

# Aurorae Borealis Studia Classica

Vol. XV

*CCCXVI. Observationes de lumine Boreali  
partim a se, partim ab aliis, in Suecia habitas  
(1733)*

by Anders Celsius

digitized, with a biographical introduction and summary  
of contents Per Pippin Aspaas

*Aurorae Borealis Studia Classica* ('Classic Studies of the Northern Lights') is [a series](#) of digitized books, with biographical introductions and summaries of contents, edited by Per Pippin Aspaas and published by [Septentrio Academic Publishing](#), University of Tromsø - The Arctic University of Norway (UiT). The books as such are already in the public domain; all further content is open-access except when stated otherwise.

Contact: [per.pippin.aspaas@uit.no](mailto:per.pippin.aspaas@uit.no)

*The fifteenth volume in the series presents a monograph by the famous meteorologist and astronomer Anders (in Latin: Andreas) Celsius (1701-1744), founder of the Centigrade temperature scale known as °C. From a young age, Celsius collected observations of the aurora borealis from Swedish territories. He participated in the editing of the Acta Literaria Sveciæ, the journal of the Royal Swedish Society of Learning and Sciences in Uppsala, in which a substantial number of observations were published. The journal articles in question were often quite short, with the aurora often inserted in lists of meteorological observations with little space for descriptions. By contrast, Celsius' monograph contains a ten pages long historical introduction discussing the periodicity of the phenomenon, arguing that one should differentiate between minor and major aurorae: only the latter were visible on the European Continent and British Isles. There follows a 48-page chronological account of 316 observations made in Sweden, including Finland, during the period from 1716 to 1732. A network of observers established by the Uppsala society provided the basis for this impressive display of Swedish science. Celsius himself had made 67 of the 316 observations; the rest had been reported by sixteen other amateur and professional practitioners of science. The introduction, written by neo-Latinist and historian of science Per Pippin Aspaas, contains biographical information on each of the various observers as well as extracts of Celsius' text in English translation.*

This volume includes a facsimile of the original monograph in PDF format. A computer-generated RTF file was proofread manually by myself. I thank Dr. Stefan Zathammer of the the ERC-funded NOSCEMUS project in Innsbruck, Austria for his help in creating a full-text searchable PDF based on the transcription. The RTF file is also included as an appendix.

- The editor

Item digitized for this volume:

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# ANDERS CELSIUS (1701–1744)

## Biographical introduction by Per Pippin Aspaas

Anders (in Latin: Andreas) Celsius was born in November 1701 in the Swedish university town Uppsala. His father Nils Celsius (1658–1724) was a professor of astronomy and mathematics; his grandfathers on both sides were likewise astronomers and mathematicians. Besides his family ties with academic life, an important mentor during his student years was his father's successor to the chair of astronomy, Eric Burman (1692–1729). After Burman died, Anders Celsius was himself appointed professor of astronomy. Three years later, in 1732 he embarked upon a five-year research trip to Germany, Italy, France and England. Six years after his return to Sweden, Celsius died of tuberculosis, at the height of his career, in April 1744.

From the year 1722 onwards, Celsius made regular meteorological observations in Uppsala. The Centigrade temperature scale, famously named after him and expressed through the symbol °C, was proposed in a paper from 1742. When observing, besides temperature, air pressure, wind directions and clouds he also recorded aurorae. During his grand tour, Celsius made optical experiments from Monte Cavallo in Rome, whereby he determined the strength of solar and lunar light during various stages of a day or month. At the Académie Royale des Sciences in Paris, Celsius made friends with several leading researchers, among them Pierre Louis Moreau de Maupertuis (1698–1759). In order to settle a dispute regarding the shape of the earth, one expedition was sent to present-day Peru and another to the Tornedalen valley in far-northern Sweden. Celsius joined Maupertuis and his team on this epoch-making expedition and also wrote a treatise based on the measurements conducted there.

As a professor at Uppsala, Celsius was instrumental in securing funding for Sweden's first astronomical observatory, constructed in 1741 and equipped with instruments bought during his travel abroad. Celsius became its first director; his assistant Olof Hiorter (1696–1750) conducted numerous observations on his behalf and was one of the first to publish a paper on the link between auroral outbreaks and disturbances of the magnetic needle. The paper was not published until after Celsius' death, however.



