

“Dr. Jeanson has found the Rosetta Stone of human history”
— Ken Ham

TRACED



Human DNA's Big Surprise

Nathaniel T. Jeanson

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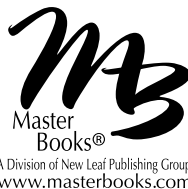
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And all those who long for the “rest of the story”*

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using genetics, history, and linguistics . . . goes a long way toward
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Introduction

1

The Hiddenness of History

In the late 1990s, I was a high school student living in small-town southeastern Wisconsin and driving a '93 green Mercury Tracer past farmers' fields to a tiny Christian school 25 minutes away. For two of those semesters, world history class lifted me far away in time and space from my modern parochial home. And it left me with nagging questions.

In broad brushstrokes, I learned a history that went something like this: The first civilizations arose half a world away from Wisconsin. In ancient Mesopotamia, the Sumerians appeared. To the southwest in Africa, the ancient Egyptians also emerged. To the west and northwest in the Mediterranean, the first European civilizations (the Minoans and Mycenaeans) ascended.

As history progressed, it focused on this same small geographic triangle. One kingdom rose and fell after another, including ancient Assyria, Babylon, and Persia. However, these Asian empires eventually gave way to a European one. Alexander the Great rushed his armies through Persia to create, at that time, the world's largest empire.

The focus of my class then shifted to Europe. We learned that the ancient Greeks were eventually overrun by the Romans. For several hundred years, the Romans dominated the Mediterranean and western Europe. Then they fell to Germanic tribes of barbarians, sending Europe plummeting into the Dark Ages.¹

1. Now known as the Early Middle Ages.

Traced

Europe awoke from the Dark Ages to the rising culture of the Renaissance. The continent recovered some of the glory of the great Greek and Roman ideals. Then the Reformation shook the European world. Eventually, the inevitable march of technological progress pushed Europe to venture out in the Age of Exploration, ushering in an era which brought together East and West, Old World and New World, into one global enterprise.

This was the story I was taught. Like many students, I learned the required facts and recited them on tests. But the experience left me unsatisfied.

Who did the ancient Sumerians come from? From whom did the Egyptians arise? What about the Minoans? Mycenaean? Greeks? Romans? When these empires were overthrown, what happened to the people of these ancient civilizations? Did they just recede into the shadows of history? Did they go extinct? Are they still with us today?

My history education never answered these questions. It was as if civilizations popped into existence and then disappeared into oblivion.

I knew this couldn't be true. But I had nothing to offer in its place.

The narrow focus of this history also nagged at me. Along the way, I'm sure we learned something about historical India and China. We may have touched on the Aztecs and Mayans in the Americas. But if we did, I didn't retain much of their histories.

In other parts of the globe, large gaps in the timeline remained in my mind. We learned next to nothing about what was going on north of the Rio Grande before Europeans arrived. My course left the pre-European history of sub-Saharan Africa as a large void. The pre-European peoples of Australia and of the Pacific had no story — at least none that was taught to me. Central Asia — the vast landmass between Europe and China and above the Middle East — was hardly discussed, except to highlight the massive Mongolian empire of Genghis Khan.

What had happened in these places? In these locations, the indigenous peoples had no narrative to explain their existence. Their history seemed a big blank slate.

Again, I knew this couldn't be true. Again, I had nothing to offer in its place.

I never thought that one day I'd be personally uncovering the answers to these questions.

The Hiddenness of History

By training, I'm a biologist. I did my Bachelor of Science at the University of Wisconsin-Parkside. Officially, my degree was titled *Molecular Biology and Bioinformatics*. In more understandable terms, my training involved looking at life at the tiniest levels — the microscopic and chemical levels (the *Molecular Biology* part of the degree). And it involved analyzing the results with computers (the *Bioinformatics* part of the degree). I learned these skills in the classroom and in the lab, where I worked with single-celled algae. My goal — or, I should say, the goal of the lab in which I trained — was to understand the larger question of how plants genetically control photosynthesis, the process by which they turn sunlight into useful energy.

