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Résumé de l'article

Beginning with the first series of flights by the French Montgolfier brothers in 1783, hot air ballooning quickly metamorphosed from a dangerous scientific experiment with potential military uses into a widespread cultural craze with deep social implications. Using the lens of the idea of “wonder,” I examine the word-image interactions in a selection of engraved representations of the first Montgolfier demonstration for Louis XVI at Versailles. Such a collective close reading first exposes techniques that aim at encouraging admiration in readers for both the new technology and the French state that produced it. However, visual cues in the images indicate a persistent suggestion of doubt and uncertainty—and even fear—as they take readers “up and away” from the confines and comforts of everyday life. The word-image nexus surrounding this spectacle generates an altered textual world in which traditional social and sexual hierarchies lose stability and the future is full of possibility.

Soaring Imaginations: The First Montgolfier Ballooning Spectacle at Versailles in Word and Image

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Versailles, the 19th of September 1783

The courtyard of the palace teemed with thousands of curious onlookers as Louis XVI and the royal family, in addition to members of the French Académie des Sciences, observed the successful flight of a blue and gold hot air balloon, emblazoned with the monarch's initials.¹ While not the first test of an airship, it was the most public exhibition to date of that wondrous new invention and the first European balloon to carry living creatures (a sheep, a duck, and a rooster²). Designed by Joseph and Etienne Montgolfier, paper manufacturers from the Ardèche region of south-central France, the *aérostatique*—the official term of the Académie at the time³—embarked that day on an eight-minute journey into the nearby countryside,⁴ and although the trip was of modest length, it glided deeply into the imaginations of the eighteenth-century public. The published account of the event penned by the naturalist, ballooning promoter, and chronicler Barthélemy Faujas de Saint-Fond effuses that “cette belle expérience causa autant

1. Barthélemy Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 2 vols. (Paris: Cuchet, 1783–1784), 1.36–40.

2. *Ibid.*, 38–39; Tiberius Cavallo, *The History and Practice of Aerostation* (London: Printed for the Author, 1785), 69.

3. Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 2.5.

4. *Ibid.*, 41–42.

d'étonnement que de satisfaction"⁵ [this beautiful experience caused as much astonishment as satisfaction]. Here, I will examine that sense of wonder as it manifests itself in a trio of verbal and visual depictions of the first Montgolfier flight at Versailles in 1783. Such a collective close reading will expose not only narrative and visual techniques for encouraging admiration in readers, but also the fact that these pictures suggest doubt and uncertainty—and even fear—as they take readers “up and away” from the confines and comforts of everyday life. The word-image nexus surrounding this spectacle generates an altered textual world in which traditional social hierarchies lose stability and the future is full of possibility. This analysis will also yield a new perspective on early ballooning, a scientific and representational phenomenon that has elicited a great deal of critical attention but that has heretofore remained unexamined under the lens of contemporary word-image theory.

The Engines of Ballooning

The Montgolfiers' hot air balloon and its iterations (most notably, the first hydrogen balloons of the Frenchmen Jacques Charles, Anne-Jean Robert, and Nicolas-Louis Robert) numbered among the many technological inventions at this crucial point in the Industrial Revolution. Lee T. Wyatt summarizes that “by the 18th century, technological advancements proved capable of solving heretofore perplexing problems in the two important industries of mining and cloth production, setting the stage for the acceleration of industrial development.”⁶ Indeed, such scientific leaps were accompanied in 1787 by the very first use of the word “technology” as applied to the mechanical arts.⁷ A cascade of innovation regarding mechanized looms, advances in rubber science, and discoveries of the chemistry of gasses⁸ provided the essential components in the climate that made *aérostation* possible.

5. *Ibid.*, 48. All translations mine. Note also that I have preserved the original spelling in period documents.

6. Lee T. Wyatt, *The Industrial Revolution* (Westport, CT: Greenwood Press, 2009), 18.

7. *Oxford English Dictionary Online*, s.v. “technology,” <http://www.oed.com>, accessed May 15, 2019.

8. Alain Dégardin, Jérôme Giacomoni, and Matthieu Gobbi, *Paris en ballons* (Paris: Le Cherche Midi, 1999), 19.

Period accounts and memoirs mention those inventions coming together in the imagination of Joseph Montgolfier as he witnessed his shirt rise up over the heat of a fire.⁹ The technical prowess and organizational skills of his younger brother, Etienne, who ran the family business, gave shape to Joseph's vision of a balloon, conceived as early as 1777.¹⁰ Many of the key inventions of the eighteenth century seem to fit into the industry-driven model proposed by Simon Kuznets, who explains that they were the result of "the extended application of science to problems of economic production,"¹¹ but the appearance of the *aérostatique* heralded a new era of technological application that promised to move humans both physically and emotionally.

Concerning the practical aspects of ballooning, the thought of flying was a topic that governments and inventors alike found very compelling, as a letter dated September 16, 1783 from Benjamin Franklin, living in France at the time, to Richard Price attests: "All the Conversation here at present turns upon the Balloons fill'd with light inflammable Air; and the means of managing them so as to give Men the Advantage of Flying."¹² In addition to its potential for lifting "weights at very little cost," "for passing signals," or "for making experiments on the electricity of clouds,"¹³ the desire to travel by air was a motivating factor in the Montgolfiers' fervour to construct a balloon. The brothers envisioned their machine as a way for soldiers to sail over obstacles in the case of siege,¹⁴ and their correspondence reveals a desire to publicize the balloon as a mode of transportation.¹⁵ Although still far from a reality, travel by air, atmospheric experiments, and mapping were listed as the main "uses to which aerostation may

9. Charles Coulston Gillispie warns us that this may be hearsay in *The Montgolfier Brothers and the Invention of Aviation 1783–1784: With a Word on the Importance of Ballooning for the Science of Heat and the Art of Building Railroads* (Princeton, NJ: Princeton University Press, 1983), 15.

10. *Ibid.*

11. Simon Kuznets, *Modern Economic Growth: Rate, Structure, and Spread* (New Haven, CT: Yale University Press, 1966), 9.

12. *The Papers of Benjamin Franklin*, ed. Ellen R. Cohn, vol. 41 (New Haven, CT and London: Yale University Press, 2014), 6.

13. Gillispie, *The Montgolfier Brothers and the Invention of Aviation 1783–1784*, 21–22.

14. *Ibid.*, 16.

15. Marie Thébaud-Sorger, *L'Aérostation au temps des Lumières* (Rennes: Presses Universitaires de Rennes, 2009), 41.

be applied”¹⁶ in the final chapter of Tiberius Cavallo’s *The History and Practice of Aerostation* of 1785. Cavallo’s suggestion that “[b]y means of those machines, the shape of certain seas and lands may be better ascertained”¹⁷ indicates that the invention also fit into the intense culture of geographical exploration in the eighteenth century, which witnessed a suite of new “discoveries” spurred by over two dozen global circumnavigations following Magellan’s voyage of 1519. Many remote areas of the globe remained mysteries at the time, including the Arctic Circle, the interior lands of the Americas and Africa, and the islands of the Pacific.¹⁸ A powerful cocktail, “[i]mperial ambitions combined with scientific curiosity”¹⁹ to yield a fervour of official expeditions. Adding fuel to that fire were the resulting travel narratives and visual records of the voyages that circulated throughout society, even to the point of influencing national policy, as Joyce Appleby notes: “Publication of the translations of [Louis-Antoine, Comte de] Bougainville and [James] Cook’s journals ramped up the British-French competition while intensifying a general interest in the new site of European explorations. Louis XVI had been so enthralled reading Cook’s *Voyages* that he sent out a French expedition to explore the Pacific.”²⁰ Exploration of the skies—and the possibility of a more direct and, therefore, more rapid mode of transportation to aid those voyages—held the promise of aggrandizement for European powers eager to engage in colonization.

