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# Marsh at Cravairola: Boundary-Making in the Italo-Swiss Alps

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## ABSTRACT

George Perkins Marsh, United States minister to Italy, renowned as a linguist and a geographer, was a fitting choice to be named arbiter of a disputed Italo-Swiss boundary segment, the *alpe* of Cravairola, north of Domodóssola and west of Locarno, in 1874. Although Cravairola was on the eastern (Swiss) side of the mountain chain, it was owned and used seasonally, for pasturage and timber, by villagers from two Italian communes. Logging and the flotation of timber were devastating the Swiss torrent of the Rovana and the Val Maggia below. This essay reproduces Marsh's authentic text, printed here for the first time from his own manuscript. It also recounts the boundary dispute's history, Marsh's inspection of the area with the two countries' agents, the issues at stake, and the reasons Marsh awarded the territory in question to Italy. Ancient and uncontested claims of jurisdiction over the area by Italian communes in Marsh's view had to take precedence over the best interests of both countries in terms of access, land management and watershed conservation. Subsequent critiques query Marsh's analysis but confirm its importance as a legal precedent in boundary arbitration.

## KEY WORDS

Boundaries; Italy; Switzerland; George Perkins Marsh.

In the summer of 1874 George Perkins Marsh was asked to serve as arbiter over a small tract of mountain and pasture long contested between Italy and Switzerland.<sup>1</sup> Marsh had been the United States envoy to the Kingdom of Italy since 1861, based successively in Turin, Florence and Rome, and dean of the diplomatic corps for more than a decade. He was well known to both Italian and Swiss statesmen not only as a diplomat but also as the author of the conservation



FIGURE 1. George Perkins Marsh  
(photograph by Matthew Brady, New York, 1861. U.S. Library of Congress)

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classic *Man and Nature* (1864),<sup>2</sup> as an authority on legal history, as a linguist fluent in Italian and French, and as an Alpine devotee. He had frequently visited the Italian and Swiss Alpine valleys between Aosta and the Val Sesia, as well as lakes Lugano and Maggiore, immediately west and south of the disputed area. The choice of Marsh as arbiter was thus in every respect appropriate. Despite his age, his weight, and his recurrent rheumatism, he considered it a 'clear duty to accept the position'.<sup>3</sup> It was also a keen pleasure – a chore the 73-year-old Vermont-born polymath enjoyed as much as any in his long and distinguished career. His arbitral decision, delivered by him in Milan on 23 September 1874, is published here in his own words for the first time.

## A MANUSCRIPT AND ITS DEVIANT VARIANTS

My recent biography of Marsh devoted several pages to his arbitral decision and its geographical and legal implications.<sup>4</sup> But only after I began to prepare this essay did I become aware that all extant printed versions – Italian, French and English – of Marsh's judgment, accepted as bona fide without question up to the present day, were so defective as to be invalid. My efforts to reconcile these versions with one another and with Marsh's usual writing style led me increasingly to doubt their authenticity. Hence I reverted to Marsh's own handwritten draft, in English, held in the George Perkins Marsh Collection at the Bailey\Howe library of the University of Vermont, Burlington.

This 23-page manuscript, untitled and only partly paginated, is heavily amended by Marsh himself, especially in the very rough and often barely legible final pages (Figure 2). It was translated into Italian page by page as Marsh wrote it. 'Six pages of it are already in the hands of a translator', he wrote his wife on Sunday 20 September 1874. 'This translation I must review carefully, then it will require re-copying'. By the 23rd it was all done, and Marsh's decision was 'pronounced' in Italian.<sup>5</sup> According to John Bassett Moore, editor of the 1898 official American version, 'Mr. Marsh expected when his decision was pronounced to send an English translation of it to his government, but he omitted subsequently to send either a translation or the original text. For the following authentic [*sic.*] copy of the original [*sic.*] I am under obligations to the Italian Government and the United States embassy at Rome'.<sup>6</sup>

But neither the Italian nor the English in the 1898 publication (Italian text in the body of the pages, English translation in smaller type beneath) is by any stretch of imagination 'original' or 'authentic'. Both depart substantially from Marsh's manuscript text in English and, by implication, from the Italian translation he himself carefully reviewed on the spot. A French translation of 1954 derives largely, though not always accurately, from the incorrect Italian.<sup>7</sup>



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Comparison with Marsh's manuscript shows all these printed versions to be flawed in numerous respects. Words, phrases, sometimes whole sentences are missing; misinterpretations and mistranslations abound; meanings are often obscure and sometimes nonsensical. The Italian version transmitted to Washington was defectively transcribed by someone ignorant of Italian; the English retranslation is at once clumsy because word-for-word literal, and at many points blatantly in error.<sup>8</sup>

A German translation or summary of Marsh's decision prepared for a Swiss journal in 1875 probably remained unpublished because the incensed Marsh complained to the editor:

I have received this morning a proof containing an article professing to state the decision, and see, with extreme surprise & regret, that your translator has totally misapprehended a fundamental point in the case ... and the tone of the article is in other respects such as nothing I have written could sanction. After so gross a perversion of the question I can have no confidence that a proper rectification will be made and insist that the article be cancelled and suppressed.<sup>9</sup>

Marsh was famed for flaying his translators. In the late 1860s he had an Italian version of his *Man and Nature* destroyed owing to 'not less than six thousand ... gross and often ludicrous errors [committed] by a person not acquainted with the subject treated, and with imperfect knowledge' of both languages.<sup>10</sup> For Marsh the aphorism *traduire c'est trahir* was all too often literally true.

## THE DISPUTED TERRITORY

The territory Marsh had to adjudicate, the Alpe of Cravairola, northwest of Locarno between Lago Maggiore and St Gotthard, was the last remaining unsettled stretch of the Italo-Swiss boundary. The rest of that boundary had been fixed by the Eight Powers Declaration (the Congress of Vienna) of 20 November 1815, altered in a few details by the Lugano Convention of 1861.<sup>11</sup> The dispute over Cravairola, originally at issue between the Duchy of Milan and the Swiss Canton of Tessin (Ticino in local Italian parlance), dated back to the fifteenth century. Marsh described the contested area as follows:

The Alp, a mountain pasturing ground of Cravairola, which is the debatable district, is an irregular triangle, containing about 4,500 acres, lying on the eastern slope of the mountain chain which forms the watershed between the Italian valley of the Toccia, or Tosa, and the Swiss valley of the Maggia, in the canton Ticino. The Tosa and the Maggia both empty into Lago Maggiore, the former near Pallanza, the latter near Locarno. The height of the pastures of Cravairola above the sea is from 4,500 to 9,000

feet, and they are accessible by rugged mule paths from the [Italian] town of Crodo, in the Val Tosa, and from that of [Swiss] Campo, in the Val Maggia, and the lowest passage from Crodo being over a ridge nearly 7,000 feet above that village. The surface of the Alp is everywhere steeply inclined to the east, and much of it is bare rock, but it contains valuable pastures and a certain extent of evergreen forest. There are no dwellings upon the Alp, except a few rude huts, occupied by the herdsmen and dairymen from the 24th of June to the 8th, and sometimes 15th, of September, the severity of the climate rendering the district uninhabitable during the rest of the year. From the Swiss village of Campo the lower limit of the Alp may be reached by a path, barely practicable, in three or four

hours. The products of pastoral industry can be transported over the crest of the mountain by men, and to some extent by mules; but the timber from the forest can be carried to market only by floating it down the torrent Rovana, which arises in the Alp, and thence by the river Maggia to the lake.<sup>12</sup>

In most respects Cravairola resembled many similar patches in Italian Piedmont and Swiss Ticino, as sketched by a nineteenth-century visitor:

An *alpe* is a tract of the highest summer pasturage just below the snow-line, and only capable of being grazed for two or three months in every year. It is held as common land by one or more villages in the immediate neighbourhood, and sometimes by a single individual to whom the village has sold it. A few men and boys attend the whole herd, whether of cattle or goats.... Sometimes there will be a little hay grown [and] chalets built, which will be inhabited for a few weeks and left empty the rest of the year.<sup>13</sup>



FIGURE 3. View of the disputed basin of Cravairola (photograph by Markus Senn, Campo Vallemaggio, Switzerland).