For my PhD, I moved to Massachusetts and studied at Harvard. Originally, I planned on working in a cancer lab. At the time, little did I know that the field of cancer research was taking a sharp turn in a new direction. Prior to arrival in Boston in 2003, I had acquired an interest in stem cells — the cells that are responsible for replacing old cells in the body as they die. I soon discovered that these cells had unexpected relevance to cancer. I realized this connection much more fully during the years I spent working on my thesis in an adult blood stem cell lab. My experiments produced no great breakthroughs, just average scientific advances.

But immersion in the wide-open world of how cells develop, change, and mutate produced lasting effects on my career — in ways I never anticipated.

After graduation in 2009, I began a journey in an entirely different direction — one that would unexpectedly tie all my scientific pursuits together and lead back to the history of the ancients.

In the fall of 2009, I began developing a research program on the origin of *species* — different types of creatures. I was part of a team that tried to tackle the problem from as many angles as possible. The field of genetics — the study of inheritance at the DNA level — became key.

In 2013, I published the first of several papers on the origin of species. Rather than study the DNA of species directly, I compared their genetic sequences indirectly. *Proteins* are encoded by DNA, and comparison of protein sequences among species is a useful way to gain insights into their DNA differences. I compared the protein sequences

from more than 2,700 different species, and I used the results to predict the function of the similarities and differences among these sequences.²

At the close of the paper, I examined another type of DNA finding: the rate at which DNA sequences change from generation to generation. The rates for a particular type of DNA³ were known for only four types of creatures. Of the four, three were animal species. The fourth was our own species — humans. At the time, I treated the human data as a clue to the larger animal questions. But as I dove deeper into the data, the human connection grew.

In 2015, I published the next set of findings in two papers. One paper examined the patterns in which new types of animals formed from preexisting types.⁴ The second paper focused exclusively on humans and again on the rate at which DNA sequences change from generation to generation.⁵

In 2016, this cycle repeated itself. I published a large paper on the mechanism by which new animal, plant, and fungal species form.⁶ Then I published a second paper, digging even deeper into the question of the speed at which DNA changes in humans.⁷

By this time, the potential impact of these findings on the history of civilization was hard to miss. So I began to ask questions of the dataset that focused on events from the history of humanity.⁸

In 2020, the answers exploded. From the family trees I was exploring, the echoes of the history of civilization were jumping out. Here, right in front of me, were the marks of the Mongol conquest of Asia and Europe, of the Russian expansion from eastern Europe to the Pacific, of the long isolation of African and Chinese civilizations, and of so much more. Even more tantalizing were the histories of places whose story, to date, had consisted largely of pre-history⁹ — such as the pre-Columbian Americas and pre-colonial Australian, Papua New Guinea, and the Pacific.

2. Jeanson (2013).

3. Specifically, for mitochondrial DNA.

4. Jeanson (2015a).

5. Jeanson (2015b).

6. Jeanson and Lisle (2016).

7. Jeanson (2016).

8. Jeanson (2019); Jeanson and Holland (2019); Jeanson (2020).

9. I.e., the time period before written records were created to document historical events.

The Hiddenness of History

Most shocking were the connections among the various civilizations — and the implications for human ethnic identity.

In this book, we'll explore some of the answers I've begun to uncover — answers you won't find anywhere else. These answers are also just the tip of the iceberg. Of the billions of people who roam our planet, we have public access to the DNA from only thousands of them. The conclusions you will find in this book are based on these sequences. These conclusions will likely be updated and may change as more data comes in.

Some readers might find that last sentence unsettling. It's actually a distinguishing feature of science. By definition, scientific ideas must be open to change and even to direct disproof. Uncertainty, rather than certainty, is the rule in science.

