In discussing the early history of the National Weather Service (NWS) and its predecessor agencies, Romano et al. (2022) make several critical errors and confound the historical record surrounding Cleveland Abbe, one of the key figures in the history of the nation’s weather service. In addition, their reliance on mostly nonprimary sources and their use of conjecture, speculation, and assumptions call into question the veracity of their conclusions, which do not stand the test of critical analysis and, as a result, fail to present an objective historiography.

The goal of these comments is to provide additional facts and background necessary to set the historical record straight and allow readers to make informed opinions on the subjects discussed.

**Cleveland Abbe as a “solitary heir” of early meteorological scientists**

The assertion that “Cleveland Abbe was placed on a pedestal as meteorology’s solitary leader” for more than a century and that he is purported to be the “solitary heir” or “solitary scientific heir” to pioneering meteorological scientists of the nineteenth and early twentieth centuries, as argued by Romano et al. (2022), is without merit and ignores numerous examples of Abbe fully and repeatedly acknowledging the work of others. As the recently published AMS ad hoc Committee’s Abbe Report (AMS 2022) concluded, “Abbe acknowledged his intellectual debts to other pioneers, such as William Redfield, James Espy, Joseph Henry, Elias Loomis, and Increase Lapham, for their significant contributions toward developing the basis for forecasting.” In an 1893 paper describing the meteorological work of the Signal Service, for example, Abbe (1895) did not claim sole credit or inheritance, but rather referred...
to the civilian employees of the Weather Bureau “as the successors of Espy, Redfield, Loomis, and Henry,” saying they “represented both the science of meteorology and the men through whose labors weather predictions were first rendered possible.” He went on to mention “the maps made by Redfield and Loomis, but especially those that were made by Espy and published by the U.S. Government, had shown the basis on which weather predictions could be safely made” and noted that Ferrel “had unraveled the mechanics of the atmosphere” while Henry had “explained how the telegraph could be utilized for weather predictions.” Romano et al. (2022) acknowledge that Abbe, upon being awarded the National Academy of Science’s Marcellus Hartley Memorial Medal “for eminence in the application of science to the public welfare” (now the NAS Public Welfare Medal), is quoted as having said, “Oh, they do too much for me, they must not forget Henry, Espy, Ferrel, Lapham, and others” (Abbe 1916). Not only was Abbe mindful of the giants on whose shoulders he stood, he was willing to give them due credit for their accomplishments and contributions and did so willingly throughout his professional life.

Creation of the nation’s weather service and its first head
One of the key arguments Romano et al. (2022) make is that the historical record surrounding Abbe often misrepresents his role in the creation of what is today NWS and that such misrepresentations were “actively and repeatedly promoted by the Weather Bureau and American Meteorological Society.” For the most part, such erroneous claims appear in secondary or tertiary sources mentioning Abbe where the authors of such sources likely relied on inaccurate source material, made assumptions, or otherwise failed to adequately conduct research as part of their work.

Describing it as an attempt “to clear the air” surrounding events leading to the creation of what is now the NWS, Romano et al. (2022) cite a 1952 Weather Bureau paper on the establishment of the nation’s weather service by Richard H. Weightman. In it, as the authors note, Weightman (1952) wrote, “That both Lapham and Abbe had important roles in the creation and development of a national weather service is obvious. Lapham had a more important part in its creation, whereas Abbe had a far longer and more important part in its development.”

Elsewhere in the paper, however, Weightman pondered, “Would Lapham, even with his great interest in providing a storm warning service for the [Great Lakes, have] sent his memorial to Congressman [Halbert E.] Paine without the encouragement given by Abbe’s success in enlisting the support of businessmen for a telegraphic weather service at Cincinnati?” He further stated, “It does not seem likely that, on receipt of Lapham’s memorial, Congressman Paine would have gone as far or acted so promptly as he did, had he not had a background provided by his studies under Professor Loomis, a knowledge of the feasibility of making forecasts through familiarity with the law of storms and the example of a specific application in Abbe’s successful demonstration at Cincinnati.”

