

nomenclature, which he blamed on Prieur, see Laplace to Chaptal (Min. Int.), 3 February 1804, in Bigourdan, *Système métrique*, p. 192.

Chapter 10 The Broken Arc

1. George Sand, *Winter in Majorca*, trans. Robert Graves (Chicago: Cassandra [1956], 1978), p. 29. Graves's translation.
2. For Méchain's astronomy, see Méchain to Chaptal, in *Moniteur* 98 (28 messidor IX [17 July 1801]), p. 1232. Also Méchain, *MC* (May 1800), pp. 290-311. For his mood, see Méchain to Rolland, 18 fructidor VII [4 September 1799], 16 messidor VIII [5 July 1800], in Dougados, 'Lettres de Méchain', pp. 105-9, 115-17.
3. For the insults to Méchain behind his back, see Bugge, *Travels*, pp. 247-8; Delambre, 'Méchain', *Astronomie au dix-huitième*, p. 765.
4. For Méchain's retreat, see Delambre, 'Méchain', *Astronomie au dix-huitième*, p. 763.
5. For Delambre's expectation that the *Base* would be published in three volumes and finished within a year, see AAS Dossier Delambre, Delambre to Petit-Genet, 20 prairial VII [18 June 1799]. Méchain knew that his role in writing the *Base* would be minimal; see KBD NKS1304, Méchain to Bugge, 2 brumaire IX [24 October 1800], 1 vendémiaire X [23 September 1801].
6. Delambre and Méchain cooperated on commissions to judge astronomical work, see *ASP* 2 (11 germinal VIII [1 April 1800]), 21 brumaire X [12 November 1801], pp. 129, 429-30. For Delambre and Napoleon, see Delambre, 'Lui-même'. For Méchain and Napoleon, see KBD NKS1304, Méchain to Bugge, 2 brumaire IX [24 October 1800].
7. Méchain to Rolland, 18 floréal IX [8 May 1801], in Dougados, 'Lettres de Méchain', p. 120. At one point the bureaucrats of the Bureau of Longitudes would not even forward letters to Méchain which were addressed to him as 'Director'; see KBD NKS1304, Méchain to Bugge, 2 brumaire IX [24 October 1800]. In fact, Delambre was appointed 'administrator' of the Bureau, rather than its president, so his stay may have been legitimate. And he served for a little over a year, not two years as Méchain alleged.
8. KBD NKS1304, Méchain to Bugge, 1 vendémiaire X [23 September 1801]. For squabbles over firewood and supplies, see BL, 'Procès-verbaux', 19 vendémiaire X [11 October 1800]. For Méchain's threat to resign, see Méchain to Rolland, 18 floréal IX [8 May 1801], in Dougados, 'Lettres de Méchain', p. 120.
9. For Méchain's sense of being wronged, see KBD NKS1304, Méchain to Bugge, 10 brumaire VIII [1 November 1799]. Delambre discovered Méchain's knowledge of these events when he in turn became Méchain's scientific executor in 1805; see Delambre's marginal note (c. 1810) on AOP E2-19, Delambre to Borda, 4 frimaire VI [24 November 1797].
10. For Delambre's initial election as (temporary) Secretary of the Academy on the same day that Napoleon was elected its President, see

ASP 2 (1 germinal VIII [22 March 1800], pp. 11, 25 pluviôse XI [14 February 1803]), pp. 126, 625, 629. The presidency of the Academy had always been (and remained) a rotating and largely honorific office, although Napoleon used it to reorganize the Academy into two branches – one for the mathematical sciences (maths, physics, astronomy, geography and the mechanical arts) and one for the physical sciences (chemistry, the life sciences and medicine). Delambre was made Permanent Secretary for the mathematical sciences, with Cuvier made Permanent Secretary for the physical sciences. Napoleon's new regulations provided that the Permanent Secretary be named by the branch itself, but with 'the approbation' of the First Consul, meaning in effect that the position was in Napoleon's gift. Delambre privately noted that this interference in the self-governing nature of the Academy was a novelty of which he himself did not entirely approve. Delambre, 'Lui-même'.

