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INTRODUCTION TO THE DAVID H. DEVORKIN SPECIAL ISSUE OF *JAHH*

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Back in January this year David DeVorkin turned 80. In this Special Issue of *JAHH* we celebrate his life by bringing together a range of papers that honor his work and achievements.

David's interest in astronomy began at an early age. Even before he entered college he worked as a Research Assistant and Observer at Lick and Yerkes Observatories, not only learning observational techniques but also 'spelunking' the old records at those observatories, stimulating his interest in history. Between 1966 and 1970 he obtained degrees in astronomy from UCLA, San Diego State, and Yale, and served as an Assistant and Associate Professor of Astronomy at Central Connecticut State College from 1970 to 1980. During this time, he also directed the College's planetarium, the beginnings of a long relationship with public outreach, and served as a Research Associate for the Center for the History of Physics at the American Institute of Physics (AIP), beginning lifelong activities in oral history. Fortunately for our profession, he turned to the history of astronomy, receiving his PhD from the University of Leicester in 1978, working under Jack Meadows. His PhD thesis, *An Astronomical Symbiosis: Stellar Evolution and Spectral Classification, 1860–1910*, demonstrated the interdependence of spectral classification and theories of stellar evolution, and foreshadowed much of his later work.

For most of his career David served as Curator of History of Astronomy and Space Science in the Space History Division at the Smithsonian Institution's National Air and Space Museum (NASM) in Washington, D.C. He came to the Museum in 1981, two years after I had begun work as an Astronomer and Historian at the nearby U.S. Naval Observatory. As discussed in my paper in this issue, David and I have enjoyed many adventures in history of astronomy together over the years, including joint history sessions at the American Astronomical Society (AAS) and the International Astronomical Union (IAU), collaborative oral histories, numerous NASM and NASA events, and not least, shared research interests on a variety of subjects. David's major research has encompassed the origins and development of modern astrophysics during the twentieth century; the origins of the space sciences; biographies of Henry Norris Russell, Fred Whipple, and George Carruthers; astronomy in the government; military patronage of science in the post-WWII era, and much more. He has left a large and priceless collection of oral histories for the use of future historians, including those under-taken as part of the Space Astronomy Oral History Project (1981–1985), the Sloan Videohistory Project (1988–1992); the heliophysics oral history program (AIP 2015–2018), and many others. He has given a lifetime of service to the history of astronomy community, serving for many years as the Secretary-Treasurer of the Historical Astronomy Division (HAD) of the AAS, as well as its Vice Chair and Chair (Figure 1), as an officer in the History of Astronomy Commission of the IAU, as an organizer and participant in most of the biennial Notre Dame History of Astronomy Workshops, and as an active participant in numerous other organizations.

Unlike many historians of astronomy (myself included), David has excelled at public outreach, propelled by his position at one of the great museums of the world. His activities at the NASM in this respect were prodigious. He served as the curator for many exhibits large and small, including the "Stars" gallery (1983–1997) and its successor "Explore the Universe", and has written about the many challenges of assembling these galleries (DeVorkin, 2014). The latter alone was viewed by hundreds of thousands, acclaimed by astronomers and the public alike (Figure 2). His acquisition of outer space material culture for this and other exhibits has ensured the preservation of an important part of American and indeed world scientific and cultural history. His public outreach included securing funding for and building a public observatory on the east terrace of the Museum, opened as NASM's contribution to the International Year of Astronomy in 2009. His work has been recognized at the highest levels of the Smithsonian, including the prestigious Smithsonian Secretary's Distinguished Research Lecture in 2008, titled "Death and Transfiguration: The Smithsonian and Institutional Change in American Astronomy."

Most impressive of all, David has made numerous contributions to history of astronomy, authoring more than 130 scholarly papers and

Figure 1: LeRoy Doggett (left) and David DeVorkin (right) at the AAS Historical Astronomy Division dinner in January 1993 in Phoenix/Tempe, Arizona. Astronomer Von Del Chamberlin is in the background. David served as HAD's long-time Secretary/Treasurer, and as its Vice-Chair and Chair (photograph: Stephen McCluskey).

