

BOOK REVIEW

Consanguinity, inbreeding, and genetic drift in Italy

Inbreeding in Italy

LL Cavalli-Sforza, A Moroni and G Zei

Monographs in Population Biology

SA Levin and HS Horn (eds). Princeton University Press, Oxford, UK; 2004. 320pp. £26.95, paperback. ISBN 0691089922.

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Reviewed by MH Schierup

Today, where you can type 500 000 single nucleotide polymorphisms in an individual in one go, and where retrospective genetic analysis has widely replaced prospective (classical) population genetics analysis, this book seems outdated. This first impression is well supported by the dull appearance of the book with its one-colour cover and black & white figures. However, as could be expected considering especially Cavalli-Sforza's previous merits, the book is very well written and entertaining. Many of the scientific messages are still of great value, the book is very instructive and it clearly shows how dedicated and determined research that scrutinizes every result and constantly forms and tests new hypotheses leads to new insights.

It all began more than 50 years ago when Antonio Moroni obtained access to use church records from the Catholic Church archives of Italy. These are interesting because they contain very detailed information on consanguineous marriages, because the church had to give its permission to relationships as distant as third cousins (ie marriage between grandchildren of cousins). Later on, data on blood group polymorphisms and surnames (from telephone books) were added. The book offers a very detailed description and intelligent analyses of these heterogeneous and often incomplete data in a cultural context. The consanguinity data can be divided into many different pedigrees depending on the number

of males and females in the two lines of common descent. The frequencies of pedigrees with a specific level of consanguinity differ much due to the typical age difference between man and woman at marriage, but as the authors show, also due to different migration rates between sexes, and due to the fact that women are more likely to keep family ties than men. Overall, consanguinity increased in Italy early in the 20th century and subsequently decreased. One could easily believe that this was due to changing attitudes towards consanguinity (inbreeding avoidance), but the authors demonstrate that it can largely be explained by population growth in the early 20th century and changing demographics since then. Thus, the relatedness *per se* may not have been very important for choice of partner in Italy. Another, perhaps not very surprising, finding is that local inbreeding is much larger than the consanguineous marriages can account for, showing that the very large numbers of distantly related spouses are more important in determining the population level inbreeding. In the quest for understanding genetic differentiation among communes and villages, the authors pioneered the use of surnames as a genetic marker as well as the use of sophisticated computer simulations. They use both these approaches to demonstrate (1) that what they know about the populations is sufficient to explain their genetic differentiation and (2) that surnames are a good genetic marker if treated properly.

This book deserves to be widely read and I hope that readers will forgive its, at times, almost endless tabulation of data. A summary graphic display of the data would probably make the book easier to read, but at the same time the display of raw data really does make one appreciate the immense collection of data that this book represents.

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