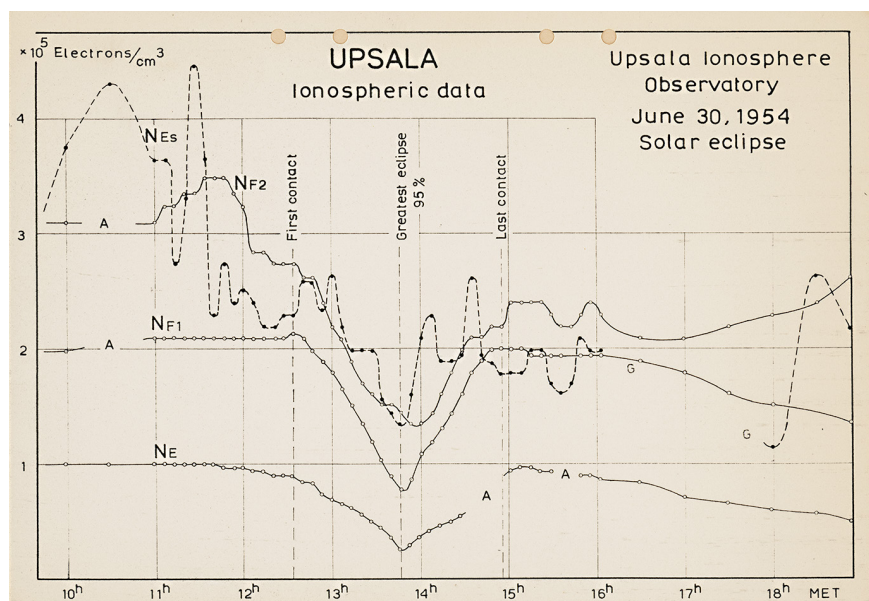
The diagram on the following page shows the results of electron density measurements conducted in Ekenäs, outside Kalmar, just before, during and after the solar eclipse. It is a scientific representation of a natural phenomenon, deeply rooted in contemporary interests and its tools and forms of representation. The writing is very distinct, due to the use of a stencil, a type of ruler in plastic or metal with cut-out letters and numbers through which a suitable pen was placed to achieve an even flow. The dissemination of data was a work of craftsmanship.

The measurements associated with 1954’s total eclipse were perhaps not the most important thing the committee performed during its first fifty years, but they still comprise a significant amount of the saved archive material, material that had been “stumbled over” in Swedish Telecom’s collections when its facilities in Farsta were incorporated. The phrase reveals



MEASUREMENTS OF ATMOSPHERIC NOISE recorded in Enköping during the solar eclipse in 1954.

that Swedish Telecom's archive staff had not expected to find 55 volumes from the National Committee of Radio Science in the archive cabinets of this modernist concrete building, located in one of Stockholm's southern suburbs. The explanation is that the director-general of the agency also chaired the National Committee for a long period and, subsequently, the Telecom



OBSERVATIONS OF IONOSPHERIC CHANGES recorded in Uppsala during the solar eclipse in 1954.

Board functioned as the committee's office for many years. However, the Telecom Board's visibility in the archive material should not only be understood as organisational, or even practical – the detailed instructions from 1954 testify to how the measurements required an infrastructure of poles, dishes, antennas and wires. Instead, Swedish Telecom's representation and interest should be seen as an indication that this national committee worked with issues that were of significance for the agency's core mission: developing Sweden's communications infrastructure.

When it was founded in 1931, the committee's full name was *Svenska nationalkommittén för vetenskaplig radiotelegrafi* [the Swedish National Committee of Radio and Telegraphic Science], but as soon as 1938 the decision was made to remove "telegrafi", so the name corresponded better to that of its parent organisation, the International Union of Radio Science. The latter was founded in 1912 and, when Sweden gained membership and its own national committee, it was the thirteenth in the line. The Union's secretariat was in Brussels and all the secretaries seem to have been Belgian. Meanwhile, there was another radio secretariat, namely the International Broadcasting Union's technical committee, which monitored whether European broadcast stations stayed on their frequency, an important task in bringing order to the ether. (This was the predecessor to the European Broadcasting Union, which is probably now best known for the Eurovision Song Contest.)

The Swedish National Committee of Radio Science researches the properties and potential applications of radio waves. Sections were rapidly established to correspond to the divisions of the parent organisation, and were dedicated to issues that were more applied and those that had the character of basic research. The wide range of activities was not only illustrated by the specialisations within the committee, but also by how its members represented different interests. This changed somewhat over time; out of the military representatives of the early decades, it was the air force that held on longest. The Swedish Meteorological and Hydrological Institute (SMHI) also long had a given place. Members were appointed both by the committee itself and by the academies of sciences and engineering sciences. Institutes of technology had representatives that increased in number as the number of such institutions increased. The National Defence Research Institute and Swedish Telecom had given places and, in the mid-1980s, the Swedish Defence Materiel Administration also had a place.