While some over the years have incorrectly attributed the founding of the nation’s weather service to Abbe, it is worth noting that various sources also have given credit erroneously to Lapham as the founder of the service. In 1891, for example, as a promotion for the annual Wisconsin State Fair, Milwaukee merchants A. W. Rich and Co. held a contest for “The Best Essay on the Most Distinguished Citizen (deceased) of Wisconsin.” Amelia W. Bate of Milwaukee won the contest for her essay on Lapham. Bate’s was one of five essays on Lapham submitted and was chosen by the judges over entries submitted by Lapham’s own daughter and daughter-in-law. In her essay, Bate (1891) wrote of Lapham, “His crowning work for mankind at large is seen in the Weather Service of the United States, which he originated and organized.”

In his 1897 publication A Guide to Systematic Readings in the Encyclopædia Britannica, author James Baldwin referred to Lapham as “founder of the weather bureau” (Baldwin 1897). Similarly, a 1934 article in The Capital Times of Madison,
Wisconsin, described Lapham as “antiquarian and founder of the U.S. weather bureau” (The Capital Times 1934). Even a genealogy compiled by one of Lapham’s descendants in the 1950s referred to him as the founder of the nation’s weather service, stating, “It is to Increase Lapham that we are indebted for the Weather Bureau, founded by him for he was the first to forecast storm and sunshine by the present method” (Aldridge 1953). More recently, an online article about Lapham published in 2020 on the Wisconsin 101 history website, hosted by the University of Wisconsin–Madison History Department, describes Lapham as “founding the United States Weather Bureau, among numerous other accolades” (Roecker 2020). Romano et al. (2022) do not mention any such erroneous reports related to Lapham and, instead, single out sources misrepresenting Abbe as evidence supporting their claim that various individuals and organizations—including “Abbe himself, his family, the Weather Bureau, and others within the AMS”—had “actively manufactured” a false image of Abbe in an effort to unjustly elevate his status in the pantheon of nineteenth- and early-twentieth-century meteorologists. Such claims are false and are not supported by historical evidence.

In fact, as shown by primary source evidence, Abbe himself made a point of correcting the record when presented with material that misrepresented his role in the creation of the nation’s weather service—and he did so well into his career with the service. In August 1888, for example, Abbe responded to a letter from journalist and meteorological kite experimenter William A. Eddy, who wrote to Abbe to fact-check an article he had written about the history of the weather service. In his letter, Eddy (1888) erroneously suggested that Abbe had approached Chief Signal Officer Gen. Albert J. Myer prior to the creation of the service “with a proposition to include weather reports with information forwarded from signal stations” and that the weather service had been organized by Abbe. In his response, Abbe (1888) noted the “scientific work that had been earnestly advocated by Espy, Redfield, Henry, and many others” and admitted that he had merely been “a part of the machine that [Myer’s] genius had created,” adding that it “seemed a duty I owed to science, to the country and myself, to assist in completing the demonstration of the practicability and usefulness of weather predictions.” Abbe emphatically corrected Eddy by saying, “It would therefore be a mistake to say ‘it is well known that the service was organised by me.’”

**Abbe as first forecaster and first official government forecast**

While other early pioneers in American meteorology—including Redfield, Espy, Henry, and Lapham—deserve credit for helping lay the foundation for practical weather forecasting in the late nineteenth century and did much to help establish the feasibility of forecasting, none had created or issued regular, practical weather forecasts for the general public prior to the series of “probabilities” Abbe produced and published in Cincinnati beginning in September 1869. This is well documented by Potter (2020), Fleming (1990), Whitnah (1961), and others.

