

BOOK REVIEW

Deep Ancestry: Inside the Genographic Project. 2006. Wells, Spencer. National Geographic Society, Washington, DC. \$12.95, paperback; 247 pp. ISBN-13: 978-1426201189.

The human species is very diverse, and I suspect that Spencer Wells has explored more of that diversity in person than has any other living being—likely more than any other human being ever. It helps to have a title like *Explorer in Residence* at the National Geographic Society, but it is clear that for a lot of the time he is explorer-not-in-residence.

It is a rare human who has ridden Russian armored personnel carriers into the deep winter fastnesses of Siberia to herd reindeer with the Chukchi people, and who has supped with Navajos in Arizona, hunter-gatherers in Africa, Aborigines in Australia, and folks in hidden villages in India. But Wells has done all that and far more. The man has both a gift and an inner drive not only to visit such diverse peoples but to collect their DNA and tease out their ancestry and origins. He seems to have inherited this drive from the 1st major worker to undertake such a project, Stanford's Luigi Luca Cavalli-Sforza, with whom Wells did his postdoctoral work.

Wells will be known to many readers as the author of the 2002 book *The Journey of Man: A Genetic Odyssey* and for his work on various television programs with the PBS, Discovery, and National Geographic channels. *Deep Ancestry* continues that tradition: an update on the progress of the Genographic Project. (For those who may not be familiar with it, this is a joint project sponsored by IBM and the National Geographic Society to gather DNA not only from the world's indigenous peoples while they still exist and are identifiable, but also from anyone else who is willing to purchase a kit—as over 160,000 people have done.)

I anticipate that we will see more works in this genre, and they will be most welcome. After

a brief introduction to the project itself, Wells takes his readers on the mandatory introduction to DNA structure, mutations, and haplotypes as markers for tracing ancestries. And he explains the logic of using accumulated mutations to give estimates of time in the ancient past and estimates of haplogroups, the combinations of human populations shown by common haplotypes to share common ancestries. These portions are spare but generally adequate. A short glossary also helps. From there Wells launches into the major thrusts of his story.

The stories of individual humans, which give a personal touch to the overall summaries of data, open each chapter. Wells's own grandmother, a Nebraskan born to Danish immigrants, is the focus to review what we know of the peopling of Europe. Phil Bluehouse, a Navajo, is our entry to the peopling of the Americas. And Virumandi, from southern India, is a link to understanding the ancestry of Australian Aborigines, whose ancestors apparently passed through India on their journey from Africa to the "island continent." Lastly, Julius, a chief of a hunter-gatherer people on the edge of Africa's Great Rift Valley, takes us back to humanity's birthplace.

There is a certain tenderness in these personal stories. Phil Bluehouse cries for joy when the DNA confirms what he has long suspected and hoped: his ancestry goes back into Siberia. He has long harbored an unfathomed affinity toward the people of Siberia. (Some readers will be familiar with Navajos' cultural exchanges in recent years with the Khanty tribe of Siberia, who seem to the Navajos like long-lost cousins.) Julius's people, on the other hand, have a different story: they have always lived right where they are now. And Wells confirmed that for them: the original humans apparently evolved just about where Julius and his tribe (the Hadzabe or Hadza) live now. They have kept the home place, it seems.

I do not suggest that all such peoples have their stories confirmed; most emphatically do

not. But Wells does not dwell on those. He does, however, venture a guess about what the original members of our species probably looked like. "If Africans have had dark skin for 50,000 years, it is a certainty that our distant ancestors were dark skinned. They also were likely to have been thin people of a height similar to African hunter-gatherer populations today (perhaps 5'6" on average). . . . Basically, . . . our earliest ancestors of 50,000 years ago probably looked very much like modern Africans" (p. 155).

Attentive readers will catch a major omission from the continents I've mentioned above: what about Asia? Never fear; Asia's story is woven throughout all the others. While Africa is the mother continent, everybody who did not stay there had to exit through Asia. The DNA story makes this clear. The greatest amount of human genetic diversity is in Africa; humans there have had the longest time to accumulate diversity by mutation. (Just for beginners, the tallest and shortest humans live there also: the Maasai and the Pygmies.)

Wells's writing does not quite match some of the more popular science writers' prose, but it is definitely adequate and clear, and he has an admirable knack for picking useful illustrations for his story (clonal groves of aspens, for instance, to illustrate human haplogroups).

Wells weaves archeology and linguistics into his genetic story, though only to clarify some of the observed genetic patterns. Typos are present but rare, and an occasional slip of fact or interpretation may be evident. Wells says, for instance, that the famous Hapsburg lip of European royalty was made prominent by inbreeding. But since the trait is due to an autosomal dominant allele, inbreeding is quite irrelevant to its history.

Wells makes a couple of broad assertions which may be modified by future research. While recognizing that a couple of skeletal remains do seem to show features of both Neanderthals and modern humans, he says that the DNA data provide a "definitive answer" to the question of whether they interbred. They did not, says he, though many other workers still do not regard that as a fully resolved question.

Similarly, Wells asserts that (1) our own species evolved in Africa, made a brief exit

therefrom into the Levant about 100,000 years ago, but then "disappeared" from there, (2) humans made a 2nd exit from Africa about 60,000 years ago, and (3) all modern Europeans came from peoples who moved into Europe about 40,000 years ago. But just as the 1st emigration is detectable only from fossils, it would take only 1 or 2 more fossil finds to alter this scenario.

After his main story, Wells provides an overview of the future of the Genographic Project and then a rather extended appendix of mitochondrial and Y-chromosome haplotype histories. These histories will be especially useful for readers wishing to trace these molecular markers.

The book is written for a popular audience, but I do wish it had footnotes, or chapter endnotes at least, to give guidance to specific points of the fascinating histories told. A brief, though well-chosen, listing for further reading is given, and some of these references are ongoing websites.

But I end with some data with which Wells began his book. Summarizing work from his own Ph.D. adviser at Harvard (Richard Lewontin), Wells emphasizes that the old idea of human "races" just does not hold up. That idea would suggest that there are major differences between the races. Lewontin demonstrated, however, that 85% of human genetic diversity is found within populations and "shared across all populations and races." Seven percent is found between populations within a single race, such as between the Germans and the British. Only 8 percent is found between the classic "races," and these are seemingly associated primarily with external appearances. The take-home message? Under the skin we are all family, all siblings and cousins, and Wells uses the well-known ancestry of the Thomas Jefferson / Sally Hemings family to illustrate that point.

The Genographic Project already reveals the major outlines of our familial history; we eagerly anticipate further and finer details.

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