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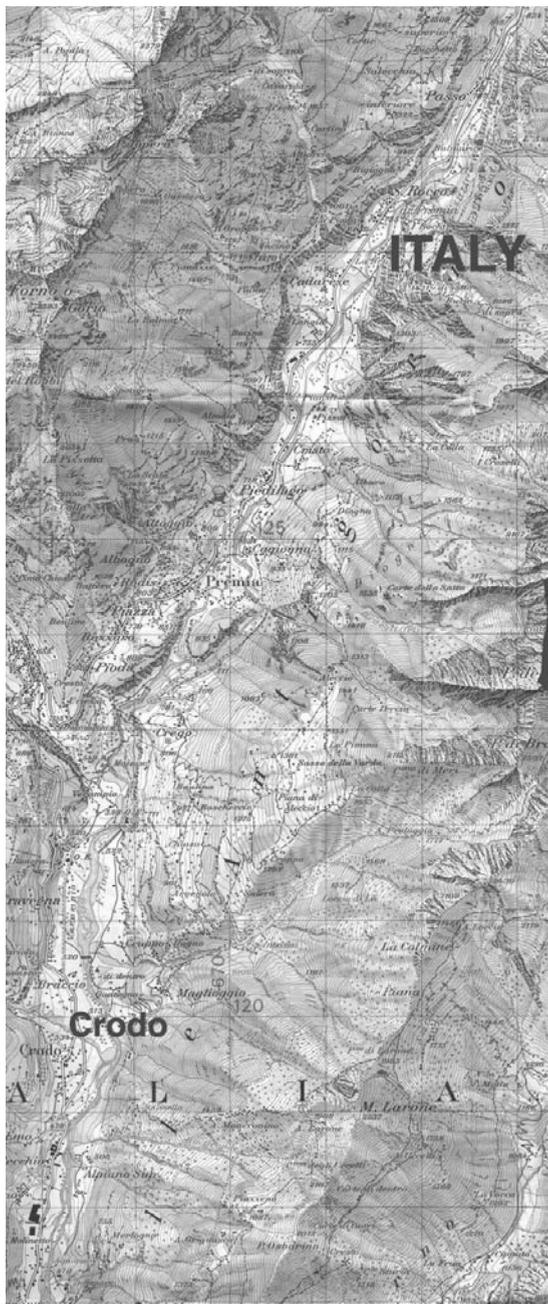
The dispute over Cravairola had festered because this alpe, while relatively easy of access from the Swiss village of Campo in Val Maggia, was barred from the Italian side by snow and ice for most of the year; even in summer, as Marsh noted, it required a nine-hour climb over the pass. Yet over the course of many centuries past the Italian communes of Crodo and Pontemaglio, south-west of the alpe and north of Domodóssola, had acquired title to Cravairola, renting parcels of land to villagers who pastured animals and cut timber there. But these lands, huts, animals and other goods were continually encroached on by the Swiss inhabitants of Campo below. Conflicts had worsened in recent years.

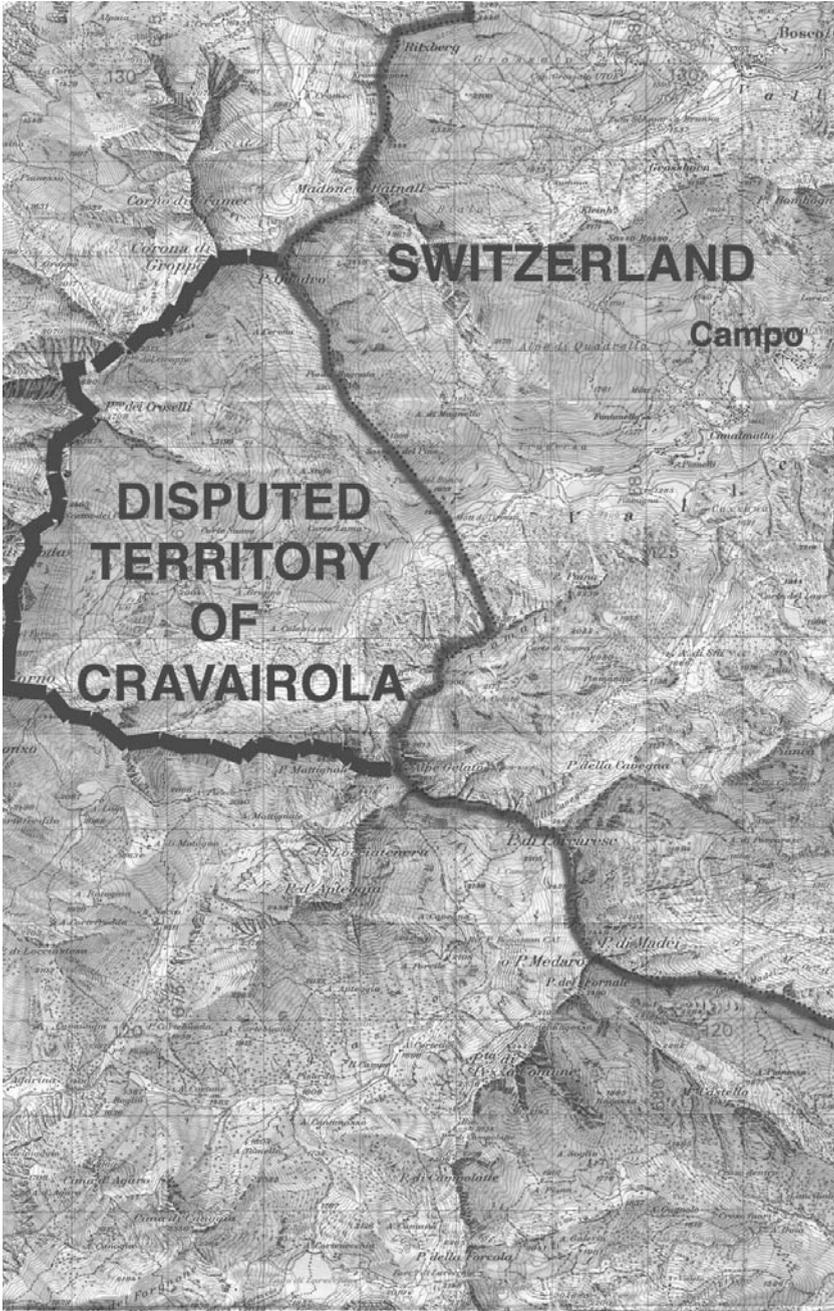
## HISTORY OF THE ARBITRATION

Both countries claimed sovereignty. After many failures to resolve matters, an 1873 Italo-Swiss commission decided to arbitrate, agreeing that private property rights should play no part in fixing the political frontier. Switzerland sought a boundary along the summit of the main ridge. Italy believed the boundary should swerve eastward from the ridgetop to embrace Cravairola, then rejoin the summit chain three miles farther south (Figure 4).

Marsh joined the Swiss and Italian agents and arbiters in Milan on 7 September 1874, and the commission, eight or ten in all, travelled to Crodo the next day.<sup>14</sup> On the 9th they left Crodo at 5 a.m., climbing 7,000 feet in seven hours by mule and on foot before reaching and crossing the disputed land. From the 2,476-metre pass at Scatta dei Croselli a 'grand spectacle' had greeted another boundary inspector a few years previously. 'The Alp of Cravairola unfolds itself as an amphitheatre at your feet, sweeping down a gentle and even slope towards the torrent of the Rovana, the outlet of the whole great basin'.<sup>15</sup> Six years later, Marsh's arbitral party was deprived of any such view. Immersed in heavy rain and fog, 'we saw little of it except the entrance and the exit', and could not even halt at the knife-edge summit. 'The mules could not carry us down, and the first part of the descent was out of the question even for the *portantina*. So I took to my feet, and with the aid of a younger man to steady me, went down for one hour and then by *portantina* the rest of the way. We reached Campo at 7 p.m. having been 14 hours in crossing the mountain. It rained steadily and heavily for the last ten hours, and we were consequently all pretty thoroughly soaked, but I took no cold'. Despite this strenuous wet hike on a mountain path 'among the worst I have ever travelled', Marsh was 'neither stiff nor sorry the next day, which for an old cripple is pretty well'.<sup>16</sup> (It was more than this chronicler of Marsh, at the same age he had been, achieved 122 years later, even though the path to Cravairola is now well marked on a map in Crodo village centre.)

FIGURE 4. Map of the Italian-Swiss boundary showing the disputed area claimed by both countries (from Carte Nationale de la Suisse. Valle Antigorio, Sheet 275, 1:50,000, 1993).





By 12 September the arbiters were back in Milan. Marsh went home to Florence while the two nations' agents sought to resolve the issue on their own. What ensued was paradoxical, as a later analyst put it. The Italian arbiter offered to accept the Swiss ridgetop boundary if the Swiss would indemnify the Italian communes by buying their Cravairola properties. The Swiss arbiter rejected this proposal, noting that land ownership was supposed to have no bearing on the boundary settlement. This was a legal truth but a social fiction; the difficulties faced by Italian landowners, already grave enough, would be much magnified were the territory adjudged Swiss.<sup>17</sup>

The impasse required Marsh's recall to Milan on the 16th. Perusing 'immensely voluminous' documents spanning six centuries of local history, together with annotations and arguments by the two countries' agents, Marsh found the legal question 'certainly as thorny as the physical.... A considerable fascicle of old papers, which has been scarcely noticed by either party, has required a good deal of study. But this labor has been well repaid by supplying testimony which I think entirely decisive of the case, legally.... I have only to make clear to others what is already clear to me'. He could not have managed such a task but for the restoration of his eyesight a few months previously by an oculist in Coblenz. By the 20th 'my Opinion, like my other writings, has grown under my pen, but it is substantially finished', and was being translated into Italian under his supervision. 'My eyes have held out thus far, and though I am very tired, I see land'. The next day he 'put the last word to my Opinion', save for checking the Italian translation. On the 23rd the 'work is finished, the Commission has separated', and Marsh quit Milan, staying overnight in Bologna before returning to his summer home in Florence.<sup>18</sup>

Both countries thanked Marsh for his unpaid labour, and the United States Congress grudgingly let him accept small gifts. 'When Mr. Marsh rendered his award he stated to Senator [Enrico] Guicciardi, ... to save any possible embarrassment growing out of the provisions of the Constitution of the United States, that he could not accept ... any compensation, gift, or other material acknowledgment of his services, and begged that none might be offered.... Both governments, however, afterwards requested him to accept testimonials, the Italian Government offering him an ornamental table [marble-topped and inlaid with Florentine roses], and the Swiss a pocket chronometer. Congress authorized Mr. Marsh to accept these presents, ... and they were duly received by him'.<sup>19</sup>

The following is the text of his decision, or 'Opinion', as Marsh usually termed it.

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## TEXT OF MARSH'S DECISION

'Opinion of George P. Marsh, umpire under the arbitral agreement concerning the definitive settlement of the Italian-Swiss frontier at the place named Alpe de Cravairola, concluded between the governments of Italy and Switzerland on the 31st of December one thousand eight hundred and seventy-three.