Anders Celsius lived in an age when astronomy and allied natural sciences became increasingly network based. A good expression of this is his treatise on *CCCXVI. Observationes de lumine Boreali ab A. MDCCXVI. ad A. MDCCXXXII. partim a se, partim ab aliis, in Suecia habitas* (316 Observations of the Aurora Borealis made in Sweden from the Year 1716 to the Year 1732, partly by Himself, partly by Others),<sup>1</sup> published in Nuremberg at the outset of his grand tour in 1733. As mentioned, Celsius had made regular meteorological observations since 1722. When observing, besides temperature, air pressure, wind directions and clouds he also recorded aurorae. His work was far from that of a solitary genius, however. Celsius' mentor, Burman was a founding father of the *Societas Regia Literaria et Scientiarum* (Royal Swedish Society of Learning and Sciences), whose proceedings started coming out in 1720 (see *Aurorae Borealis Studia Classica*, [vol. XIII](#)). Since 1724, Celsius assisted Burman in administrative and editorial work, before taking over as the driving force of the society in 1729, upon the death of the latter.<sup>2</sup> In their capacity as secretaries, Burman and Celsius actively promoted scientific activity across the country. They kept an assiduous correspondence with many professionals and amateurs of science throughout Sweden as well as beyond its borders. At an early stage, Celsius decided to assemble and systematize as many auroral observations as possible from Sweden. This plan is alluded to by Burman in an article from 1724:<sup>3</sup>

To summarize all observations [i.e., of the aurora in Sweden] would be too lengthy; to publish them with the help of a printer would be either impossible or in vain. It is said that there is a very bright mathematician somewhere, well educated in both theory and method, who is preparing a history of this phenomenon. If it had been within our power to do him a real favour, we would gladly have communicated all observations, systematically recorded and described. Meanwhile, however, we shall limit ourselves to a single observation [...].

Nine years later, Celsius' history of auroral observations from Sweden was published. His role as a secretary was vital in this respect. As for the publisher, apparently it was not until his arrival in Germany that Celsius managed to find someone that was willing to print his work. The list of observations had by then expanded considerably, and the systematized manner of presenting them by far surpassed Burman's articles on the same subject in the proceedings of the Swedish Society of Learning and Sciences (see *Aurorae Borealis Studia Classica*, [vol. XIII](#)).

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<sup>1</sup> All translations in this volume of *Aurorae Borealis Studia Classica* are by Per Pippin Aspaas.

<sup>2</sup> In fact, the very first time Celsius attended a session of the Uppsala society (on 27 July 1722), he gave a presentation about the aurora borealis, as recorded in the minutes: "The observation of a northern light made by the student Mister Anders Celsius in the morning of 22 February this year was presented" (original: "Framwijstes en observation öfwer ett Nordskien d. 22 Febr: om morgonen innewarande År, gjord af Studioso D:no Andrea Celsius", quoted after Nordenmark 1936, p. 9).

<sup>3</sup> "Observatio circa Lumen Boreale d. 20. Sept. Ao. 1717 prope Upsal", *Acta Literaria Sveciæ* Vol. Primum, Trimestre Tertium (1724), 566–570 (on p. 566). See [digitized original](#).



Portrait of Anders Celsius by unknown artist.  
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# CCCXVI. OBSERVATIONES DE LUMINE BOREALI

## Summary of contents by Per Pippin Aspaas

### [Title page] (pp. [i]–[ii])

The full title can be translated as “Anders Celsius, royal professor at the University of Uppsala and secretary of the Royal Swedish Society of Sciences, has collected 316 observations of the aurora borealis made in Sweden from the year 1716 until the year 1732, partly by himself, partly by others”. The imprint informs that the book was published “in Nuremberg at the heirs of Wolfgang Moritz Endter, [namely] the daughter Mayrin and her son, in the year 1733”.

On the verso of the title page there are two citations, one from the first-century Roman poet Lucan and the other from the Swedish poet Georg Stiernhielm (1598–1672).