The picture of the King of France “enthralled” by the account of Cook’s travels in the Pacific mentioned above suggests an additional motivating factor in the invention and consumption of air travel that Cavallo does not mention in his survey: the feeling of wonder, a term dating back to the oldest English texts, which has as its primary definitions “something that causes astonishment” and “a marvelous object.”²¹ Similarly, the French near-equivalent “*émerveillement*” (whose root is

16. Cavallo, *The History and Practice of Aerostation*, 320–24. The excerpt quoted is the subtitle of Chapter VII.

17. *Ibid.*, 322.

18. Joyce Appleby, *Shores of Knowledge: New World Discoveries and the Scientific Imagination* (New York and London: W.W. Norton and Co., 2013), 184.

19. *Ibid.*, 185.

20. *Ibid.*, 200.

21. *Oxford English Dictionary Online*, s.v. “wonder, n.,” <https://www-oed-com>, accessed May 15, 2019.

“merveille,” the English origin of the word “marvel”²²) has as its two main definitions in the *Dictionnaire de l'Académie Française* of 1762 (under the verb form “émerveiller”): “donner de l'admiration” [to give admiration] and “étonner” [to surprise / astonish].²³ Ballooning fed the desire to marvel on many levels at a time when global travel and trade encouraged “the growth of a consumer society” with “an insatiable appetite for new products and behaviors.”²⁴ It is important to note, however, that humans had contemplated the idea of human flight for millennia, as witnessed, to name but two examples, by the myriad adaptations of the ancient legend of Daedalus and Icarus²⁵ and by Savinien Cyrano de Bergerac's illustrated *L'Histoire comique des états et empires de la lune* (1656), in which the narrator flies with the help of globes of dew.²⁶ The preface to the 1887 bibliography of more than 800 documents related to ballooning insists that “les ballons ont inspiré les romanciers et les poètes, tout aussi bien que les explorateurs et les physiciens”²⁷ [balloons have inspired novelists and poets, just as well as explorers and physicists]. We can therefore conclude that for its demonstration of technological prowess, potential use for travel and conquest, general appeal as a novelty, and ability to inspire wonder, the public fervour for balloons exploded in the early 1780s. Added to those attractions, as Marie Thébaud-Sorger emphasizes, was the spectacular

22. Ibid., s.v. “marvel, n.,” <https://www-oed-com>, accessed May 15, 2019.

23. L'Académie Française, *Dictionnaire de l'Académie Française*, 4th ed., 1762, s.v. “émerveiller.”

24. Wyatt, *The Industrial Revolution*, 23.

25. The tragic story of this father and son duo (as recounted most famously by Ovid in *Metamorphoses*) begins with an escape from Crete to Sicily using wax wings and ends with Icarus's plunge into the sea. Versions of the story weave their way through ancient tales and morality treatises by Homer and Lucian, then later in other Roman works by Virgil and Horace before its adoption as a major literary trope in Renaissance-era French, Spanish, and Italian poems. It likewise appears visually in representations ranging from pictures on Etruscan vases to paintings by European artists such as Pieter Bruegel the Elder and Jacob Peter Gowy, all of which predate the late eighteenth-century ballooning experiments. See John H. Turner, *The Myth of Icarus in Spanish Renaissance Poetry* (London: Tamesis, 1978), 10–16.

26. For more on the mythical and mechanical precursors to ballooning, see Michel Faure, *Les Frères Montgolfier et la conquête de l'air* (Aix-en-Provence: Edisud, 1983), 49–54.

27. Gaston Tissandier, *Bibliographie aéronautique: catalogue de livres d'histoire, de science, de voyages et de fantaisie, traitant de la navigation aérienne ou des aérostats* (Paris: H. Launette et Cie, 1887), 5.

appeal of the *aérostatique* to all social strata as an object “entre divertissement de foire et objet de luxe”²⁸ [between a fairground amusement and an object of luxury]: “All the world is mad about balloons,”²⁹ declared the Scottish newspaper the *Caledonian Mercury* on August 18, 1784.

Publicizing Wonder: The Ballooning Craze in Text and Image

The quantity of accounts detailing the French airship demonstrations and, not long after, the many ballooning events throughout Europe,³⁰ particularly in England,³¹ functioned as products and perpetuators of the wonder surrounding ballooning. The official French news outlet the *Gazette de France* printed summaries, effusive stories, and interviews following each flight.³² In Britain, we find the repeated use of the terms “rage,” “phrenzy,” and “madness” in discussions of balloon events, especially regarding the first flights in Britain by the Italian Vincenzo Lunardi.³³ Some of the most superlative descriptions of the events flow from the pen of the main promoter and fundraiser³⁴ for the Montgolfiers, the aforementioned Faujas de Saint-Fond, who witnessed and then documented all of the initial Montgolfier flights in writings published synchronously. He refers to their airships collectively as “Cette étonnante découverte”³⁵ [This astonishing discovery], a perspicacious synthesis that fuses the scientific importance and novelty (in the noun “découverte”) and the awe-inspiring nature (in the adjective

28. Marie Thébaud-Sorger, “‘Nation fière, nation légère...’: La France, l’Angleterre et l’invention des ballons à la fin du XVIII^e siècle,” *Documents pour l’histoire des techniques* 19 (Dec. 2010): 229.

29. Cited in Clare Brant, *Balloon Madness: Flights of Imagination in Britain, 1783–1786* (Woodbridge, U.K.: The Boydell Press, 2017), 21.

30. For more on the many French launches and the first balloons that took to the skies in Italy, Spain, America, Austria, Scotland, and England in 1784, see Faure, *Les Frères Montgolfier et la conquête de l’air*, 121–41.

31. See Brant, *Balloon Madness*, 5–9, and Paul Keen, “The ‘Balloomania’: Science and Spectacle in 1780s England,” *Eighteenth-Century Studies* 39, no. 4 (2006): 507–35.

32. Thébaud-Sorger, *LAérostation au temps des Lumières*, 230.

33. Keen, “The ‘Balloomania’: Science and Spectacle in 1780s England,” 510–11.

34. Mi Gyung Kim, *The Imagined Empire: Balloon Enlightenments in Revolutionary Europe* (Pittsburgh, PA: University of Pittsburgh Press, 2016), 55.

35. Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.iv.

“étonnante”) of the machine. The memoirs of another eyewitness and balloon enthusiast, the Comte de Ségur, likewise reference the primary emotions associated with the idea of wonder—curiosity and admiration—at the thought of man as capable of “conquering” the domain of the skies: “fiers de notre siècle, de sa philosophie et des découvertes dues à son génie, nous crûmes un moment, en suivant les traces hardies de Montgolfier, de Charles et de Robert, conquérir l’empire des airs”³⁶ [proud of our century, of its philosophy and discoveries due to its genius, we believed for a moment, following in the brave footsteps of Montgolfier, of Charles and of Robert, to conquer the empire of the air]. The Comte then adds: “je compare l’état où nous nous trouvions alors à celui d’une personne placée sur le haut d’une tour”³⁷ [I compare the state where we found ourselves to one of a person placed on the top of a tower]. Moreover, myriad tributes (and satires, it must be noted) circulated in literary form: examples include the rapturous French epistle and song bound in the slim volume by Sulpice Imbert de La Platière³⁸ and the many travelogues, plays, pantomimes, chronicles, novels, jest books, and penny ballads published in English.³⁹ Such verbal accounts and reactions generated what Thébaud-Sorger terms the “fable” of ballooning—a story combining fact and wonder, the result of which was an ontological transformation: “un fait regardé comme fictif” [a feat regarded as fictional] metamorphosed into “un fait possible”⁴⁰ [a possible feat].

36. Louis-Philippe, Comte de Ségur, *Mémoires ou souvenirs et anecdotes* (Turin: Frères Reycend et Cie, 1829), 3.155. A few sentences later, however, we realize that the “nous” of Ségur’s exposition is not mankind in general, but rather “les Français” who feel proud: “Nous étions fiers d’être Français, et plus encore d’être Français du dix-huitième siècle, que nous regardions comme l’âge d’or, ramené sur la terre par la nouvelle philosophie” [We were proud to be French, and more still to be Frenchmen of the eighteenth century, which we regarded as the golden age, brought to Earth by the new philosophy] (*ibid.*, 156).