Following the publication of his first public forecasts in Cincinnati in 1869, Abbe later recalled having written to his father in New York of his accomplishment, telling him, with an uncharacteristic lack of modesty, “I have started that which the country will not willingly let die.” Romano et al. (2022) have seized upon this singular statement as “the foundation upon which the Abbe legend was built.” As Humphreys (1919) wrote several years following Abbe’s death:

This statement did not refer, of course, to the collection of meteorological data, nor to the construction from telegraphic reports of maps showing the current state of the weather over the country, both of which had been done by the Smithsonian Institution under the direction of Joseph Henry some 20 years earlier, but rather to the systematic daily forecast from such maps of the coming weather. And his estimate was correct, for the time was so ripe for a National Weather Service that less than six months after the first Bulletin of the
Cincinnati Observatory was issued, the Federal Government through a Congressional resolution signed by the President February 9, 1870, authorized the creation of a Weather Service, and placed it under the immediate direction of the Signal Service.

Humphreys’ words counter the argument made by Romano et al. (2022) that Abbe’s statement reflected an attempt “to give himself the full credit for creating the entire forecast enterprise as they knew it at the time.” (It is worth noting that, just after the above passage, Humphreys mentioned both Lapham and Abbe for their efforts in “putting this law into operation” following the signing of the joint resolution establishing a national weather service.)

Further evidence of Abbe’s true feelings can be found in a speech titled “The Obstacles to the Progress of Meteorology,” which he presented to the Franklin Institute in November 1911, just 5 years before his death. In it, Abbe (1912) summarized the work that led to his forecasting efforts in Cincinnati, including a variation of the “not willingly let die” phrase that offered credit well beyond himself:

In 1846, Loomis, Redfield, Espy, and Alexander Bache assured Professor Henry that the time was at hand for the possible prediction of our storms with the help of the Morse telegraph. In 1854 he began this work at the Smithsonian Institution, and in 1868 I took it up anew at Cincinnati, but we never promised perfect work immediately, nor indeed within a lifetime. Filled with faith in nature and man, we could only begin the work. We knew that the perfect fruition of our labors must be left to future generations and future centuries. You yourselves may not see it all in your day, but it will surely come to us—as it has come to astronomy, optics, chemistry, and many other branches of knowledge. A work has been begun that the world will not willingly let die.

Once Abbe was on the government payroll as an assistant to Gen. Myer, his work culminated in the establishment of the weather service’s first official forecasts for the nation, issued tridaily and initially called “probabilities,” continuing the term Abbe used in Cincinnati. In his annual report to the secretary of war for 1871, Myer (1871) referred to “the forecasts of the weather, or ‘probabilities,’ as they have been styled,” which he credited Abbe for preparing, beginning 19 February 1871. What Lapham issued as part of his initial bulletin for observers along the Great Lakes on his first day of government service, 8 November 1870, Myer referred to as a “storm warning,” not a forecast. “The first storm-warning was telegraphed and bulletined along the lakes on November 8, 1870,” Myer (1871) wrote. Further evidence that the service had not initiated official forecasts by the fall of 1870 is found in Myer’s annual report for that year (Myer 1870), whose letter of transmittal was dated 24 October 1870, just 2 weeks prior to Lapham’s first bulletin. “The publication of official deductions or forecasts to be had from the mass of reports received at different centers, involves so much of responsibility, that, while it has been considered, the office has not been willing to enter upon it until it shall have practically tested the promptness with which the reports will be received, and the facts as to the approach and force of storms which synchronous reports, following each other in such close succession, will announce without any effort of anticipation,” Myer (1870) admitted. While Lapham’s storm warning contained an element of predictability (as do all weather warnings), it was mostly observational in nature and was not meant as a forecast, per se, at the time, nor should it be referred to as one today.