The National Committee of Radio Science is an unusually large and active national committee. In the 1950s, the number of committee members increased from 12 to 15. In 1987, there were 20 members and no less than 100 co-opted members. They were all men and everyone with a leading position in radio operations or radio science appears to have been included. A great deal of varied work was conducted in its sections, some of which were as big and as active as other national committees.

The Committee also worked closely with other national committees, such as the one for geophysics and the one for astronomy, and there was overlapping membership. Both these were founded in 1924 and, the following year, a committee for physics was also founded. The National Committee of Radio Science was the fourth national committee and was followed by one for geography in 1936. Subsequently, there was an interruption in the establishment of committees, but this took off again after the war. Nine were founded between 1949 and 1964: mechanics, crystallography, mathematics, biology, geological sciences, chemistry, physiology, radiation protection research and scientific documentation. At the end of 2016, the Academy of Sciences was the principal of 18 national committees, all of which (apart from the one for radiation protection) were affiliated with the International Council for Science. For example, in addition to those above, there is a committee for logic, methodology and philosophy, one for global environmental change, one for nutrition and food sciences, one for psychological sciences and one for the history and technology of science.

The role of the national committees and their relationship to their authority, the Academy of Sciences, has been discussed within the Academy on several occasions. For example, the national committees were revamped in the early 1970s, one factor in which was compensation for travel to the inter-

national meetings of the International Council of Scientific Unions (ICSU; since 1998, the International Council for Science). This was not a new issue. Over several years in the 1950s, the Academy had applied in vain for travel funding from the Ministry of Ecclesiastical Affairs, and members of the National Committee for Radio Science who wanted to attend international meetings were primarily told to obtain funding from their own institutions or organisations. “Much of the work is conducted through postal correspondence, a way of working that is deeply unsatisfying”, as one representative of the National Committee for Crystallography expressed it in the mid-1970s.

The general need to coordinate the Academy’s international activities was also highlighted in these discussions, and the Academy of Sciences’ own enquiry supported a proposal to establish an international committee within the Academy. This was in 1973, when many activities were under review following the loss of the Academy’s almanac privilege. The Academy’s foreign secretary, Olof G. Tandberg, was secretary of a committee known as the international committee. The following year, the foreign department was established as part of the Academy’s Secretariat, with Tandberg as secretary. Subsequently, he played a vital role in all issues relating to the national committees for more than two decades.

The issue of coordination was again raised at the end of the 1980s, as well as that of funding for travel and meetings. It was not completely clear who should actually pay and, at the end of the 1980s, the Academy of Sciences made the point that research councils were also able to provide travel grants.

Expanding the national committees’ activities was discussed in association with the Academy’s jubilee, so that in addition to promoting research they would also cooperate across disciplinary boundaries, provide advice and be bodies of expertise for the Academy. A review of representation in two committees selected for trial activities showed that this was guarded territory; the proposal that members should be appointed after “consultation with organisations which promote Swedish research within their subject area” immediately met resistance. The Royal Swedish Academy of Engineering Sciences, the Association of Swedish Chemical Industries and the Swedish Chemical Society issued a joint protest against the Academy of Sciences’ and thus basic research’s increased influence over appointments at the expense of trade and industry. Finally, the Academy of Engineering Sciences was able to nominate a member to each of the committees for chemistry and molecular biosciences.

Nor was the committees’ organisational home within the Academy of Sciences a given one, even if they were often primarily regarded as part of its international cooperation. Another review of the national committees was conducted in the early 2000s, initially presented as a question of how they

related to the Academy's various classes. This was part of a larger issue, relating to which decisions should be made where in the Academy. Decisions relating to the national committees should perhaps be made by the classes, which had greater subject expertise than the Academy Board. The national committees could perhaps also function as an extension of the classes, as a type of advisory committee. The review combined high and low. It showed that some committees had overlapping areas of interest and others had very limited activity; some had a great deal of interaction with the Academy of Sciences and others had less, or none at all. International representation was presented in detail, as were the annual costs.

The review led to the committees forming stronger links with the Academy of Sciences and the classes. Committee members were not normally members of the Academy and their representation has also been the subject of recurring discussions over the years. The committees also received new statutes and some were merged. In the end, it proved impossible to close down a national committee.

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The archive material of the National Committee of Radio Science is divided between the Military Archives and, at the time of writing, being uncatalogued at the Center for History of Science, the Royal Swedish Academy of Sciences. The committee also has an updated and active website, which includes a 75th anniversary annual report that is available for download. Minutes and other documentation of the discussions regarding the national committees' place and function is found in both the national committees' own uncatalogued material and at the Center for History of Science. The national committees were discussed within the framework of international activities via specific committees and reviews, sometimes about the national committees and sometimes as part of more general changes to the Academy. The Swedish national committees await more detailed historical study and the international system within the International Council for Science is also sparsely examined, with Frank Greenaway, *Science International: A History of the International Council of Scientific Unions* (London, 2006) being the main standard work.