### PRÆFATIO (pp. [iii]–[xii])

The “Præfatio” (Preface), dated Nuremberg 7 August 1733 is ten pages long, without pagination. Translated into English, the opening two paragraphs read as follows (pp. [iii]–[iv]):<sup>4</sup>

The northern areas were shunned by most foreigners in former times, as though these parts were enveloped in the perpetual thickness of shadows. I don't know what kind of darkness had blinded their minds, but the fact is that the regions close to the North Pole are far superior to any other region further south when it comes to the richness of light. I will not mention the long-lasting sunsets, which, since they are seen from a site remote from the horizon of the Equator and besides through the thicker atmosphere of the north, are not only capable of entirely dispersing all darkness during the summer nights, but also to draw together as one the limits between each winter night. Nor will I mention the perpetual snow that we have every winter, which mirrors the pale light of the stars with its whiteness, as a service to the wanderers of the night. At present, let it suffice to praise the providence of the highest and wisest divinity, who, when the moon is at its faintest, brings a most brilliant brightness to the arctic nights in the form of a unique and utterly amazing meteorological phenomenon.

This phenomenon, always a joy to the philosophers, but often a scary thing to other people, has been given several different names in the Nordic tongue. These include *Nordlius*, *Nordskien*, *Nordblys* or *Nordbloss*, *Lysnor*, *Lysningar* and *Lotterskien* – all of which, thanks

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<sup>4</sup> Part of this translation was first published in Aspaas 2013.





to the richness of our language, convey the same meaning, namely, *Lumen boreale* [i.e., Northern Light]. In my view, this term is more worthy of being retained, than that new and far less appropriate name *Aurora borealis* [i.e., Northern Dawn], which was introduced around the beginning of the past century by Gassendi, a man unaware of the word that the northerners many centuries ago have given this meteorological phenomenon.

One notices the slightly patriotic undertone in the dismissal of “foreigners” such as the French natural philosopher Pierre Gassendi (1592–1655). Yet, from the next paragraphs it becomes clear that the patriotism of Celsius is not exclusively Swedish in scope. He also includes Greenland, Iceland, and northern Norway, drawing upon a pastor in Undal, Petrus Claudius (or Peder Claussøn Friis, 1545–1614) and his *Norriges oc omliggende Øers sandfærdige Bescriffuelse* (i.e., A truthful description of Norway and islands in its proximity), published posthumously in 1632. According to Claudius, a *Meteoron quoddam caeli igneum*, or “a kind of fiery meteorological phenomenon” is often visible in the regions mentioned (pp. [iv]–[v]). Celsius underscores that the phenomenon is ancient, described in the *Speculum regale* (or *Konungs skuggsjá*, King’s Mirror) and other medieval sources (p. [v]):

However, with strong justification it can be said that the *lumina borealia* [northern lights] have not always illuminated the pole with the same strength and magnitude. Thus, minor polar lights [*lucēs polares minores*] have been observable in Iceland, Greenland and northern Norway, as the author of the King’s Mirror testifies; but major ones [*majores*] have been observable in Britain, Denmark, Sweden, and occasionally in Germany, France, Spain and Italy as well.

Having introduced his differentiation between minor polar lights and major polar lights, Celsius proceeds to the famous auroral outbreak of March 1716, which was seen all over Europe as well as in Uppsala by the author himself. It was in fact the first time Celsius himself observed the phenomenon, and he affirms that none of the *lucēs polares majores* that he has witnessed ever since compares to this one. He vividly remembers how “during the strongest movement of the rays, I heard a *sibilus* [hissing sound], exactly like the sound commonly generated by birds flapping their wings” (p. [vi]). There was clearly a dip in frequency of major aurorae, Celsius concludes, between c. 1630 and 1716. He refers to highly reliable Uppsala citizens who, at about 70 years of age, described the aurora as an extremely infrequent phenomenon prior to the outbreak of 1716. Moreover, at the famous observatories of Greenwich and Paris (both established in the 1670s), no aurora whatsoever was recorded until 1716; in Gdansk (*Gedanum*, Danzig), the ardent observer Johannes Hevelius (1611–1687) noted only a single occurrence, on 28 October 1682. However, despite the paucity of recorded observations, one cannot conclude “that major northern lights [*lumina borealia majora*] have never been seen in Sweden and elsewhere in former times; rather, it seems correct to posit that their appearances are periodic” (p. [vi]).