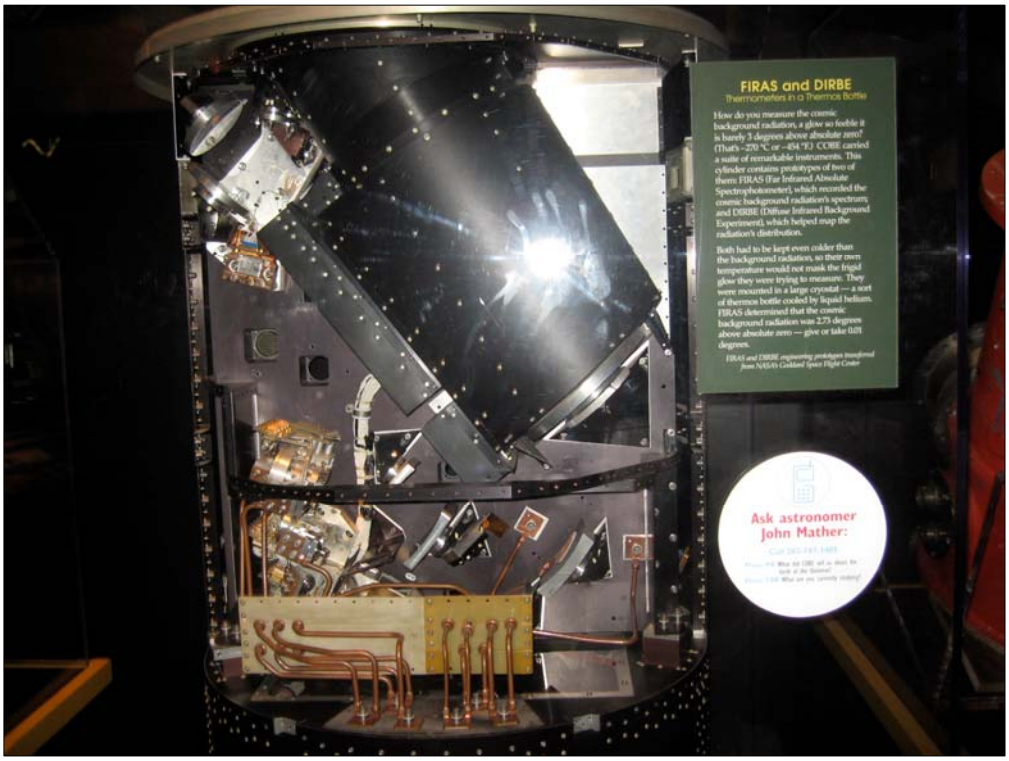

Figure 2: Artifacts in the "Explore the Universe" gallery at the National Air and Space Museum included the Far Infrared Absolute Spectrophotometer (FIRAS) and the Diffuse Infrared Background Experiment (DIRBE) engineering prototypes for the Cosmic Background Explorer (COBE). The exhibited prototypes were transferred to NASM from NASA's Goddard Spaceflight Center. These instruments determined that the cosmic background radiation was 2.73 degrees above absolute zero, with an error of only 0.01, interpreted as evidence for the Big Bang theory (photograph: Steven Dick).

popular articles and having authored, edited, or compiled 20 monographs on the history of, and education in, astronomy and the space sciences. Among his most notable books are *Race to the Stratosphere: Manned Scientific Ballooning in America* (DeVorkin, 1989); *Science with a Vengeance: How the Military Created the US Space Sciences after World War II* (DeVorkin, 1992); as editor of *The American Astronomical Society's First Century* (DeVorkin, 1999); *Henry Norris Russell: Dean of American Astronomers* (DeVorkin, 2000); *The Hubble Space Telescope: New Views of the Universe* (DeVorkin and Smith, 2004); and *Fred Whipple's Empire: The Smithsonian Astrophysical Observatory, 1955–1972* (DeVorkin, 2018). As of this writing David remains active, finishing his biography of George Carruthers, which will be published by MIT Press in 2025.