**Abbe’s role in Monthly Weather Review and Encyclopædia Britannica**

Another claim Romano et al. (2022) make is that Abbe engaged in the “successful rewriting of history,” first with a paper titled, “The Modern Weather Bureau,” which he
read before the South African Philosophical Society while visiting the country during the 1889–90 USS Pensacola expedition. In it, Abbe (1892) mentions the journal *Monthly Weather Review*, saying he “started [it] for Gen. Myer in 1873.” Romano et al. (2022) claim that Abbe’s statement “gives short shrift” to the contributions of Thompson B. Maury and Henry Calver of the Signal Service, “who were also engaged in the early efforts of developing the MWR within the Signal Service, as noted by Schultz and Potter (2022).” Abbe acknowledged these contributions elsewhere, however. For example, Abbe (1895) noted that “corresponding reviews for the latter half of 1872 were subsequently written out by Mr. Calver for publication in the annual report of the fiscal year 1872/73.” Additionally, a note published in the April 1901 issue of *Monthly Weather Review*, under Abbe’s editorship, credits Calver for preparing these reviews (*Monthly Weather Review* 1901). The claim that “Abbe’s comments ignore the foundational efforts throughout the early to middle 1800s to establish monthly reviews of the weather and climate of the United States” seems tenuous at best, as Abbe was discussing the specific publication he helped initiate for Myer, not the general history of attempts to chronicle weather and climate data on a monthly basis. Further, Abbe (1892) made it clear at the beginning of his speech in South Africa that that his remarks would be limited, telling the audience, “I shall to-night only have time to give some account of the Signal Service at Washington.”

If Abbe’s goal had been to sweep aside the work of others and claim credit for himself, it seems unlikely that he would have said, when discussing before the South African Philosophical Society efforts both he and Lapham undertook, independently, to establish a larger weather observing and reporting network, that his work in Cincinnati was merely “a step in the right direction,” while “the better success of Prof. Lapham’s efforts was largely due to the counsel of his friend, Gen. H. E. Paine, the member of Congress from Milwaukee, who, as he himself has told me, advised that the memorial prepared by Lapham for use in the West, should instead be addressed directly to Congress.” Abbe (1892) went on to say how, in December 1869, “Gen. Paine submitted to our Congress, at Washington, the memorial prepared by Prof. Lapham and a ‘Bill’ that proposed the establishment of a National Weather Service to be conducted by a high scientific authority,” further demonstrating his willingness to give due credit to others for their roles in the creation of the nation’s weather service.

Among the erroneous arguments Romano et al. (2022) make is that Abbe, in his role as contributor to *Encyclopædia Britannica* during the early twentieth century, revised an entry on Lapham to downplay his role in the creation of the nation’s weather service. As supposed evidence of this claim, Fig. 8 of Romano et al. (2022) shows screenshots of two different editions of the encyclopedia, one before Abbe’s apparent involvement and one after. The “before” example is from the New American Supplement to the Latest Edition of the *Encyclopædia Britannica*, first published in 1897 (Kellogg 1897), while the “after” example is from the New American Supplement to the New Werner Twentieth Century Edition of the *Encyclopædia Britannica*, published in 1907 (Johnson 1907). These were actually unauthorized, Americanized versions of the encyclopedia published by the Werner Company of Akron, Ohio, and based on the ninth edition of the encyclopedia, whose 24 volumes were published between 1875 and 1888 (Kruse 1963). While no contributor is listed for the entry on Lapham in the earlier Werner edition, the initials “W.F.J.” clearly appear at the end of the Lapham entry in the later edition, indicating it could not have been written by Abbe. These, in fact, are the initials of Willis Fletcher Johnson, a prolific author and lecturer of the time whose name appears elsewhere in this edition and as a contributor to other Werner publications. It is also worth noting that the earlier edition erroneously described Lapham as “founder of the United States Weather Bureau,” as shown in Fig. 8 of Romano et al. (2022). By contrast, Abbe’s involvement with *Encyclopædia Britannica* was limited to the tenth and eleventh editions of the official version (published in 1902/03 in London and 1910/11 in Cambridge, England, respectively), as well as *The Britannica Year-Book*
While Humphreys (1919) listed Abbe’s contributions to Encyclopædia Britannica as being to the ninth and tenth editions, this is not accurate. The contributor of the entry on meteorology in the ninth edition was Alexander Buchan, secretary of the Meteorological Society of Scotland. Abbe’s entries on meteorology appear in the tenth and eleventh editions, while William Henry Dines, former president of the Royal Meteorological Society, contributed the entry on meteorology to the twelfth edition, published in 1922 (6 years after Abbe’s death) and coauthored with Lewis Fry Richardson the entry on meteorology for the thirteenth edition, published in 1926. Former Weather Bureau Chief Mark Harrington contributed an entry on meteorology (which mentions both Abbe and Lapham) to the Werner New American Supplement to the Latest Edition of the Encyclopædia Britannica.

