

Origins of ecstasy an urban myth

Clubber's drug was not originally developed to help German army



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Drug discovery throws up its fair share of controversies and myths, but one story that combines both is the tale of how the illegal drug ecstasy, or MDMA (3,4-methylenedioxyamphetamines), was discovered.

If journals, textbooks and even the official report at the US Drug Enforcement Agency are to be believed, Merck created ecstasy to help suppress the appetites of soldiers in the German army before World War I. After seeing some bizarre side effects the company was supposedly forced to withdraw the drug.

Almost a century on, Merck has decided to set the record straight. Roland Freudenmann, a doctor from Ulm, Germany, and Florian Oxler and Sabine Bernschneider-Reif from Merck's corporate history department spent over a year trawling through the corporate archives searching for references to ecstasy and MDMA in laboratory journals, annual reports, patents, letters, interview records and personal memoirs.

The authors reveal their findings in the journal *Addiction*. Merck *did* develop the drug in 1912, but the appetite suppressant story is an urban myth passed on from source to source through 'uncritical copy-paste procedures' (*Addiction* 101, 1241–1245; 2006). Documents from around the time reveal that, in fact, MDMA emerged during the company's efforts to develop a new compound to promote blood clotting.

The best available haemostatic drug at the time, hydrastinin, was patented by Merck's local rival Bayer. Merck chemists believed that a methylated form of the compound, methylhydrastinin, would be equally effective and set about trying to make it from scratch in a way not covered by the Bayer patent.

MDMA itself attracted little attention at the time. The compound was merely an intermediate in the methylhydrastinin pathway, and in the patent filed for the

pathway (number 274350) MDMA was described only in terms of its properties: "colourless oil, boiling point 155°C at 20 mm pressure, its salt forms white crystals."

Tellingly, there were no references to any experiments to test the biological effects of MDMA — referred to as methylsafrylamin in Merck's Annual Report of 1912. The authors found that "MDMA was neither studied in animals nor humans at Merck around 1912." The false story probably started, the authors say, because Smith, Kline and French (now known as GlaxoSmithKline) studied a similar compound called MDA as a possible diet drug between 1949 and 1957.

The Merck archive reveals that the company revived its interest in MDMA in 1927, when the first tests were carried out on animals. At that time, Merck started working on adrenaline and ephedrine-like substances, and a chemist called Max Oberlin thought MDMA might mimic adrenaline because it had a similar structure. Oberlin said the test results were "partly remarkable" because of MDMA's effects on blood glucose levels and vascular tissue, but the research was halted because of steep rises in the price of chemicals needed to make the drug.

Whether Merck ever tested MDMA on humans is less clear. The archive says that in 1959 another chemist, Wolfgang Fruhstorfer, was interested in the production of new human stimulants, and the report found "insinuations" that he cooperated with an institute for aviation medicine. But the authors say that "Despite all efforts, it remains unclear whether [Fruhstorfer] also investigated MDMA effects in humans."

One year later, the first paper for MDMA synthesis appeared in Polish journal and by 1970 the first tablets containing MDMA were seized in Chicago. The rest of the story is, as they say, history, but in terms of the origins of MDMA, Merck's role in the drug now seems more sorted.