Among these volumes, in my view his *magnum opus* remains his biography of Henry Norris Russell, the undisputed dean of American astronomers in the first half of the twentieth century. It seems hardly possible that a quarter century has passed since we celebrated this milestone achievement at David's home with colleagues, and a cake bearing Russell's image and the front cover of the book (Figure 3). In this volume David lays out the origins and development of Russell's twin passions: stellar evolution and stellar energy. Much of Russell's career can be understood as testing the hypotheses of these two problems. David argued that Russell was problem-oriented, and that during the course of his career he changed astronomy from a data-gathering to a problem-solving discipline. The biography is rich in science, but also in social and cultural context, and allows us to see the origin and evolution of a world-class scientist who found astronomy an elaborate natural history, and left it firmly grounded in physics. Russell was, DeVorkin argues, the first astrophysical theorist in America. As I wrote in a review in *Physics World*, the book is a twin biography, the life of one man and the lives of the stars, forever entwined in history.

As the title indicates, David's book on Fred Whipple is actually less of a full-fledged biography and more of an institutional history. As he explains in the Preface, the book explores the forces that brought two astronomical institutions together—the Astrophysical Observatory of the Smithsonian Institution, and Harvard College Observatory—to create the Harvard-Smithsonian Center for Astrophysics in the early 1970s. His *Science with a Vengeance* book cemented his role as the premier historian of the origins of the space sciences, a theme he expanded for NASA's 50th anniversary, where he detailed how the Space Age changed the astronomical profession (DeVorkin, 2009). And his edited volume on the occasion of the centennial of the American Astronomical Society brought together historians and astronomers to document the origin and evolution of the premier society of astronomers in the United States, showing how its evolution mirrored the changing nature of the profession, the transition from the old to the new astronomy, and changing patterns of patronage (DeVorkin, 1999).

David has had a long relationship with NASA, ranging from grants for his exhibits and research to participation in seminal meetings during my time as NASA Chief Historian. Among

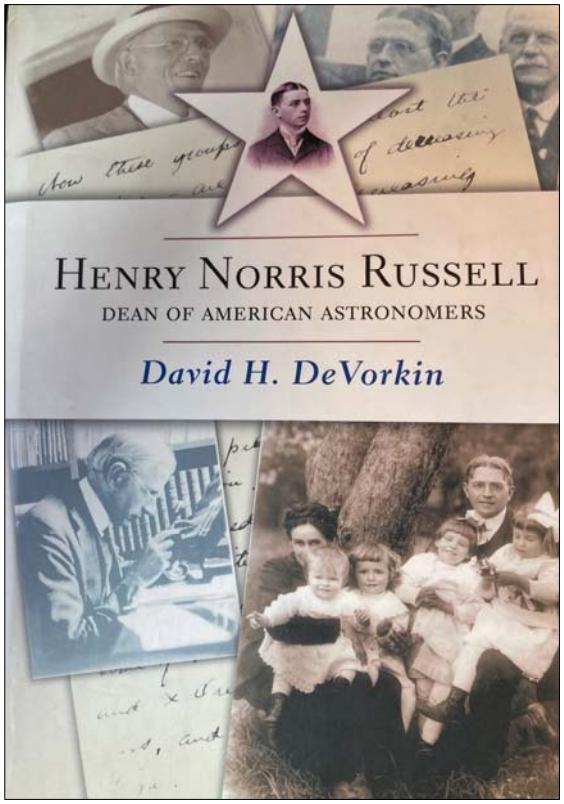

Figure 3: Cover of David DeVorkin's acclaimed biography of Henry Norris Russell.

those was his article on "Space Artifacts: Are They Historical Evidence?," representing his massive work on acquisitions for the National Air and Space Museum. He concluded that artifacts were important for history for at least five reasons:

