The Memoirs and legacy of Évariste Galois

Évariste Galois, a brief *cv*:

25 October 1811: Évariste Galois born in Bourg-la-Reine, 10km south of central Paris.

6 October 1823: entered Collège Louis-le-Grand (Paris). Stayed six years: began well, ended badly.

August 1828: failed to gain entrance to the École Polytechnique.

April 1829: article (on continued fractions) published in Gergonne's *Annales de Mathématiques*.

25 May and 1 June 1829: two articles submitted to Acad. Sci. (Paris); referees were Poinsot and Cauchy. The manuscripts are lost; Galois probably withdrew them January 1830.

2 July 1829: suicide of Évariste's father, Nicolas-Gabriel Galois.

July/August 1829: second and final failure to gain entrance to the École Polytechnique.

November 1829: entered the École Préparatoire (now École Normale Supérieure).

February 1830: re-submitted paper to Acad. Sci. in competition for the Grand Prix de Mathématiques. Manuscript lost. Prize shared between Abel (posthumously) and Jacobi.

April–June 1830: three items published in Férussac's *Bulletin*.

May or June 1830: wrote 'Des équations primitives qui sont solubles par radicaux' (the so-called *Second Mémoire*).

December 1830: another item published in Gergonne's *Annales*.

4 January 1831: official confirmation of his provisional expulsion from the École Préparatoire in December 1830.

17 January 1831: submitted his 'Mémoire sur les conditions de résolubilité des équations par radicaux' (the so-called *Premier Mémoire*) to Acad. Sci. It was given to Lacroix and Poisson to be examined.

10 May 1831: arrested for offensive political behaviour; acquitted and released 15 June 1831.

4 July 1831: Poisson (and Lacroix) reported back negatively on the *Premier Mémoire*.

14 July 1831: arrested on the Pont-neuf during a Bastille Day republican demonstration.

23 October 1831: convicted of carrying fire-arms and wearing a banned uniform; sentenced to six months further imprisonment in the Sainte-Pélagie prison.

16 March 1832: released from Sainte-Pélagie during an outbreak of cholera in Paris and sent to live in the "maison de santé du Sieur Faultrier", a sort of private hospital or asylum, a safe house.

Late May 1832: mysteriously engaged to duel. There is little evidence and much contradictory conjecture as to by whom and about what.

29 May 1832: wrote his *Lettre testamentaire* addressed to his friend Auguste Chevalier and revised some of his manuscripts.

30 May 1832: shot in an early-morning duel. Others present (all unknown) disappeared.

31 May 1832: died in the Côchin hospital in Paris.

The main writings

- 'Sur la théorie des nombres',
  Published June 1830 in Férussac's *Bulletin*;
  contains a precursor of the theory of finite fields.

- 'Mémoire sur les conditions de résolubilité des équations par radicaux',
  known as the *Premier Mémoire*;
  contains Galois Theory (modern theory of equations).

- 'Des équations primitives qui sont solubles par radicaux,
  known as the *Second Mémoire.* Written May or June 1830.

- Lettre à Auguste Chevalier, Paris, le 29 Mai 1832;
  a testamentary letter summarising Galois' discoveries.

- Four or five minor items published during Galois' lifetime; many minor manuscripts.

The editions

1830–32: Material published in Galois' lifetime;
the *Lettre testamentaire* published September 1832

1846: J. Liouville's edition, 'Œuvres Mathématiques d'Évariste Galois' in *Journal de Mathématiques pures et appliquées*, XI

1889: H. Maser's translation into German

1897: Émile Picard's edition (essentially a reprint of Liouville 1846)

1906/07: Jules Tannery, 'Manuscrits et Papiers inédits de Évariste Galois', *Bulletin des Sciences Mathématiques*, XXX, XXXI

1929: Louis Weisner, English translation of the *Lettre testamentaire* in D. E. Smith, *Sourcebook in the History of Mathematics*

1962: Robert Bourgne & J.-P. Azra, *Écrits et mémoires mathématiques d'Évariste Galois: Édition critique*, Gauthier-Villars, Paris; second edition 1973

1984: Harold Edwards: English translation of the *Premier Mémoire* in his *Galois Theory*, Springer-Verlag, New York

2011: Peter M. Neumann: *The mathematical writings of Évariste Galois*, European Mathematical Society, Zürich (25 October 2011)

ΠMN: Queen's, Oxford: October 2011