However, despite this uncertainty, scientific conclusions can still be useful. The ultimate standard in science is whether something *works*. We invoke gravity because it works. It successfully explains and predicts activity in the physical world. The ultimate test of the conclusions of this book is whether they work — whether they successfully explain the history we know, and whether they successfully predict future historical-genetic discoveries. I'll leave it to you, the reader, to decide whether the conclusions in this book meet this standard.

In communicating where the project is right now, I hope to give you a taste of the wild and emerging field of historical genetics. I also hope to inspire the next generation of budding historians, archaeologists, geneticists, linguists, and anthropologists to dive in and take the research even further.

For everyone else, my hope is that you'll wonder and marvel at the story of humankind — in ways you've never dreamed of marveling before.

The 30,000-foot View

Before we take our journey together, let's sketch the outline of our path.

In chapters 2 through 4, I lay out some of the background findings to these recent genetic discoveries. I do so because these recent genetic discoveries are shocking — so shocking that you might be tempted to dismiss them. The background of chapters 2 through 4 is needed

context for what we'll encounter. In one sense, these chapters are a reminder to me: I frequently invoke these conclusions in my own mind as I evaluate and reevaluate the unexpected implications of genetics.

In chapters 5 through 12, we'll focus our historical and genetic searches on seven ancient or prehistorical (i.e., pre-written records) civilizations — those of the ancient Egyptians, the ancient Romans, the ancient Persians, the earliest Indians (i.e., from South Asia, not the Americas), the ancient Chinese, the indigenous Easter Islanders, and the Native Americans. We'll explore their rise and fall through the DNA of modern peoples. We'll take DNA from modern Egyptians, modern Italians, modern Iranians, modern Indians, modern Chinese, modern Easter Islanders, and modern Native Americans. And we'll compare their DNA to DNA from modern peoples around the globe.

For chapters 13 and 14, we'll look deep into the past and then into the future. Using genetic clues from one of the smaller but well-known ancient Near Eastern peoples, we'll uncover how the human story began. Then we'll step back to evaluate the bigger picture. Once we identify the biggest outstanding historical mysteries, we'll gaze into the future and assess our chances of solving them.

If I had read the previous paragraphs just a few years ago, I probably would have been disappointed. Yes, Native Americans and Easter Islanders are groups outside the emphasis of the typical world history class. But Egyptians, Romans, and Persians? We hear about them all the time. Why not explore the history of sub-Saharan Africa before the arrival of Europeans? Or northern Europe before the time of the Romans? Hearing again the history of the tried-and-true historical locations would have seemed tiresome and unhelpful. At least, it would have seemed so until recently.

In our journey, we'll discover that, in trying to tell the stories of these seven civilizations, we'll end up telling the story of the whole world.

How to use this book

Whether you're a lay reader or a technical reader, I think you'll find this book unlike any that you've read before. In light of this prospect, I've included the following tips to help you navigate it and make the most of your journey.

First, a picture is worth a thousand words. This adage is especially true when exploring the hidden parts of human history. This history is locked away in our family trees and in the geography of our ancestors; the color plates are where this information jumps out. I recommend that, while you read the text, you keep a finger in the section containing the illustrations. This way you can easily move back and forth between text and color plates, and the conclusions will make more sense.

Another reason to keep your finger in the illustrations section is that I've deliberately designed the color plates as memory aids. The details of the genetic history of humanity can easily become overwhelming. In the color plates, I've color-coded the details to make them easier to remember.

Second, a brief heads-up on the pacing and scope of the scientific detail: In Part I (chapters 2 through 4), you'll likely find the content to be leisurely and light. The subjects are familiar, but the conclusions are not. These chapters take straightforward topics and give them an unexpected twist.

In Parts II and III (chapters 5–14), the pacing and scope shifts. Instead of tackling familiar themes, these chapters blaze new trails. They read more like a detective story. I anticipate that you'll find the material in these chapters to be less familiar and more intense. I synthesize evidence from geography, languages, written records, and DNA to derive the rest of the story of history — the part of history that my high school class never covered. If at any time the path becomes hard to find, just skip to the end of the chapter where I've written short chapter summaries in bullet point format. Then, armed with this information, you can return to the section that you were just reading. Alternatively, you might start each chapter by reading the summaries, and then going through the chapter text.