'The Honorable Commissioner Enrico Guicciardi, Senator of the Kingdom of Italy, and the Honorable Councillor of the [Helvetian] States, Hans Hold, Colonel of the Swiss federal headquarters, duly nominated by the respective governments of Italy and the Swiss Confederation, arbitrators for the definitive determination of the Italian-Swiss frontier at the place named *Alpe Cravairola*, having, in accordance with an agreement dated July thirteen one thousand eight hundred and seventy-four and based on Article 4 of the above-mentioned arbitral agreement, selected the undersigned as umpire in case they could not reach an accord on the said question; and the same arbitrators having duly declared in a report and notified the said umpire that they found it impossible to reach an agreement; the undersigned having carefully considered the arguments and the evidence submitted by the two governments through their respective agents, proceeds and declares his verdict on the matter submitted to him, in the following decision'.<sup>20</sup>

[p. 1 of ms.] The question referred to the present Tribunal of Arbitration, by the two governments interested, is thus stated in the first Article of the Compromis Arbitral, under authority of which the Tribunal acts:

*La ligne frontière sus-mentionnée [qui sépare le territoire Italien du territoire de la Confédération Suisse] doit elle comme l'estime la Suisse, suivre le faite de la chaîne principale, en passant par la Corona di Groppo, Pizzo dei Croselli, Pizzo Pioda, Pizzo del Forno, et Pizzo del Monastero; ou bien doit-elle, comme l'estime l'Italie, quitter la chaîne principale au sommet désigné Sonnenhorn ^2788m pour descendre vers le ruisseau de la Vallée de Campo et en suivant l'arête secondaire nommée Creta Tremolina (ou Mosso del Lodano 2356m sur la carte Suisse), rejoindre la chaîne principale au Pizzo del Lago Gelato?* [Ought the above mentioned frontier line [which separates the Italian territory from the territory of the Swiss Confederation] to follow, in accordance with the Swiss view, the summit of the principal chain, traversing the Corona di Groppo, the Pizzo dei Croselli, the Pizzo di Pioda, the Pizzo del Forno, and Pizzo del Monastero; or ought it, in accordance with the Italian view, to leave the principal chain at the summit of Sonnenhorn 2788m and thence descend towards the river of the valley of Campo along the secondary ridge called Creta Tremolina (or Mosso del Lodano 2356m on the Swiss map), rejoining the principal chain at the Pizzo del Lago Gelato?]

It is not altogether clear to the undersigned whether the High Contracting Parties intended to authorize the arbitrators to determine the frontier line upon considerations of pure expediency, or whether they were expected to decide the point upon principles of strict right. The arbitrators chosen by the respective states have considered the [p. 2] [sub]ject in both aspects, and hence it is necessary to examine the allegations and arguments adduced by them both as to the expediency and as to the strict right.

First, then, as to the question of simple expediency, leaving out of view, for the present, that of strict right.

In behalf of Switzerland, it is urged that the disputed territory is much more accessible from the Val Maggia than from the Val Antigorio; that it can therefore be administered more conveniently and advantageously by the Swiss authorities than by the Italian who are unable even to enter it during three quarters of the year; and hence that all the rights and interests of the occupants, whether relating to person or property, can be better protected by the judicial and executive institutions and offices of Switzerland than by those of Italy.

It is further alleged that for want of legal control and supervision of the present occupants of the soil, the physical conditions of the territory are rapidly deteriorating, the extent of its pastures and its meadows diminishing by the invasion of alpine shrubs – which, under proper police regulations, might be extirpated – and by the wash of the soil in consequence of indiscreet [p. 3] felling of woods which ought to be preserved, and of the neglect of the possessors to take suitable measures to prevent this evil by plantation, turfing the loose earth around the sources and the banks of the lesser rivulets, and constructing barriers in the beds of these latter. It is also urged that the unrestrained and unregulated flotation of timber cut upon the Alp down the stream by which its waters are discharged into the Maggia, accomplished, as this flotation is, by the means of dams which accumulate great masses of water to be suddenly precipitated down the valley upon the opening of the sluices, is greatly injurious not only to the banks of such streams within the Alp itself, but in a still higher degree to those of the Rovana in the Commune of Campo.

It is alleged that the action of this torrent already produces very unfavorable effects on the regime of the Maggia, that the violence of the torrent and its ravages are constantly increasing, from the causes already mentioned, and it is even thought that a sensible influence is exerted by them upon the bed of Lago Maggiore at the outlet of the Maggia, and of course upon the navigation of a certain portion of the Lake.

It is insisted that these evils, already so injurious to the interests of the Swiss people and their territory, can be prevented only by applying [p. 4] to the Alp of Cravairola modern methods of forestal economy and of the regulation of water courses. This, it is said, can hardly be done effectively by the Italian government

in consequence of the inaccessibility of the territory from the Italian side of the mountains, that Italy has no sufficient interest in the protection of the wood and the soil of the Alp to constitute an adequate motive for its interference, and further that the cost of administration of such measures, if undertaken by Italy, would be far greater than if they were initiated and conducted by the government of Switzerland as a part of her regular system of such improvements.<sup>21</sup>

It is perhaps not out of place to observe here that though Switzerland, in case the territory in dispute shall be assigned to Italy, cannot adopt any measures of security or improvement within the limits of the Alp itself, yet that upon such assignment, the fourth article of the Convention of the Borromean Islands of the year 1650 will, by virtue of the seventh article of the same convention, become inoperative, and consequently Switzerland will be at liberty to forbid the flotation of timber from the Alp through Swiss territory, and to enforce such prohibition by confiscation of the timber or [p. 5] other legislation, and thereby to protect the banks of the Rovana from injury by this cause.

So far as these alleged facts are concerned, it may be remarked that the argument of the advocate Scaciga della Silva, exhibited by the Italian agents,<sup>22</sup> asserts that the productive capacity of the Alp is already diminished by one half, and other statements by the agents of the parties make the deterioration even greater. Besides this, it is obvious, upon a very superficial inspection of the territory and of the lands of the Commune of Campo, that the physical evils which have resulted, and the dangers which are threatened from the maladministration of the soil and the wood of the Alp have not been exaggerated in the representations of the agents of Switzerland.

It is further suggested that upon general principles of political economy, it is highly desirable that debatable territory should be assigned to those who can turn it to most profitable account, and that the Alp of Cravairola would be of much greater value to the people of the adjacent Swiss commune than it can be to so distant possessors as the people of Crodo. Some additional force is given to this argument by the observation already [p. 6] made that it is in the power of the Swiss government, by the adoption of strictly legal measures for the protection of its own territory, practically to deprive the wood of the Alp of all marketable value in the hands of Italian occupants.

These considerations, which are here barely hinted at, and other analogous arguments which might be readily suggested appear to the undersigned to be entitled to very great weight, and he is fully convinced that if a satisfactory compensation could be found for the Italian Communes and individuals now occupying the Alp of Cravairola, the ultimate best good of the two States would be most effectually promoted by an assignment of both the sovereignty and the soil in question to Switzerland. The two States have happily few, if any, conflicting or even rival interests. On the contrary, there is a solidarity of interest between

them. Each profits by the material prosperity and the political and social progress of the other, and the removal of all causes of dissension and irritation between them would be highly advantageous to both.

If then it were clear that the [p. 7] arbitrators have the power to govern themselves by considerations of expediency alone, and if they or some other tribunal were authorized to fix a compensation to the present proprietors of the land, the undersigned would have no hesitation in thinking that both the sovereignty and the soil ought to be assigned to Switzerland and a fair equivalent awarded to the occupants for the transfer of their property.

But the terms of the Compromis do not by any means in and of themselves imply such powers in the arbitrators, and the absence of all provision for compensation to the present owners of the land, leads the undersigned to believe that the High Contracting Parties did not intend to confer such authority upon the arbitrators. It is further the opinion of the undersigned that the extension of the institutions, laws and administration of Switzerland over the territory, while its proprietors continue to remain subjects of Italy and necessarily to reside for the greater part of the year in that country, would lead to endless jealousies, dissensions and contentions more prejudicial to the peace and harmony of the two countries than even the present unsatisfactory condition of the territory, and would in all probability give rise to more international questions than any decision within the scope of this tribunal will settle. The question of expediency, then, cannot be made a substantive ground of decision, and it can only avail as a subsidiary criterion in the absence of other means of arriving at a sound conclusion.

We come now to examine the question of strict right.

It is understood to be admitted, that certain [p. 8] Italian communes of the Valdossola, or rather of a *diramazione* [branch] of that valley, the Val Antigorio, have been in the undisputed possession and usufruct of parts of the Alp of Cravairola for nearly four centuries, and of other parts for a still longer period, under a claim of absolute title to the soil acquired by purchase, and accompanied by various more or less important official acts of Italian public functionaries, which are interpreted by the agents of Italy as evidence of the exercise of sovereignty over the territory by Italy. Certain documents are also adduced as tending to prove the assent of Switzerland to the claim of Italy to the eminent domain of the district in dispute.

The agents of Switzerland claim the eminent domain over the Alp of Cravairola as a part of the Valmaggia, which the Twelve Cantons [in fact thirteen, with the 1513 addition of Appenzell] acquired by conquest in 1513, and by treaty in 1516, and in support of this claim they insist upon the alleged principle of political geography that, at least in the absence of evidence to the contrary, the watershed is to be taken as the limit of jurisdiction between conterminous states, and consequently that the designation Valmaggia, in the Treaty of 1516, must

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be construed to embrace all the minor basins which debouche into the principal valley. They further contend that, under the circumstances of the case, certain proceedings in the year 1554 for the determination of the eastern boundary of the Alp Cravairola constitute, in and of themselves, a binding recognition of the sovereignty or eminent domain of Switzerland over the territory in question.<sup>23</sup>

These are the cardinal points presented for consideration. Other minor arguments urged by [p. 9] the parties will be noticed as the discussion proceeds.

