Dreams of Arctic flights

French aerial polar expedition projects 1872–1906

ALEXANDRE SIMON-EKELAND*

Abstract

From the 1870s to the 1900s, several French men had the idea of flying to the North Pole in a balloon and submitted their ideas either to the Paris Geographical Society or to the very active French association of aeronauts. Some of these projects elicited enthusiasm, others indifference or ridicule. None of them were realised, although some came much closer than others to gathering enough money to launch towards the Arctic. This article analyses these expedition projects and argues that the reason for their failure was that, while both the French aeronauts and geographers had Arctic dreams, they were not compatible. They imagined the polar regions and the role of an explorer too differently for them to be able to come to an agreement as to what expeditions were worth supporting: as a result, none of these projects concretised.

Keywords
Polar exploration, history of flight, French history, ballooning, 19th century, Société de Géographie de Paris, Société de Navigation Aérienne

Introduction

In 1909, Georges Durtal, a captain in the French engineering corps, reached the North Pole aboard a French dirigible, demonstrating the French (aeronautical) superiority. With him were a rich American couple who were there to win a bet and his girlfriend Christiane, making this expedition unusually open to women. They were the first to ever reach the North Pole. But Durtal, of course, did not exist. He and his feat were the products of the imagination of "capitaine Danrit", the pseudonym of an Army officer who published this novel in series in an illustrated weekly in 1908–1909.[1]

While Durtal's expedition was fictional, several real Frenchmen were designing projects to use balloons for exploring the polar regions between

* Alexandre Simon-Ekeland, PhD in history, alexandre.simonekeland@gmail.com

Lychnos 2023, DOI: 10.48202/24816

the 1870s and 1900s. Aerial feats and polar exploration were often associated in the imagination and seen as comparable for the level of dangerousness. The president of the French Société de Navigation Aérienne (SNA) recounted for instance in a speech in 1900: "Those of my colleagues who have undertaken ascensions [. . .] all remember the more or less frightened faces of the people to whom they confided their projects and who would then shake their hand with emotion, as if they were going to the North Pole."[2] In spite of the ease with which polar exploration and flight were associated, none of the French projects that proposed concrete plans for polar ballooning expeditions succeeded in obtaining enough money to launch. In this article, I analyse these failures and argue that they were due to the fact that geographers and aeronauts had incompatible ways of imagining the polar regions.

I analyse in this article the views about polar flight expressed by geographers members of the Société de Géographie de Paris (SGP), and aeronauts members of the SNA. These two associations differed on many points. The SGP included explorers, armchair geographers, or interested amateurs, whereas the SNA was more limited to practicing aeronauts or balloon technicians (usually aeronauts themselves).[3] Not all aeronauts were members of this association, which seems to have been rather Paris-centric. The available sources from the SGP include the society's journal and its archives, both of which were almost only written by the geographers that dominated the society's board. On the other hand, the journal published by the SNA included remarks made during the association's meetings.[4] On the whole, the SNA was a smaller association than the SGP, but seems to have been a much livelier one, where there were actual debates in the meetings. Meetings of the SGP consisted in series of presentations while the decisions were taken beforehand by the board. Although there were some changes over time, that this article will address, one can say in short that while the geographers envisioned the Arctic as a place worth studying in itself, the aeronauts saw it as a space to fly over, avoiding the ground. The study of the poles was, however, a distant preoccupation for the French geographers in this period: they concentrated mostly on the tropical regions that France was in the process of colonising. There were no French polar expeditions in this period other than a few trips by Navy ships to Norway and Jan Mayen, and these were not the object of much press coverage.[5] French people could project very different ideas on the Arctic because it was only vaguely known in France.

This article is situated at the intersection of two fields: the cultural history of flight and the history of exploration. The cultural history of flight has particularly focused on planes rather than balloons or dirigibles, especially in studies that looked at American and French examples.[6] This is

a teleological perspective: it often makes it seem like it was inevitable that planes would become the dominant flight technology – we know they did eventually – when in fact this was far from a given for the contemporaries. As Emmanuel Chaudeau explains, until around 1909, most people in France believed that the dirigible industry had the most promising future.[7] By focusing on ballooning projects, this article aims to balance the teleological view that downplays the faith that many had in the potential of balloons.

The second field to which this article belongs is that of the history of exploration, and of polar exploration in particular. More precisely, this article builds on the historiography that has, in the past three decades, focused on the way the polar regions were imagined in the countries that sent expeditions there, and thus considered the expeditions in their domestic context as well as out in the field.[8] Here as well, this article adds to the existing literature because it has largely, and understandably, focused on expeditions that actually happened and how they were received, whereas I analyse failed expedition projects, which did not take place. Expeditions usually had their strongest cultural impact once they returned and their participants were celebrated, but this cultural impact did not come out of nowhere: it usually built upon a pre-existing interest in the places visited by the explorers. Expeditions were arranged because the regions they visited already interested enough that one wanted to know them better. Therefore, looking at the reception of such expeditions is not enough to understand their cultural impact because the simple fact that such an expedition took place is testimony that the idea was conceivable. It is therefore useful to pay attention to the preparations made in advance for these expeditions in order to better understand the difference between what was conceivable and what was seen as credible. By focusing my analysis on moments when the idea of flying to the Pole was rejected, I aim to understand better how this idea could become acceptable. Studying failed expedition projects is not very common, although I am not the first one to do so.[9] In this case, the existence of these projects, although they failed, shows that the idea of flying to the North Pole had a longer history that did not begin with Andrée's famous balloon expedition in 1897. Furthermore, analysing these failures provides a different understanding of the context of exploration than analysing the successes, because the successes tend to hide after the fact disagreements that were central in explaining how expeditions were organised.