Third, for technical readers and for skeptical ones, Appendix A has the technical details on my conclusions as well as pointers to more in-depth papers and online tables. If you're looking for the step-by-step answers to *How did he derive that conclusion?* then Appendix A is the place to start.

On a related note, Appendix B deals with contemporary origins controversies, like the creation/evolution debate, and how this book relates to these disputes.

Fourth, in the spring and summer of 2020, I recorded a video series describing early stages of this research. During and after the completion of the video series, I received many questions from viewers who wanted to find out their own history with genetic testing. Appendix C walks you through the steps to answer that question. It also contains the key findings from chapters 5 through 14 for those who want a quick reference for what the results of their genetic tests mean.

I hope these tips will make your search for the hidden history of humankind as exciting as the search has been for me.



Part I: Early Clues

2

Smaller Than We Think

On February 25, 2012, in a small church in the center of Birmingham, Alabama, I married the love of my life. Growing up, I wasn't sure that this day would come. My ethnic and cultural background had raised questions for which I didn't have ready answers.

Despite being born in the heart of the Midwest, I grew up bilingual. My American dad had enlisted in the military, met a German woman while overseas, married her, and settled in the U.S. Wisconsin was a thoroughly English-speaking context in which to raise a family. Yet my mother made sure to teach German to my siblings and me so we could speak to our German relatives.

Culturally, Wisconsin wasn't the only influence on my upbringing. Almost every year, I would see my German relatives for weeks at a time. Usually, we would fly to Germany and stay with my grandparents. Part of our time together would include seeing tourist sites. But most of the trip was simply living with my German grandparents, doing what they did alongside them: Going to German grocery stores, bakeries, and butchers; eating what Germans eat; driving what Germans drive; and playing what Germans play — *Fußball* (soccer). We created rich memories together. For this American son, the other side of the Atlantic became, over time, a home away from home.

As I matured toward marrying age, I began to wonder how my heritage would affect my family prospects. I asked my mother if she thought I should look for a German spouse rather than an American

one. Or, I thought, maybe a wife from either country would create problems. After all, I had my feet in both worlds.

Eventually, I recognized what years of living in the United States had produced: A thorough-going American with German ties. My now-wife, a southern belle who had been born in Italy to missionary parents, didn't have German ties. But I felt at ease marrying her. For both of us, English was our first language; American was our primary culture.

Implicit in my little marriage dilemma was a fact we all take for granted: Linguistic heritage and cultural heritage naturally direct our choices in mates. I thought my bilingual and bicultural upbringing would add extra constraints to my marriage prospects. In the end, I followed the path that most Americans do: Marrying someone who shares the same primary language and traditions.

These types of constraints exist all around the globe, but they are felt more acutely when different cultures exist in close geographic proximity. For example, today, modern Greeks and Egyptians reside only a few hundred miles apart on the Mediterranean Sea (**Color Plate 1**). Yet they exist in dramatically different worlds. Greek nationals belong to a country that is a member of the European Union. Egyptians are geographically African. Greeks speak the language that gives them their name and that ties them back to Alexander the Great. Most Egyptians speak the language of the nation's Muslim conquerors — Arabic. In terms of religious practice, faithful Greeks attend churches — Greek Orthodox ones. Faithful Egyptian Muslims frequent mosques.

Naturally, these differences preclude much mixing between these two peoples. I can't imagine many single Greek men spending their time looking for *hijab*-clad spouses. And why should they? If a Greek man wanted to marry someone outside his nationality, why choose Egyptian? Why not French? Or Spanish? German? Serbian? Perhaps Romanian or Swedish? Or Irish? Turkish? How about Pakistani? Nigerian? Angolan? Chinese? Vietnamese? Samoan? Peruvian? The world is a big place — too big to assume that any two of the vast numbers of peoples will regularly intermingle. There are just too many options.