Drawing upon a variety of printed sources, on pp. [vi]–[ix] Celsius quotes numerous examples of observations made in southern Sweden, Denmark, Germany, and France in the century from

1529 to 1630, including several by reputable observers such as Tycho Brahe (1546–1601) and Johannes Kepler (1571–1630). Most of his quotations are from a calendar by the Swede Georgius Olai (?–1592) and from a report by Celsius’ contemporary, Christfried Kirch (1694–1740), whom he had met in Berlin.<sup>5</sup> In sum, the substantial number of recorded observations from the period leading up to the year 1630 corroborates Celsius’ theory of periodic occurrences (p. [ix]):

Thus, in case the nature of mortals had preserved for us venerable old men at 150 years of age, I am fully confident that they would easily have recognized the lights that we see these days as something highly cherished, a thing that they had gained familiarity with in their youth.

There follows an excursion into the philosophy of science and the elusiveness of the aurora. However, it bodes well that the phenomenon has again started to be visible all over Europe, “precisely in this period”, when “such laborious and assiduous efforts are spent on science and natural history” (p. [ix]). Theories on the cause of the aurora are, however, amazingly contradictory and ultimately of little use (p. [x]):

In case everybody took careful notice of the habits of the northern light [*lumen boreale*], I am confident that the true origins of the phenomenon would finally reveal themselves of their own accord to the scrutinizer that compared the observations with the diligence that they deserve. Whether this joy will be ours to experience or that of our ancestors, is not a concern to us, so long as the love of truth is truly what guides us. And why should we grudge posterity the harvest of our efforts? It will be a greater honour for our generation to transmit truthful observations to the memory of posterity, instead of false and easily refuted hypotheses. If only previous generations had left behind their experiences of natural phenomena rather than their different opinions about them! This would have enabled us to convert the observations of our ancestors, completed by our own industry, into good use for the life and the sciences of our age. In turn, our own experiences would, as a form of gift in return, be consecrated to the common good of our descendants. In this way, the dead and the living would form a friendly community flourishing through the centuries to come, bringing enormous utility to humankind.

In keeping with this stance, no particular theory is promoted by Celsius. He does, however, quote a couple of compatriots that surmise a connection between the properties of the aurora and the weather conditions on the following days.<sup>6</sup> In keeping with this hypothesis, he has

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<sup>5</sup> *Calendarium duplex Christianorum et Iudaeorum. Cum prognostico astrologico. På thet ottonde och thet nyonde åhrena öffuer M. D. LXXX efter vår Herres och frelsares Jesu Christi frögderijka födhelses tijdh. Item, någhra prophetier eller gissningar, om werldenes största förwandlingar och ytersta ända, aff then helgha scriff, sampt andra lärde och gudhfruchtighe mäns böker och scriffter vthdragne. Åre här och tillagde prognostica, öffuer the tiyo åhr, hwilke näst effter the ottotiyonde niyonde, in til thet 99 inclusivé, föliande äre, på thet korteligaste och enfäldeligaste bescreffne aff Georgio Olaj Vpsaliensi (Stockholm, 1588) [digitized](#); Beschreibung des besondern Nord-Scheins, welcher in der Nacht zwischen dem 16 und 17 Novemb. anno 1729 erschienen, wie solcher zu Berlin angemercket worden; nebst einigen angehängten kurtzen Gedancken über die Nord-Scheine überhaupt ausgefertiget von Christfried Kirch (Berlin, [1729]) [digitized](#).*

<sup>6</sup> The two Swedes quoted are Abraham Fougt, active in Tornå (Haparanda/Tornio; see below) and Erik Benzelius the Younger (1675–1743). The latter had been a founding father of the Uppsalian *Societas Literaria* as a librarian and theologian at Uppsala. He continued to cultivate close ties with the society as a bishop in Gothenburg (from 1727) and Linköping (from 1731 until his death).



included barometer, thermometer, and visual observations of the weather where such are available.

There is no discussion in the Preface of what phenomena can be defined as aurorae and what should be defined as something else. Celsius does, however, point out that he has avoided to record in his diary “That brightness, which tends to be seen in the northern horizon virtually every clear night when the lights of dawn and moon are lacking” (p. [xi]). As for the other Swedish observers, he evidently presupposes such a familiarity with the phenomena of the northern sky that the possibility of spurious observations is not even worthy of mention. The preface ends by pointing out that (p. [xii]):

There is a considerable number of observations made in Sweden since the year 1716 that have been omitted here, since they have already been published in the *Acta Literaria Sveciæ*. I also found it superfluous to include observations that were made on the same evenings [as other observers] by myself and the late Burman in Uppsala and included in the *Acta*, unless some noteworthy circumstances have been added to the description of the phenomena.