(1) validation that something happened in space history;
(2) celebration promoted by physically encounter an object that made history;
(3) inspiration from the challenges of constructing an artifact;
(4) illumination that non-material culture cannot provide; and
(5) stimulation of interest in space history (De-

Vorkin, 2006: 598–599). In addition, his book with Robert Smith on the Hubble Space Telescope (HST) reached a wide audience in the form of a beautifully produced National Geographic coffee table book featuring Hubble imagery complete with historical and scientific commentary (DeVorkin and Smith, 2004). A decade later he joined Roger Launius in producing a volume that brought together some of the pioneers who defined, built, and operated the HST, including Nancy Grace Roman, Bob O'Dell, Ed Weiler, David Leckrone, and John Grunsfeld, the astronomer-astronaut and veteran of five spaceflights, including the final three Hubble servicing missions (Launius and DeVorkin, 2014). In typical DeVorkin/NASM fashion, the symposium on which this volume was based brought together astronomers and historians, with Robert Smith, Joe Tatarewicz, Elizabeth Kessler, and myself among the latter.

David's research papers have been wide-ranging, covering everything from the origins of the Hertzsprung-Russell diagram (DeVorkin, 1984a) to the supernova of 1006 (DeVorkin, 1984b), and the controversy over Pluto's designation as a planet (DeVorkin, 2013). In the latter article he covers the history of Pluto's discovery through 'The battle of Prague' in 2006, where he and I both attended the IAU General Assembly and voted on the issue, one of many General Assemblies we attended (including Beijing in 2012—see Figure 4). I don't recall where David came down, but I voted that Pluto should be designated a dwarf planet, and that a dwarf planet should be a class of planet, on the same level as terrestrial, gas, and ice giants. Alas, the final vote controversially declared that Pluto was not a planet, but a kind of subplanetary object. Inspired by the debate, I later wrote a wide-ranging book on classification in astronomy, including the Pluto debate (Dick, 2015). And, always keeping education in mind, David joined with his NASM colleague Margaret Weitekamp to write a children's book on the subject (Weitekamp and DeVorkin, 2013).

One of my favorite DeVorkin papers is "History is too important to be left to the historians" (DeVorkin, 2012), reacting to astronomer Don Osterbrock's LeRoy Doggett prize lecture by the same name in 2002 (Osterbrock, 2002). In his provocative lecture Osterbrock argued that historians must understand astronomy to do good history based on facts. David countered that history is also too important to be left to the astronomers, and that although astronomers certainly understand astronomy and have contributed to its history through their own writings, they could better contribute to the literature of history of astronomy in particular by engaging with the relevant secondary historical literature. He also encouraged astronomers to recognize the underlying assumptions in their work, a problem in the growing field of philosophy of astronomy (Dick, 2020). And more practically, he urged astronomers to preserve their records for future historians, write their memoirs stating how they came to their ideas, and submit to oral histories such as those deposited at the American Institute of Physics (2024). Altogether, David's dialogue with Osterbrock is a significant contribution to the historiography of astronomy, one that readers of this journal can profit from. He and I would both agree that recent books such as those by astronomers Ken Kellermann (Kellermann and Bouton, 2023), Martin Harwit (2013; 2021), James Peebles (2022) and others (including those who publish in the pages of this journal), are significant contributions to the history and philosophy of astronomy. The bottom line lesson is that astronomers and historians should work together synergistically, as they do in the Historical Astronomy Division of the American Astronomical Society, and in the historical sections of the IAU, now including Commissions C3, C4, and C5, respectively History of Astronomy, World Heritage and Astronomy, and Cultural Astronomy.