For that matter, why go looking outside Greece at all? With a population of more than 10 million, Greece must surely offer the single Greek man plenty of options for a wife. Similarly, why send Egyptian

men beyond the borders of Egypt to find a spouse? With a population of nearly 100 million, Egypt must surely offer the average Arabic-speaking man a litany of choices for potential nuptials.

But what about the Greeks and Egyptians of ancient times? Would the same rules have applied? Would they have lived in separate worlds, never to intermingle or mix their family trees?

Politically and culturally, ancient Egypt and ancient Greece looked as different from one another as do modern Egyptians and modern Greeks. In Egypt, the Pharaohs commissioned elaborate pyramid tombs, built the Sphinx, and etched their histories in engravings and art forms that are unmistakably Egyptian. The Greeks built the Parthenon. Egyptians were ruled by Pharaohs. The Greeks gave us democracy. Linguistically, Egyptian hieroglyphics were as different from the Greek script of Aristotle as you can get.

On their face, these differences suggest that these ancient peoples kept to themselves. This is the default conclusion I grew up with. And it's one I've since learned to reject.

Full

Take a look at a current political map of the globe (**Color Plate 2**). I'm guessing that it's pretty familiar to you. Even if you don't look at maps on a regular basis, you probably still have an image like this burned into your mind. Even if parts of your mental map are fuzzy, I'm sure you have a sense for how high and wide the major landmasses are.

Furthermore, I'm sure that your mental map is *full*. We visualize a map in which every square inch of the globe is claimed by someone. No blanks exist. Fuzzy parts, yes. For example, in homes in the West, the former Soviet republics in Central Asia — Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan, and Tajikistan — are not the typical topics of dinnertime conversations. Neither are the fine details of Southeast Asian countries — Laos, Cambodia, Thailand, Malaysia, Brunei. But we know that even the fuzzy parts are political entities ruled by someone, even if we don't know the details of who the someones are.

Naturally, when we think about the beginning of human civilization, this modern map subconsciously nags at our thinking. Today, we know that all the land on the globe has been claimed. Yet at the beginning of human history, the map was drastically different.

Cradles of Civilization

The earliest human civilizations were born in places that we term *cradles*. The ancient Aegeans (the Minoans and Mycenaeans) and the ancient Egyptians created two of them. Mesopotamians, South Asians, East Asians, and Central Americans also birthed the earliest human civilizations (**Color Plate 3**).

But why in these places? Or, to put it in terms that nagged at me while growing up, what was going on in the rest of the world? Why didn't the people in the rest of the world also create civilizations? What were they doing?

Consider the vast geographic region of Russian Siberia (**Color Plate 2**). We know that the people of Siberia came from...someone. Yet the first human civilizations never touched Siberia. As another example, a great diversity of people roam modern Europe — Irish, British, French, Spanish, Portuguese, German, Swiss, Norwegian, Danish, Swedish, Finnish, Italian, Polish, and on and on the list of modern nationalities goes. Again, we know that these peoples must have come from someone. Yet the maps of the earliest stages of human history show a big blank in these regions. In ancient times, no civilizations formed there.

On other continents, the same questions arise. Who did the Sudanese come from? Who gave rise to the Ethiopians? The Kenyans? The Zambians? The Nigerians? How about the Australian Aborigines? Who were their ancestors? What about the Navajos of North America? The Guaraní of South America?

The more you look at the details of the modern globe, the bigger the mystery of early human history.

Perhaps you can understand my shock, then, when I first saw a map of modern population density (**Color Plate 4**). Do you see how much of the world is virtually empty of people? Remember: This map shows the modern era. Civilization is largely absent from large chunks of the globe *today*.