37. *Ibid.*, 155–56.

38. Sulpice Imbert de La Platière, *L’Invention des globes aérostatiques; Hommage à MM. de Montgolfier* (London [Paris]: Cailleau, 1784).

39. Keen, “The ‘Balloomania’: Science and Spectacle in 1780s England,” 50–51. For more details on print culture and the spread of ballooning mania in England, see Brant, *Balloon Madness*, 43–82.

40. Thébaud-Sorger, *L’Aérostation au temps des Lumières*, 230. She follows Paul Keen in this idea (see “The ‘Balloomania’: Science and Spectacle in 1780s England,” 508).



Figure 1. Colour print titled *Expérience Aérostatique faite à Versailles le 19 septembre 1783, en présence de leurs Majestés, de la Famille Royale et de plus de 130 milles spectateurs par Mrs de Montgolfier, 1783, 32.5 x 45.5 cm; Library of Congress, Washington (DC), LOT 13403, no. 37.*

The ballooning craze was similarly fed by sets of visual renderings in the form of engravings,⁴¹ men's and women's fashion plates,⁴² and balloon-themed objects, such as furniture, snuffboxes,⁴³ pincushions, games, and liquors.⁴⁴ As Paul Keen relates, ballooning presented "a cacophony of overlapping events, activities, debates, literary texts, and endless paraphernalia. . . , all circulating in different ways and appealing to an unruly blend of audiences."⁴⁵ An important note that rises above the din in the present day is the first engraving to be studied in depth here: a print that various publishers copied and released across Europe and America documenting the first Montgolfier demonstration at Versailles, often entitled some variation of *Expérience Aérostatique faite à Versailles le 19 septembre 1783, en présence de leurs Majestés, de la Famille Royale et de plus de 130 milles spectateurs par Mrs de Montgolfier* (Figure 1). The sheer number of editions available today⁴⁶ points to an extensive circulation in the early 1780s; moreover, the same print appears in various forms, at times truncated, reversed, poorly copied, and/or accompanied by a translation (most often in German and English). As discussed above, it documents the brothers' official presentation of the technology and represents the first flight to include living creatures, all of which survived, despite period accounts to the contrary.⁴⁷ In addition to its popularity, the picture merits our attention

41. Thébaud-Sorger, *L'Aérostation au temps des Lumières*, 148; Faure, *Les Frères Montgolfier et la conquête de l'air*, 192.

42. See the in-depth discussion of the voluminous shapes inspired by ballooning in Brant, *Balloon Madness*, 109–13.

43. These are some of the over 1,000 items that are part of the Evelyn Way Kendall Ballooning and Early Aviation Collection at the Smithsonian National Air and Space Museum ("Smithsonian National Air and Space Museum: Clouds in a Bag," <https://airandspace.si.edu/exhibitions/clouds-bag>, accessed May 15, 2019).

44. Michael R. Lynn, *The Sublime Invention* (London: Routledge, 2016), 150.

45. Keen, "The 'Balloomania': Science and Spectacle in 1780s England," 508.

46. See, for example, the dozen or so versions at the Bibliothèque Nationale de France (Paris, France) and the ten editions at the Smithsonian Institution, in addition to the edition from the Library of Congress reproduced here as Figure 1.

47. Faujas de Saint-Fond tries to clear up false reports of the rooster's demise circulating at the time: "Il faut donc absolument rejeter le récit qui annonça que le coq s'étoit rompu la tête; nous le trouvâmes en bon état, et s'il avoit le dessus de l'aîle droite écorché, cet accident n'étoit dû qu'à un coup de pied du mouton, et étoit arrivé en présence de plus de dix témoins, au moins demi-heure avant l'expérience" [It is therefore absolutely necessary to reject the story that claimed that the rooster had split its head open; we found it in good shape, and if indeed the top of its wing were scraped up, that accident was only the result of a kick from the sheep that had

for its intricate visual rendering and the interrelations between word and image, exchanges that nuance the complex reactions to the novel act of ascending in a balloon.

The verbal content of this engraving forges a strong link between the 1783 Versailles spectacle and the primary emotions associated with “wonder” discussed above. The reference to the crowd of 130,000 in the plate’s title sets the stage for a group display of curiosity, followed by appreciation and pride at the balloon’s successful launch despite the large tear in its fabric suffered at takeoff. Moreover, the figure caption repeatedly expresses admiration for the technological and national endeavour, first by calling the balloon “Cette superbe machine” [This superb machine] and by underscoring its ties to the idea of the majestic by mentioning its adornments: “le Chiffre du Roi et divers Ornaments en couleurs d’Or” [the King’s initials and diverse golden decorations]. The text employs adjectives and adverbs that further express awe when describing the liftoff and the reaction of the crowd: “elle s’éleva alors majestueusement à une grande hauteur ... au bruit des acclamations public [*sic*]” [it then lifted itself majestically to a great height ... to the sound of public acclamation]. The caption likewise evokes the related notion of astonishment by referencing “la surprise des Spectateurs”⁴⁸ [the spectators’ surprise] at the successful endeavor.

The same refrain of wonder reverberates in the visual content of the engraving, most prominently in its depiction of a heaving crowd. By its form and scope, that emphasis suggests curiosity as spectators spill over the sides of the image and cling to high points on the architectural features that structure it. The historical record witnesses the crowds desperate to view ballooning events; period English and Irish accounts recall not only the staggering numbers of spectators (placed at “millions” by one reckoning), but also the threat of rioting and the

happened in the presence of more than ten witnesses, at least a half-hour before the experiment] (*Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.43). Cavallo repeats this account in *The History and Practice of Aerostation*, 72.

48. All the excerpts quoted in this paragraph are from the explanatory caption of Figure 1, *Expérience Aérostatique faite à Versailles le 19 septembre 1783, en présence de leurs Majestés, de la Famille Royale et de plus de 130 milles spectateurs par Mrs de Montgolfier* (1783, engraving, Library of Congress, Washington, DC; <https://www.loc.gov/item/2002736265/>, accessed May 15, 2019).

high prices for choice vantage points.⁴⁹ Massive gatherings and the risk of violence also characterized French airship displays, although the government and many prominent thinkers sanctioned, and even encouraged, the presence of witnesses from different social spheres.⁵⁰ In terms of the first Versailles launch, Faujas de Saint-Fond paints a verbal picture of the gathering of diverse witnesses, assembled, in his view, to pay homage to science:

A dix heures du matin la route de Paris à Versailles étoit couverte de voitures; l'on arrivoit en foule de toutes parts: et à midi les avenues, les cours du château, les fenêtres et même les combles, étoient garnis de spectateurs. Tout ce qu'il y a de plus grand, de plus illustre et de plus savant dans la nation, sembloit s'être réuni comme de concert pour rendre un hommage solennel aux sciences, sous les yeux d'une Cour auguste qui les protège et les encourage.⁵¹

[At ten in the morning the road from Paris to Versailles was covered with carriages; people were arriving in crowds from all parts; and at noon the avenues, courtyards of the palace, the windows and even the rooftops, were garnished with spectators. All that was the most grand, the most illustrious, and the most knowledgeable in the nation, seemed to be assembled in concert to pay solemn homage to the sciences, under the gaze of a majestic court that protects and encourages them.]

To return to the engraving, the skyward gestures of the spectators provide an additional visual cue that suggests wonder, as shown in this detail of a man in the left foreground, whose raised left arm guides the reader's gaze toward the rising balloon (Figure 2). Such veneration is physically and symbolically echoed in the Victory statue to which he clings, for she holds a laurel wreath in her left hand and her arm likewise forms a vector toward the airship. A modified version of the "La Victoire sur l'Espagne" [The Victory over Spain] (1680–1682), designed by Charles le Brun and sculpted by François Girardon, the statue dominates the foreground, which seems an artistic choice since the balloon could have been depicted from any number of different angles.