1913.1 No entries for Lapham exist in any of the volumes to which Abbe contributed (as is the case with all previous editions of the official version of the encyclopedia) and there is no evidence that Abbe had any involvement in the Werner publications of the encyclopedia.

Romano et al. (2022) also make a point of mentioning that the twelfth edition of the official version of Encyclopædia Britannica, published in 1922, erroneously referred to Abbe as remaining the “head” of the Weather Bureau until his death (Chisholm 1922), but fail to mention that this error was corrected in the thirteenth edition of the encyclopedia, published in 1926 (Garvin 1926).

Abbe as “propagandist”

Another baseless claim put forth by Romano et al. (2022) is that “Abbe seemed to embrace a role as propagandist for the Weather Bureau, promoting his own role in expanding the capabilities of the Bureau, and beginning to insert himself into the history of its creation within the Army Signal Service.” Justification for this allegation is based, in part, on a quote by Humphreys (1919), who said, “Of the many useful roles Professor Abbe played in the drama of his day perhaps on the whole the most serviceable were those of mentor and propagandist.” Perhaps unbeknownst to the authors, the word “propaganda” (and the related terms “propagandist,” “propagandize,” and “propagandism”) took on a different, more negative connotation following its use during the First and Second World Wars—a connotation that persists today, especially when applied to political contexts. At the time of Humphreys’ (1919) writing, the word “possessed a reputable, dignified meaning” (Fellows 1959).

Eugenics claims

Regarding the claims made by Romano et al. (2022) of Abbe’s possible involvement in the eugenics movement, Potter (2020) concluded [after extensive independent research and discussions with the lead author of Romano et al. (2022) and after reviewing material provided by the authors], “While there is no evidence that [Abbe] was involved directly in the eugenics movement, which was just beginning to gain popularity in the United States at the time of his death, his deep-seated interest in his own family’s history has been used to promote some of the ideals of eugenics in the years following his death.” Invoking the specter of eugenics, even if by association, when there is no solid evidence of Abbe’s involvement in the movement, is irresponsible and only serves to tarnish Abbe’s reputation. Such claims also are at odds with Abbe’s documented work in the area of civil rights, which Potter (2020) discussed in detail. As the AMS ad hoc Committee’s Abbe Report (AMS 2022) concluded, “There is no evidence suggesting that Cleveland Abbe was involved in and/or advocated for activities related to the eugenics movement.”

Concluding remarks

Many of the statements put forth by Romano et al. (2022) are flawed, erroneous, or otherwise misleading. They offer little more than conjecture, speculation, and assumptions, as well as unsubstantiated claims regarding Cleveland Abbe. They do not appear to be based on rigorous historical analysis, but rather interpretations (or misinterpretations) of mostly secondary sources selected to help fit what appears to be a particular narrative. In doing so, they border on historical revisionism.

More than a century following his death, Cleveland Abbe deserves to be recognized and honored for his numerous professional accomplishments and contributions to meteorology and science in general—including his fundamental role as one of several key players in the establishment and development of the nation’s weather service—as well as for his dedication as a public servant, through which, much like the mission of the AMS, he sought to advance the atmospheric and related sciences, including their technologies, applications, and services, for the benefit of society.
References