Numerous documents are cited by the respective parties, all of which have been weighed, but the undersigned will here notice only such as appear to him to have a substantial bearing on the question.

Submitted by Italy are:

*Sentenza del 1 Luglio 1367 del Vicario di Matterello annullante [sic] per causa di incapacità una vendita fatta al Comune di Crodo di una parte di Cravairola.* [Judgment of the 1° July 1367 of the vicario di Matterello, annulling a sale made to the Commune of Crodo of a part of Cravairola, on the ground of the minority [youth] of the vendor.]

*Istromento del 24 Febbraio 1406 di vendita di una parte dell' Alpe di Cravairola in territorio di Cravairola.* [Deed of sale of 24 February 1406 of a part of the Alp Cravairola in the territory of Cravairola.]

*Investitura del 10 Giugno 1454 di tre parti dell' Alpe di Collobiasco in territorio di Cravairola.* [Conveyance on 10 June 1454 of three segments of the Alp of Collobiasco, in the territory of Cravairola.]

*Istromento del 20 Aprile 1497 ove si legge* [Deed of 20 April 1497 which reads]: *busco esistente et jacente in et supra territorio et dominio de Crodo* [in a wood existing and lying adjacent to and above the territory and domain of Crodo], *nell' Alpe di Cravairola.*

These instruments, all prior to the conquest by Switzerland and to the Treaty of 1516, are held by the agents of Italy to show, by exercise of jurisdiction and by description, that the *locus in quo* [place in question] was independent of the jurisdiction of Valmaggia and appurtenant to the Commune of Crodo.

Italy puts also in evidence a fascicle entitled *Jura Crodensium et Pontemalensium contra Campenses Vallis Madiae* containing a record of proceedings held in 1544 [sic; 1554] for fixing the eastern boundary of the Alp of Cravairola and various other documents relating to that delimitation.

[p. 10] The agents of Switzerland refer to an *Istromento del 17 Marzo 1420* by which a third part of the Alp of Cravairola *jacente in territorio di Valmaggia* is sold to the Commune of Crodo; *Istromento dell' 8 Dicembre 1490* conveying to the Commune of Crodo the Alp of Collobiasco *esistente e situata nel dominio*

*delli uomini di Valmaggia ove si dice in Cravairola* [existing and located in the jurisdiction of the people of Valmaggia, said to be in Cravairola].

These words Switzerland holds to imply an acknowledgment of the jurisdiction of Val Maggia, and the agents further adduce a treaty concluded in 1516 between [Francis I and the Helvetian Confederation], in which the Val Maggia is recognized as belonging to Switzerland.<sup>24</sup>

They also rely on a record entitled *Copia Positionis Terminorum anni 1554*, which is contained in the fascicle entitled *Jura* referring to the determination of the eastern boundary of the Alp of Cravairola, which they hold to prove a submission of the Commune of Crodo to the jurisdiction of a Swiss tribunal in a matter involving the *alto dominio* of the territory in dispute.

It being admitted that subjects of Italy are in possession of the soil under a claim of jurisdiction on the part of Italy, it is proper first to examine the principal proofs by which that claim is impugned by Switzerland and the evidence in rebuttal of those proofs.

In the *Copia Positionis Terminorum anni 1554* it is set forth that *quaedam differentia lis et quaestio juridica* had arisen between the authorities of Crodo and those of Campo *causa et occasione confinium Alpis Cravairolae ipsorum de Crodo, et domini* [p. 11] *ipsorum de Campo cumque fuerit, etc., quod litigando in jure coram Magnific. D. Christophorum Quintoni de Friburgo et Honor. Comm. Vallis Madiae, etc.*, and that the parties arrived at a compact to the effect that certain citizens of Crodo named in the record should define the bounds by permanent marks, which was done accordingly. In the subscription or attestation by the notary the record is called *instrumentum diffinitionis domini*.

It is contended by the agents of Switzerland that these proceedings are necessarily a recognition of the jurisdiction of the Swiss authorities over the subject matter by the Commune of Crodo. On this point it is to be observed that though it does appear that the *differentia et lis* involved the question of the limits of the Alp of Cravairola, we are not informed what the nature of the *lis* [litigation] was. It may have been originally a process against citizens of Crodo arrested on territory claimed by Campo, for trespass on that territory, and in such case the Swiss magistrates of Campo would of course insist on the right of jurisdiction. Many other suppositions may be made to show that an appearance before a Swiss magistrate by the Commune of Crodo, even if presumptively is not necessarily an acknowledgement of the competence of such magistrate. If this were [so], we may even imagine that an amicable arrangement was entered into because objection was made to the jurisdiction of the magistrate.

[p. 12] But however this may be no adjudication of the subject in dispute was made by the magistrate, the matter being disposed of by agreement between the parties.

In the able and ingenious argument of the agent of Switzerland it is maintained that that the expression *ipsorum de Crodo* indicates simply the right of property, and that the words *et dominii ipsorum hominum de Campo* mean jurisdiction *alto dominio*, and further that the same word *dominii*, in the attestation, *instrumentum diffinitionis dominii*, is merely a loose expression employed by the notary, not the parties, in the sense of property simply. If this construction can be sustained it is important as an admission of sovereignty of Valmaggia by persons not perhaps authorized by their government, but nevertheless probably well informed in regard to the real jurisdiction. But the notary who subscribed the record in all probability also drafted it and it is improbable that he should have used the word in two different senses in one instrument. Upon general principles of legal interpretation a word used more than once by the same writer in the same instrument must be taken to have always the same signification, unless the contrary appear from the context. In the present case the undersigned does not find in the context sufficient reason to believe that the notary intended to employ *dominium* in different senses in [p. 13] the two periods where it occurs, and hence if it meant *alto dominio* in the body of the instrument it must be taken to have meant *alto dominio* in the attestation also. Taking this interpretation the proceedings in question would have the aspect of an attempt at a final determination of the question of territorial sovereignty or jurisdiction.

But independently of this the undersigned is of opinion that as a question of grammatical construction the words *Alpis Cravairolae* and *dominii* are in the same category, both being genitives after *confinium*, the first indicating a certain territory by name, the second another territory by a descriptive term meaning simply land or property without reference to sovereignty, and not including the first parcel named at all. In other words, the Alp of Cravairola is a portion of soil lying on one side of the boundary, the *dominium* of Campo a second parcel lying on the other side of the same boundary. In fact upon an examination of the several documents produced and others of that period the undersigned does not find any established distinction between *territorium* and *dominium*. They appear to have been used indiscriminately in the sense of property or sovereignty according to the subject matter and the context.

But whatever may be the grammatical construction or logical sense of the word as employed in this record, the fascicle *Jura* contains other documents of great importance as tending to show that whatever ideas the parties to this transaction may have had respecting its import, their [p. 14] superiors, the respective governments of Milan and Switzerland, gave to it the value of an international convention for the definition of the boundary of territorial jurisdiction between the two states.

The instrument next following the *Copia Positionis* in the fascicle *Jura*, is an official communication from the Milanese government to the commissary or *Podestà* of Domodossola dated 16 February 1555. It sets forth that the *Ambasciatori degli*

*Signori dei XIII Cantoni Svizzeri* \* \* \* *si sono doluti come alli mesi passati alcuni di quella terra et sua giurisdizione sono andati in Valle Maggia, giurisdizione de' preditti Signori, et violentemente hanno strappato alcuni termini posti alli confini tra l'una e l'altra giurisdizione e piantati più oltre di quello erano soliti stare.* [Ambassadors of the Lords of the 13 Swiss Cantons...have complained that, in the preceding months, some persons from that land and subject to its jurisdiction had gone to Valle Maggia, under the jurisdiction of the aforesaid Lords, and violently uprooted terminal posts located on the boundary between the one and the other jurisdiction and put them well beyond their customary location.] Now in this expression the *termini* are evidently those planted by the commissioners in the month of June in the preceding year, as the boundary between the Alp of Cravairola and the land of the Swiss Commune of Campo, and *l'una e l'altra giurisdizione* can hardly mean anything but the jurisdiction of Switzerland exercised by the authorities of Val Maggia and bounded westward by the limits established in 1554, and the jurisdiction of Milan exercised by the authorities of Domodossola bounded eastward by the same limits.

Next in order of time follows an official [communication] from the government of Milan addressed to the *egregio jurisconsulto Castilioneo* and to the *Podestà* [Mayor] of Domodossola referring to the dispute *inter Domodossolanos subditos nostros et homines Vallis Madiae subditos Helvetiorum de finibus*; [p. 15] then five or six other official communications of the year 1556 from the same source and on the same subject, all insisting on the reestablishment of the limits of 1554, and all using similar terms to denote the parties to the controversy. Among these is one (No. 14) of June 19 1556 in which reference is made to the *controversia finium inter dictum Commune Crodi, et Commune loci di Campo*, and again *finis inter ipsa Communia, et termini inter ipsa Communia*.

It is very noticeable that in not one of these papers except that of 1554, is any mention whatever made of the Alp of Cravairola, but the controversy is invariably spoken of as one concerning the boundaries, not of an outlying foreign possession of Crodo, but of the respective communes; and, as already remarked, the complaint of the Swiss ambassadors of Feb[ruary] 16 1555 expressly treats the *termini* placed in 1554 as a boundary between the respective jurisdictions. From these facts it seems to be a fair inference that though there is no evidence that the immediate parties to the transaction themselves regarded it as a matter of such grave significance, the supreme governments of both the Val Maggia and the Valdossola in the middle of the 16th century, and for nearly a hundred years afterwards, chose to consider the arrangement of 1554 as a definitive delimitation of the boundary between their respective territories.