49. See Brant, *Balloon Madness*, 3–4 and 83–85.

50. Thébaud-Sorger, *L'Aérostation au temps des Lumières*, 207. For specific accounts of the dangers attending ballooning spectacles in France, see Thébaud-Sorger, *L'Aérostation au temps des Lumières*, 207–16.

51. Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.39–40.



Figure 2. Detail of Figure 1, *Expérience Aérostatique faite à Versailles le 19 septembre 1783, en présence de leurs Majestés, de la Famille Royale et de plus de 130 milles spectateurs par Mrs de Montgolfier*, 1783; Library of Congress, Washington (DC), LOT 13403, no. 37.

Her prominent placement in the image underscores the marvel and pride at “l’homme maître d’un nouvel empire”⁵² [man master of a new empire], to cite Faujas de Saint-Fond’s summary of the public reaction to the Montgolfier flights.

A first glance at two additional pictures of the Montgolfiers’ 1783 spectacle at Versailles reveals similar iconography visually connoting wonder. The initial illustration in Faujas de Saint-Fond’s ballooning accounts, a plate designed by Etienne Chevalier de Lorimier and engraved by Nicolas de Launay, gives a closer vantage point and takes the viewer back in time slightly to the moment of departure (Figure 3). Bearing an extended title nearly identical to the first engraving studied

52. *Ibid.*, 2.2.



Expérience faite à Versailles, en présence de leurs Majestés et de la Famille Royale, par M. Montgolfier, le 19. Sept. 1783. La Machine Aérostatique avoit 57. Pieds de haut, sur 41. de Diamètre.

Figure 3. Illustration designed by Etienne Chevalier de Lorimier and engraved by Nicolas de Launay, titled *Expérience faite à Versailles [sic], en présence de leurs Majestés et de la Famille Royale, par M. Montgolfier, le 19 Sept. 1783, 1783*, page size: 12.5 × 20 cm; from vol. 1 of *Description des expériences de la machine aérostatique de MM. de Montgolfier*, by Barthélemy Faujas de Saint-Fond (Paris: Cuchet, 1783), n.p.; Brandeis University, Waltham (MA), Rare Dibner TL544 .F272 1783. Image courtesy of Brandeis University's Robert D. Farber University Archives and Special Collections.

here, it similarly depicts a large gathering that seems uncontained by both the setting and the plate as curious spectators crowd the rooftops and courtyard of the palace. The liftoff holds the attention of nearly everyone in this orderly assembly, and individuals on the ground and skyline of the buildings point to the air, a gesture echoed in the framing line of bayonets held aloft by the soldiers guarding the platform. An anonymous image published the same year in Paris at the Basset publishing house (Figure 4), *Expérience Aérostatique faite à Versailles le dix-neuf Septembre 1783. En présence de leurs Majestés, de la Famille Royale et de plus de 130 mille Spectateurs. Par M^{rs}. de Montgolfier avec un Ballon de 57 Pieds de hauteur sur 41 de Diamètre*, features a caption identical to that of the first picture studied above and shares with it certain visual similarities that indicate possible appropriation, such as the orientation and angle of the balloon and the shape of the smoke cloud. We again find a mass of onlookers gathered on the rooftops, but this image provides a more intimate view of the launch. Close to the platform, which is smaller than the edifices depicted in Figures 1 and 3, the spectators gaze upon the balloon shoulder to shoulder, their arms and fingers extended in surprise and reverence, and their faces oriented toward the “Montgolfière” like sunflowers on a bright day, as shown in this detail (Figure 5). The placement of their arms suggests a ring around the platform that initiates a set of concentric circles extending from the viewers to the platform, basket, and balloon. Uniting the image formally, that circle of wonder expands into the framing device of the palace courtyard (the background in all three pictures and the backdrop for a century of ostentatious displays of royal pageantry), before rippling out into French society via popular publications such as the chronicles and single-sheet prints studied here.

The shared visual trope of looking skyward that dominates the three engravings also suggests an optimism, as Keen notes when summarizing the impression made by the first two years of airship demonstrations in Europe: “It was difficult for those who were disposed to view ballooning in terms of this wider sense of scientific and social progress not to be optimistic.... Balloons constituted a breakthrough in themselves and ... a new means of facilitating the pursuit of various other types of knowledge.”⁵³ The Montgolfiers’ invention thus

53. Keen, “The ‘Balloomania’: Science and Spectacle in 1780s England,” 512.



Figure 4. Print titled *Expérience Aérostatique faite à Versailles le dix-neuf Septembre 1783. En présence de leurs Majestés, de la Famille Royale et de plus de 130 mille Spectateurs. Par M^{rs} de Montgolfier avec un Ballon de 57 Pieds de hauteur sur 41 de Diamètre, 1783, 28.5 × 13.3 cm*; Bibliothèque Nationale de France, Département des Estampes et de la Photographie, Paris (France), FOL-IB-1.



Figure 5. Detail from Figure 4, *Experience Aérostatique faite à Versailles le dix-neuf Septembre 1783. En présence de leurs Majestés, de la Famille Royale et de plus de 130 mille Spectateurs. Par M^{rs}. de Montgolfier avec un Ballon de 57 Pieds de hauteur sur 41 de Diamètre, 1783, 28.5 x 13.3 cm; Bibliothèque Nationale de France, Département des Estampes et de la Photographie, Paris (France), FOL-IB-1.*

seemingly fulfilled another definition of wonder in the English sense: an event or deed functioning as a portent (here, taking mankind “upward” to a superior society of the future).⁵⁴ However, we must rely on the verbal content of the images of the Versailles event to find out if this particular balloon had a successful flight—thus fulfilling in part the prophecy of advancement—for the pictures only depict the liftoff, not the landing. The nearly identical captions for Figures 1 and 4 relate details about both the journey of the balloon and the fate of its animal passengers: “Elle se soutint quelque tems en Equilibre et descendit lentement 8 minutttes après, à 1700 toises de distance du point de son départ dans le Bois de Vaucresson Carrefour Maréchal. Le Mouton le Coq et le Canard n’éprouverent aucune incommodité”⁵⁵ [It stayed aloft and balanced for a bit and descended slowly eight minutes afterward, at 1700 *toises* of distance from its point of departure in the Vaucresson Forest at the Marechal intersection. The sheep, the rooster, and the

54. Definition of “wonder,” cited above in footnote 21.

55. Quoted from the caption of Figure 4, *Experience Aérostatique faite à Versailles le dix-neuf Septembre 1783* (1783, engraving, Library of Congress, Washington, DC; <https://www.loc.gov/item/2002736265/>, accessed May 15, 2019).

duck experienced no injury]. The caption's recounting of the subsequent events as they unfold over time (again, information not provided visually by the pictures) points at first to a dynamic of complementarity concerning the word-image interactions of these representations, to be explored in more detail below. Filling in for what the other lacks, the two media together tell a more nuanced story, not only of this balloon's launch, but also of the perception and social functions of this technology in the late eighteenth century. However, the circle of perfection evident in Figure 4—evocative of the balloon itself, the public bubble of wonder associated with the idea of the airship, and even the circular interactions of the verbal and the visual as they work together—appears distorted when one more closely considers word-image interactions in the plates representing the first event at Versailles.