11. For the proposal to revive the Balearic extension, see BL, 'Procès-verbaux', 19 fructidor X [6 September 1801]. For Méchain's report, see AN F17 3712, [Méchain], 'Rapport aux Consuls sur la continuation de la mesure de la méridienne de France depuis Barcelone jusqu'aux îles Baléares' [September-October 1802]. Antonio E. Ten, 'Le problème du 45^e parallèle et les origines du système métrique décimal', in *Scientifiques et sociétés pendant la Révolution et l'Empire*, 114e Congrès National des Sociétés Savantes, 1989 (Paris: CTHS, 1990), pp. 441-52.
12. Méchain to Rolland, 10 floréal VIII [11 May 1799], in Dougados, 'Lettres de Méchain', p. 114. Méchain was 'alarmingly' ill in March-April 1801; see *ASP* 2 (6 germinal, 1 prairial VIII [27 March, 21 May 1800]), pp. 128, 169. The young savant whom Delambre had in mind was Lalande's pupil Henri, then triangulating his way through Bavaria; see Lalande, *Bibliographie astronomique*, pp. 701, 704, 791, 868; also Delambre, *Grandeur*, pp. 225-4.
13. For Humboldt's pleasure at obtaining results approximating to those of Méchain, see CUS, Humboldt to Delambre, 23 floréal VII [12 May 1799]. Humboldt also compared his data to Méchain's in Humboldt to Zach, 12 May 1799, in Humboldt, *Die jugendbriefe Alexander von Humboldts*, 1787-1799, eds Ilse Jahn and Fritz G. Lange (Berlin: Akademie-Verlag, 1973), pp. 671-2. Humboldt's latitude result, taken on 8 January 1799, was 41°23'28" and 41°22'59", as compared with Méchain's result of 41°22'47", supplied in a private letter from Méchain, which Humboldt mentioned. This suggests that Méchain also knew that Humboldt planned to take a measurement at the Fontana de Oro. See Delambre's commentary on these values in SBB Autgr. J1792(3), Delambre to Humboldt, 10 November 1807. The results were published in 1810 in a two-volume work dedicated to Delambre; see Alexandre de Humboldt and Jabbo Oltmanns, *Recueil d'observations astronomiques, d'opérations trigonométriques et de mesures barométriques* (Paris: Schoell, 1810), 2, pp. 3-6.
14. Méchain to Rolland, 6 frimaire VII [26 November 1798], in Dougados, 'Lettres de Méchain', p. 91.

15. AN F17 3712, [Méchain], 'Rapport aux Consuls sur la continuation de la mesure de la méridienne de France depuis Barcelone jusqu'aux îles Baléares' [September–October 1802]. For state approval of the mission, see BL, 'Procès-verbaux', 5 vendémiaire XI [27 September 1802]. For Laplace and Napoleon's interest in the project, see Zach's views, undoubtedly based on information from Lalande; KBD NKS1304, Zach to Bugge, 19 January 1803.
16. For Méchain's recruitment of Le Chevalier, see BML 26CA6, Méchain to Le Chevalier, 25 ventôse XI [16 March 1803]. For Le Chevalier's mission, see AN F17 3712, Le Chevalier to Min. Int. [Chaptal], 8 ventôse XI [27 February 1803]. For Méchain's acquaintance with Le Chevalier, see KBD NKS1304, Méchain to Bugge, 1 vendémiaire X [23 September 1801]. For Le Chevalier's career in astronomy and his relations with Méchain, see Bigourdan, *Astronomie d'observation*, pp. 137–40. For Le Chevalier's murky dealings in Madrid in 1796–7, see Camille Pitotlet, 'Comment fut accueilli en Espagne la première ambassade française en faveur du système métrique', *Archives de investigations historiques* 1 (1911), pp. 457–73. For Augustin Méchain, see KBD NKS1304, Méchain to Bugge, 1 vendémiaire X [23 September 1801]. Méchain's eldest son, Jérôme-Isaac, back safely from Egypt, had renounced astronomy – despite having discovered his own comet – in favour of a career in the Levant as a diplomatic attaché in the Dardanelles; see Méchain to Rolland, 5 jour comp. VI, 12 brumaire, 26 pluviôse, 30 prairial VIII, 18 germinal X [21 September 1798, 3 November 1799, 15 February, 19 June 1800, 8 April 1802], in Dougados, 'Lettres de Méchain', pp. 86, 110–11, 115, 125.
17. Méchain to Dezauche, 6 germinal XII [27 March 1804], in [A.-M. Dezauche], 'La dernière mission de l'astronome Méchain, 1804', *Revue retrospective* 15 (1891), pp. 145–68, quotation on pp. 155–7. On the British reflectors, see AN F17 3702, Méchain to Min. Int., 8 pluviôse XI [28 January 1803].
18. For Delambre's account of Méchain's handing over his data at the last minute before his departure, see SBB J1792(3), Delambre to Humboldt, 10 September 1807.
19. For the ten-month claim, see KBD NKS1304, Méchain to Bugge, 2 ventôse XI [21 February 1803]. For his expected departure date of 1 February, see KBD NKS1304, Zach to Bugge, 19 January 1803. For his actual departure date, see BL, 'Procès-verbaux', 6 floréal XI [26 April 1803]. Méchain had originally intended to measure the length of a pendulum at Bordeaux; but he gave up this project to save time on his way south. He sailed to Barcelona from Montpellier.
20. For the delays in Barcelona, see AN F17 3712, Le Chevalier to Min. Int. [Chaptal], 25 floréal XI [5 May 1803]. Enrile had been in Paris during the preparations for the expedition; see AN F17 3712, Méchain, 'Etat de position', 12 frimaire XI [3 December 1802].
21. Coronado to Godoy, 29 December 1796, 6 January 1797, in Pitotlet, 'Comment fut accueilli en Espagne', pp. 565–70.
22. AOP B4-9, Chaix to Méchain, 14 August 1804. Chaix had also assisted