I am not the first to attempt such a study across these two fields: Marionne Cronin shows how the figures of the explorer and of the aviator would later, in the interwar period, sometimes become one: she proposes the concept of the "technological explorer" to analyse explorers like the

American Richard Byrd, who claimed that he was the first to reach the North Pole in a plane in May 1926, even though his achievement is contested. As Cronin explains, his success was celebrated in the USA but it led to the development of two conflicting discourses: on the one hand, this was a story of technology solving the practical difficulties of polar exploration; on the other hand, Byrd was presented as having participated in the tradition of the courageous polar explorers. Cronin explains that "In the tensions between these two narratives one can see the struggles seeking to integrate aviation, and modern technology more generally, into its image of polar exploration and the polar environment."[10] She addresses the consequences of these competing discourses for the perception of both explorers and the polar regions; in this article I will mainly focus on the latter. I expand on Cronin's analysis by looking at cases that differ in three ways from Byrd's story. First, the projects I study were French and not American. Secondly, they were half a century earlier, and were hence based on balloons and not planes; I offer here a part of the prehistory of the technological explorer, analysing how the idea of exploring the poles from above was developed and discussed before such a flight became technically possible to successfully achieve. Finally, these were projects that were not realised, in contrast to Byrd's success, however contested.

This article is structured chronologically. First, I analyse the first major such project, that of Théodore Sivel (1872). Then I discuss the following French projects in the 1870s and 1880s and argue that these decades were characterised by a growing gap between geographers and aeronauts. Finally, I discuss France's role as a provider of equipment for foreign expeditions in the 1890s and 1900s and show how this was a way to circumvent the divisions between French geographers and French aeronauts.

1872 – Théodore Sivel's project

The Montgolfier brothers made public demonstrations of hot-air balloons in 1783 – first unmanned, then manned – to great public success. Many uses were quickly imagined for these balloons: scientific measurements as early as 1783, and military observation of battlefields and movements of troops a few years later during the wars of the French revolution. While these scientific and military uses did not disappear, balloons were mostly used for entertainment in the first half of the nineteenth century: public ascents usually attracted the crowds. The balloonists' dream was to find a way to steer a balloon in order to decide where one would travel rather than just being either stationary or carried by the wind. The first dirigible was French and flew in 1852, using a steam engine which made it impractical for long-distance flights, and it was too weak for bad weather.[11]

Developing practical steerable balloons remained thus an objective for the many French aeronautics enthusiasts in the second half of the nineteenth century. At the same time, this period also saw the development of aerial photography from balloons, applied to different purposes: production of views for postcards, mapping of cities and buildings, but also surveying of glaciers from the air.[12] As balloons went higher, they were also used to study not only the ground below, but to take measurements of the atmosphere around them at always higher altitudes.[13]

While there were aeronauts and balloon-makers in other parts of France, Paris was central: it was there that one found the highest density of ballooning enthusiasts, forming a market for the most innovative balloon-makers, who competed with each other to build bigger and stronger balloons. The SNA was created to provide them with a forum for discussion: its members focused on the technology and the practical knowledge of ballooning. They arranged for example a free yearly ballooning school from 1894 onwards. The SNA's journal listed the ascents that were organised by the SNA itself and by others, and described the technical patents related to ballooning. This group of aeronauts had little overlap with the SGP, where one found rather geographers and businessmen with an interest for the potentialities of other continents. The SNA's aeronaut's polar projects were therefore quite different from what they usually did with their balloons.

There were many imagined uses for ballooning, from the start in the late 18th century, and many of these uses were gradually developed during the 19th century as balloons went higher and became somewhat steerable. The imagined uses and the engineering advances went however only partly hand in hand, as the imagined polar flights show: the idea preceded its concrete feasibility. As early as 1802, the Frenchman Abbé Rochon proposed to travel to the North Pole by balloon. Considering the dangers of such an expedition, he did not plan on travelling himself but, rather, wanted to send convicts who had been sentenced to death.[14] The idea of using balloons to reach the North Pole was mentioned several other times during the nineteenth century. During the search for the British Franklin expedition, that disappeared while trying to cross the Northwest Passage in the 1840s, balloons were used to carry messages over the ice to potential survivors.[15] This was not discussed in France: what sparked French interest for the possibility of using balloons in the polar regions was a misunderstanding in 1869. A man named Gustave Lambert was planning a ship-based expedition to the North Pole and was struggling to obtain enough funding. The renowned aeronaut and populariser of science Gaston Tissandier proposed to help him by organising a fund-raising event: the flight of a balloon of an unprecedented size, which he

baptised *Le Pôle Nord*. The balloon flew successfully, but it was a commercial failure: most members of the considerable audience watched from outside of the ticketed zone and Lambert received no money. Nevertheless, the association of the polar expedition with the balloon, and the balloon's name, led to some confusion and some newspapers presented it as if Lambert was planning on using a balloon to reach the Pole, which he did not.[16] However, this gave others ideas, beginning with Henri Théodore Sivel.

Sivel was the subject of correspondence between European geographical societies in 1872. Charles Maunoir, secretary of the Société de Géographie de Paris (SGP), wrote to his counterparts in the Russian geographical society and in the British Royal Geographical Society (RGS). Maunoir was looking for information about Sivel, who wanted to reach the North Pole in a balloon.[17] Sivel claimed to have the support of the RGS, but they had never heard of him and they had never discussed his project. Finding information about Sivel is not any easier for a historian today: not much is known about him except for his short, though successful, aeronautical career in the 1870s. His plan was nevertheless the most discussed French polar ballooning project in this period, and it reveals the different ways in which people envisaged polar exploration.

The RGS explained to Maunoir that although they received petitions for funding, support or advice on many aeronautical projects, the members of its council were rarely interested in hearing about them. The situation was potentially different in France, where ballooning was more common, for both entertainment and scientific studies of the atmosphere. Balloons were proving especially useful to meteorology but using them for exploration, as Sivel proposed, was much more ambitious, although long balloon journeys were not unknown. A relevant example is the flight of the *Ville d'Orléans*, one of the balloons used for communication between Paris and the rest of France during the Prussian siege of 1870–1871. The *Ville d'Orléans* had been carried by the wind to Norway where it crashed in the snow and locals rescued its occupants. This unexpected trip, which showed that long-distance northward balloon travel was possible, was often described in the press.[18]

Ballooning was relatively normal in France, and there were a few precedents for long-distance flights; ballooning to explore could seem reasonable and despite his lies, Sivel's project was taken seriously by the SGP. Maunoir consulted four different French experts: a glaciologist, an aeronaut, a meteorologist and an explorer; however, none of them supported the project. The glaciologist explained that the knowledge about the polar regions was too imprecise to accurately evaluate Sivel's chances of success.[19] He recommended that Sivel accompany another expedition instead

of trying to launch his own without any polar experience. The aeronaut, whose answer was several pages long and included drawings of the wind directions around the Earth, also did not recommend that the SGP support the project.[20] He too suggested that Sivel should go on a more standard expedition first, although he proposed that Sivel should take a hydrogen generator and balloon with him, so that its usefulness in the polar regions could be tested. The meteorologist replied briefly that he had known about Sivel's project for a long time and considered it unfeasible given the current state of the knowledge about the polar regions.[21] The explorer was the clearest: "I do not see in the project presented by M. Sivel this character of precision and the chances of success that are necessary to determine the action of a society like ours."[22] While he did not attack Sivel's aeronautical qualifications, he mocked his description of the "hospitable" regions of the 80th degree North and criticised his lack of attention towards the problem of manoeuvring his balloon around the Pole where no one knew the wind regimes.