What Goes Up Must Come Down

Although not alluded to in the figure legends or titles, a darker side of wonder comes to light in certain aspects of the pictures that evoke the notion of fear, revealing the archaic uses of the English word “wonder” as a reference for evil, destruction, or disaster.⁵⁶ In addition to the dangers of viewing the events due to rioting, some witnesses feared the balloons themselves, as evinced by the famous example of the villagers of Gonesse, who, mistaking it for a beast, attacked the first Charles-Robert hydrogen balloon.⁵⁷ Indeed, the sensationalist media swirling around ballooning at the time frequently referenced the perils of the activity as news spread about both the successful launches and the disastrous ones. David T. Courtwright describes the emphasis in the British and American press on hazards faced by the first pilots and the general perception of *aérostation* as a risky enterprise: “It was dangerous, too, or perceived as such. Accidents made good copy. The telegraph cable made them international news.... Most Americans agreed with Mark Twain's definition of a balloon: ‘Thing to take meteoric observations and commit suicide with.’”⁵⁸ To give a French

56. Definition of “wonder,” cited above in footnote 21.

57. For summaries of the period accounts from the *Journal encyclopédique* and the *Mercure de France*, see Kim, *The Imagined Empire*, 60–62.

58. David T. Courtwright, *Sky as Frontier: Adventure, Aviation, and Empire* (College Station: Texas A&M University Press, 2005), 22.

example of that same approach through the optic of our three engravings, Faujas de Saint-Fond presents an intense blend of emotions in his description of the first Versailles launch, which uses a mix of the following terms relating simultaneously awe and fear on a single page: “étonné” [surprised], “l’intrépide” [intrepid], “les difficultés” [difficulties], “intimider” [intimidate], “craindre” [fear], “dangers” [dangers], and “admirables” [admirable].⁵⁹ The emphasis on danger added tension and, hence, excitement to such verbal representations, which we can also view as an effort to attract future spectators, contributors, and readers.⁶⁰

The related notions of fear and violence surface in several key visual details of the 1783 engravings. First, the balloon itself in all three pictures presents a paradox, for while its launch certainly highlights the idea of majestic soaring, its off-kilter ascent suggests danger. The tilted position of the balloon, the serpentine cord, and the swaying basket contribute to this demonstration of the potentially destructive power of gravity. The dichotomy of climbing and falling is also embodied by the spectators gathered precariously on the rooftops of the palace, their arms waving and feet dangling. Furthermore, Figures 1 and 3 show individuals in the process of scaling architectural features (balustrades and the Victory statue in the former, and a lamppost in the foreground of the latter). While not present in Figure 1, the detail of ladders propped against the launch pad is included in the other two plates from 1783 (Figures 3 and 4). Finally, Figure 1 includes an embedded theatrical vignette that stages the consequences of falling, revealed in this detail from the extreme lower left of the picture (Figure 6). Here, we witness a man’s confusion at dropping his hat on the right, a fall that is the result of the force and inconvenience of gravity, while a fellow viewer fearfully contemplates the launch through the lens of that demonstration of falling.

In light of the above visual cues, it may seem strange that the danger of the attempts is not mentioned in the figure titles and narratives attached to these images. Instead, the text in all three captions focuses on numbers, particularly the magnitude of the crowd, as cited above,

59. Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 2.4.

60. Kim, *The Imagined Empire*, 55–59.



Figure 6. Detail of Figure 1, *Expérience Aérostatique faite à Versailles le 19 septembre 1783, en présence de leurs Majestés, de la Famille Royale et de plus de 130 milles spectateurs par Mrs de Montgolfier, 1783*; Library of Congress, Washington (DC), LOT 13403, no. 37.

and the size of the balloon (“57 Pieds de hauteur sur 41 de Diamètre”⁶¹ [57 feet in height and 41 in diameter]). The longer description attached to Figures 1 and 3 goes into more detail about the balloon’s volume and weight: “Cette Superbe machine ... déplaçoit 37500 pieds cubes d’Air Atmosphorique pesant 3192 livres mais la vapeur dont on la remplissoit, pesant moitié moin que l’Air comun, il restoit une rupture d’équilibre de 1596 livres”⁶² [This superb machine ... displaced 37,500 cubic feet of atmospheric air weighing 3,192 pounds, but the vapour with which they filled it, weighing less than common air, underwent a rupture of equilibration of 1,596 pounds]. The caption also adds speculation about how much air was lost to the rip in the fabric and how much weight the balloon might have carried, information that highlights the scientific aspects of the event. A second focal point in the verbal content is the idea of grandeur and the related topic of royal authority. All three captions note the presence of the king and royal family (“En présence de leurs Majestés et de la Famille Royale”⁶³ [In the presence of their majesties and the royal family]), and the longer version notes the royal

61. Quoted from Figure 1, cited above in footnote 48.

62. *Ibid.*

63. *Ibid.*

initials on the balloon and qualifies the liftoff as unfurling majestically. This merging of the majestic and the scientific fits in with the model found in the sanctioned public newspaper *Le Journal de France* and its satellite publications; Mi Gyung Kim explains the propagandist engine behind such official French accounts that favoured measurements and myth over danger and drama:

Censored newspapers ... filtered balloon news to shape a hegemonic transcript of the balloon's scientificity and public utility. The rhetoric of useful science would tame the new machine for the absolutist polity to configure a progressive nation of royalist citizens. This journalistic transcript silenced the populace and erased their presence to maintain a representative public sphere that glorified royal authority and power. The balloon's potential as a (re)public-forming spectacle must be read, ironically, from the silence of the people—then at the scene, afterwards in the published accounts, and ever since hidden in the archives.⁶⁴

The French government's use of the ballooning events as a means of royalist propaganda lines up with its promotion of the king's interest in science as a source of French power and pride, an engagement inherited in many ways from Louis XIV, who in 1666 founded the Académie Royale des Sciences, members of which were also present at this launch. Indeed, the importance of technology in the construction of Versailles represented, as Jérôme Lamy summarizes, “une mise en scène des sciences” [a mise-en-scène of the sciences], whose ultimate goal was “à rendre manifeste la toute-puissance royale”⁶⁵ [to make manifest the royal omnipotence]. The verbal elements dedicated to the king function as part of that overarching absolutist system and, in terms of this new scientific field, as a manifestation of the monarchy's pressure to coopt the development of French ballooning for its own purposes against the backdrop of the palace, itself a marvel of past cutting-edge technologies. Government records indicate an initial investment in the research and first balloon flights (both hot air and hydrogen) and, at least for a few years, financial support to expand and enhance the technology through grants, competitions, and prizes,

64. Kim, *The Imagined Empire*, 55.

65. Jérôme Lamy, “La science à la cour de Versailles: mise en scène du savoir et démonstration du pouvoir (XVII^e-XVIII^e siècles),” *Cahiers d'histoire. Revue d'histoire critique* 136 (2017), 6; <http://journals.openedition.org/chrhc/6140>, accessed May 15, 2019.

despite a financial crunch.⁶⁶ Indeed, it also seems logical for the government to exploit the Montgolfier flight of September 18, 1783 as an extension of its celebration of the Treaty of Versailles, part of the ensemble of treaties known collectively as the Peace of Paris, signed on September 3 of the same year at Versailles.⁶⁷ Emphasizing the technological and political powers of balloons, the captions of the engravings thus fit into the narrative of propaganda that Kim describes above.

The accompanying images also feature those powers, and with the same strokes they attest to the completeness (and, hence, veracity) of the depictions. For example, in addition to the balloon itself, the clouds of smoke and elaborate scaffolding of poles and wires in the three pictures underscore the mechanical and powerful nature of the invention. In terms of political engagement, the interlacing “L” characters representing Louis XVI appear fairly prominently on each of the sketched balloons to stamp both the device and the engraving with royal approval, and the palace of Versailles provides the setting for the unfurling of the marvelous invention. Such technological and royal

66. Etienne and Joseph Montgolfier gave several presentations to the Académie des Sciences along with a written “mémoire” in the interest of publicizing their work and gaining governmental grants: see (by Joseph) *Discours de M. de Montgolfier sur l'aérostate, prononcé dans une séance de l'Académie des sciences, belles-lettres & arts de la ville de Lyon, en novembre 1783* (Paris: Lejay / Les marchands de nouveautés, 1784) and (by Etienne) *Mémoire sur les moyens mécaniques appliqués à la direction des machines aérostatiques, lu à l'Académie royale des sciences*, March 6, 1784, included in Faujas de Saint-Fond's *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.287–95. Faujas de Saint-Fond also includes the Académie's summary and approval of further funding for the latter proposal that suggests the addition of oars to enhance steering and propulsion (*Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.296–300). For more on the financing of the endeavours by the French government, see Gillispie, *The Montgolfier Brothers and the Invention of Aviation 1783–1784*, 91–94; the historian focuses on the rivalries and stresses of the Montgolfiers' attempts to secure government funding. See also Thébaud-Sorger in “Nation fière, nation légère...: La France, l'Angleterre et l'invention des ballons à la fin du XVIII^e siècle,” 229–31; her synthesis underscores the monarchy's enthusiasm to support the ballooning endeavors.

