Foreword for the Chinese edition of PROVING DARWIN

I am delighted to be asked to write a foreword for the Chinese edition of Proving Darwin, the first book I have written that is translated into Chinese.

This book may seem to be very theoretical, but it in fact has a lot to do with technology and manufacturing. In a paper on self-reproducing automata presented in 1948 and published in 1951, John von Neumann realized that the central mathematical idea in computing technology and in biology are one and the same: that is the idea of software, which accounts for both the plasticity of computers and of the biosphere. This is one of the central themes of Proving Darwin.

Von Neumann also realized that computers could produce other computers and physical objects in general, which half a century later is now finally being developed into new manufacturing technologies: additive manufacturing and 3D printing. This revolutionary new technique — a 3D printer is potentially a universal manufacturing device — is rapidly being developed simultaneously in many different areas of application. Here is one example: a note in the Wall Street Journal on “Rapid Construction, China Style: 10 Houses in 24 Hours” at [http://blogs.wsj.com/corporate-intelligence/2014/04/15/how-a-chinese-company-built-10-homes-in-24-hours/](http://blogs.wsj.com/corporate-intelligence/2014/04/15/how-a-chinese-company-built-10-homes-in-24-hours/).

So fundamental ideas can eventually have tremendous practical consequences.

What is the fundamental idea of Proving Darwin? Although it is not stated this way in the book, Darwin’s basic idea is that we can have design without a designer. And what Proving Darwin is about is programming without a programmer. By proving mathematically that this is possible through random mutations and evolution by natural selection, my book attempts to substantiate mathematically Darwin’s theory of evolution.

I should also update the remarks in Chapter Seven on resistance to Andrea Rossi’s potentially revolutionary new source of energy, a particularly promising LENR = low-energy nuclear reaction involving nickel and hydrogen. Just a few days ago, I am happy to say, the news appeared at [http://www.icebank.cn/news/detail_2.php?id=118](http://www.icebank.cn/news/detail_2.php?id=118) that this energy-generating technology will be explored in a newly established Nickel-Hydrogen Research Center in the Tianjin Huayuan Industrial Park.

3D printing, LENR and synthetic biology add up to a truly amazing future!

Gregory Chaitin, Rio de Janeiro, May 2014
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