

New Views of William Herschel (1738-1822)

In Memory of Michael Hoskin (1930-2021)

— papers originally were to be presented "in person" in January 2022 in Salt Lake City as a live session of the Historical Astronomy Division (HAD) of the American Astronomical Society (AAS)
— now presented as a Zoom Webinar on 5 March 2022, sponsored by HAD/AAS

1300 EST

Overview of the Webinar

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1310 EST

William Herschel's Life as a Musician (1738-1782) (40 min)

Woodruff Sullivan (University of Washington, Seattle, Wash.)

William Herschel was a musician for the first 44 years of his life, when discovering Uranus in 1781 soon turned him into a fulltime astronomer. Based largely on a previously unexamined trove of his correspondence with his brother Jacob, I will review his life as a military bandsman (oboist) based in Hanover (Germany) until age 19, as well as his subsequent life in England as a composer, instrumentalist (oboe, violin, viola, harpsichord, organ), instructor, equestrian, and impresario in London (2 years), Yorkshire (7 years), and Bath (16 years; covered more briefly). The poet William Wordsworth told us that "the Child is Father of the Man" (1802) and so it is as we examine the musical youth and middle age of Herschel and see how these years led to his, more familiar to us, four decades as one of the most important astronomers of all time.

1350 EST

The Music and Musical Life of William Herschel (40 min)

Sarah Waltz (University of the Pacific, Stockton, Cal.)

As is commonly known, Herschel was a working musician and composer in the years before he made his famous discovery. Less generally understood is what it means to be a musician in mid-eighteenth century England outside London, what Herschel's commitment to music was, and how Herschel's thinking about music theory resonated with his later thinking as an astronomer and natural philosopher. Contextualization concerning eighteenth-century musical life will correct some common misimpressions about what Herschel's compositions and musical style mean about his status as a musician. Further, Herschel's letters to his brother Jacob in the years 1761-3 and his unpublished music-theory treatise of 1763 reveal a systematic and creative mind that seems to really exemplify the Quadrivium of sciences in antiquity (Astronomy, Geometry, Mathematics, and Music); by 1763 he has altered his vocabulary to speak of a "gravitational" theory of tone-relations rather than speaking of "tendencies."

1430 EST

**William and Caroline Herschel's Astronomical Cottage Industry:
Corporate Knowledge Production in the age of the Romantic Genius (15 min)**

John Mulligan (Rice University, Houston, Tex.)

In July 1783, Caroline Herschel began to sweep her telescope vertically, rather than horizontally as her brother William had prescribed until then; by December the team had settled on this manner of sweeping as their primary method of observation. The shift allowed the siblings to work in tandem, rapidly amending and expanding Flamsteed and Messier's catalogues. Although the siblings' journal entries for late that year show each taking credit for this minor technical innovation, this change also transformed their practices and the nature of their collaboration. By synchronizing their labors as they sought to process as much information as possible as accurately as possible in real time, they industrialized their observatory, with predictable and also unpredictable results. I will examine in detail this key moment in the Herschel household's transformation into an observatory. This talk will be accompanied by video simulations of William's view through his eyepiece, which simulations were produced according to the parameters of the siblings' records of their 1783-1802 observational sweeps.

Romantic science (since it was identified as a distinct epoch by Jardine and Cunningham) has been understood in terms of the organic development of knowledge, the synthesis of data through induction, and the democratic contributions of amateurs to coalescent disciplines. The Herschel siblings challenge these expectations for Romantic genius, showing how their genius lies in their coordination of labors according to routines that left too little room for their personalities. Their cottage-industrial mode of knowledge production was both artisanal and mechanical, rapidly producing discoveries through the tight coordination of expert researchers. Their vision of the universe was both organic and quantitative, constituted by the aggregation of carefully cultivated data produced during years of observations. Above all, their cometic rise to fame both justified the notion of the creative genius and necessitated a shift to professionalism – amateurs would have little to contribute to this newly-industrialized discipline that relied on expensive instrumentation and the ability to construct and maintain big data pipelines.

1445 EST — BREAK (15 min)+++++

1500 EST

North German Influence in the Viola Concertos of William Herschel (30 min)

David Koerner (Northern Arizona University, Flagstaff, Ariz.)

William Herschel composed the very first viola concertos known to be written in England within a few years of arriving there in 1757. His three viola concertos are dated c.1759 when he was in his early 20's and struggling to make a living in a highly competitive environment for musical performers. He appears to have played at least one of the concertos in London and later expressed the feeling that the D Minor concerto was one of the best things he had composed. The works bear the stamp of stylistic innovations endemic to Herschel's native North Germany (e.g., "empfindsamkeit") and unique to his broader compositional output. He abandoned both the style and use of solo viola in subsequent compositions. This was perhaps to accommodate English taste for Italian styles in which viola writing served only as harmonic fill; solo works for viola were not known in England for another decade. In contrast, viola concertos of Telemann, Graun, and Stamitz preceded Herschel's in North Germany, and recent discoveries of concertos by Graul suggest a hitherto unknown tradition of solo viola playing in the court of Frederick the Great. I will illustrate passages from the D minor concerto that give evidence of a musical connection to Frederick's court, a key center of German Enlightenment ("Aufklärung") at that time.

1530 EST

The Poetic Legacy of William Herschel (20 min)

Clifford Cunningham (University of Southern Queensland, Austin, Tex.)

The most overlooked aspect of William Herschel's career is his engagement with, and impact on, poetry. This is surely due to the fact he wrote no extant poetry, but this ignores his personal collaboration with his friend Charles Burney Sr. to write a poem about the Universe. The project was abandoned, but ultimately such a poem (Eureka) was created by Edgar Allan Poe. This study will not look in detail at this famous work by Poe, but at a poem of 1827 and one of his more obscure works dating from 1846 that extended Herschel's botanical description of the universe as a landscape garden, with inspiration from the two cosmological poems of Erasmus Darwin: *The Botanic Garden* (1791) and *The Temple of Nature* (1803). As a case study on how Herschel's discoveries became grist for poetic expression, I will show how the expansion of the electromagnetic spectrum by its extension into the infrared ("radiant heat" in Herschel's description) was employed by Shelley, Poe and Wordsworth. An overview will be given of more than 80 poems written to commemorate Herschel's life and scientific work.

1550 EST

John Herschel: Establishing the Sidereal Revolution of William Herschel (20 min)

Stephen Case (Olivet Nazarene University, Kankakee, Ill.)

William Herschel has been seen as initiating a "sidereal revolution" with his catalogues of nebulae and double stars. Within his own lifetime, however, Herschel's work remained well outside the purview of standard astronomical practice and his targets were largely un-observed by others. My talk illustrates how John Herschel, drawing on the work of his father and aunt, Caroline Herschel, *established* this sidereal revolution. John Herschel established his mathematical credibility independent of astronomy and located himself at the center of the European scientific community, a path that was unavailable to his father. This unique influence and expertise allowed him to make his father's objects the targets of other observers and introduce systems of uniformity and standardization to translate those observations into insights about astrophysical objects. His popular textbooks then communicated this sidereal conception of the universe to the reading public. John Herschel's career in astronomy, which reached its zenith at the Cape of Good Hope, unified William's observational techniques with Caroline's calculations and reductions, allowing him to produce not only the completion of their work but its establishment as part of mainstream astronomical practice.

1610 EST — END