67. This set of accords ended major disputes among the French, British, Dutch, Spanish, and Americans, and the French welcomed the end of the wars' financial drains and the reestablishment of most pre-war boundaries in Europe and elsewhere. See, for example, David P. Geggus, “The Effects of the American Revolution on France and Its Empire,” in *A Companion to the American Revolution*, ed. Jack P. Greene and J. R. Pole (Malden, MA: Blackwell, 2000), 523–30. Thébaud-Sorger also briefly mentions this association in “Nation fière, nation légère...: La France, l'Angleterre et l'invention des ballons à la fin du XVIII^e siècle,” 230–31.

symbols intermesh to connect the science of ballooning to the figurative royal body. Unlike the captions, however, the visual content seems also to tell a counter-story, or at least to nuance the narrative supporting the interests of the monarchy. As the embedded visual references to the dangers of falling suggest (noted above), the artists shift the focus of the pictures away from the royal viewing to highlight other forces at work. The underscoring of gravity and its consequences points to a metaphorical suggestion of sociopolitical instability and unrest, which is likewise embodied by the clamouring crowd and the swinging basket in each of the images. Most importantly, in what on the surface seems an attempt at factual reporting, the royals are nowhere to be seen here. Period accounts, including the letter written by Etienne Montgolfier to his wife on the evening after the event, relate the royal family's personal tour of the preparations at the launch site,⁶⁸ but they also indicate that, during the liftoff, those distinguished observers, accompanied by members of the Académie, viewed the event from the royal apartments,⁶⁹ where the king followed the balloon's progress with a telescope.⁷⁰

The words and pictures are thus at odds with one another, since the former emphasize the king's viewing while the latter show his absence. The caption seems an effort to reinstate (literally) the royal presence at the event, thus cooperating with the image to generate a more complete experience for the reader. On the other hand, the fact that the royals are nowhere to be seen raises the question of why their majesties remained inside during the launch. A distaste for the large crowd or the weather cannot be the answer, since they toured the site immediately before the launch, but a fear for their personal safety during the filling of the balloon and the subsequent liftoff is a possible explanation. For reasons unknown, the principal guests undermined their own authority as they watched from the confines of the palace, a foil to the bold viewing strategies of the men and women depicted in the image. Their absence also represents a clear departure from the careful staging of a science-minded monarch as one finds in the many

68. Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.215; Cavallo, *The History and Practice of Aerostation*, 69.

69. See Joseph de Montgolfier, *Discours prononcé à l'Académie des Sciences de Lyon par M. Joseph de Montgolfier, en octobre 1783* (Paris: Giroud et fils, 1784), 6.

70. Faure, *Les Frères Montgolfier et la conquête de l'air*, 86.

images of Louis XIV encountering innovative technologies, such as the well-known pictures by Henri Testelin showing the king meeting the new members of the Académie (1667) and by Sébastien Leclerc recording his visit there to view the construction of the Paris Observatory (1671), both of which place the royal subject at the centre of attention.

By contrast, in the three engravings from 1783, the king functions theoretically as a displaced centre whose absence—regardless of the reason—presents an intriguing example of the Derridean idea of “différance,”⁷¹ a notion that challenges the word-image completion model. Jacques Derrida uses this distortion of the word “différence” to suggest that chains of distinct signs (such as, in this case, the embedded symbols in the picture or the references in the caption) defer any definitive meaning to yield a fluid system of reference rather than absolute, static signification. According to Derrida, even with the help of a “supplément”⁷² to the picture, like the figure legend that underscores the royal presence, the viewer cannot ultimately access a fixed meaning, which imbues the engraving with a rich flexibility that counters the rigid royal propaganda. Indicating at once a “plénitude” [plentitude] and a “vide” [emptiness],⁷³ to continue to apply Derridean thought to this seeming paradox, the word-image combination provides a temporary and personal sense of meaning for the viewer that, at the same time, points to the absence of stability at its core. In terms of how that idea manifests itself in these prints, Versailles supplies the architectural backdrop of the engraving, the king provides the verbal frame via the title and caption, and the balloon furnishes the occasion. However, in light of its energy and immensity, the crowd steals the scene.

What, then, can we make of this visual coopting by the *peuple*, a shift in focus from the balloon under the royal gaze to the people gathered to witness the launch? It is not a stretch to consider the gaps between word and image in these prints—the differences that make up a system of simultaneous completion and semantic deferral—as fertile ground for an artistic engagement with the culminating French sociopolitical tensions in an era obsessed by interlacing

71. Jacques Derrida, “La différence,” in *Marges de la philosophie* (Paris: Minuit, 1972), 1–29.

72. Jacques Derrida, *De la grammatologie* (Paris: Minuit, 1967), 203.

73. *Ibid.*, 208.

notions of scientific, moral, social, and political progress.⁷⁴ In *The Idea of Progress in Eighteenth-Century Britain* (which, notably, features a hot air balloon on its cover), David Spadafora defines progress as “the belief in the movement over time of some aspect or aspects of human existence, within a social setting, toward a better existence”⁷⁵ that functions as “almost a religious credo”⁷⁶ in Western thought from the eighteenth century to the present. The word “progrès” [progress] appears frequently in descriptions of early ballooning on both sides of the Channel. For example, Faujas de Saint-Fond, when describing the third Montgolfier balloon launch in Lyon on January 19, 1784, frames the “braves navigateurs” [brave navigators] as heroes to all “ceux qui s’intéressent au progrès des sciences”⁷⁷ [those interested in the progress of the sciences], and the English *Monthly Review* of 1785, in a review of Cavallo’s newly published *The History and Practice of Aerostation*, muses that, “from the rapid progress which this infant art has already made, it may reasonably be hoped that the time is approaching, when aerostatic vehicles will be fitted out on purpose for philosophical discoveries, for ascertaining many of the general laws of nature, and exploring the productions of the unknown regions of the atmosphere.”⁷⁸ Despite what would prove to be their lack of immediate usefulness (a topic much debated in the British press⁷⁹ and implied by the use of the verb “hope” in the previous citation), balloons were “serious vehicles of progress, positive emblems of enlightenment”⁸⁰ whose influence extended beyond the scientific. “A cultural lightning rod,” as

74. See J. B. Bury’s seminal *The Idea of Progress: An Inquiry into Its Origin and Growth* (London: Macmillan, 1920), in which he repeatedly pinpoints France as the origin of Western notions of philosophical progress (for example, 217–18 and 228).

75. Spadafora, *The Idea of Progress in Eighteenth-Century Britain* (New Haven, CT and London: Yale University Press, 1990), 6.

76. *Ibid.*, 2.

77. Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.74.

78. *The Monthly Review* 73 (Oct. 1785): 264.

79. See “The ‘Balloonomania’: Science and Spectacle in 1780s England,” 513–16. Brant also tackles the issue of the “cultural instability” of balloons and their questionable utility in relation to their ability to spark the collective imagination in “The Progress of Knowledge in the Regions of Air?: Divisions and Disciplines in Early Ballooning,” *Eighteenth-Century Studies* 45, no. 1 (2011): 71–86 (excerpt quoted on p. 81).

