

# The Cartophoot: Hofstee's geographic information system

In 1949, three years after his appointment as professor in social and economic geography, the 'trojan horse' through which rural sociology entered Wageningen, Evert Willem (E.W.) Hofstee became the chair of a commission to study the development of fertility in the Netherlands.<sup>1</sup> The Commission for Birth Research (*Commissie voor het Geboorte-Onderzoek*)<sup>2</sup> was part of the Institute for Social Research of the Dutch People (*Instituut voor Sociaal Onderzoek van het Nederlandse Volk* [ISONOVO]). The Institute was established in November 1940, and prepared 21 monographs on rural settlements in the Netherlands through the 1940s and 50s to be used for socio-economic planning, among these the selection of farmers and laborers who would colonize the new Noordoostpolder (Schuyt & Taverne 2004: 75). Hofstee was not only a prominent board member of the institute<sup>3</sup>, but also a staunch advocate of this social demographic research, however not only to develop a system for the selection of these farmers and laborers, as to understand how regional characteristics, such as community and cultural ideas, influenced their behavior (Ibid 76).

In the years that followed, Hofstee became one of the pioneers of demographic research in the Netherlands. He played a role in various advisory committees and played an important role in the institutionalization of demographic research. When the Interuniversity Demographic Institute (*Nederlands Interuniversitair Demografisch Instituut*)<sup>4</sup> was established in 1970, he became the first chair, a position he would keep until 1980.

Hofstee played a prominent role not only in the institutionalization of demography but also in its theoretical development. In this regard, his 1954 publication "Regional diversity in the development of the number of births in the Netherlands in the second half of the 19<sup>th</sup> century" (*Regionale verscheidenheid in de ontwikkeling van het aantal geboorten in Nederland in de 2e helft van de 19e eeuw*) cannot remain unmentioned. In this book, Hofstee argued that socio-economic circumstances, creating new cultural patterns, explain the differences in fertility among different groups in the Netherlands, and not, as was generally believed at the time,

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1 <http://resources.huylgens.knaw.nl/bwn1880-2000/lemmata/bwn5/hofstee>

2 <http://resources.huylgens.knaw.nl/emigratie/gids/persoon/1919940894>

3 Hofstee would become chair of ISONOVO and, together with the sociologist Van Doorn, signed the documents through which its successor was established, the Interuniversity Institute for Social-Science Research SISWO (Interuniversitair Instituut voor Sociaal-Wetenschappelijk Onderzoek), see Winkels, J. (1982). ISONOVO: Het Instituut voor Sociaal Onderzoek van het Nederlandse Volk. Amsterdam, SISWO

4 NIDI developed from an interuniversity institute towards an interdisciplinary institute, and its name changed in Netherlands Interdisciplinary Demographic Institute in 1987.



Cartophoot, photo by Joost Jongerden

'intoxification with liberation' following the 1813-14 revolution".<sup>5</sup>

To do his demographic work, Hofstee pioneered an important technological innovation in the development of thematic maps. The making of these thematic maps, in which a particular variable was highlighted on a map of the Netherlands, was labor intensive and time consuming. Making just a single map could take several days. To speed up this process, Hofstee developed the Cartophoot (*Kartophoot*) in collaboration with the Klaus Toys Factory (*Klaus Speelgoedindustrie*), a handcraft business in Bussum that specialized in making jigsaw puzzles from triplex.<sup>6</sup> Developed between 1953 and 1957,<sup>7</sup> the Cartophoot is essentially itself a giant puzzle, its pieces being the 1,138 municipalities of the Netherlands in 1856.

Hofstee's creation had ten pieces in different colors and shades for each municipality. As soon as statistical data were translated to classes, the color or shade of a municipality could be determined. An assistant would make the thematic map within a couple of hours, after which a photograph was taken, and the map was now ready for publication.<sup>8</sup>

The Cartophoot became an important tool for geodemographic analysis, and Hofstee and his assistants, one of them Henk van Espelo, made hundreds of such maps. The maps were

religious differences. In 1978, he published his magnus opus, "The Demographic Development of the Netherlands in the First Half of the Nineteenth Century." (Hofstee 1978) The book was praised – for "filling an intolerable gap in the history of the Low Countries" – yet controversial for its unconventional explanations of population increase – such as "increase in the frequency of marital sexual intercourse" and the belief that "sexual norms and mores were swept away by the Dutch

5 "Hofstee rejects the possibility of lower marriage ages and lower celibacy rates in favour of a plausible but inadequately documented increase in marital fertility. The latter is explained by Hofstee by a sudden increase in the frequency of marital sexual intercourse which, amazingly, is unique to the Netherlands, not a country otherwise noted for its radical and violent social and economic change." See: Mokyr, J. (1979). "Book Review: De Demografische Ontwikkeling van Nederland in de Eerste Helft van de Negentiende Eeuw: Een Historisch-demografische en Sociologische Studie." by E. W. Hofstee." *The Economic History Review* 32(3): pp. 438-439.

6 <https://www.weespeernieuws.nl/reader/134757/115843/uit-de-historie-v>

7 <https://wur.on.worldcat.org/search?queryString=cartophoot#/oclc/1012508174>

8 Since the number of municipalities declined in the following decades, Hofstee needed to recalculate or interpolate the original statistics in order to make them fit the map (Eric Vanhaute, 2005. *The Belgium Historical GIS*, p. 139, [https://www.researchgate.net/publication/294125390\\_The\\_Belgium\\_historical\\_GIS](https://www.researchgate.net/publication/294125390_The_Belgium_historical_GIS); Anton Schuurman, "De Cartophoot, sociaal-geografisch puzzelen," unpublished manuscript).



Puzzle pieces for making the cartophoot, photo by Joost Jongerden

used for synchronic and diachronic analyses of population growth and decline, the labor intensity of farms, the number of agricultural workers, and suchlike. Prominent institutes in the Netherlands, such as the Central Bureau for Statistics CBS (*Centraal Bureau voor de Statistiek*), bought the Cartophoot from the Klaus Toys factory, until the development of computers and information technology for the making and adaption of thematic maps rendered Hofstee's innovation obsolete in the 1970s and 80s. Now considered a predecessor of GIS, the Cartophoot, has become part of our academic heritage. The Cartophoot Hofstee used is at the social sciences building in the Leeuwenborch, while the maps he made with it are part of Wageningen University's special collection.<sup>9</sup>

Hofstee, E. W. (1978). *De Demografische Ontwikkeling van Nederland in de Eerste Helft van de Negentiende Eeuw: Een historisch-demografische en sociologische Studie*. Deventer, Van Loghum Slaterus & Nederlands Interuniversitair Demografisch Instituut  
Schuyt, K. and E. Taverne (2004). *Dutch Culture in a European Perspective: 1950 Prosperity and Welfare*. New York, Van Gorcum/Palgrave, p.75.  
Mokyr, J. (1979). "Book Review: De Demografische Ontwikkeling van Nederland in de Eerste Helft van de Negentiende Eeuw: Een historisch-demografische en sociologische studie." by E. W. Hofstee." *The Economic History Review* 32(3): pp. 438-439.  
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9 <https://wur.on.worldcat.org/search?queryString=cartophoot#/oclc/1012508174>