

1 Instrumental delivery: Complex paternity and fading art

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3 For Sir Thomas NA Jeffcoate (1907-1992), Professor of Obstetrics and Gynaecology
4 at the Women's Hospital, Liverpool and President of the RCOG (1969-1972), the
5 invention of the forceps was "probably the most important event in the history of
6 obstetrics" (BMJ;4843:951-5). As he also stated "it was the first serious incursions of
7 the medical profession into the realms of midwifery" and "it became hated by the
8 midwives, who did everything possible to discredit it in the eyes of parturient
9 women". Peter Chamberlen the Elder (1560 to 1631) "accoucheur" to Queen
10 Henrietta (Charles 1st wife) is believed to be the inventor of the forceps (Hibbard B,
11 Med Historian 1997;18:41-60). He went to great length to keep his forceps secret,
12 bringing it to birthing-rooms in an ornate box, hidden from view, blindfolding his
13 patients and never allowing anyone else in the room during the delivery. The
14 Chamberlen' forceps remained under the attic floorboards in the family home at
15 Woodham Mortimer hall until its accidental discovery in 1813.

16 Many different types of forceps were developed over the following centuries,
17 including those by Willam Smellie (1697-1763, UK); John R Barton (1794-1871,
18 USA); James Y Simpson (1811-1870, UK); Etienne Tarnier (1828-1897, France);
19 Christian Kielland (1871-1941, Norway); and Arthur Wrigley (1904-1984, UK). In
20 1957, John Mann, an obstetrician in Toronto, Canada and inventor of a joint-locking
21 forceps (Figure) noted that if the teaching and general use of obstetric forceps had
22 greatly improved in the previous 50 years, the weakest point in the teaching was "a
23 failure to grasp a few of the fundamental mechanical principles involved" (J Obstet
24 Gynaecol Br Emp 1957;64:351-4).

25 The paternity of the "ventouse" is more complicated. John Yonge (1646-
26 1721), a naval surgeon from Plymouth is believed to be the first to have used in 1706
27 a suction devise for delivery. James Y Simpson (1811-1870, UK) similarly developed
28 of a suction "air-tractor" in 1849 but his instrument met very little success (Chalmers
29 JA, J Obstet Gynaecol Br Emp 1963;70:94-100). The modern suction metal cup
30 ventouse was designed by the French Obstetrician, Yves Couzigou (1910-1989) and
31 used successfully for the first time in 1946 (He patented it in 1948) but its paternity
32 was then attributed to the Swedish obstetrician Tage Malmstrom (1911-1995) who
33 popularized its use. Malmstrom ended the dispute by writing to Couzigou recognizing
34 his earlier contribution (www.infobretagne.com/couzigou-yves). By the 1970s, the
35 vacuum extractor had almost completely replaced forceps for assisted vaginal
36 deliveries in many European countries. By the end of the 1990s, the number of
37 ventouse deliveries surpassed the number of forceps deliveries in the USA (Ali UA
38 and Norwitz, Rev Obstet Gynecol. 2009;2:5-17).

39 Used by skilled operators both the forceps and the ventouse are safe. There
40 are clinical situations where one instrument may be better than the other but the
41 decision of which instrument to use dependent on the preference and experience of
42 the individual care provider, As highlighted in a review of the trends in operative
43 vaginal delivery 2005-2013 in the US (Merriam et al, BJOG 2017), the expertise in
44 instrumental delivery is rapidly disappearing with the rising numbers of caesarean
45 delivery.

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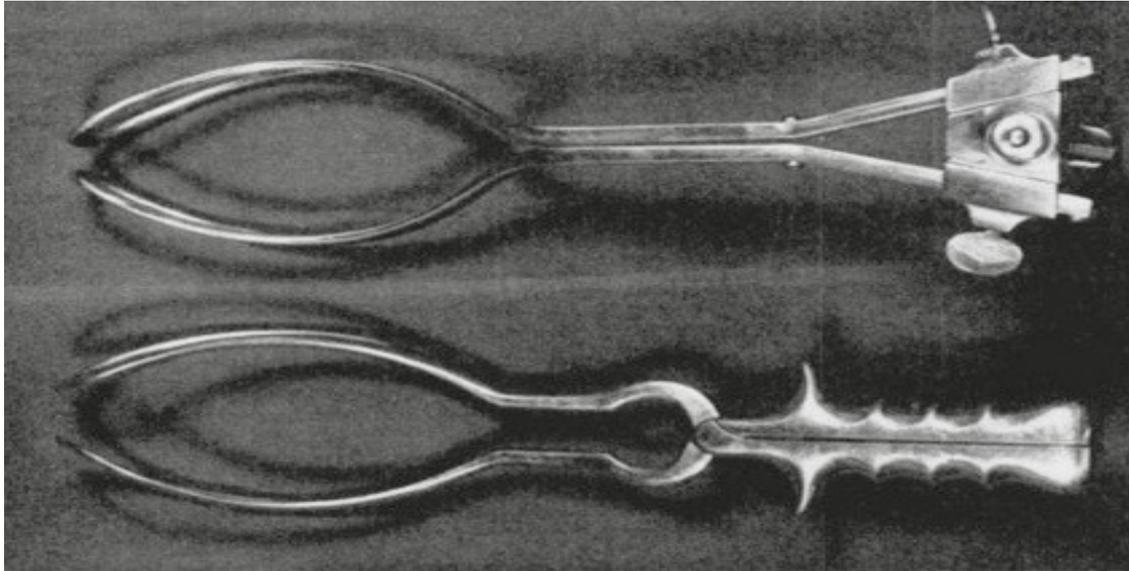
50 MC on MS2016-OG-18474 by by Merriam et al

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53 **Figure:** The Mann forceps (above) and a conventional forceps (below)

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57 **Disclosure of interests**

58 The authors declare no conflicts of interest.

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