### Observationes de *lumine boreali* ab A. 1716. ad A. 1732 in SVECIA habitæ (pp. 1–48)

The list of 316 observations is organized chronologically and fills 48 pages. Note that all dates are listed according to the Julian calendar; the Gregorian calendar was not adopted in Sweden until the year 1753. The 316 observations were made on 224 different dates. There were in other words numerous dates with more than one reported observation, the maximum being five observations made by five different observers on the very same date (see 5 Nov 1729, on pp. 20–21; 24 Sep 1730, on pp. 30–31). The total numbers of observers are 17, observing from 18 different places. As a result of the borders at the time, modern Finland is included among the “Swedish” observation sites. The contributions by the various observers can be summarized thus, in alphabetical order:<sup>7</sup>

**BROMAN** ([Olof Johansson Broman, 1676–1750](#)): “M[agister] Olavus Broman, pastor at the place mentioned” made 54 observations from 21 Dec 1727 to 20 Feb 1732, all “Hudwikswaldiæ in Helsingia” (i.e., in Hudiksvall, Hälsingland Province) (p. 12). In as many as 18 instances, Broman reports that he could hear the aurora.

**CELSIUS** ([Anders Celsius, 1701–1744](#)): Celsius’ own listed observations, 67 in total, were made from 20 Oct 1723 to 24 Sept 1732. Nearly all his observations were made in Uppsala (“Upsaliæ”), except for a single observation made “in prædio Pastoris Rasboensis prope Upsaliam” (i.e., at the estate of the pastor at Rasbo near Uppsala) (p. 14) and his two very last observations, which were made during his southbound journey, in Göta and the vicinity of Ystad,

<sup>7</sup> For a complete list of observations mentioned in Celsius’ book, see the dataset: P.P. Aspaas, “Swedish observations of the Aurora Borealis in the period 1716–1732 in contemporaneous scholarly publications”, DataverseNO, 2023, <https://doi.org/10.18710/G5J4YS>.

together with Ollonberg and Meldercreutz respectively (pp. 46–47). Some of Celsius’ descriptions are quite elaborate. At one instance, he reports that “I seemed to hear some sort of sizzling sound [*sibilus*]” (Uppsala, 24 Sep 1730, p. 30).

**FOUGT** ([Abraham Foug, 1664–1760](#)): “M[agister] Abrahamus Foug, pastor at the place mentioned” reported altogether ten observations from 10 Dec 1726 until 28 Feb 1728, all made “Tornœ in Westrobothnia” (i.e., at Torneå [Haparanda, Tornio] in the Province of Västerbotten) (p. 7). In keeping with his meteorological theory (presented in the Preface, above), Foug invariably notes the weather following the observation.

**GARDELL** ([Johan Johansson \[Norby\] Gardell, 1697–1742/43](#)): “Johannes Gardell, student of mathematics” reported one observation only, made 21 Dec 1719 “in parochia Gardensi Gothlandiæ” (i.e., in the parish of Garde in Gotland) (p. 3).<sup>8</sup>

**GERINGIUS** ([Andreas Geringius, 1670–1746](#)): “Andreas Geringius, pastor at the place mentioned” reported 12 observations from 16 Feb 1729 to 16 Sept 1730, all made “in paroecia Betna prope Nycopiam in Sudermannia” (i.e., in Bettna parish, near Nyköping in Södermanland Province) (p. 17). Geringius’ descriptions are generally quite short, with tabular weather reports attached. He appears to embrace a bipartite classification of *chasma* and *lumen septentrionale*, with the former used to signify major outbreaks, as recommended by Burman in the *Acta Literaria Sveciæ* in 1724 (see *Aurorae Borealis Studia Classica*, [vol. XIII](#)).

**HIORTER** ([Olof Hiorter, 1696–1750](#)): “Olavus Hiorter, amateur of astronomy” reported nine observations from 3 Feb to 19 Dec 1718, all made “Schyllbergæ in Nericia” (i.e., in Skyllberg, Närke Province) (p. 2). Several observations are quite detailed, with astronomical coordinates added. Unlike many other observers, however, Hiorter lists no barometer or thermometer readings.