After these unanimous reports, the SGP did not support Sivel. However, the SNA received his project with a lot more enthusiasm.[23] There, Sivel presented his project in person in March 1872, focusing on the technical details.[24] For the SGP, Sivel's technical focus had been a weakness; they criticised him for spending more of his proposal on the balloon than on the voyage itself.[25] At the SNA, on the other hand, this fitted perfectly and a seven-person committee was created to review the project. Its very positive conclusions were published in full in the SNA's journal, *L'Aéronaute*. They pointed out that, while several others had envisioned a trip by balloon to the North Pole earlier in the century, Sivel was the first to really push the idea as far as to create a detailed, concrete plan. The SNA's committee made Sivel make a few modifications, but in general, they were full of admiration for his technical ideas, which they commented on in great detail: Sivel wanted, for instance, to use guide-ropes (cables hanging from the balloon and touching the ground) and anchors to guide, slow or stop the balloon's movement on land; at sea, he would use another one of his ideas, a cone pierced at the tip that would fill with water and hence become heavier.[26] This committee was, crucially, much more optimistic than the experts of the SGP about the specific challenges of the polar regions. They accepted without question Sivel's theory that, since the sun shone all day in summer, the temperature would be "mild and easily tolerable".[27]

In the end, nothing came of Sivel's plan, since he failed to gain funding for it. He moved on to other projects, often in collaboration with the members of the SNA who had positively reviewed his polar plans. He died of asphyxiation in 1875, while attempting an altitude record in a balloon,

alongside the man who had been the head of the evaluation committee for his polar plan.[28]

The differences between the reports of the two Sociétés are striking. On the one hand, the SNA had a committee of technicians who were extremely thorough in their assessment of the technical aspects of Sivel's balloon but paid very little attention to the conditions in which his expedition would take place; they had a very simplified and idealised view of the polar regions. They were probably not really interested in the polar; it was only a way to demonstrate the might of balloons, and of French balloons in particular. On the other hand, the SGP's experts paid little attention to the aerostat, but they focused on the aspects that were specific to the polar regions and on the abundance of uncertainties that could easily doom the expedition. Only one of the four experts consulted by the SGP addressed the balloon, and not at length. Presented as an aeronaut in the SGP's report, he was named Hüber, and does not seem to have been a famous aeronaut. His identity is hard to ascertain but he may have been William Hüber, a Swiss author of a book on glaciers – and apparently no aeronaut.[29] He was not mentioned as such in the press or other publications, and he was especially not mentioned in *L'Aéronaute*, the journal of the SNA. That the SGP's chosen consulting aeronaut was not part of the SNA milieu may in part explain the divergence of views between the two associations. These views grew further apart in the next two decades.

The 1870s and 1880s – A growing gap between geographers and aeronauts

In the 1870s, several expeditions tried to reach the North Pole using ships: one was sent from Austro-Hungary (1872–1874), two from the United States (1871–1873 and 1879–1881), another from the UK (1875–1876). None of them reached the North Pole, and apart from the British one, all these expeditions had to deal with the loss of ships as well as crew members. These failed ship-based attempts were an encouragement for the ballooning enthusiasts that wanted to see balloons as a better way to reach the North Pole: after Sivel, several other Frenchmen proposed polar ballooning projects to either the SGP or the SNA. Aeronautical dreams in general were becoming increasingly widespread amongst the French, and Luc Robène has showed that the social origin of the inventors of aerial contraptions broadened after 1870.[30] This was true of these aeronautical polar projects as well.

In 1876, someone named Erre wrote, for instance, to the SGP, asking for a committee to evaluate his ideas. He gave no detail as to who he was in the long text he sent to the SGP, and he has not left any other trace in

these archives. His handwriting was quite good, but his choice of words was often unfortunate: he proposed to send an "excessively big" balloon from Lapland or Russia, with three to five "of these men who, for various reasons, hang very little to their life, of those maybe whom considerable sorrows push to suicide".[31] If there were insufficient volunteers from men like this, convicts would do; in any case, the survivors would be guaranteed a large payment in the event of their success, which the explorers were to record by carving their names on a tree when they landed. All this had little chance to convince the geographers of the SGP who had rejected Sivel's more advanced plans. The SGP does not seem to have replied, still less formed an evaluation committee. Erre's name was not mentioned in *L'Aéronaute*, and it is hard to imagine the SNA having taken him seriously if he contacted them. His proposal was comparable to Sivel's on some aspects, such as the closed basket, but it was technically far inferior. He wanted his balloon to carry a gas-producing engine, something nobody had done at that point: the SNA committee evaluating Sivel's project considered a 100-tonne machine, carried on a ship, to be necessary in order to fill his balloon with hydrogen. The idea of sending convicts or suicidal people was also deeply at odds with the SNA's vision of the aeronaut as the technical master of his balloon.