Notice how much of Canada and Russia are blank. With few exceptions, North and Southwest Africa are equally empty. In **Color Plate 4**, Australia looks almost uninhabited. The Arabian Peninsula is sparsely populated, as is the Amazon in South America and the Rocky Mountain region of North America. In modern China, the land of more than 1 billion people, the population is concentrated in just half of the total landmass.

Historical Population Density

Now let's expand our horizons to the past. How did the map of peoples — not polities — look in the ancient past?

Take a look at population density in 1000 B.C. (**Color Plate 5**). In sub-Saharan Africa, few people exist. Similarly, the Americas show little sign of human occupation. The Olmec civilization exists in Mexico. But most of the rest of the Americas are empty. In Southeast Asia, in Australia, in the Pacific, and in Central Asia, few people reside, and so history books don't cover them. Instead, they focus on the densely populated regions like India, China, and the Mediterranean lands.

But wait, you might say. Couldn't our understanding of population densities simply be a consequence of the presence or absence of historical records? In other words, isn't the evidence behind the population density map of 1000 B.C. an artifact of what we know or don't know from historical records? Maybe many people *did* roam these regions, but we just haven't discovered the evidence for them yet? Perhaps.

But population densities are determined not solely from written historical records — records like the ancient Roman and Chinese censuses. Archaeology also fills in the gaps. For example, some of the sites without written records, like pre-Roman northern and western Europe, still show strong population sizes (**Color Plate 5**).

More importantly, if you compare the map of population density to other maps of earth, the absence of peoples makes sense. Siberia and Canada are mostly empty because they're some of the coldest places on earth (**Color Plate 6**). North Africa holds few people; it also holds the largest desert in the world — the Sahara (**Color Plate 7**). Deserts stretch across Southwest Africa and the Middle East, and the dry outback covers most of Australia. The Rocky Mountains slice through much of western North America, and the landmass connecting the Middle East to India — i.e., Iran, Afghanistan, and Pakistan — is covered with mountains. Few people have tried to call these areas home. Similarly, few have tried to eke out an existence in the thin air of the Tibetan plateau. The absence of peoples at these heights is understandable.

These features would have been present in 1000 B.C. It makes sense that these same factors would constrain population densities in the ancient past.

Traced

Let's watch how this ancient map matures. One thousand years later (A.D. 1), little has changed (**Color Plate 8**). Sub-Saharan Africa, the Americas, Southeast Asia, Australia, the Pacific, and Central Asia remain mostly empty. In contrast, where people are concentrated, history books make mention — Egypt, the Mediterranean, and the Middle East (all under Roman rule); Central America (under Mayan rule); India (under various rulers); and China (under Han Dynasty rule).

Fast forward another thousand years to A.D. 1000 (**Color Plate 9**), and previously sleepy regions begin to wake. For example, in Southeast Asia and West Africa, people begin to concentrate. Consequently, history books mention the Khmer empire in Southeast Asia and the Ghana empire in West Africa. As another example, in the Americas, the previous loci of peoples expand. Though the Classic Mayan civilization has just collapsed, Central America is just a few hundred years removed from the rise of the Aztecs, and South America is anticipating the rise of the Incas.

In the rest of the map, the human story continues to march forward at the traditional foci of activity. Europe's population continues to grow, despite the raids of the Vikings. In the Middle East, the Arab Muslim conquerors continue to dominate. Far to the east in China, the Song Dynasty reigns, and to the south in India, multiple kingdoms cover the landscape.

Moving forward in time from A.D. 1000 (**Color Plate 9**) to the present (**Color Plate 4**), the map undergoes a noticeable change. Yellow intensifies to red, as population densities suddenly increase in China, Southeast Asia, India, Europe, and parts of Africa. The Americas also show sudden signs of life. In the previous population density maps, the changes didn't look quite this dramatic (compare **Color Plates 5, 8, and 9** to one another). The color transitions between maps were smoother. Why?