**LAURELIUS** ([Sven Laurelius, 1667–1743](#)): “M[agister] Sveno Laurelius, pastor and provost at the place mentioned” (p. 12) made 55 or 56 observations between 8 Dec 1727 and 19 Nov 1730, all “in paroecia Risinge prope Norcopiam Ostro-Gothorum” (i.e., in Risinge Parish, close to Norrköping, Östergötland Province).<sup>9</sup> His descriptions are short and the concepts used are

<sup>8</sup> According to [genvagar.nu](#), Johan Gardell (1697–1743) was “Rådman i Visby och byggnadsinspektör dörstades, antog namnet Norby Gardell” (i.e., city councillor and engineer in Visby [Gotland], where he took the name Norby Gardell): <https://genvagar.nu/show.asp?PersonId=319787> (accessed 30 Sep 2022). According to [anarkiv.se](#), Johan Norby Gardell was born 1697 in Garde and died 3 Jan 1743 in Visby: <https://www.anarkiv.se/anarkiv/forskn/sok/personakt.asp?pnr=146591&db=gotland> (accessed 30 Sep 2022). In the protocol of the students’ nation of Gotland Province, he is recorded as having been enrolled 6 Nov. 1716 as “Johannes Johannis Gardell, Ædilitatem Wisbyensem, mox Consiliarium dignationem obtinuit, obiit 1742” (i.e., Johan Johansson Gardell, obtained a post as edile in Visby, soon thereafter the dignity of a counsellor, perished in 1742) (Gustafson 1878, part II: Gotlands nations matrikel 1646–1877, p. 14).

<sup>9</sup> One observation attributed to Laurelius is listed as having been made in Svenäcker (see 11 Nov 1730, on p. 33), but there is reason to believe that it was actually Vassenius that made that observation.

*lumen, lumen septentrionale, lumen boreale, lumen nocturnum, aurora borealis, aurora septentrionalis* – seemingly without any differentiation in meaning.

**LIDIUS** ([Erik David Lidius, 1692–1744](#)): “Ericus Lidius, lector of mathematics at the royal gymnasium at the place mentioned” made 50 observations between 6 Jan 1730 and 22 March 1732, all “Strengnesiæ in Sudermannia” (i.e., in Strängnäs, Södermanland Province) (p. 23). His early recordings generally consist of a single sentence and have no meteorological data attached, e.g. “In the evening, a *lumen boreale* lit up the sky” (22 Sep 1730, p. 30). His last observations are more elaborate (various dates in March 1732, pp. 43–45).

**LINDHEIM** (**Simon Paulin, *ennobled* Lindheim, 1686–1760**): “Simon Lindheim, supreme judge of the royal hovrätt [*dicasterium*, Court of appeal] in Åbo [Turku]”, made eight observations ranging from 31 Aug to 1 Oct 1730, all reported “prope Bioerneborg in Finlandia” (i.e., near Björneborg [Pori] in the Province of Finland) (p. 28). His observations have apparently been culled from a meteorological diary: they usually consist of the word *aurora borealis* only, alongside notes on the weather.

**MELDERCREUTZ** ([Jonas Meldercreutz, 1714/15–1785](#)): “Nobleman Mister Meldercreutz, my travel companion” is referred to in the context of one observation, made together with Celsius on 24 Sept 1732, “in mari Baltico prope Ystadium” (i.e., in the Baltic Sea near Ystad) (p. 47).

**OLLONBERG** (**Ture Ollonberg, 1705–1761**): “Thure Ollonberg, *Lib[er] Baro* (Friherre)” made five observations from 10 March to 11 Aug 1732, the last-mentioned in the company of Celsius. All observations were made “in Hanestroem, prope Gothoburgum” (i.e., at Haneström [Göta] in the vicinity of Göteborg) (p. 42). Several of his descriptions are rather detailed, but they lack recordings of temperature or pressure.

**OXELGREN** ([Magnus Oxelgren, 1686–1750](#)): “M[agister] Magnus Oxelgren, lector at the royal gymnasium in Visinge [Visingsö]” (p. 1) reported one observation only, made of the famous auroral outbreak of 6 March 1716, “Norcopiæ in Ostro-Gothia” (i.e., in Norrköping, Östergötland Province). The description is quite detailed. Oxelgren reports that “During the strongest vibrations of the rays, I seemed to discern a faint sizzling sound” and that “As the heftiest battle of the rays abated, a smell similar to that of humid fog began to be noted” (p. 2).