In 1887, it was not the SGP but the SNA that received a proposal from Joseph Vinot, a journalist who specialised in the popularisation of science.[32] He wanted to reach the North Pole using a hot air balloon rather than a hydrogen-filled one: the immediate reactions were negative.[33] The next year, he petitioned the SNA for an evaluation of a new version of his project that used a metallic balloon.[34] The reactions were somewhat less negative than the first time, but many technical questions remained unanswered and the project was not brought up for discussion again. A certain lack of interest was evident, especially when compared to the frenzied discussion that had followed Sivel's presentation in 1872. Many French aeronauts did not seem to believe in balloon polar exploration anymore in the mid-1880s. Wilfrid de Fonvielle, vice-president of the SNA and a major figure of the popularisation of aeronautics and of polar exploration, published in 1885 *Les Affamés du Pôle Nord*. This book told the story of the US Greely expedition (1881–1884), which showed all the dangers of being on the ground and navigating by ship in the Arctic. Yet, in his introduction, it was balloons that de Fonvielle presented as unfit for polar travel, at least until they were dirigible.[35] Gaston Tissandier, in a book published in 1886, likewise mentioned the North Pole as an "inaccessible region" that the dirigible would render accessible.[36] They were certainly both influenced by the success of the dirigible *La France*: this balloon with an electric engine performed in 1884 the first round-trip with

a balloon, although not much came of it because the French army controlled the patent and did not support its development.[37]

That Tissandier and de Fonvielle wrote this at a time when others were still sending plans for balloon expeditions to the North Pole shows a difference in appreciation between these two veteran aeronauts and the less-experienced younger ones. For example, two younger aeronauts, Georges Besançon and Gustave Hermite, presented a new project in 1890.[38] Their plan, while still based on a non-dirigible balloon, was the most technically advanced since Sivel. They planned on bringing a light sledge and dogs. Their plan attracted public attention: a man wrote to the SNA to explain that they should take with them tamed condors to pull the balloon if the wind was insufficient.[39] Nevertheless, their project failed like the others: it was not even mentioned in the SGP's *Bulletin*, and they did not manage to get enough funding, even though Hermite planned to finance a good part of it with his own considerable fortune.[40]

The failure of Sivel's polar project and of its successors was in several cases followed by a successful career as an aeronaut. Sivel himself turned to altitude records and other feats, and he was one of those who had stuck with their polar plans the longest. The others abandoned them quickly when they saw the difficulty of fundraising, but it did not prevent them from having successful careers.

It is worth delving deeper in the reasons for this succession of failures by men who were recognised as competent aeronauts: what these different projects lacked was an overall agreement between the different experts consulted about an expedition project. In Sivel's case, the disagreement could not have been more profound between the SGP's experts on exploration and the SNA's experts on balloons. They evaluated the project from fundamentally different viewpoints, and they did not try to collaborate to improve the plan together. The experts consulted about this project by the SGP and the SNA were very competent; had they tried to work together to improve Sivel's project, they could probably have produced a more plausible plan. In hindsight, one can say that it was probably too early for such a joint venture. The leaders of the SGP had no interest in using risky aeronautical technologies because this was before what Urban Wråkberg calls the "logistical crisis" of the end of the nineteenth century, when it became apparent that the traditional, ship-centred methods of travelling in the polar regions would be inadequate for reaching the farthest north because hopes of finding a passage with less ice proved to be in vain.[41]

This division between aeronauts and geographers mirrored the one found in the UK, where, as Huw Lewis-Jones explains, the RGS rejected a similar plan presented by Commander Cheyne.[42] They did so very pub-

licly, in opposition to the practice of the SGP whose reports were supposed to remain secret, even if in reality the reports leaked out, and the gap between aeronauts and geographers grew wider as a result. In 1875, after Sivel's death, Ludovic Martinet attacked in *L'Aéronaute* the unpublished report on Sivel's project written by the glaciologist Charles Grad for the SGP.[43] Grad believed that the polar fogs would be a major issue for an aeronautical expedition. Martinet asserted, without any evidence, "the fogs must not be so intense around the boreal pole that they do not allow the explorer to see and to observe while maintaining himself at a low altitude".[44] He claimed that a balloon was immensely superior to a ship in the polar regions because an aeronaut was sheltered from the ice and the storms. This example is characteristic of the gap between the SGP and the SNA. It was not the technology itself or even its value that geographers and aeronauts disagreed about, but rather what the polar regions, and their difficulties, were like. Martinet's attack shows that the aeronauts' first reaction was to ignore the specific issues of the polar regions – just like the geographers of the SGP ignored the technical aspects they were not competent to assess. But some aeronauts, like Martinet, went farther when confronted with the geographers' arguments: they presented their worries as exaggerated and downplayed the effect of the local conditions. For the most enthusiastic aeronauts, technology was the answer to any polar problems, not because it could confront and solve them, but because it could avoid them. In this sense, Martinet was a precursor of the dominant discourses of the late 1920s, when as Marionne Cronin explains: "In these narratives of the heroic machine the aircraft reconfigures the region's geography, transforming it from an unknown, unexplored blank space, hazardous and devoid of life, into an easily accessible region on the verge of becoming a new aerial highway."[45] The problem was that the technology in the 1870s was far from ready for such Arctic ventures.

This view of a technological miracle which would solve all the difficulties of exploration was not limited to Martinet or his aeronaut friends alone: it was the one presented in Jules Verne's very successful *Cinq semaines en ballon* (1863).[46] As Isabelle Surun observes, the novel's characters have the impression of travelling on a map: she speaks of a "voyage of exploration without ground (*terrain*)".[47] A series of incidents during their crossing of Africa nevertheless remind the novel's characters of the fact that they are travelling above a real space, with actual and sometimes dangerous inhabitants. But as Surun points out, these interactions with the ground are negative and, taken together, result in the book presenting the experience of the actual landscape as useless suffering. Surun sets Verne's novel in the context of the categories of *mimesis* and *methexis*, as used by Paul Carter. She combines Carter's categories with those of

Michel de Certeau's analysis of his perception of New York from the top of the World Trade Centre and from the streets. Like Carter, De Certeau also goes back to Ancient Greece to conceptualize a dichotomy between Icarus and Daedalus, but he also refers to these two perspectives as that of the "seer" from the top of the building and that of the "walker" in the streets. De Certeau's Icarus and Carter's *mimesis* refer to a vision from above, either through a map or from a panoramic position. For de Certeau, this "seer" perspective transforms the world into "a text in front of your eyes", at the price of making yourself foreign to the activities on the ground below.[48] Daedalus and *methexis* refer, on the other hand, to a "walker perspective", a perception from the ground itself, which is much more subjective and characterised by the physical engagement with one's surroundings. *Mimesis* and *methexis* are not contradictory but, rather, complementary. Surun shows that the work of geographical exploration in the period studied here is typically the transformation of the *methexis* into *mimesis*: from the always limited and subjective experience of the traveller into a more objective map usually based on the experiences of several distinct travellers. Both perspectives were nevertheless considered legitimate, as the publication of both maps presenting the "seer perspective", and travel accounts whose texts presented the "walker" perspective of the explorer, show.