There is no proof that on the occasion of the transaction of 1554 any claim of jurisdiction over the Alp of Cravairola was advanced by the authorities of Val Maggia or of the XIII Cantons, nor does it appear that any time before or after that date, until the year 1641 Switzerland asserted any supremacy or *alto dominio*

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over that territory, but on the other hand the governments of both countries appear to have assented to the arrangement of 1544 [*sic*; 1554] as final.

In connection with this point of non-claim by Switzerland it is well to notice a similar state of things in [p. 16] regard to the local government of Valmaggia. No documents of any nature whatever from the records of Valmaggia are produced and there is no proof that the Commune of Campo at any time within the historical period ever actually possessed the Alp of Cravairola. It is certainly intrinsically probable that in some unknown age this Alp was an appurtenance of that commune, and the two documents in which the Alp is described as belonging to the *dominium* of Valmaggia give increased force to this supposition. But these documents are not acts to which Valmaggia was a party, and there is no actual proof of any sort to show that the authorities of Valmaggia ever exerted or claimed jurisdiction over the Alp of Cravairola until 1641. It is a highly probable supposition that in those rude days when the law of the stronger so generally prevailed and when few proprietors could show any title to their land or jurisdiction except title by possession, the transfer of the soil to inhabitants of the Val Antigorio was regarded as carrying with it the sovereignty also. And so far as we have the means of knowledge, Switzerland seems to have acquiesced in this view for more than a hundred years after the acquisition of Valmaggia.

In 1641 Osvaldo di Sciaffusa [Oswald of Schaffhausen], *Commissario Balivo* [commissary bailiff] *di Valmaggia*, whether by order of his superiors or of his own motive does not appear, summoned a congress of delegates of the communes of Crodo, Pontemaglio and Campo to meet in order to compose differences which had arisen in reference to the Alp of Cravairola. Upon this summons, certain citizens of Crodo and Pontemaglio met this officer and his attendants on the Alp on the 2d of October 1641 and declared that they had no authority from the communes but would report to the communes in order that a delegation might be appointed to treat on the subject. Upon this occasion [p. 17] the commissary Oswald *in faccia ai sudditi di Antigorio ha protestato che la giurisdizione sopradetta dell' Alpe è sua e che non può né deve tralasciare gli atti che si giudicheranno necessari per il mantenimento della giurisdizione dei suoi Ill.mi Signori dei XIII Cantoni della Serenissima Repubblica Elvetica* [in the presence of the subjects of Antigorio, swore that the jurisdiction over the Alp was his, and that he could not and would not neglect to do all that was necessary to maintain the jurisdiction of the illustrious Lords of the XIII Cantons of the Most Serene Helvetic Republic].

This, as has been remarked, is the first known formal claim of sovereignty over the Alp by Switzerland. If it was made by order of the Swiss government, and not a mere unauthorized act of the Commissary, it would be expected that the records of Switzerland would furnish proof of the fact, but no such proof is adduced. This claim was often repeated during the following years, and much

excitement and irritation resulted from it. It is unnecessary to follow the history of these events because in the year 1650 a convention held at the Borromean islands by authority of the two governments recognized the bounds of 1544 [*sic*; 1554], made various concessions to the two parties, and among them one authorizing the people of Crodo to transport timber cut by them on the Alp [of Cravairola] by way of the Rovana and the Val Maggia – a provision, it is argued, quite superfluous if the Alp was Swiss territory – another substantially treating all former difficulties on the subject as *non-avvenute* [null and void], and finally an article in these words: *e questa provizione abbi a durare sin tanto sar  deciso il punto della giurisdizione sopra la detta Alpe, al quale per nessuna delle dette cose s'intenda fare pregiudizio* [this provision shall remain in force up to the moment that jurisdiction over the said Alp is decided, and there should be no question of prejudicing that decision].

The undersigned understands the word *provizione* as applying to the whole contents of the Convention and not to any particular article or articles. The convention decided nothing with respect to jurisdiction but [p. 18] left that question as they found it, and of course the point, as it then stood, must be judged upon the facts and the laws connected with the previous history of the case.

Since 1650 there have been numerous more or less serious efforts by both parties to establish a jurisdiction over the disputed territory, but in the opinion of the undersigned they are not of a sufficiently conclusive character to strengthen materially the cause of either, and we must be remitted for a decision to the rights of the parties as they were at the date of the Convention of 1650.

[p. 19] To recapitulate:

The evidence of the title of Italy consists in the purchase of the soil of the Alp of Cravairola before the year 1500 by communes now belonging to the Kingdom of Italy and the undisputed possession of that territory by those communes to the present day; in certain acts of jurisdiction alleged to have been exercised by official authorities of the district of Domodossola relating to the soil of the Alp – acts not indeed alleged to be by any means conclusive in their nature, but considered as perhaps good as presumptive evidence until rebutted; and in the proceedings of 1554, 1555 and 1556, which are said to treat the establishment of the boundary in 1554 as a territorial or jurisdictional delimitation and to have been acquiesced in as such by both governments, without question, for nearly a century; and finally on the negative ground of the absence of any claim of eminent dominion or jurisdiction by Switzerland or its dependencies before the year 1641 when the Alp had been in the peaceable possession of Italian communes for centuries.

The claim of Switzerland is founded, on considerations of expediency and convenience; on the alleged principle of political geography according to which the boundaries of conterminous states in mountainous countries is determined by the

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*spartiacqua* or *displuvio* [watershed divide]; on conquest in 1513 and treaty in 1516 recognizing the Val Maggia – of which the Alp of Cravairola forms a part – as belonging to Switzerland; and on the proceedings for establishment of the boundary between the Alp of Cravairola and the Commune of Campo.

[p. 20] Upon consideration of these points, the undersigned is of opinion:

[First:] That the title of Italy to the territory in question is *prima facie* established by the considerations above recited and therefore good unless rebutted by the evidence adduced by Switzerland.

Secondly: That though reasons of expediency, convenience, and mutual interest strongly urge the assignment of the Alp of Cravairola to Switzerland, yet for reasons above stated the arbitrators would not be justified in awarding the territory to the Confederation on that ground alone.

[p.21] Thirdly: That the geographical principle of division of political territory by the *spartiacqua* or *displuvio* is not generally enough recognized by European international law and practice to constitute an independent ground of decision in disputed cases. It is true that geographically a great valley includes its minor branches, but in ordinary speech the name of the valley of a considerable river is generally confined to the principal channel, any lateral tributary vallies usually having names of their own, and hence such a designation does not necessarily include the minor vallies but is to be interpreted by possession or other circumstances where such exist.

As already remarked, there is no proof of any formal claim by Switzerland of sovereignty over the Alp as a part of the Val Maggia, before the assertion of jurisdiction by Oswald in 1641. And if in the mediaeval period, through which the history of the Alp of Cravairola extends, it had been understood, as a principle of law, that the tributary valleys followed the jurisdiction of the main current of the waters, there is no apparent reason why the Commune of Campo should not have claimed the sovereignty of the Alp of Cravairola as an appurtenance to its own territory at the period when the Italian communes acquired the soil. But there is no evidence that any such claim was advanced in any quarter until nearly a century after the definition of the boundary in 1544 [*sic*; 1554].

Fourthly: That though in a scientific sense, the principal valley of a river embraces those of its tributaries, yet such terms, when used in public instruments, especially of ancient date, must be interpreted by contemporaneous understanding and usage. The undersigned finds no evidence that either of the parties to the treaty of 1516 then, or at any subsequent period before 1641, regarded the Alp of Cravairola as embraced in the [p. 22] designation Val Maggia, and on the contrary that the want of any claim of sovereignty on the part of Switzerland or the Commune of Campo to soil lying geographically in the Val Maggia but possessed and enjoyed by foreign *corpi morali*

is prima facie evidence that the Confederation and the Commune of Campo did not hold themselves to be invested with such sovereignty at any time before such claim was advanced by a Swiss official in 1641.

Fifthly: That the proceedings of 1554, as the undersigned finds himself compelled to interpret them, in connection with the official documents of 1555 and 1556 relating to those proceedings, tend rather to disprove than to establish the right of Switzerland, to sovereignty over the territory in question, and to show that the bounds then established were considered and acquiesced in both by parties immediately interested and by their respective governments, as a territorial and juridical final delimitation.

Upon the whole matter the undersigned is of opinion that, to employ the words of the Compromis:

[p. 23] *La ligne frontière qui sépare le territoire Italien du territoire de la Confédération Suisse (Canton Tessin), au lieu dit Alpe de Cravairola, doit quitter la chaîne principale des montagnes au sommet désigné Sonnenhorn, pour descendre vers le ruisseau de la Vallée de Campo et en suivant l'arête secondaire nommée Creta Tremolina (ou Mosso del Lodano sur la carte Suisse) rejoindre la chaîne principale au Pizzo del Lago Gelato* [The frontier line that divides the Italian territory from that of the Swiss Confederation (Canton Tessin), at the spot called the Alp of Cravairola, must leave the principal chain of mountains at the summit named Sonnenhorn, and descend toward the stream of the Valley of Campo and follow the secondary ridge named Creta Tremolina (or Mosso del Lodano on the Swiss map) to rejoin the principal chain at the Pizzo del Lago Gelato]

and he pronounces sentence accordingly.