- Méchain briefly during his first expedition in 1792. Gonzales also warned Méchain about Coronado; see AOP B4-10, Gonzales to Méchain, 24 September 1803. Le Chevalier, who had tangled with Coronado in 1796–7, also blamed him for the delays in Méchain's mission; see AOP MS1054, Le Chevalier to Min. Int., 20 January 1806.
23. For the savant's intercession with the British, see CUS, Lalande (on behalf of the Bureau des Longitudes) to Min. Aff. Etr. [Talleyrand], 5 messidor XI [24 June 1803]. Gonzales did not think Méchain had much to worry about from the British; see AOP B4-10, Gonzales to Méchain, 30 July 1803.
 24. For Méchain's foray down the coast, see Méchain to Delambre, 30 vendémiaire XII [23 October 1803], in Guillaume Bigourdan, 'La prolongation de la méridienne de Paris, de Barcelone aux Baléares, d'après les correspondances inédites de Méchain, de Biot et d'Arago', *Bulletin astronomique* 17 (1900), pp. 348–68, 390–400, 467–80; see especially pp. 352–6. The geodetic results from this portion of Méchain's survey were published in Jean-Baptiste Biot and Dominique-François-Jean Arago, *Recueil d'observations géodésiques, astronomiques et physiques* (Paris: Courcier, 1821), pp. 1–40.
 25. For Méchain's accusation of lying, see Méchain to Delambre, 15 pluviôse XII [5 February 1804], in Bigourdan, 'Prolongation', p. 364. In fact, Ibiza is visible from Montsia under the right weather conditions.
 26. Méchain to Delambre, 15 frimaire XII [7 December 1803], in Bigourdan, 'Prolongation', p. 357.
 27. For the dispersal of his team, see Méchain to Delambre, 15 frimaire XII [7 December 1803], in Bigourdan, 'Prolongation', p. 359. The Spaniards, such as Enrile's second in command, Cini, refused to guard the reflectors, and the French (Le Chevalier) were irritated at being denied a chance to observe; Méchain to Dezauche, 4 vendémiaire, 28 pluviôse XII [27 September 1803, 18 February 1804], in [Dezauche], 'La dernière mission', pp. 145–7, 151–2.
 28. On the poorly packed reflectors, see Méchain to Dezauche, 4 vendémiaire XII [27 September 1803], in [Dezauche], 'La dernière mission', pp. 145–7.
 29. Méchain to Delambre, 30 vendémiaire XII [23 October 1803], in Bigourdan, 'Prolongation', p. 356.
 30. On Canellas, see Méchain to Dezauche, 28 pluviôse XII [18 February 1804], in [Dezauche], 'La dernière mission', pp. 151–5.
 31. On the trip across to Ibiza, see Méchain to Delambre, 4 pluviôse XII [25 January 1804], in Bigourdan, 'Prolongation', p. 361; Méchain to Dezauche, 4 pluviôse XII [25 January 1804], in [Dezauche], 'La dernière mission', pp. 147–9.
 32. Méchain to Dezauche, 4 pluviôse XII [25 January 1804], in [Dezauche], 'La dernière mission', pp. 147–9. For Ibiza, see André Grasset de St-Sauveur, *Voyage dans les îles Baléares et Pitiuses, fait dans les années 1801, 1802, 1803, 1804* (Paris: Collin, 1807), pp. 249–87; Christian Augustus Fischer, *A Picture of Valencia*, trans. Frederic Shoberl (London: Colburn [1803], 1808), pp. 290–7.