Surun argues that in the case of the exploration of Africa during the second half of the 19th century the *mimesis* representation of space became more and more dominant: the interactions with the field, and especially with the local inhabitants, were downplayed not only in the text of travel narratives, but also in the illustrations that accompanied them.[49] Surun proposes that Jules Verne's approach to exploration, while imaginary, permeated the presentation of real expeditions and had an impact on the way Africa was imagined: it was symbolically emptied of its inhabitants, who had been necessary for increasing geographical knowledge earlier. For her it is what allowed Africa to be seen as a *tabula rasa* before its conquest.

One could object that a comparison with Africa is not very relevant for understanding perceptions of the Arctic since they are very different sorts of space. However, given that there were almost no living French polar explorers in the 1870s, the SGP asked explorers of other continents, for instance, to assess Sivel's project: its most severe critic, Francis Garnier, was famous for his explorations of the Mekong. Surun observes that many of the explorers she studies were very attached to the *methexis*, to their own circulation in this space they were "discovering" (in the sense that they, themselves, had not seen it before) – to their "walking" in the sense of de Certeau. French explorers often grew attached to the spaces they explored and specialised in these spaces – sometimes over several genera-

tions.[50] The French aeronauts who proposed to fly to the North Pole did not have this strong connection to the Arctic, for them it was merely a means to an end: flying to the Pole was a way to become famous and to reinforce confidence in the possibilities of flight. They wanted the seer perspective without using that of the walker: it was very clear in the ease with which they abandoned their polar plans to turn to other ones, the Arctic was not very important to them. The explorers that the SGP consulted saw the superficiality of these projects' relationship with the Arctic, and it explains their opposition. For them, while the *mimesis* was the ultimate aim of exploration, it was inconceivable that the *methexis* would be rejected or ignored as the aeronauts wanted to do.

The 1890s and 1900s – France as a provider of equipment and training

The tension between geographers and aeronauts' ways of imagining the polar regions did not subside in the 1890s. They largely continued their activities separately, ignoring each other. But the French aeronauts found others to collaborate with in order to arrange polar flights: they made contributions to two important foreign expeditions, those of Salomon August Andrée (Sweden, 1896 and 1897) and Walter Wellman (USA, 1906, 1907 and 1909).[51] These expeditions were abundantly discussed in the French press, both specialised and general, but Andrée and Wellman did not need to fundraise in France like their French counterparts; they already had their funding. Both of them had experience from participating in traditional Arctic expeditions, in opposition to the French would-be flying explorers already discussed. Neither Andrée nor Wellman took Frenchmen with them for their flights.[52] What they found in France was technical expertise, technical advice, equipment and training.

Both Andrée's and Wellman's expeditions failed, not once but several times: the lack of suitable winds in the summer of 1896 meant that Andrée was unable to launch his balloon, and when he successfully did so the following year the expedition ended with a forced landing on the small island of Kvitøya, to the east of the Svalbard archipelago, where the three members of the expedition died. The precise circumstances remained unknown to the public until their bodies were found in 1930, but after more than a year without news, most recognised by the end of 1898 that they were dead. But even before his disappearance, the failure to launch in 1896 had severely weakened support for Andrée's project in France. He was mocked in some newspapers – *Le Matin* titled its article about it "Deflated balloon".[53] But more problematically, it highlighted the weaknesses of his plan even to the members of the SNA who had supported him, especially

when they compared him to the Norwegian Fridtjof Nansen. For many members of the SNA, Nansen's plan of letting his ship get stuck in the ice in 1893 had been madness: who would want to be a prisoner of the ice pack for several years, when one could just fly to the Pole in a matter of days?[54] But Nansen came back, having come closer to the North Pole than anyone else before him, without losing a single man. Clearly, his plan had not been such folly as many had thought, and by contrast, maybe Andrée's flight was not such a good idea. The lesson was even made clear in *L'Aéronaute*: "it is no longer true to say that the boreal pole cannot be reached by another mean than aerial navigation".[55] Yet this did not completely shake the French aeronauts' belief in the potential of polar ballooning. On the contrary, some tried to take advantage of the fact that Andrée's position seemed to be weakened: Louis Godard and Edouard Surcouf proposed in December 1896 to launch a fully French expedition.[56] Andrée had to write to the French newspaper *Le Temps* to reaffirm that he had not abandoned his expedition.[57] While still helping Andrée, the SNA voted to support Godard and Surcouf in January 1897, but as usual they failed to raise enough money, and they were not supported by the SGP.[58]

The fiasco of Andrée's expedition clearly showed the limits of traditional balloons and spelt the end of the French projects, but hopes developed around dirigibles instead. The American explorer and journalist Walter Wellman mounted a dirigible expedition in 1906 at the request of his employer, the *Chicago Record Herald*, whose editor told him to "Build an airship, go find the North Pole, and report by wireless telegraphy and submarine cable the progress of your efforts."[59] The expedition was funded by the *Record Herald*, which wanted to sell copies and was trying to manufacture its own event in order to have the exclusive. The editor made no mention of scientific studies. Wellman's expedition to the North Pole turned into a repeated failure, with three failed attempts in the summer of 1906, 1907 and finally in 1909.[60]

Both Andrée's and Wellman's balloons were French-made: France, and especially Paris, were perceived to be the world's capital of aeronautics, with the best equipment-makers: Andrée himself presented one of them as "perhaps the most experienced balloon inventor and balloon maker in the world", because he had provided many balloons to the French military and to private individuals.[61] Andrée contacted the SNA and he profited greatly from the lively technical discussions in the French aeronautical milieu.[62] As Per Rydén explains, Andrée himself was an aeronautics technician, for whom the balloon was the most important part of the expedition.[63] His innovations were appreciated by the members of the SNA. The balloon resulting from these discussions and the craft of Henri Lachambre was seen as an object of French pride: it was put on display on the Champ-

de-Mars before the departure for Spitsbergen in 1896, and even the French president, Félix Faure, came to see it.[64] Wellman's dirigible, *America*, was made by Louis Godard, who had become particularly renowned as a balloon-maker by that time, rather than for his old dreams of flying to the North Pole himself.[65]

