

Immunity Challenge

Reviewed: Paul A. Offit, M.D.'s *Vaccinated: One Man's Quest to Defeat the World's Deadliest Diseases*

By Alex Halprin

Posted: June 21, 2007

Maurice Hilleman may have saved your life. Over a long and brilliant career at the pharmaceutical giant Merck, the gruff Montana microbiologist created vaccines for hepatitis B, mumps, and measles, among others. In researching his wonderful new book, *Vaccinated*, Paul A. Offit conducted interviews with Hilleman not long before the scientist died in 2005 and pays a deserved tribute to the man whose name is all but unknown outside medical circles. (He never, for example, won the Nobel Prize, though colleagues lobbied on his behalf.) More important, the book weaves his life into a broader discussion of vaccines: their history, their amazing successes, and their comparably mild dangers. Since the 18th century, when English doctor Edward Jenner used pus from cowpox lesions to prevent smallpox, vaccines have counted among the most important achievements of science--and also some of the most misunderstood. As Offit explains, when a vaccine works, nothing happens. But vaccines have emerged as convenient scapegoats for subsequent health problems suffered by the patient, most notoriously autism. *Vaccinated's* achievement is to explain in vivid language how vaccines are conceived and how they work. Biology is usually indecipherable for anyone without a decade of training, and this book offers a peek into what scientists actually do with their pipettes. Offit describes how after Hilleman's daughter caught the mumps, he injected the virus in an unhatched chicken's egg: "Hilleman cut off the head of the unborn chick, minced the body with scissors, treated the fragments with a powerful enzyme, watched the chick embryo dissolve into a slurry of individual cells, and placed the cells into a laboratory flask." The process created a weaker version of the mumps virus, grown in chicken cells, that when introduced to human immune systems would spur immunity to the original virus. Offit is that rare writer who can translate science into English, and he doesn't ignore the controversies and dangers that follow vaccines. Like all pharmaceuticals, vaccines can have side effects, and though they're often mild, they also can cause serious reactions; batches of good vaccine have been contaminated with unpleasant results. Offit also discusses controversial techniques that used to surround vaccines, such as testing them in retarded children. But by braving an honest appraisal, Offit defuses the dangerous and false claims that cause parents to resist vaccinating their children. He respectfully rolls out critics--such as anti-abortion absolutists who oppose the use of vaccines derived from the cells of a dead human fetus--and concludes that the immense benefits far outweigh the drawbacks. Like Hilleman with that unhatched chick, he shreds Andrew Wakefield, who popularized the canard that the combined measles, mumps, and rubella vaccine causes autism. Offit is a vaccine insider: He holds an academic chair named for Hilleman at the University of Pennsylvania and helped develop RotaTeq, a vaccine for rotavirus

marketed by Merck. (Rotavirus causes severe diarrhea and vomiting, killing hundreds of thousands of children annually in the developing world.) Though it's not the work of a journalist, Offit's entertaining and authoritative account displays a mastery of his subject that few journalists could match.