33. Méchain to Dezauche, 15 pluviôse XII [5 February 1804], in [Dezauche], 'La dernière mission', pp. 149-50.
34. Méchain to Dezauche, 15 pluviôse XII [5 February 1804], in [Dezauche], 'La dernière mission', pp. 149-50.
35. Méchain to Delambre, 4 pluviôse XII [25 January 1804], in Bigourdan, 'Prolongation', p. 363.
36. On the sun clock, see Grasset de St-Sauveur, *Baltares*, pp. 97-9; Alexandre de Laborde, *Itinéraire descriptif de l'Espagne*, 2nd edn (Paris: Nicolle, 1809), 4, p. 441; Fischer, *Valencia*, p. 272; Sand, *Winter*, pp. 69-70.
37. For the eclipse, see Méchain, 'Mémoire sur l'éclipse de soleil du 20 pluviôse XII', 10 February 1804, *CT pour l'an XV* (pub. frimaire XII [November-December 1804]), pp. 476-82. For a recapitulation of Gonzales' expedition to Mallorca in December 1792, see AOP B4-10, Gonzales to Méchain, 24 September 1803.
38. Delambre to Méchain, sent 5 ventôse XII [25 February 1804], received in Palma on 22 ventôse XII [13 March 1804], in Bigourdan, 'Prolongation', pp. 390-1.
39. Méchain to Dezauche, 6 germinal XII [27 March 1804], in [Dezauche], 'La dernière mission', pp. 155-7. For Méchain's deference to the Bureau, see Méchain to Delambre, 16 germinal XII [6 April 1804], in Bigourdan, 'Prolongation', pp. 391-3; letter read to the Bureau of Longitudes, BL, 'Procès-verbaux', 7 floréal XII [7 March 1804].
40. On the dangers of delay and Coronado's machinations, see AOP B4-10, Gonzales to Méchain, 24 September 1803. On Valencia, see Fischer, *Valencia*, pp. 46-8, 200-4; Swindburne, *Travel*, 1, pp. 153-4; Alexandre de Laborde, *Voyage pittoresque et historique de l'Espagne* ([Paris: n.p., 1806], vol. 1; Laborde, *Itinéraire*, 1, pp. 175-250; Richard Twiss, *Travel Through Portugal and Spain in 1772 and 1773* (London: Robinson, 1775), p. 201.
41. For Méchain's reconnoitring trip, see Méchain to Delambre, 11 fructidor XII [29 August 1804], in Bigourdan, 'Prolongation', pp. 396-400, 467-70. For a description of travel at this time of year in these regions in this period, see Twiss, *Travel*, p. 213-14.
42. For Méchain's sunburn, see Méchain to [Mme Méchain?], 4 messidor XII [23 June 1804], in Bigourdan, 'Prolongation', pp. 393-4. For the flares, see Méchain to Delambre, 11 fructidor XII [29 August 1804], in Bigourdan, 'Prolongation', pp. 396-400, 467-70. For a description of the archbishop three years later, see François Arago, 'Histoire de ma jeunesse', in *Œuvres complètes*, 2nd edn (Paris: Legrand, Pomey et Crouzet, 1865), 1, pp. 32, 37.
43. For the operations of that summer, see Méchain to Delambre, 11 fructidor XII [29 August 1804], in Bigourdan, 'Prolongation', pp. 396-400, 467-70. On Canella's mistake, see Ten, *Méchain le métre*, p. 155.
44. Méchain to Delambre, 11 fructidor XII [29 August 1804], in Bigourdan, 'Prolongation', p. 400, 467.
45. AAS Dossier Méchain, Méchain to Jaubert, 13 messidor XII [2 July 1804].