80. Brant, “The Progress of Knowledge in the Regions of Air?: Divisions and Disciplines in Early Ballooning,” 81.

Paul Keen summarizes it, “ballooning was both a potent symbol and a popular element of a consumer revolution that was changing the most fundamental aspects of Britain’s social order.”⁸¹

The fact that the spectators, showing deference to the invention and not their ruler, look up in wonder at the balloon in the 1783 engravings visually extends the metaphor of the absent king to suggest a hope for social mobility in France and a faith in the individual’s right to knowledge—lynchpins of Enlightenment thinking.⁸² Such ideas were popularized in the philosopher-centric “Republic of Letters,” a counter-culture of conversation and writing to the court that promoted the challenging of religious and social hierarchies and the recognition of the universality of rational thought.⁸³ Summarizing the ways in which the key principles of universalism influenced the fate of French absolutism, Albert Sorel declares that at the core of the complexities of the French Revolution lies the ruin of “tout l’édifice de la vieille Europe monarchique” [the whole edifice of old monarchist Europe]: “Elle proclame la souveraineté du peuple, elle présente ses doctrines comme des vérités évidentes et universelles, elle menace tous les pouvoirs établis”⁸⁴ [It proclaims the sovereignty of the people, it presents its doctrines as evident universal truths, it threatens all established powers]. In the 1783 engravings, the people—described by Faujas de Saint-Fond as “citoyens de tout état”⁸⁵ [citizens of all rank]—climb on top of Versailles while a new invention by a pair of papermakers sails over the palace. The event, and the way it is portrayed for public consumption, seem an uncanny foreshadowing of the Revolution in its most elemental form as defined by Sorel. Here, the collective body of the *peuple*

81. Keen, “The ‘Balloomania’: Science and Spectacle in 1780s England,” 508.

82. Numerous scholars have discussed the balloon’s relationship to key ideas of the Enlightenment; see, for example, Jean Sgard, “Les philosophes en montgolfière,” *Studies on Voltaire and the Eighteenth Century* 303 (1992): 99–111; and Kim’s *The Imagined Empire*.

83. Jürgen Habermas, *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society*, trans. Thomas Burger (Cambridge, MA: MIT Press, 1989), 29–30; Dena Goodman, “Enlightenment Salons: The Convergence of Female and Philosophic Ambitions,” *Eighteenth-Century Studies* 22, no. 3 (1989): 329–31.

84. Albert Sorel, *L’Europe et la Révolution française*, vol. 1 (Paris: Plon-Nourrit, 1885), 2.

85. Faujas de Saint-Fond, *Description des expériences de la machine aérostatique de MM. de Montgolfier*, 1.40.

literally “rises up” to witness a display of scientific success by bourgeois thinkers while the nobles vanish from view. This seems all the more significant since the engravings circulated at a crucial moment in time sandwiched between the American and French Revolutions, the former in many ways inspired by the ideas of the French, and the latter taking inspiration in turn from the former. David P. Geggus recaps that circular swirl of reformist ideas, again revolving around the idea of “progress”:

What was stunningly unique about the events in America was that they put into action what hitherto Frenchmen had merely discussed as abstract propositions. Contemporaries familiar with the concept of a social contract felt they were witnessing, as if in the primeval past, the birth of a new society. For a nation completely lacking a political life, America provided a practical demonstration of successful and sweeping political reform. That this was achieved without considerable bloodshed or persecution brought a new respectability to the idea of revolutionary change, and inspired belief in a new era of progress.⁸⁶

Making the abstract myth of human flight concrete, the hot air balloon provided an ideal metaphor around which to construct an image of “revolutionary change,” both in terms of technological invention and social reform.

Although space does not allow here for an in-depth discussion thereof, an additional element of the prints documenting the 1783 Versailles balloon event that exposes the interlacing themes of wonder and change is the prominent place of the female viewer. In the three pictures discussed above, we find not merely a few scattered parasols, but, rather, the amplified presence of women in a variety of roles (both traditional and what seems emancipatory). Historical accounts attest to intense female interest in ballooning, with women participating as spectators and consumers; for example, Benjamin Franklin cheekily points out that he witnessed “a thousand beauties elegantly dressed fighting to tear themselves away from the whirlpool that was pulling

86. Geggus, “The Effects of the American Revolution on France and Its Empire,” 525; see also the engaging *Le Vent d'Amérique, 1778–1781*, the second volume of the six-volume series *Les Hommes de la liberté* by Claude Manceron (Paris: Laffont, 1974). For much more detail pertaining to the philosophical influences on/of the French Revolution, see also Daniel Mornet's *Les Origines intellectuelles de la Révolution Française (1715–1787)* (Paris: Armand Colin, 1933).

them in, their stylish hairdos being ruined by the weather”⁸⁷ at the trial of a Charles balloon on the Champs de Mars in Paris on August 27, 1783. Many scholars have even observed the influence of airships in the world of European women’s fashion (dresses, fans, hats, etc.),⁸⁸ a trend that continued long into the next century.⁸⁹ One could thus easily attribute female appropriation and interest as simply another example of “a culture driven by novelty and dedicated to a love of spectacle,”⁹⁰ as Keen characterizes it, yet Brant notices an “appeal to women from women’s point of view”⁹¹ when discussing the strategies of England’s most popular balloonist, Vincenzo Lunardi. In fact, Lunardi orchestrated on June 29, 1785 the first ascent in a balloon by an Englishwoman, Letitia Sage, following in the footsteps of the first female balloonist, Élisabeth Tible, who rode aboard a Montgolfier balloon on July 4, 1784. Sage’s subsequent account, in the form of a letter addressed to a friend, reveals great joy at having accomplished her goal: “I feel myself more happy, and infinitely better pleased with my excursion, than I ever was at any former event of my life.”⁹² She likewise expresses a steely determination to experience flight: “my resolution was so firmly fixed, and my mind so strongly made up on the event, that not a human argument could have had power to dissuade me.”⁹³ Sage frames the experience as a discussion of gender by referencing “female friends” and “women”⁹⁴ on the first page before addressing the biases toward them (and her own ability to understand science), as we find embedded in the praise of her flight companion: “Mr. Biggin, seeing my anxiety was

87. Cited in Kim, *The Imagined Empire*, 60.

88. See, in particular, Brant’s chapter entitled “Fashion” in *Balloon Madness*, 109–22, and Michael R. Lynn’s “Selling Science: Balloons, Commerce, and Mass Culture in Eighteenth-Century France,” *Proceedings of the Western Society for French History* 30 (2002): 214.

89. Julie Wosk, *Women and the Machine: Representations from the Spinning Wheel to the Electronic Age* (Baltimore, MD: Johns Hopkins University Press, 2001), 56–61.

90. Keen, “The ‘Balloomania’: Science and Spectacle in 1780s England,” 517.

91. Brant, *Balloon Madness*, 115.

92. Letitia Ann Sage, *A letter addressed to a female friend by Mrs. Sage, the first English female aerial traveller; describing the general appearance and effects of her expedition with Mr. Lunardi’s balloon; which ascended from St. George’s Fields on Wednesday, 29th June, 1785, accompanied by George Biggin, Esq.*, 2nd ed. (London: Printed for the Writer, and Sold by J. Bell, 1785), 3.

93. *Ibid.*, 4.

94. *Ibid.*, 2.

very great, at the time thinking it no degradation to communicate his observations to a woman, of whose understanding, I am proud to think, he had not a contemptible opinion, gave me the most pleasing and unaffected explanations you can conceive.”⁹⁵ She even uses the text to criticize the state of “female education,” which, to her eye, “does not usually leave the mind capable of drawing accurate conclusions from events”⁹⁶ such as the ballooning experiments. Thébaud-Sorger meticulously documents the ways in which ballooning represented an entry-way into scientific thought as “une fenêtre ouverte sur la science dans laquelle s’engouffrent des gestes, des sociabilités, des projets, et des stratégies diverses”⁹⁷ [an open window upon science through which gestures, sociabilities, plans, and diverse strategies were funnelled]. While she focuses solely on the ways in which the Montgolfier and Charles-Robert experiments encouraged scientific exploration among men with means or technological knowhow,⁹⁸ the account by Sage coupled with the images in this study place women among those curious enough to look through that “window upon science” and participate in a display of modern technological achievement.

