Identified Flying Objects

A Multidisciplinary Scientific Approach to the UFO Phenomenon

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Printed in the United States of America

P.O. Box 461

Butte, MT 59703-0461

Ordering Information:

Special discounts are available for quantity purchases.

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Cover Design: Michael Masters

Cover Images: Ascent of man ending with smartphone - Frank Fiedler/shutterstock.com; Extratempestrial modified from silhouette of modern human created by Anna Rassadnikova/shutterstock.com; UFO center image by Gl0ck/shutterstock.com

First Edition – ISBN: 978-1-7336340-6-9

Printed in the United States of America

This book is dedicated to my patient and loving family, friends, sunshine and smiles.

Dr. Michael P. Masters is a professor of Biological Anthropology at Montana Tech in Butte, Montana. After receiving a Ph.D. in Anthropology from The Ohio State University in 2009, where he specialized in hominin evolutionary anatomy, modern human variation, archaeology, and biomedicine, Dr. Masters spent the following decade developing a broad academic background that unites multiple scientific disciplines with the aim of elucidating a currently unexplained phenomenon.

Remaining vigilant in his own skepticism, Dr. Masters continues this research with the intent of initiating informed dialog about UFOs via an abductive method of inquiry that is firmly rooted in science and the principle of parsimony. Collectively, Dr. Masters' background, education, and current research program combine to offer a unique perspective and a novel approach to addressing unanswered questions pertaining to a widely recognized, yet poorly understood aspect of modern global culture.

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In any field, find the strangest thing and then explore it.[i]

– John Archibald Wheeler

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Acknowledgements

I would like to offer sincere gratitude to the following individuals for their contribution to the evolution of this multi-year research project, including Vincent Siragusa, Heidi Reid, Jason VonVille, Arron Carnahan, Daniel Drouin, Valerie Moring Shubert, Erica Jansma, Annika Rapp, Cheyenne Crooker, BreAnna Wright, Matt Boyle, and a special thanks to the peer reviewers, whose comments and suggestions helped immensely in improving the content, clarity, and flow of the manuscript.

1

Shifting the Debate

All we can ask of a theory is to predict the results of events that can be measured. [2]

– Leon M. Lederman

An idea that is not dangerous is unworthy of being called an idea at all.[3]

– Oscar Wilde

1.1. Conception

It is often difficult to separate fact from fiction, and particularly at a young age. Though beginning with the onset of object permanence, and throughout the remainder of infancy and childhood, we begin to develop a sense of what is and is not a part of our natural world. Through the simple act of living, we are constantly evolving a perception of reality that both reflects and creates the cultural norms of our society. By the age of eight years old, I was confident that I had become rather adept at deciphering fact from fiction, or at least until learning of an odd encounter my father once had with an Unidentified Flying Object (UFO), some years earlier, in the dark skies above Amish country in rural Ohio.

As a veterinarian, my dad often responded to late-night farm calls in relatively remote parts of northeast Ohio. On one of these nights, while driving to a call with a colleague who happened to be riding along with him, he approached the crest of a hill and noticed a bright light in the distance. I remember him describing it as a glowing ball of light sitting near the horizon, just over the next hillside. However, unlike most lights that emanate beams outward from the center, this object just glowed

brightly like the full moon on a clear summer night, while hovering silently off in the distance.

It was patently clear to him that this was not the moon, a star, a weather balloon, a streetlight, or the headlights of an oncoming car, particularly considering how uncommon the latter three of these are in the heart of Amish country. Further confirmation that this was not an ordinary occurrence came when this glowing ball of light suddenly darted toward their truck and stopped only a couple hundred meters away. This strange light hovered there for a brief moment, rapidly zipped back across the horizon away from them, stopped again, and then shot upward at tremendous speed as it disappeared from sight.

Naturally, this sort of occurrence can be difficult to process and can illicit strong feelings of wonder, excitement, and fear. In fact, my mother vividly remembers sensing all three of those emotions as my father relayed the events of that night back to her over the CB radio. I too remember being filled with some degree of astonishment as my parents told this story to some friends at our house while I eavesdropped from the stairs, long after I was meant to be in bed. After hearing this account for the first time, I worked to make sense of this new and rather dubious facet of my previously established sense of what was real and what was not. Although I had certainly heard of UFOs, they were always presented in the context of science fiction, and never as something witnessed by real people who I knew and trusted.