46. For a description of Méchain on the Sierra de Espadán, see Delambre, *Notice historique de Méchain*, p. 24. For the region around the Sierra de Espadán, see Townsend, *Journey Through Spain*, 3, pp. 296-8.
47. Dezauche, 'Journal' [1794], in [Dezauche], 'La dernière mission', pp. 159-68.
48. For a copy of Méchain's death certificate from the parish register of Castellón de la Plana, see AAS Dossier Méchain, 'Dn. Pedro Méchain', 14 September 1804.
49. For a late eighteenth-century diagnosis of intermittent fever (malaria), see Vicq d'Azyr and Jeanrol, 'Rapport . . . au sujet de l'épidémie qui a régné à Villeneuve-les-Avignon', *Histoire de la Société Royale de Médecine* (1776), pp. 213-25. For the most widely used treatise, translated into all the major languages of Europe and continuously in print since the middle of the eighteenth century, see James Lind, *Essai sur les maladies des européens dans les pays chauds*, ed. and trans. Thion de la Chaume (Paris: Barrois, 1785). See also the compendia in J.-L. Alibert, *Traité des fièvres pernécieuses*, 3rd edn (Paris: Crapet, 1804). For the history of malaria in Spain, see Leonard Jan Bruce-Chwatt and Julian de Zulueta, *The Rise and Fall of Malaria in Europe: A Historico-Epidemiological Study* (Oxford: Oxford University Press, 1980), pp. 123-8.
50. On Méchain's obsession with his papers, see Delambre, *Notice historique sur M. Méchain*, p. 28.
51. For the news of Méchain's death, see ASPV 3 (16 vendémiaire XIII [8 October 1804]), p. 138.
52. On the sale of Méchain's library, see BN Delta 49306, *Catalogue des livres et instruments du feu M. P.-Fr.-And. Méchain*, sale on 4 floréal XIII [24 April 1805] (Paris: Blet, XIII [1805]). On the penury of the Méchain family after his death, see AN F17 1541, Jaubert to Min. Int. [Champagny], 18 ventôse XIII [9 March 1805]. On Mme Méchain's efforts to get a pension, see AN F17 1541, Mme Méchain to Min. Int. Champagny, received 3 nivôse XIII [24 December 1804]; Min. Int. to Mme Méchain, 11 ventôse XIII [2 March 1805]; Min. Int. 'Rapport à Sa Majesté l'Empereur', 24 pluviôse XIII [14 February 1805]; Napoleon, 'décret ce qui suit . . . Méchain', n.d. The final pension was 1500 francs per year, one third of which would come to Méchain's daughter upon her mother's death.
53. AOP E2-21, Augustin Méchain, 'Notice' [1804-5].
54. For Lalande's obituary, see Lalande, 'Nécrologie', *Moniteur* 22 (7 nivôse XIII [28 December 1804]): 78. See also Barón de la Puebla, 'Nachtrag zu Méchain Biographie', *MC* (1805), p. 367-9.
55. Delambre, *Notice historique sur M. Méchain*, *lue*, le 5 messidor XIII [24 June 1805] (Paris: Baudouin, January 1806), p. 19.
56. Delambre, *Notice historique sur M. Méchain*, p. 30. Delambre did publish a few of Méchain's observations found amid his papers; see ASPV 3 (22 pluviôse XIII [11 February 1805]), p. 180.
57. For the publication of the eulogy, see BA MS2038, Delambre to Baudouin, 21 January 1806.

58. For a contemporary account of the pressure on Delambre to complete his book manuscript, and the fact that although he had received the first batch of Méchain's papers he had yet to go through them, see UBL MS074, Delambre to Van Swinden, 10 ventôse XIII [1 March 1805]. Delambre himself says he did not have Méchain's papers in time for Volume 1, in Delambre, *Base*, 2, pp. v-x. For a retrospective account, see Delambre, *Grandeur*, p. 224. On the meaning of the metre, see Ludwig Wittgenstein, *Philosophical Investigations*, trans. G. E. M. Anscombe, 2nd edn (Oxford: Blackwell, 1963), section 50. Also Saul Kripke, *Naming and Necessity* (Cambridge: Harvard University Press, 1972).