Women populate the images of the first launch at Versailles, and not simply as Franklin’s eye-catching “beauties,” for they share the scene in equal numbers and strike similar poses as their male counterparts. Placed side-by-side with masculine viewers, they display curiosity and admiration—the building-blocks of wonder—but also bravery by attending the potentially dangerous events. For example, in Figure 4, we see female spectators ringed around the balloon in an alternating formation of woman-man-woman, completely enraptured and precariously close to the combustion underneath the rising balloon. In a more traditional pictorial role, the images show women as mothers, reminiscent (from the perspective of the contemporary reader) of the *Marianne* trope popularized during the French Revolution: this detail of Figure 1 reveals a mother holding her child, protecting it but also exposing it to this marvel of the new age (see Figure 7). Furthermore, the statue of Victory in the foreground of Figure 1 appears as a woman. Incarnating victory was another traditional female role (as in, for

95. *Ibid.*, 18.

96. *Ibid.*

97. Thébaud-Sorger, *L’Aérostation au temps des Lumières*, 109.

98. *Ibid.*, 104–14.



Figure 7. Detail of Figure 1, *Expérience Aérostatique faite à Versailles le 19 septembre 1783, en présence de leurs Majestés, de la Famille Royale et de plus de 130 milles spectateurs par Mrs de Montgolfier, 1783*; Library of Congress, Washington (DC), LOT 13403, no. 37.

example, the ancient figures of Nike and Victoria), but the visual reproduction of the sculpture places a woman at the centre of this depiction of a contemporary event. The variety of female functions here, particularly in Figure 1, indicates a flexibility regarding what women *could* and *should* be doing, which seems an echo of the cadence of feminist thought that reverberated throughout the century, which the historian Christine Fauré terms “l’imagination émancipatrice des femmes du dix-huitième siècle”⁹⁹ [the emancipatory imagination of women of the eighteenth century].

Despite acute resistance on many fronts,¹⁰⁰ the idea that women deserved to be treated as intellectual equals, if not full-fledged citizens, in an Enlightened Empire was much debated in print and in

99. Christine Fauré, “Au nom de l’égalité entre femmes et hommes: dix-huitième siècle,” *HAL* (2008): 6; <https://halshs.archives-ouvertes.fr/halshs-00274877>, accessed May 15, 2019.

100. Philosophers of the century wrestled with how to reconcile equality of humankind and the natural equality. Christine Fauré traces this struggle by examining the process of theorizing women’s subordination throughout several key encyclopedias of the eighteenth century. Her work reveals a general trend—even among the Enlightenment philosophers who frequented the erudite salons organized by women—to contain women in what was seen as a private sphere dedicated to domesticity and civility, thus denying them basic civil rights such as the right to divorce, vote, and participate in governance (*ibid.*, 1–9). For an example of the many scholarly works devoted to exploring the sidelining and silencing of women writers in early modern France, see Joan E. DeJean’s discussion of the Abbé Charles Batteux’s literary guide *Les Beaux-Arts réduits à un même principe* (1753) in *Tender Geographies: Women and the Origins of the Novel in France* (New York: Columbia University Press, 1991), 188–95; see also the collection of essays edited by Elizabeth C. Goldsmith and Dena Goodman, *Going Public: Women and Publishing in Early Modern France* (Ithaca, NY: Cornell University Press, 1995).

the oral spaces of the “Republic of Letters,” whose very existence depended on them. As Dena Goodman argues, “under the guidance of Mme Geoffrin, Mlle de Lespinasse, and Mme Necker, the salon was transformed from a noble, leisure institution into an institution of the Enlightenment. In the salons, nobles and non-nobles were brought together on a footing of equality.”¹⁰¹ In reference to the status of women at the time of the ballooning craze, Janet Gurkin Altman assures us that there were “deep-rooted transformations of the public sphere in prerevolutionary France, which help explain the desire for a participatory republic offering citizenship to women as well as men in the France of 1789–91.”¹⁰² Although eighteenth-century writings dedicated to advocating for women’s political rights in France, such as François Poullain de La Barre’s *De l’Égalité des deux sexes, discours physique et moral où l’on voit l’importance de se défaire des préjugés* (published posthumously in 1673) and Olympe de Gouges’s *Déclaration des droits de la femme et de la citoyenne* (1791), are still considered rarities,¹⁰³ “women did in fact participate in the formation of the public sphere in France,”¹⁰⁴ as Goldsmith and Goodman proclaim when discussing women as crucial partners in the Republic of Letters. The multiple roles of women in the images of the 1783 Montgolfier presentation confirm their participation in a public sphere devoted to science and also to politics, as this paper has drawn out. In a final observation, it is worth noting that the print captions do not mention female viewership despite its heavy presence in the pictures. This disparity presents an additional presence-absence dynamic that seems a reverse of the engravings’ collective treatment of the king, an inversion which tantalizingly suggests a female incursion into that power gap.

What goes up, however, must come down, as the proverb goes. Like the limited rise of the September 1783 Montgolfier flight, early feminist

101. Goodman, “Enlightenment Salons: The Convergence of Female and Philosphic Ambitions,” 331.

102. Janet Gurkin Altman, “Women’s Letters in the Public Sphere,” in *Going Public: Women and Publishing in Early Modern France*, cited above, 115.

103. Christine Fauré, “Au nom de l’égalité entre femmes et hommes: dix-huitième siècle,” 9. See also Susan Dalton’s *Engendering the Republic of Letters: Reconnecting Public and Private Spheres in Eighteenth-Century Europe* (Montreal, QC: McGill-Queen’s University Press, 2003).

104. Elizabeth C. Goldsmith and Dena Goodman, “Introduction,” in *Going Public: Women and Publishing in Early Modern France*, 2.

efforts in Europe did not yield legislative change regarding the rights of women to own property, marry and divorce freely, inherit, or vote for many years; women had “no place” in the post-revolutionary French public sphere.¹⁰⁵ Similarly, the promise of scientific progress and national prowess heralded by *aérostation* fell flat as it proved to be a “stagnant technology.”¹⁰⁶ The irony was not lost on the Comte de Ségur, as we find in his memoirs a critique of the balloon as a metaphor for France’s climb to perfection; he qualifies that this “tower of knowledge” built around the balloon was, in fact, a shifting place, “dont les vertiges, produits par la vue d’un immense horizon, précèdent de peu d’instant la plus effroyable chute”¹⁰⁷ [whose dizzying heights, produced by the view of an immense horizon, precede in just a few moments the most frightful fall]. The count teaches us to view these experiments and all they stood for—marvel, progress, rationalism, the brotherhood (and perhaps sisterhood) of humankind—as products of soaring imaginations that were ahead of their times. *Aérostation* proved frustratingly useless in warfare in that it could not be directed; the French Revolution similarly lost its direction toward “liberté, égalité, fraternité” as it veered into murder and mayhem; women did not gain the right to vote in France until after the Second World War (and they continue to fight for equality in the world). Blissfully unaware of such future limitations, spectators of the early ballooning events, whether in person or via published images, allowed themselves to be carried away momentarily by the wonder, and not the cold realities, of hot air balloons.

105. *Ibid.*, 2. The end of the eighteenth century heralded several advancements for women regarding marriage and divorce during the revolution, but the dawning of the Napoleonic era quickly effaced those gains. Indeed, the misogynistic Napoleonic Code steered thinking in the opposite direction until the end of the following century when women regained the right to divorce in 1886. Similarly, in England no real progress regarding women’s basic rights appeared until the *Act for the Better Prevention and Punishment of Aggravated Assaults upon Women and Children* in 1853 and the easing of divorce restrictions in 1857.

106. Courtwright, *Sky as Frontier*, 22.

107. Ségur, *Mémoires ou souvenirs et anecdotes*, 3,156.