In conclusion, the undersigned begs leave to express his high appreciation of the ability, moderation, and candor displayed by all the parties to the arbitration, and his sincere thankfulness for the uniform personal courtesy and consideration extended to himself by all with whom his present duties have brought him in contact.

Done at Milan in duplicate 23 September 1874.

#### DISCUSSION: WATERSHED PRINCIPLES VS. LANDOWNERSHIP

To Italy sovereignty over Cravairola mattered most for safeguarding proprietary rights in Crodo and Pontemaglio; Swiss interests were different and much broader. Cravairola was part of the drainage area of the Val Maggia, vital for the protection of Swiss soils and crops in the lower Rovana and the Maggia. Policing, hydraulic regulation and forest management had to be Swiss. The severity of erosion at Campo, noted in the late 1850s by cantonal engineer Joh. Poncini and

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in the 1860s by Karl Culmann, professor of engineering at the Swiss Federal Institute of Technology in Zurich, played a major role in establishing the first Swiss federal forestry law in 1876.<sup>25</sup> Campo was already in parlous condition in 1858, and matters grew rapidly worse. As Marsh, parsing Culmann and Poncini, described the damage (see ms. p. 3 of his Decision above), the flotation of logs, together with stripping the soil of tree cover and the construction of sluices to aid timber transport, had so augmented the force of the Rovana that 'in the course of four years it excavated below the village a new channel one hundred feet deeper than its ancient bed', as shown in Culmann's accompanying sketch (Figure 5).

By the time of Marsh's boundary inspection he found the damage had greatly magnified:

Deprived of its original support, the steeply inclined soil of the commune, some 2500 acres, including the village of Campo, began to slide downwards in a body. Many of the houses have been carried off, some overthrown and the walls of most ... dangerously cracked. Unless costly measures of protection are soon adopted, the whole of this vast moving mass will be washed by the Rovana into the Maggia, and by that river into Lago Maggiore.

The soil was now 'so insecure', Marsh was told on the spot in 1874, 'that meadow and pasture grounds, which, if safe, would be worth a hundred dollars per acre, cannot now be sold for ten'.<sup>26</sup> The conservation measures outlined by Poncini and Culmann years before could be effective only if they embraced the whole of the Rovana watershed, including Cravairola. Hence in Marsh's view 'the ultimate best interests of both parties would be most effectually promoted by assigning' both the sovereignty and the soil to Switzerland.<sup>27</sup>

But Marsh's hands were tied by the terms of arbitration. He was not free to decide on the basis of 'best interest', *ex aequo bono* in legal parlance; instead, the decision must be strictly *de jure*, based on historic title. And Marsh listed a mass of evidence – charters, land grants, treaties – showing that since 1367 the communes of Crodo and Pontemaglio had repeatedly affirmed not only ownership of Cravairola but administration over it, first under the duchy of Milan, and later the House of Savoy. The people of Campo might originally have cleared and settled the land, but no evidence for this or any formal Swiss or cantonal claim to the territory was offered until 1641, when the Swiss sought to counter a House of Savoy claim. By historic right Cravairola was clearly Italian.

Ruling in favour of Italy, Marsh deeply regretted being denied a decision that would have been geographically preferable, improved land management, promoted conservation, and benefited all parties. As he expressed it to the Swiss envoy in Rome the following year, since the watershed was physically Swiss, in an ideal world it ought to have become politically Swiss as well.<sup>28</sup> Yet to assign Cravairola to the Swiss, Marsh also recognised, would have been workable only if the Italian landowners had been willing to sell their land rights; for giving

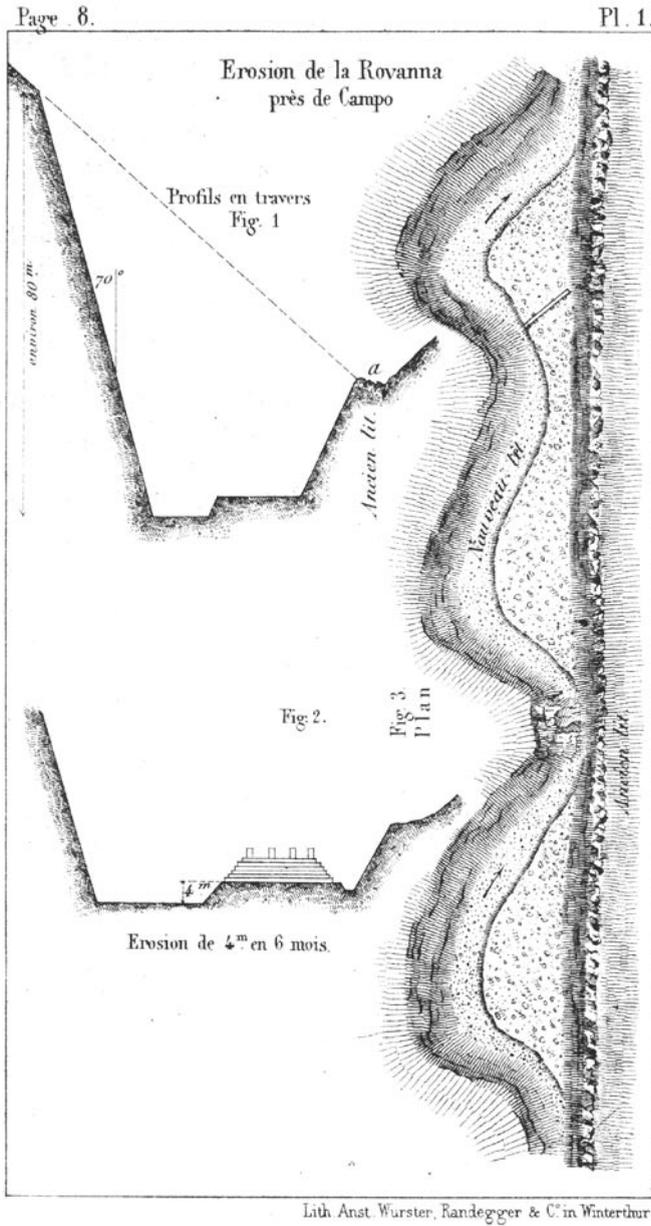


FIGURE 5. Karl Culmann's sketch of the 'Erosion de la Rovanna près de Campo' in his *Rapport au Conseil Fédéral sur les torrents des Alpes Suisses* (Lausanne, 1865).

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sovereignty and administration to the Swiss while Cravairola's proprietors and occupants remained Italian citizens would be even 'more prejudicial to ... peace and harmony' than the present 'unsatisfactory' situation.<sup>29</sup>

Harmony and good will had been the general norm between the two countries, linked in political amity against Habsburg and other would-be tyrants, especially since 1848, when a more strongly centred federal Switzerland came into being. Yet the tortuous Italo-Swiss boundary is anything but straightforward, let alone geographically sensible. In the high Alps the border generally follows summit lines, but elsewhere it swoops and swerves up hill and down dale, along rivers and across lakes, in total disregard of any watershed principle. Indeed, only a few miles southeast of Lago Gelato, where the Cravairola cut-off terminates, the boundary again abandons the ridge top, dropping down from Pilone to cross the river Onsernone at Bagni di Cravéggia. It then ascends to a minor divide at Pta. della Forcoletta, descends along tributaries of the Melazza, goes up the Rio del Confini to cross the Valle Centovalli ('the valley of a hundred valleys'), traverses the Rocce del Beldone, and descends to Lago Maggiore south of Brissago. From there the line zigzags across to the lake's eastern shore before looping east, south and east to skirt the southern end of Lake Lugano, veering toward Como before twisting north across that lake.<sup>30</sup>

But this labyrinthine boundary seems elsewhere to have caused no management problems like those at Cravairola. The operations of Italian landowners in the headwaters of the Onsernone and the Centovalli, unlike those in the upper reaches of the Rovana, apparently did no damage to the Val Maggia.<sup>31</sup> At Campo, however, erosion has continued to afflict land and buildings. Major slippage of the landslide just above the lower Rovana required the installation in the 1990s of 1,800-metre long drainage and deviation tunnels to reduce water pressure and stabilise the soil. Campo's ongoing physical deterioration is reflected in the steep fall of the commune's population, from 506 inhabitants in 1850 to 291 in 1900, 182 in 1950, and 58 in 2,000.<sup>32</sup>

## AFTERWORDS: SOVEREIGNTY AND PSYCHOANALYSIS

For eighty years Marsh's boundary judgment went unchallenged as just and appropriate, despite environmental difficulties that continued to plague the Swiss at Campo. In 1954, however, the eminent Swiss jurist Paul Guggenheim assailed Marsh's decision as wrong – wrong in disregarding important evidence presented by the Swiss arbiter; in misconstruing the terms of reference that ought not to have constrained him; in lumping Italian property claims, which were uncontested, with Italian jurisdictional claims, which lacked proof; wrong above all in giving too little weight to general watershed principles. Citing the classic 1868 text by the Swiss jurist Johann Kaspar Bluntschli, Guggenheim noted it was widely accepted that, when a mountain chain separated countries

in dispute, the watershed summit line would determine the boundary.<sup>33</sup> Marsh held Bluntschli in high regard. But in his judgement, the watershed principle adduced by Bluntschli had been too recent, not yet well enough established in European practice, to sway international law.