Although no Frenchman was to be part of either Andrée's or Wellman's balloon crews, in both cases French technicians accompanied them to their base of operations, in Virgohamna in Spitsbergen, to provide technical support for the assembly of the balloons, which had been transported there by ship, and the job of filling them with hydrogen. The maker of Andrée's balloon, Henri Lachambre, accompanied the expedition himself in 1896 to supervise its filling, a task performed the next year by his nephew, Machuron.[66] Similarly, Wellman employed another Frenchman, Gaston Hervieu, to supervise the filling of his dirigible.[67]

This French expertise was not limited to the equipment itself: French aeronauts trained both Andrée's and Wellman's crews, and even Wellman himself. Andrée and his crew were warmly welcomed: no less than six ascents around Paris were organised to train Nils Strindberg, the engineer and photographer of the expedition, who was deemed a quick learner.[68] He became fully integrated in the Parisian aeronautical milieu; Wilfrid de Fonvielle even took him to the café frequented by veteran aeronauts.[69] The next year, in 1897, some of the members of Andrée's team had changed and the new members went on training flights with Besançon.[70] Members of the French Aéro-Club, which partly replaced the SNA in the 1900s, also trained Wellman and his crew. His own first flight took place in France on 31 January 1906 – six months before he was supposed to fly a balloon to the Pole – with Frank Lahm, a rich American living in Paris and a member of the Aéro-Club.[71] Major Henry Hersey, a meteorologist who was to accompany Wellman to the Pole, received his *baptême de l'air* in France as well, with another member of the Aéro-Club.[72] In order to train Hersey, the Aéro-Club arranged six ascents in only 11 days in May 1906, that is to say just before he got on the boat to Spitsbergen.[73] This last-minute training was successful: Hersey piloted the balloon on the last of the six ascents. He later participated in the Gordon-Bennett Cup, a ballooning competition organised by the International Aéro-Club, in September 1906 in Paris as Lahm's assistant (they won), and in 1907 in Saint Louis, in the United States, as a pilot.[74]

The French networks of aeronauts helped Andrée and Wellman because they saw in them a possibility to advance their cause. Their support was fuelled by their interest in the technology, and by the promotional opportunities for French aeronautical companies if a French balloon reached the North Pole. That their engagement was with the technology rather

than with the explorers themselves is visible in the way that they wasted no time in turning from Andrée's allies into his rivals as soon as Andrée seemed to be having difficulties. For the SNA, sending a balloon to the North Pole was primarily about proving that balloons were the future, it was not about the polar regions. These collaborations with foreigners allowed the aeronauts who were enthusiastic about the idea of flights to the North Pole to participate in such attempts, without having to compromise with the geographers' view of Arctic exploration.

Conclusion

Both the geographers of the SGP and the aeronauts of the SNA had Arctic dreams. They shared an interest in polar exploration, and in the idea of reaching the North Pole. The failures of these French projects to gather enough money to actually launch for the polar regions highlight that some degree of unanimity between the different scientific institutions was needed for a project to gain a broader level of support. Neither the SNA nor the SGP had enough influence or money to promote such a project on their own. Yet they never managed to work together, because their dreams were so dissimilar: How they imagined both the Arctic in general, and Arctic exploration in particular, was too different. The gap between them grew during the period considered here: Sivel's project was the only one to be submitted to both associations. Afterwards, several projects in the 1870s and 1880s received even less support than Sivel, while articles written by aeronauts publicly attacked the geographers' perspectives on the possibility of Arctic flight, making collaborations even more difficult. Finally, from the 1890s the aeronauts turned from the French geographers to other, foreign partners, and it was only Andrée and Wellman's expedition that finally allowed the Parisian aeronautical milieu to send two of its balloons towards the North Pole.

Several of the aerial projects, as well as the report produced by the SNA on Sivel's proposed expedition, show how the aeronauts imagined the Arctic as a blank space, which they could fly over almost like they could fly over anywhere else. The geographers of the SGP, on the other hand, envisioned the Arctic in all its complexity, with icebergs, storms and cold, which the aeronauts conveniently chose to ignore or to be overly optimistic about. For the geographers this particular environment was what made the Arctic worth studying. Compared with the aeronauts of the SNA, they took the fact that the Arctic was largely unmapped seriously and considered all the difficulties that it created for planning for all eventualities. This largely explains why the aeronauts did not manage to convince people, apart from the ballooning enthusiasts, to fund their plans.

Geographers and aeronauts also imagined exploration differently. The SGP saw the Arctic as a place for science, both in the sense that there was still geographical exploration to be done there, but more generally for many scientific studies of magnetism, sea currents, glaciology, biology, geology among others. Their rejection of the balloons indicates not only a scepticism about their use in unknown regions, but also an objection to the idea of avoiding the ground. Such a course would have prevented many scientific studies traditionally undertaken by polar expeditions. The aeronauts did not have these qualms because they did not treat the Arctic differently than other spaces: for them, reaching the North Pole in a balloon was a more impressive form of their usual feats like crossing the Channel, or establishing altitude records. What they meant by an "expedition" was therefore very different from what the geographers meant by the word.

Both aeronauts and geographers treated these projects as Arctic expeditions, but how they imagined what the Arctic was like, and what an expedition should do, was very different. Since neither group had the influence and funding necessary for mounting such expeditions on their own, these projects never came close to launching for the North Pole – which would probably have ended poorly, as Andrée's crash shows. It was only in the interwar period, when both planes and dirigibles became more reliable, that Arctic flights really took off and that the figure of the polar explorer and that of the aeronaut could merge into that of the technological explorer.[75]

Notes

1. The novel is called *Les Robinsons des airs*, as a reference to another he published earlier, called *Les Robinsons sous-marins*. It was published between 1908 and 1909 in *Le Journal des Voyages*, then as Capitaine Danrit, *Robinsons de l'air* (Paris: Flammarion, 1912).

2. Comte Henry De la Vaulx, "Procès-verbal de la séance du 1er février 1900", *L'Aéronaute*, February 1900.

3. Alfred Fierro, *La Société de Géographie : 1821–1946*, (Genève and Paris: Droz and H. Champion, 1983); Dominique Lejeune, *Les sociétés de géographie en France et l'expansion coloniale au XIXe siècle*, (Paris: Albin Michel, 1993).