Not long after this encounter, my father bought a book entitled *Communion*, which details the author's own experiences with UFOs and the human-like beings who purportedly pilot them.[4] Although it would be decades before I actually got around to opening it, the book's cover proved to be somewhat influential in shaping my perception of this phenomenon. In fact, even some thirty years later, I can still vividly recall the moment I looked up and saw that book on the living room shelf, as well as the oddly specific image that entered my mind at that time. It was a rather simple and fleeting mental image, which encompassed three separate forms visualized together. On the left side was something akin to a chimpanzee, in the middle was a modern human form, and on the right side was that odd, yet entirely familiar humanoid alien creature from the book cover, with an enlarged hairless cranium, big eyes, a small nose and mouth, thin lips, and a narrow chin (figure 1-1).[5]

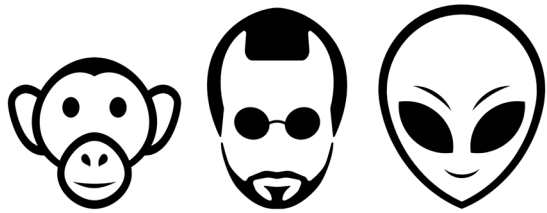

Figure 1-1: *Rudimentary approximation of this edifying mental image as seen at age eight.*

As a young child growing up in a small town in the honorary bible belt of the American Midwest, I knew very little about the process of biological change, and even less about the long history of human evolution on this planet. Though even then, it was evident that the human in the center of this mental portrait resembled both the "chimpanzee" to the left, and the "alien" to the right, which led me to wonder if they could somehow be related.

Over time, I came to understand in great detail the process of evolutionary change and the phylogenetic relationships among extant (living) and extinct (nonliving) organisms. While developing this scholastic knowledge, it became increasingly clear how each of these three seemingly distinct forms could all come to possess such similar traits—or synapomorphies, as I would later understand them—if they all shared the same common ancestor as part of a shared evolutionary history here on Earth.

Furthermore, if the suite of characteristics common to each of these three forms was a result of common ancestry, then these "extraterrestrial" aliens would not be extraterrestrial at all. Rather, they may be better understood as the product of further human evolution on this planet, following many millennia of continued biological and cultural change. In other words, these "aliens"—rather than being from a different planet in a distant solar system—may simply be us, from a different time in the distant future.

1.2. Ontogeny

Our tiny branch within the 3.5-billion-year-old tree of life is known as the hominin lineage. It began about 6-8 million years ago, when our ancestors started to diverge from what would eventually become the common (*Pan troglodytes*) and pygmy (*Pan paniscus*) chimpanzees, our closest living relatives on this planet. Although we each possess a number of unique biological and behavioral traits, what most clearly defines the

human lineage is our bipedal form of locomotion (i.e., habitual upright walking). This seemingly insignificant change in the way we get from one place to another actually had far-reaching implications for the subsequent development of our advanced culture and biology.

Not least among these was the impact that bipedalism had on our brain size, as it helped to create more space within the skull for a larger brain to grow. Standing and walking upright also freed our hands from the burdens of moving our bodies, which meant that our hands and highly dexterous digits could now be used for all sorts of new and innovative tasks, which also helped to advance our culture and intellect. In the context of the aforementioned mental picture (partially invoked by the cover image on the book *Communion*), these shared traits alone suggested to my primitive 8-year-old mind that modern humans could potentially represent an intermediate stage between this small-brained/large-faced chimpanzee-like (early hominin) form, and the large-brained/small-faced alien-like (extraterrestrial) form.

As I worked toward becoming a professor of biological anthropology, with a specialization in human evolutionary anatomy and modern human variation, it became increasingly evident that if these "aliens" are in fact real, then they must be part of the hominin lineage, and clearly toward the future end of our current position along the fourth dimension of space-time. Additionally, in the same way that we have come to understand the current human condition by examining the morphology and culture of our hominin ancestors, it seemed reasonable that these "aliens of time" may also be working to probe their own evolutionary past, by dint of the much more sophisticated anthropological tool of time travel. After all, what anthropology instructor hasn't at some point uttered "if only we had a time machine."