Whereas the Swiss jurist criticised Marsh for giving too little weight to watersheds, the Italian authority Ausonio Malintoppi twenty years later could not comprehend why Marsh had dwelt on it so much. Commending Marsh's acutely 'European' (for an Anglo-Saxon) cultural nous, Malintoppi nonetheless felt the American envoy's devotion to watershed management was bizarrely intense. Seemingly unaware that Marsh had devoted a lifetime's study to environmental matters, the Italian jurist advanced a psychoanalytic explanation for the adjudicator's obsessive concern with watersheds. Marsh was fond of remembering how, as a small child, he had been shown a watershed by his father. At the age of four or five, sitting 'on a little stool between my father's knees', he had jolted in a two-wheeled chaise along ridge-top roads around his Vermont home:.

To my mind the whole earth lay spread out before me. [Father] called my attention to the general configuration of the surface; pointed out the direction of the different ranges of hills; told me how the water gathered on them and ran down their sides. ... But – what struck me, perhaps, most of all – he stopped his horse on the top of a steep hill, bade me notice how the water there flowed in different directions, and told me that such a point was called a *water-shed*. I never forgot that word, nor any part of my father's talk that day.<sup>34</sup>

From this Marsh reminiscence Malintoppi deduced a fixation with water parting of manifestly 'Freudian' origins.<sup>35</sup>

Freudian or not, Marsh's watershed awareness was a not uncommon Enlightenment trope. In the Cerdagne/Cerdana segment of the Pyrenees, where a dispute not dissimilar to Cravairola had long embroiled France and Spain, the notion of watershed boundaries appealed mightily to French revolutionary leaders: they saw it as a statutory principle in accord with the scientific laws of nature, with French national interests, and with international comity. 'If we make the slightest exception to the law of watersheds', warned the official in charge of French military archives, when a deviation was requested to accommodate local landowners, 'the demarcation of this boundary will never be achieved, and perpetual quarrels will occur among the frontier inhabitants'.<sup>36</sup>

Two decades prior to Marsh's childhood watershed experience, the poet Goethe similarly recalled that, when in Bavaria, he could 'quickly get a topographical idea of a region by looking at even the smallest stream and noting in which direction it flows and which drainage basin it belongs to'.<sup>37</sup> In this respect Marsh may have been a New World rarity, a later English observer suggested. 'I have scarcely found an American who knew which watershed he was in', wrote Stephen Potter, 'which left me, as an Englishman, who is uneasy unless he knows which ocean will receive his urination, somewhat scandalized'.<sup>38</sup>

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That Marsh retained his vivid early recollection was indeed significant. He continued to dwell both on the meaning of the word watershed and on its consequences for land management. The awareness crucial to his pioneering *Man and Nature*, as well as to his Cravairola decision, has more to do with the later, topographically opposite, sense of the term watershed – not as a line dividing drainage areas but as the whole gathering ground of a river system, whose waters must be controlled and conserved.<sup>39</sup>

In an encyclopaedia essay four years after Cravairola, Marsh termed *watershed* preferable to, because more explicit than, *water divide*.<sup>40</sup> He went on to discuss manifold exceptions to ridge-top watersheds – instances where underground drainage channelled rainfall to an opposite catchment area, or where seasonal change sent flows now one way and now another, where streams from a single glacier debouched into different effluents, or where beaver-dams or aquatic vegetation ‘may obstruct a watercourse, reverse its flow, and consequently displace a watershed’.

Watersheds were especially variable when human intervention reversed natural drainage. Marsh instanced Barton or Runaway Pond, Vermont, in 1810 fearsomely drained in one torrential hour into Lake Memphremagog by heedless channelling that reversed its outlet; the Val di Chiana in Tuscany, converted from a desolate, unhealthy swamp into a productive agricultural region by inverting its drainage from the Tiber in the south to the Arno in the north;<sup>41</sup> the Illinois Canal (built in 1848, discontinued 1900) that took water from Lake Michigan into the Mississippi River system; and Lac Biel, shunted by the Romans through a tunnel into the river Aar, a routing latterly reversed by draining the Biel into Lac Neuchâtel. In doing so, just as Marsh was writing, engineers had uncovered prehistoric lake-dwellings on the lake’s south shore.<sup>42</sup> Indeed, these and other manifold perplexities make ‘natural’ watershed boundaries more the exception than the rule.<sup>43</sup>

Marsh had stressed that major river systems often ‘originate in great plateaus lying far from any very lofty mountains, as in North America and in Africa, and the flow of such rivers may be so variable from inundations and other irregularly acting influences that a permanent and well-defined watershed can hardly be said to exist within their precincts’.<sup>44</sup> He would have well understood the perplexities that confronted explorers and boundary-makers in tropical South America. Between the upper Orinoco and the Rio Negro, a tributary of the Amazon, Marsh’s admired mentor Alexander von Humboldt had at the end of the eighteenth century shown how seasonal variations let these river flow now in one direction, now in the other. ‘When immense rivers ... of unequal depth ... are not enclosed in valleys; and when the interior of a continent is as flat as the shores of the sea are with us, the bifurcations and the interlacings in the form of net-work, must be infinitely multiplied’.<sup>45</sup> Hydrography here often made watersheds so malleable, even invisible, as to be quite useless as boundaries; ‘directly a watershed becomes ill-defined’, held claimants for British Guiana against Brazil for land

bordering the Takutu River, 'it loses its value as a boundary'.<sup>46</sup> It is ironic that the 1916 judgment that awarded the disputed area to Brazil was made not by an esteemed scholarly envoy to Italy but by an Italian royal arbiter in whose grandfather's court Marsh had served – King Vittorio Emanuele III of Italy, who never left Rome to pass judgment on a boundary half a world away.<sup>47</sup>

Marsh's Cravairola decision was most significant for setting forth the general benefits of watershed boundaries, still commonly relied on in international law today for all the environmental reasons he adduced, and notwithstanding the manifold vagaries he later enumerated.<sup>48</sup> Yet modern jurists also cite Marsh for stressing that historical proofs of sovereignty must take precedence *over* topographic continuity or watershed principle.<sup>49</sup> And his decision pioneered in other respects too. This was not the first time territorial disputants relied on an external arbiter, but it was the first *successful* such occasion; the choice of a single neutral referee of Marsh's known probity and skills, rather than the usual joint tribunal or head of state, had made his decision authoritative. Not least, Marsh set a useful precedent by adhering strictly to the terms of his arbitration, even against his own decided views of equity. By closely circumscribing his arbiter's powers, and avoiding any likely ambiguity, Marsh enhanced confidence in the entire process of arbitration.<sup>50</sup>

## NOTES

For linguistic and other assistance I am grateful to Donald Bain, Connell Gallagher, Marcus Hall, Elihu Lauterpacht, Sheila Lindenbaum, Harry Orth, Luisa Quartermaine, Charles-Edouard Racine, and Manfred Thüring.

<sup>1</sup> George Perkins Marsh to Secretary of State Hamilton Fish, 7 July 1874, Diplomatic Despatches, U.S. Dept. of State, National Archives (henceforth DD), no. 479.

<sup>2</sup> George Perkins Marsh, *Man and Nature; or, Physical Geography as Modified by Human Action* [1864], ed. David Lowenthal (Seattle: University of Washington Press, 2003).

<sup>3</sup> Marsh to Caroline Crane Marsh [hereafter CCM], Milan, 12 Sept. 1874 (her copy).

<sup>4</sup> David Lowenthal, *George Perkins Marsh, Prophet of Conservation* (Seattle: University of Washington Press, 2000), 341–5.

<sup>5</sup> Marsh to CCM, Milan, 20 and 23 Sept. 1874 (her copies); Marsh to Fish, 25 Sept. 1874, DD 512.

<sup>6</sup> 'The Cravairola Boundary', in John Bassett Moore, *History and Digest of the International Arbitrations to Which the United States Has Been a Party*, 6 vols (Washington, D.C.: Government Printing Office, 1898), 2: 2027–49 at 2028.

<sup>7</sup> Marsh, 'Décision', 497–507, in Paul Guggenheim, 'Fixation de la frontière de l'Alpe Cravairola, 23 settembre 1874', in *Recueil des arbitrages internationaux*, ed. Albert de la Pradelle, Jacques Politis, and André Salomon (Paris: Éditions Internationales, 1954), 3: 464–514. For attempts to construe and conform all three versions I am indebted to Luisa Quartermaine.

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<sup>8</sup> For example, ‘annulante’ is mistaken for ‘riullante’ and ‘incapacità’ for ‘reciprocità’ (Marsh ms., 9; [Moore], ‘Cravairola Boundary’, 2035).

<sup>9</sup> Marsh to unknown correspondent, draft headed ‘Confidential’, Rome, 19 May 1875, George P. Marsh Collection, Special Collections, Bailey/Howe Library, University of Vermont (hereafter UVML).

<sup>10</sup> George Perkins Marsh, *Lectures on the English Language*, rev. edn (New York: Charles Scribner’s Sons, 1885), 525–6n.

<sup>11</sup> Ewan W. Anderson, *International Boundaries: A Geopolitical Atlas* (London: The Stationery Office, 2003), 414–16. Further rectifications came with both world wars, in the Treaty of Saint Germain (10 Sept. 1919) and the Frontier Convention of 22 July 1941. The Convention between the Swiss Confederation and the Italian Republic of 12 June 1981 demarcated minor rectifications at the frontier posts of Mulini and of Pedrinato, the latter just west of Como.

<sup>12</sup> Marsh to Fish, 15 Sept. 1874, DD 512.

<sup>13</sup> Samuel Butler, *Alps and Sanctuaries of Piedmont and the Canton Ticino* [1881] (Gloucester, England: Alan Sutton, 1986), 36.