Explosion

When King David was on the throne of Israel around 1000 B.C., the entire world population was around only 50 million people.¹ A thousand years later (A.D. 1), this number had more than tripled to

1. McEvedy and Jones (1975); also for the rest of the paragraph and subsequent paragraphs.

Smaller Than We Think

almost 170 million. However, in the coming centuries, several factors kept the rate of population growth low. For example, by the A.D. 500s, the western Roman Empire had fallen, and China had experienced its own tumult. Consequently, from A.D. 1 to A.D. 1000, the world population grew more slowly. In fact, it didn't even double in size. By A.D. 1000, the world population sat at 265 million.

The world population took a hit when the Black Death swept through parts of Asia and then into Europe. Pre-Black Death, in A.D. 1200, the world population had reached 360 million. Because of the Black Death, it dipped to 350 million in A.D. 1400.

And then the population took off.

Today, nearly 8 billion people roam the earth. In other words, in just 600 years, the world population has grown over *20-fold*. This is a remarkable rate of increase. By contrast, the 2,400 years prior to A.D. 1400 saw an increase of only 7-fold (**Color Plate 10**). The arrival of modern medicine and of improvements in agriculture and technology have combined to produce an explosion in human population size.

This explains why the history of the world looks so empty for most of the past several thousand years. Only in the last few hundred years has the human population grown to such an extent that nations have extended their political reach across every terrestrial part of the globe.

In other words, we live in a unique era of human history.

The Ancient World

In the simplest sense, we know that everyone — including the ancients — came from...*somebody*. But the history of human population growth casts this fact in a new light. You don't have to go far back in history to see that there were far fewer *somebodies* alive then, than are alive today. Just a few hundred years ago, the peoples of the globe were fewer in number and more limited in their geographic reach. Eligible bachelors had a much smaller pool of potential spouses from which to pick.

Let's make that statement more concrete.

Say you're browsing a dating website today, and it reports 100 people who might be a good match to you. Just six hundred years ago, an analogous process would have returned only 5 matches — because, back then, the world population was 20-fold smaller than today. And going back even further in history, the pool would have been even

smaller. The single men would have gone looking for spouses and found the list of candidates to be small.

When for millennia — uninterrupted — you face slim pickings, at some point you have to settle for someone who might be a fourth cousin. Or closer. Or you might go looking outside your ethnic group.

Choose the latter, and you've begun to bring the genealogies of the world together.

This is the situation that faced the ancient Aegeans and Egyptians. Ancient Greece didn't have 10 million people. Instead, in 1250 B.C., about 1 million resided there.² Ancient Egypt wasn't populated by 100 million people. In 1200 B.C., around 3 million called the Nile Valley home.³

In terms of eligible bachelors, ancient Greece would have had far fewer than 1 million. Assuming a 50:50 split of males and females, only 500,000 males would have lived in ancient Greece. If we assume a 1:1:1 breakdown of children versus marriable adults versus elderly, then less than 170,000 men were looking to start families in 1250 B.C. In other words, modern New York City had 50 times⁴ as many people as *the entire land* of ancient Greece had men of marriable age.

How often did the peoples of ancient Greece and ancient Egypt intermix? Much more than we expect — because the ancient world was much smaller than we think.

2. McEvedy and Jones (1975), p. 110.

3. McEvedy and Jones (1975), p. 226.

4. <https://www.census.gov/quickfacts/fact/table/newyorkcitynewyork/PST045219>.

Chapter 2 Summary:

- Normally, language and culture constrain our choices in mates.
- Political maps of the globe imply that a multitude of languages and cultures exist across the entire surface of the earth. From this perspective, it's hard to imagine that these diverse groups regularly mixed.
- Population density maps of the globe show that languages and cultures have a much narrower geographic distribution. From this perspective, it's easier for these diverse groups to intermix.
- Compared to the present, populations in the ancient past were even more geographically restricted, and their numbers were far lower.
- Fewer people meant fewer options for mates.
- Fewer options for mates would have brought the genealogies of the world together, making the ancient world smaller than we think.