4. On this journal, *L'Aéronaute*, and the aeronautical press in general, see Mélodie Simard-Houde, "L'envol du journalisme aéronautique (1783–1939)", *Nacelles,* 2018, http://revues.univ-tlse2.fr/pum/nacelles/index.php?id=570#ftn21.

5. Alexandre Simon-Ekeland, "Making French Polar Exploration, 1860s–1930s" (Doctoral dissertation, Oslo, University of Oslo, 2021).

6. Robert Wohl, *A Passion for Wings: Aviation and the Western Imagination, 1908–1918* (New Haven: Yale University Press, 1994); Robert Wohl, *The Spectacle of Flight: Avia-*

tion and the Western Imagination, 1920–1950 (New Haven: Yale University Press, 2005); Joseph J. Corn, *The Winged Gospel: America's Romance with Aviation, 1900–1950* (New York: Oxford University Press, 1983); Françoise Lucbert and Stéphane Tison, eds., *L'imaginaire de l'aviation pionnière: contribution à l'histoire des représentations de la conquête aérienne, 1903–1927*, 2016.

7. Emmanuel Chadeau, *De Blériot à Dassault, histoire de l'industrie aéronautique en France : 1900–1950* (Paris: Fayard, 1987), 15–18.

8. For example Michael Robinson, *The Coldest Crucible: Arctic Exploration and American Culture* (Chicago London: The University of Chicago Press, 2006); Peder Roberts, *The European Antarctic: Science and Strategy in Scandinavia and the British Empire*, (New York, NY: Palgrave Macmillan, 2011); Russell A. Potter, *Arctic Spectacles: The Frozen North in Visual Culture, 1818–1875* (Seattle: University of Washington Press, 2007); Huw Lewis Jones, *Imagining the Arctic: Heroism, Spectacle and Polar Exploration*, (London & New York: I.B. Tauris, 2017); David Thomas Murphy, *German Exploration of the Polar World: A History, 1870–1940* (Lincoln: University of Nebraska Press, 2002); Max Jones, *The Last Great Quest. Captain Scott's Antarctic Sacrifice* (Oxford: Oxford University Press, 2003); Simon-Ekeland, "Making French Polar Exploration, 1860s–1930s".

9. Lewis Jones, *Imagining the Arctic*, 191–240; Roberts, *The European Antarctic*, 11–29.

10. Marionne Cronin, "Technological Heroes: Images of the Arctic in the Age of Polar Aviation", in *Northscapes: History, Technology, and the Making of Northern Environments*, ed. Sverker Sörlin and Dolly Jørgensen (Vancouver: UBC Press, 2013), 57–58. Marionne Cronin, "Richard Byrd, Technological Explorer: Polar Exploration, the Machine, and Heroic Masculinity in Interwar America", *Technology and Culture* 57, no. 2 (2016), 322–52, https://doi.org/10.1353/tech.2016.0056.

11. Luc Robène, *L'homme à la conquête de l'air: des aristocrates éclairés aux sportifs bourgeois*, vol. 1 (Paris: L'Harmattan, 1998); Luc Robène, *L'homme à la conquête de l'air: des aristocrates éclairés aux sportifs bourgeois*, vol. 2 (Paris: L'Harmattan, 1998).

12. Sebastian Vincent Grevsmühl, *La terre vue d'en haut: l'invention de l'environnement global* (Paris: Seuil, 2014), 97–132.

13. Robène, *L'homme à la conquête de l'air*, 1998, 2:43–77; Fabien Locher, *Le savant et la tempête: étudier l'atmosphère et prévoir le temps au XIXe siècle* (Rennes: Presses universitaires de Rennes, 2008), 169–89.

14. "Procès-verbal de la séance du jeudi 17 mai 1906", *L'Aéronaute*, June 1906.

15. Lewis Jones, *Imagining the Arctic*, 199–209.

16. "Chronique", *Le Temps*, June 20, 1869. This probably explains why Lambert is presented as having planned on using a balloon in Lewis Jones, *Imagining the Arctic*, 211.

17. Undated copies, possibly translations, of letters from Lütke and Bates to Maunoir in Bibliothèque nationale de France (BnF) SG13/2434.

18. Liv Hennum, "Le Périple du ballon La Ville d'Orléans", in *Passions boréales: regards français sur la Norvège*, ed. Eric Eydoux (Caen: Presses universitaires de Caen, 2000), 150–53.

19. Report by Charles Grad dated June 27, 1872. BnF SG13/2434.

20. Report by Hüber dated May 23, 1872. BnF SG13/2434.

21. Report by Marié-Davy dated July 11, 1872. BnF SG13/2434.

22. Report by Francis Garnier dated May 22, 1872, BnF SG13/2434.

23. Robène, *L'homme à la conquête de l'air*, 1998, 2:135–42.

24. "Séance du jeudi 28 mars 1872", *L'Aéronaute*, May 1872.

25. Undated report, BnF SG13/2434.

26. J. Crocé-Spinelli and A. Saco, "Rapport de la commission chargée d'apprécier le projet d'exploration du pôle Nord à l'aide d'un aérostat présenté par M. Sivel", *L'Aéronaute*, September 1872.

27. Crocé-Spinelli and Saco, "Rapport de la commission chargée d'apprécier le projet d'exploration du pôle Nord à l'aide d'un aérostat présenté par M. Sivel", 142.

28. "Les obsèques des victimes du *Zénith*", *Le Temps*, April 21, 1875; Richard Hallion, *Taking Flight: Inventing the Aerial Age from Antiquity through the First World War* (New York: Oxford University Press, 2003), 77–78.

29. William Hüber, *Les Glaciers* (Paris: Challamel, 1867).

30. Robène, *L'homme à la conquête de l'air*, 1998, 2:116–17.

31. Detailed proposal dated November 30, 1876. BnF SG9bis/2315.

32. Guy Vautrin, *Histoire de la vulgarisation scientifique avant 1900* (Les Ulis: EDP Sciences Editions, 2018), 348.

33. "Séance du 14 avril 1887", *L'Aéronaute*, June 1887.

34. "Séance du 23 février 1888", *L'Aéronaute*, April 1888.

35. Wilfrid de Fonvielle, *Les Affamés du Pôle Nord. Récits de l'expédition du major Greely d'après les journaux américains* (Paris: Hachette, 1885); "Les Affamés du Pôle Nord", *L'Aéronaute*, July 1885.