<sup>14</sup> These and the following dates are those given in Marsh’s State Department despatches and in French and Italian published accounts of the treaty. At odds with them are copies of eight letters from Marsh to his wife Caroline, dated 12 through 23 Sept., which have Marsh joining the boundary commission in Milan on 12 Sept. and crossing the disputed area from Crodo to Campo on 14 to 16 Sept. Other discrepancies suggest these letter copies are misdated by whoever transcribed them.

<sup>15</sup> Swiss counsellor Delarageaz in 1868, quoted in Guggenheim, ‘Fixation de la frontière de l’Alpe Cravairola’, 471 [my translation].

<sup>16</sup> Marsh to Henry Yule, 24 Sept. 1874, UVML; Marsh to CCM, Crodo 14 Sept. and Locarno 17 Sept. 1874 (her copies), 10 Sept. 1874, Crane Family Papers, New York Public Library.

<sup>17</sup> Antonio Malintoppi, ‘Diritto ed equità nell’arbitrato per l’Alpe Cravairola’, in *Studi in onore di Gaetano Morelli*, Istituto di Diritto Internazionale e Straniero della Università di Milano, *Comunicazione e studi*, vol. 14 (Milan: Giuffrè, 1975), 501–24 at 517–18. Campo was willing to buy Cravairola, but the Italian communes did not want to sell it.

<sup>18</sup> Marsh to CCM, Milan, 12 [sic], 20, 21, 23 Sept. 1874 (her copies).

<sup>19</sup> [Moore], ‘Cravairola Boundary’, 2049n1; Hamilton Fish to George Franklin Edmunds, 44 Cong. 1 Sess., Sen. Misc. Doc. 16 (13 Dec. 1875). Noting that Marsh’s decision had given ‘much joy’, the Comune of Crodo sent condolences on Marsh’s death eight years later (Mayor Guglielmi to Caroline Crane Marsh, 26 July 1882, UVML).

<sup>20</sup> These two paragraphs are my revision of the translation from Italian in [Moore], ‘Cravairola Boundary’, 2028–9; Marsh’s own manuscript begins with the next paragraph..

<sup>21</sup> Hans Hold, ‘Mémoire de l’arbitre suisse’, 18 Sept. 1874, 484–8, in Guggenheim, ‘Fixation de la frontière de l’alpe de Cravairola’.

<sup>22</sup> Guglielmi, ‘Mémoire pour l’Italie’, 19 Aug. 1874, 488–96, in Guggenheim, ‘Fixation de la frontière de l’alpe de Cravairola’.

<sup>23</sup> C. Battaglini and H. Siegfried, ‘Mémoire des agents suisses’, 18 Aug. 1884, 477–84, in Guggenheim, ‘Fixation de la frontière’.

<sup>24</sup> Bracketed words from [Moore], 'Cravairola Boundary', 2036; Marsh left a blank space here.

<sup>25</sup> Joh. Poncini, 'Rapport touchant la vallée de Campo, adressé au Conseil d'Etat tessinois', Locarno, 1 Oct. 1858, 'Note 1' in Karl Culmann, *Rapport au Conseil Fédéral sur les torrents des Alpes Suisses inspectés en 1858, 1859, 1860 et 1863* (Lausanne, 1865), 521–5; Culmann's own discussion of the Val Maggia is on pages 7 to 13. Culmann's report was translated by H.-F. Bessard from the original German edition, *Bericht an den hohen schweizerischen Bundestra über die Untersuchung der schweiz. Wildbäche* (Zurich, 1864). Logging erosion was endemic throughout the Swiss Alps (Matthias Bürgi and Anton Schuler, 'Topography, Technology and Demand for Timber: Entrepreneurs and Foresters Shaping the Landscape in a Swiss Alpine Valley', *Forest History Today* [Fall 2002], 20–4). In contrast, Swiss loggers regularly transgressed French boundaries in the late-eighteenth and nineteenth centuries, denuding French forests; 'the boundary between France and Switzerland is visibly marked by the misuse of our trees', noted a French observer (Le Quinio, quoted in S. Daveau, *Les régions frontalières de la montagne Jurassienne* [Paris: Trevoix, 1959], quoted in J. R. V. Prescott, *Political Boundaries and Frontiers* [London: Allen & Unwin, 1987], 165–7).

<sup>26</sup> George Perkins Marsh, *The Earth as Modified by Human Action* [revision of *Man and Nature*] (New York: Scribner, Amstrong, 1874), 1877 App., 656n30.

<sup>27</sup> Marsh to Fish, 25 Sept. 1874, DD 513.

<sup>28</sup> Marsh cited by Swiss envoy to Italy Jean Baptiste Pioda, 19 June 1875, in Guggenheim, 'Fixation de la frontière de l'alpe de Cravairola', 508n.

<sup>29</sup> Marsh to Fish, 25 Sept. 1874, DD 513.

<sup>30</sup> The recent cross-border influx of Italian migrant workers from the *mezzogiorno* into Swiss Chiasso and Mendrisio creates some tension in this part of the boundary, the southernmost prong of the Swiss canton of Ticino (Walter Leimgruber, 'Boundary, Values and Identity: The Swiss–Italian Transborder Region', in *The Geography of Border Landscapes*, ed. Dennis Rumley and Julian V. Minghi [London: Routledge, 1991], 43–62).

<sup>31</sup> Culmann, *Rapport au Conseil Fédéral*, 7.

<sup>32</sup> Manfred Thüring, 'Natural Hazards – The deep landslide of Campo Vallemaggia', <<http://www.ist.supsi.ch/common/data/PerNat/CampoVM/>>; census data also from Thüring.

<sup>33</sup> Guggenheim, 'Fixation de la frontière', 483, 510–14. Johann Kaspar Bluntschli's canonical text was *Das moderne Völkerrecht* (1868), of which Marsh possessed a precursor lecture ('Die Bedeutung und die Fortschritte des modernen Völkerrechts' [Berlin, 1866]).

<sup>34</sup> Caroline Crane Marsh, comp., *Life and Letters of George Perkins Marsh* (New York: Charles Scribner's Sons, 1888), 7.

<sup>35</sup> Malintoppi, 'Diritto ed equità nell'arbitrato per l'alpe Cravairola', 521–3. Avner Falk, 'Border Symbolism', *Psychoanalytic Quarterly* 43 (1974): 650–60, likens such infantile memories to transgressions across international boundaries.

<sup>36</sup> General Junker, quoted in Peter Sahlins, *Boundaries: The Making of France and Spain in the Pyrenees* (Berkeley: University of California Press, 1989), 186–90. As with Cravairola, so with Cerdagne: long-established local interests prevailed over the mystique of watershed suitability, 'natural' boundaries gave way to peasant possessions, in the long-drawn-out and acrimonious establishment of the boundary between 1853 and 1868 (*ibid.*, 244–6).

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- <sup>37</sup> Johann Wolfgang von Goethe, *Italian Journey, 1786–1788*, transl. W. H. Auden and Elizabeth Mayer (Harmondsworth: Penguin, 1970), 3 Sept. 1786, 23.
- <sup>38</sup> Stephen Potter, *Potter on America* (London: Rupert Hart-Davis, 1956), 13.
- <sup>39</sup> On the confusion generated by opposite meanings of the term, see Marcus Cunliffe, ‘American Watersheds’, *American Quarterly* 13 (1961): 480–94 at 481, 494; James J. Parsons, ‘On “Bioregionalism” and “Watershed Consciousness”’, *Professional Geographer* 37:1 (1985): 1–6.
- <sup>40</sup> Marsh, ‘Watershed’ [1878], in *Johnson’s New Universal Cyclopaedia* (New York, 1874–78), 4:1299–1300.
- <sup>41</sup> Marsh discusses the Val di Chiana in greater detail in *Man and Nature*, 353–9, 363–4.
- <sup>42</sup> Marsh, ‘Watershed’; *Man and Nature*, 222.
- <sup>43</sup> Prescott, *Political Boundaries and Frontiers*, 108–11, 208.
- <sup>44</sup> Marsh, ‘Watershed’, 1299.
- <sup>45</sup> Alexander von Humboldt, *Personal Narrative of Travels to the Equinoctial Regions of the New Continent during the Years 1799–1804* (London, 1814–29), 5: 315.
- <sup>46</sup> Great Britain, *British Guiana Boundary Arbitration with the United States of Brazil* (London, 1903), 141, quoted in D. Graham Burnett, *Masters of All They Surveyed: Exploration, Geography, and a British El Dorado* (Chicago: University of Chicago Press, 2000), 212.
- <sup>47</sup> Burnett, *Masters of All They Surveyed*, 22. This was not the king’s only boundary arbitration; in 1905 he defined the western limit of the Kingdom of Barotseland [now west Zambia] (Prescott, *Political Frontiers and Boundaries*, 248).
- <sup>48</sup> Stephen B. Jones, *Boundary-Making: A Handbook for Statesmen, Treaty Editors and Boundary Commissioners* (Washington, D.C.: Carnegie Endowment for International Peace, 1945), 101–4; A. O. Cukwurah, *The Settlement of Boundary Disputes in International Law* (Manchester: Manchester University Press, 1967), 41–5, 81–3.
- <sup>49</sup> Max Huber, ‘The Island of Palmas (or Miangas) Arbitral Award’, *American Journal of International Law* 22 (1928): 867–912 at 894.
- <sup>50</sup> ‘Introduction au Tome III’, *Recueil des arbitrages internationaux* (1954), 3:li (see Guggenheim, ‘Fixation de la frontière’); Cukwurah, *Settlement of Boundary Disputes*, 201–3, 231–2; A. L. W. Munkman, ‘Adjudication and Adjustment – International Judicial Decision and the Settlement of Territorial and Boundary Disputes’, *British Yearbook of International Law* 46 (1972–73): 1–116 at 1, 5–7.