Chapter 11 Méchain's Mistake, Delambre's Peace

1. William Shakespeare, *Julius Caesar*, Act I, scene ii, in *The Riverside Shakespeare* (Boston: Houghton Mifflin [1699], 1974), p. 1108.
2. Jean-Baptiste-Joseph Delambre, *Histoire de l'astronomie moderne* (Paris: Courcier, 1821), 1, p. xli. He is speaking of his treatment of Descartes; see below.
3. Delambre, *Rapport historique*, p. 68.
4. KM, Delambre, *Base*, 1, title page. As it is not clear when Delambre presented the *Base* to Napoleon, it may well have been when all three volumes were published in 1810; see BA MS2038, Delambre to Baudouin, 21 January 1806. Delambre deliberately refrained from dedicating the *Base* to the Emperor to avoid the impression of kowtowing; see Delambre, 'Lui-même'.
5. AOP E2-9, Delambre's comments at end of Méchain's notebook.
6. For Méchain's alterations, see AOP E2-9, 23 January 1793. In one instance, Delambre could tell that the data had been recopied because of the way they were laid out on the page; yet Méchain had appended the times of the observations to the top and bottom of the page, something that served no purpose except to make the page appear to be original.
7. Delambre, in KM, Delambre, *Base*, 1, p. 510. For Delambre's notes on Méchain's sections, see KM, Delambre, *Base*, 1, pp. 289-510. For Méchain's 'falsifications' at Saint-Pons, see p. 345. The many alterations at Carcassonne (sixteen series suppressed) shifted the final outcome by 1.91 seconds; see p. 374. Delambre notes a case in which Méchain presented data to the International Commission that had been altered by two full seconds without any plausible explanation; see p. 386. Delambre also made corrections for typographical errors and occasionally tweaked his own equations.
8. For the latitude of Paris, then and now, see Delambre, *Grandeur*, p. 222; Bigourdan, *Système métrique*, p. 154.
9. Delambre's comments in AOP E2-9. See also KM, Delambre, *Base*, 1, p. 484; AOP MS1033b, Anon. [Tranchot?], 'Pour Delambre seul' [c. 1807-9]. Méchain published an abbreviated version of his results for Barcelona; see *CT pour l'an XII* (Paris, X [1801-2]), pp. 242-3.
10. Delambre, *Base*, 2, p. 619; Delambre, 'Auszug aus einem Briefe', 1 February 1808, *MC* 18 (May 1806), pp. 45-9. For his promise to publish all the data, see Delambre, 'Base du système métrique', *CT pour l'an 1808* (1807), pp. 463-6.
11. For the deposit of the papers, see Burckhardt, Biot and Bouvard, 'Dépôt des manuscrits à l'Observatoire impérial', 12 August 1807; and Bouvard, Burckhardt and Arago, 'Dépôt', 19 September 1810, in *Base*, 3, pp. 698-704. Delambre made the deposit in two lots because he wanted to hold on to some of the material while writing Volume 3 of the *Base*. However, unlike the published accounts of the second deposit in 1810, the manuscript version notes that Méchain's letters had been placed under seal. See the original at AOP D5-58, 'Dépôt', 26 September 1810.
12. AOP E2-9, Delambre's final comments in Méchain's notebook.
13. Delambre (c. 1810), marginal note to AOP E2-19, Méchain to Delambre, 7 brumaire VII [28 October 1798].
14. AOP E2-19, Méchain to Lalande, 11 ventôse IV [1 March 1796]. For the claim that the double star Mizar-Alcor may have ruined Méchain's data, see Jean-Nicolas Nicolle, *Mémoire sur un nouveau calcul des latitudes de Mont-Jouy... lu à l'Académie des sciences le 10 mars 1828* (Paris: Huzard-Courcier [1828]); also published in *CT pour 1831*, pp. 68-77. However, Méchain had publicly noted that Mizar was a double star; see Méchain, *MC* 8 (November 1803), p. 455. Moreover, the astronomer royal of England, George Airy, later examined Mizar-Alcor through the repeating circle which Méchain had sold to the Milanese, and found that he was able to resolve the double star. George Airy, 'The Figure of the Earth', *Encyclopaedia Metropolitana* (London: Fellows et al., 1845), 5, p. 250. On the issue of refraction, see Delambre, 'Auszug aus einem Briefe', 1 February 1808, *MC* 18 (1808), pp. 45-9. Delambre thought that Méchain's observations of Mizar proved that the Bradley tables were in error; see Delambre, *Base*, 2, p. 595.
15. For Delambre's speculations, see Delambre, *Base*, 2, pp. 618-19. Méchain himself worried that the Pyrénées would distort his readings; see AOP E2-19, Méchain to Lalande, 3 brumaire IV [25 October 1795]. Méchain's friend, the German astronomer Baron von Zach, cited Méchain's experience at Barcelona as evidence of the gravitational pull of mountains; see Franz-Xaver Zach, *L'attraction des montagnes et ses effets sur les file à plomb* (Avignon: Seguin, 1814), p. 19. At the time, some geodesers noted that the tug of the local geography should have created a discrepancy in the opposite direction; see Joseph Rodriguez, 'Observations on the Measurement of Three Degrees of the Meridian', *Philosophical Transactions* 102 (1812), p. 344.
16. Some have suggested that Méchain sold his circle to the Milanese astronomers to get rid of the defective apparatus. This seems unlikely. Méchain gave the Milanese astronomers free choice between his two circles, and they chose the 360° old-fashioned circle rather than the 400° decimal circle, which is the one Méchain himself had used almost exclusively; see Delambre, *Base*, 3, pp. 503-4. For his sale to the