36. Quoted in Robène, *L'homme à la conquête de l'air*, 1998, 2:119.

37. Félix Caron, "L'aérostat électrique à hélices de MM. Les capitaines Ch. Renard et Krebs", *L'Aéronaute*, September 1884.

38. "Les explorations audacieuses. Voyage au pôle Nord en ballon", *Le Journal des Voyages*, January 4, 1891; "Au Pôle Nord", *Le Rappel*, December 2, 1890.

39. "Séance du 20 novembre 1890", *L'Aéronaute*, January 1891.

40. Paul Decauville, "La conquête de l'air. Discours prononcé le jeudi 2 juillet 1896 à l'Hôtel des Sociétés Savantes", *L'Aéronaute*, August 1896.

41. Urban Wråkberg, "Andrée's Folly: Time for Reappraisal?", in *The Centennial of S. A. Andrée's North Pole Expedition: Proceedings of a Conference on S. A. Andrée and the Agenda for Social Science Research of the Polar regions*, ed. Urban Wråkberg (Stockholm: Royal Swedish Academy of Sciences, 1999), 56–99.

42. Lewis Jones, *Imagining the Arctic*, 225.

43. Ludovic Martinet, "L'exploration du pôle en aerostat", *L'Aéronaute*, October 1875.

44. Martinet, 293.

45. Cronin, "Richard Byrd, Technological Explorer", 332.

46. Published in English in 1869 as *Five Weeks in a Balloon*.

47. Isabelle Surun, *Dévoiler l'Afrique? Lieux et pratiques de l'exploration (Afrique occidentale, 1780–1880)* (Paris: Editions de la Sorbonne, 2018), 332.

48. Michel de Certeau, *Arts de faire*, new ed., L'invention du quotidien (Paris: Gallimard, 2010), 140.

49. Isabelle Surun, "Les figures de l'explorateur dans la presse du XIXe siècle", *Le Temps des medias* n° 8, no. 1 (1 December 2007), 57–74.

50. See for instance Jehanne-Emmanuelle Monnier, *Profession explorateur: Alfred Grandidier, 1836–1921* (Rennes: Presses universitaires de Rennes, 2017).

51. David Bristow, *Flight to the Top of the World: The Adventures of Walter Wellman* (Lincoln: University of Nebraska Press, 2018); P. J. Capelotti, *The Wellman Polar Airship Expeditions at Virgohamna, Danskøya, Svalbard: A Study in Aerospace Archaeology*, vol.

no. 145, Meddelelser (Oslo: Norsk polarinstitutt, 1997); Urban Wråkberg, ed., *The Centennial of S. A. Andrée's North Pole Expedition: Proceedings of a Conference on S. A. Andrée and the Agenda for Social Science Research of the Polar Regions*, (Stockholm: Royal Swedish Academy of Sciences, 1999).

52. Salomon August Andrée, "Förslag till Polarfärd med luftballong", *Ymer*, 1895.

53. "Ballon dégonflé", *Le Matin*, August 26, 1896.

54. "Société française de navigation aérienne. Séance du jeudi 20 juin 1895", *L'Aérophile*, July 1895.

55. Wilfrid de Fonvielle, "L'exploration Nansen et l'expédition Andrée", *L'Aérophile*, March 1897.

56. "Au Pôle Nord en ballon", *Le Petit Parisien*, December 15, 1896.

57. Untitled article, *Le Temps*, December 30, 1896.

58. "Séance du 7 janvier 1897", *L'Aéronaute*, February 1897.

59. *The Chicago Record Herald*, December 31, 1905, quoted in Beau Riffenburgh, *The Myth of the Explorer: The Press, Sensationalism, and Geographical Discovery* (London: Belhaven, 1993), 157.

60. Bristow, *Flight to the Top of the World*.

61. "Kanske den mest erfarne ballongkonstruktör och ballongfabrikant i världen". S. A. Andrée, "Förslag till Polarfärd med luftballong", *Ymer,* 1895, 55–210.

62. "Séance du 21 Février 1895", *L'Aéronaute*, May 1895; "Séance du 18 juillet 1895", *L'Aéronaute*, November 1895; "Rapport sur le projet d'expédition en ballon aux régions polaires", *Comptes rendus hebdomadaires de l'Académie des Sciences*, June 4, 1895.

63. Per Rydén, *Den svenske Ikaros: berättelserna om Andrée* (Stockholm: Carlsson, 2003), 135.

64. "L'Exposition du "Pole Nord" au Champ-de-Mars", *L'Aérophile*, June 1896.

65. A de Masfrand, "A la conquête des pôles en ballon", *L'Aérophile*, January 1906.

66. Alexis Machuron and Henri Lachambre, *Andrée. Au pôle Nord en ballon* (Paris: Nilsson, 1897).

67. Ivan Hitzemann, "Ceux qui disparaissent: Gaston Hervieu", *L'Aérophile*, 15 December 1923.

68. "Statistique des voyages en ballon", *L'Aérophile*, August 1896; "Echos et Nouvelles", *Le Petit Parisien*, April 12, 1897; Tyrone Martinsson, *Nils Strindberg: En Biografi Om Fotografen På Andrées Polarexpedition* (Lund: Historiska Media, 2006), 75–95.

69. Martinsson, *Nils Strindberg*, 82.

70. "Echos et Nouvelles", *Le Petit Parisien*, April 12, 1897.

71. "Les ascents au Parc de l'Aéro-Club de France", *L'Aérophile*, February 1906.

72. Georges Besançon, "Portraits d'aéronautes contemporains: Léon Barthou", *L'Aérophile*, July 1908.

73. "Bulletin des ascents", *L'Aérophile*, June 1906.

74. "La Coupe Aéronautique Gordon-Bennett 1906", *L'Aérophile*, November 1906; "Aéronautique. La Coupe Gordon-Bennett", *Le Temps*, September 20, 1907.

75. Roald Berg, "Amundsen Og Hans Aeronauter", in *Norsk Polarhistorie 1. Ekspedisjonene*, ed. Einar-Arne Drivenes and Harald Dag Jølle, vol. 1 (Oslo: Gyldendal, 2004), 227–93; John McCannon, *Red Arctic: Polar Exploration and the Myth of the North in the Soviet Union, 1932–1939* (New York: Oxford University Press, 1998); Cronin, "Richard Byrd, Technological Explorer".