**QVENSEL** ([Conrad Qvensel, 1676–1732](#)): “Conradus Qvensel, royal professor of mathematics at the place mentioned” observed from “Lundæ in Scania” (i.e., Lund, in the Province of Skåne) (p. 9). His 16 observations were reported from 8 Oct 1726 to 27 Sept 1731. He was clearly alert to any sound of the aurora, but reports that he could not hear anything (pp. 9–10). For more on Qvensel, see *Aurorae Borealis Studia Classica*, [vol. XIV](#).

**RENMARK (Jacob Arendtsson Renmark, 1691–1755):** “M[agister] Johannes Renmark,<sup>10</sup> lector of mathematics in the royal gymnasium at the place mentioned” reported a single observation, made 22 Jan 1729 “Hernoësandïæ in Angermannia” (i.e., Härnösand in Ångermanland Province) (p. 16).

**SPOERING (Herman Diedrich Spöring, 1701–1747):** “D. [= *Dominus*, Mister] Hermannus Spoering, royal professor of medicine at the place mentioned” reported 11 observations ranging from 15 Jan to 25 Nov 1731, all made “Aboæ in Finlandia” (i.e., in Åbo [Turku] in the Province of Finland) (p. 33). His descriptions are short, usually accompanied by a succinct report on the weather following the event. Thermometer and barometer recordings are missing.

**TELIN (Johan Telin, 1682–1743):** “M[agister] Johannes Telin, pastor at the place mentioned”, observed from “Bygdeo, Westrobothniensium parochia” (i.e., Bygdeå, a parish in the [historical] Province of Västerbotten) (p. 11). His six reported observations range from 26 Feb 1727 to 6 Sept 1730. At one instance, he reports that he could hear the aurora (pp. 11–12).

**VASSENIUS (Torsten Vassenius/Wassenius, 1692–1764):** “Torstanus Vassenius, V. D. [= *Venerabilis Dominus*?, i.e. Venerable Mister] superior vicar in Wassenda [Vassända]” provided four or five observations, made between 21 April 1729 and 6 (or 11)<sup>11</sup> Nov 1730 “in Svenæker prope Albis Gothici cataractas Trollhætta dictas” (i.e., at Svenäcker, close to the waterfalls of Göta älv called Trollhättan) (p. 18).<sup>12</sup>

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<sup>10</sup> The name in Celsius' book, Johannes Renmark, is almost certainly a misprint for *Jacobus* Renmark. In the *Acta Literaria Sveciæ*, Erik Burman calls him “M[agister] Jacobus Renmark, in Hernosand Ang[ermannia] Lect[or] Math[eseos]”, see *Volumen Secundum, Trimestre Quartum* (1728), p. 491 [digitized fulltext](#). In the protocol of Härnösand Gymnasium, Jacobus Renmark is listed among the *scholares* of the year 1707, with the following addition regarding his further career: “Anno MDCXCI [...] nat. Lulov. 1716 in Junio prom: Magister Ups: 1721 in oct: regio diplomate Lector Mathes: constitutus. 1732. S. Theol: Lector in Gymn. Hernos. Past. et Præp. Lulens.” (i.e., Born in the year 1691 in Luleå. In June 1716, promoted to magister in Uppsala. In October 1721, appointed lector of mathematics by royal decree; in 1732, a lector of holy theology in the Gymnasium of Härnösand. Pastor and provost in Luleå), see *Härnösands gymnasieatrikel 1650–1800*, ed. by Gösta Bucht (Härnösand, 1926), p. 43. Renmark served as a rector in the academic years 1725/26 and 1732/33 (op.cit., pp. 57 & 64). According to geni.com, Jacob Arendtsson Renmark died in Luleå on 30 June 1755, with the title kyrkoherde (= *præpositus*, provost): <https://www.geni.com/people/Jacob-Arendtsson-Renmark/6000000025983281760> (accessed 11 Oct 2022).

<sup>11</sup> An observation listed by Celsius at Svenäcker 11 Nov 1730 was probably made by Vassenius and wrongly attributed to Laurelius or, if Laurelius was the observer, the observation was likely made in Risinge, not Svenäcker (p. 33; see also on Laurelius above).

<sup>12</sup> On Vassenius/Wassenius, see Johansson 2009.

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