Another one of my personal favorites is David's paper "A fox raiding the hedgehogs: how Henry Norris Russell got to Mt. Wilson" (DeVorkin, 1994). The immediate object of this paper was to show how Russell worked as a 'fox', seeking out hot topics ripe for plunder, exploiting the data-gathering efforts of other single-minded 'hedgehog' astronomers such as E.C. Pickering's staff at Harvard and George Ellery Hale's staff at Mt. Wilson. Hale's vision was the study of stellar evolution, as was Russell's, a shared vision that brought Russell to Mt. Wilson on many occasions over 25 years, both affecting its research agenda and mining its astrophysical data. This characterization resonated with me because much of the history of the U.S. Naval Observatory, where I worked for 25 years as an astronomer and historian (Dick, 2003), falls into the category of 'hedgehog astronomy'. Although some of its voluminous and meticulous data are used for purposes such as time and navigation, the astrophysical applications of its astrometric and precise time and time interval (PTTI) work have historically mostly been exploited by other astronomers. It strikes me that the fox-hedgehog dichotomy is a rich theme for the history of astronomy and its institutions.

In summary David has improved world-wide appreciation for the importance of astronomy

Figure 4: David DeVorkin attended many IAU General Assemblies. Here he is in Beijing in 2012. Clockwise from top left: outside the conference venue; climbing the steps to the historic instruments at the Ancient Observatory; in the garden of the Ancient Observatory; with Shi Yunli, a current Co-Editor of *JAHH* (photographs: Wayne Orchiston).

and its history through the preservation of its heritage: material, social and intellectual. His lifetime achievements were officially recognized with the award of the LeRoy Doggett Prize of the American Astronomical Society's Historical Astronomy Division in 2008 for lifetime achievement in history of astronomy. His work was further recognized with the naming of minor planet 4262 DeVorkin on 6 April 2012. On that date the *Minor Planet Circular* announced

> (4262) DeVorkin = 1989 CO.
> Discovered 1989 Feb. 5 by M. Arai and H. Mori at Yorii. David H. DeVorkin (b. 1944) Chair of the Historical Astronomy Division of the American Astronomical Society (1997–1999), wrote the definitive biography of astronomer Henry Norris Russell. DeVorkin has been Curator at the Smithsonian National Air and Space Museum since 1981.

4262 DeVorkin orbits in the main asteroid belt, distant enough that it should not impact the Earth unless perturbed. By contrast, David's work has both perturbed and impacted our profession in a good way, and will continue to do so into the future.

Throughout his career David has remained a collegial and helpful colleague, mentoring numerous fellows and interns, serving on many thesis review committees in history and sociology of science, serving as a referee for National Science Foundation and AAS grants, and supporting the preservation of the archival and material culture of astronomy. Some 20 cubic feet of his papers are archived at the Smithsonian Institution Archives, including a finding aid https://siarchives.si.edu/collections/siris_arc_384381.

With this issue of *JAHH* we celebrate his many contributions to our field.

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Dr. Steven J. Dick served as the NASA Chief Historian and Director of the NASA History Office from 2003 to 2009, and prior to that as an astronomer and historian of science at the U.S. Naval Observatory for more than two decades, where he wrote the Observatory's history *Sky and Ocean Joined: The U. S. Naval Observatory, 1830–2000* (Cambridge University Press, 2003).

He has held the Baruch S. Blumberg NASA/Library of Congress Chair in Astrobiology at the Library of Congress, and has testified before the United States Congress on the subject of astrobiology. He has also held the Charles A. Lindbergh Chair in Aerospace History at the National Air and Space Museum.

Dick is the author or editor of 25 books, including most recently *Astrobiology, Discovery, and Societal Impact*, (Cambridge, 2018), *Classifying the Cosmos: How We Can Make Sense of the Celestial Landscape* (Springer, 2019), and *Space, Time, and Aliens: Collected Works on Cosmos and Culture* (Springer, 2020).

He has served as Chair of the Historical Astronomical Division of the American Astronomical Society (AAS), and President of Commission 41 (History of Astronomy) of the IAU.

He received the LeRoy E. Doggett Prize from the AAS for a career that has significantly influenced the field of the history of astronomy. He is an elected Fellow of the AAS and the American Association for the Advancement of Science. The International Astronomical Union named minor planet 6544 Stevendick in his honor. For more information see http://www.stevenjdick.com/index.html