It is important to acknowledge—particularly given the young age at which this notion arose—that my conviction regarding this time travel interpretation of the UFO phenomenon could have been strengthened over time if I had only been looking for evidence that supported it. This form of intellectual partiality is known as *confirmation bias*, which, stated more specifically, is when people develop a propensity to interpret things in a way that supports conclusions they have already drawn about something.

Confirmation bias and other sources of bias should always be considered by researchers, as well as by those reading the results of research conducted by others. Though even with a keen awareness of this and other logical fallacies—as well as a persistently critical perception of the

idea as a whole—I came across very few lines of evidence that raised doubts about this cross-temporal interpretation of the UFO phenomenon while conducting extensive research into the matter. To the contrary, the further I descended down the rabbit hole of interdisciplinary inquiry in an effort to investigate the possibility that our distant human descendants may someday reverse the flow of time to research us in their own past, the more plausible this incredible scenario became.

As a scientist trained to be incredulous in assessing intentions, methods, results, and the interpretation of results, as well as one who is fervently aware of longstanding manipulation of the scientific process in former and ongoing UFO inquests, I continue to remain vigilant in my own skepticism. I do not have a staunch unwavering devotion to this notion and I do not claim to proclaim a truth. Instead, my intent is simply to initiate dialog regarding this potentiality, by means of a method of inquiry that is firmly rooted in science and the principle of parsimony.

1.3. Science, Rhetoric, the Unknown, and the Unknowable

Recently, numerous pseudoscientific studies of UFOs and extraterrestrials have emerged, which have largely been based on conjecture and *speculocatenation*—the linking together of purely speculative ideas.[6] Unfortunately, this has acted to diminish the integrity of actual research into the matter and has significantly muddied the waters with regard to what constitutes an actual objective scientific investigation of the phenomenon. As Anne Cross stated in the 2004 article entitled *The Flexibility of Scientific Rhetoric: A Case Study of UFO Researchers*:

> Throughout its ups and downs, the development of the UFO research movement is a story, first of a lost battle for a place within the scientific establishment, forced exile from the mainstream scientific community, and, finally, the construction of a successful rhetorical and cultural strategy that uses science to garner legitimacy in the eyes of lay followers . . . Because Ufologists draw primarily on signifiers of science, rather than the substance of scientific knowledge and its methodologies, it appears that Ufologists' efforts are not directed at convincing mainstream scientists of their legitimacy. Instead, the strategy is directed at convincing laypersons.[7]

This article provides a valid critique of attempts at misrepresenting science in order to mislead the masses and offers notable examples of how scientific rhetoric has been stretched to accommodate a non-scientific pursuit of the unknown. However, in the context of the current hypothesis

and the evidence put forth in support of it, these same criticisms are not entirely relevant, for a few important reasons.

First, the nature of the question posed in this book is different, as it is centered on actual tangible future outcomes, rather than simply speculating about whether something may or may not exist somewhere else in the vastness of space. Secondly, this book is written for academics as much as it is for those not directly involved in scientific research. As such, this text speaks directly to those who are most able to censure any flagrant attempt at using misleading terms, concepts, or even established knowledge, in an attempt to garner legitimacy among lay readers. Lastly, this book aims to maintain brazen honesty and persistent forthrightness regarding what can and cannot be known under the current proposed model, espousing a time-travel explanation for this phenomenon.

Rather than using thaumaturgy to convince the unsuspecting masses about things that cannot currently be known, this study instead draws from peer-reviewed research conducted by leading scholars in the fields of anthropology, astronomy, astrobiology, and physics, who are not involved in UFO research of any kind. As such, it is hoped that this inquiry can withstand intense scientific scrutiny by established members of each of these respective fields, as it is written for them as much as anyone else.

Furthermore, to counter the candid criticisms of Anne Cross (2004) with regard to misleading, unscientific, and non-academic approaches that have been used previously in UFO research, this manuscript underwent extensive pre-publication peer review by academics in fields related to the content of this book. More specifically, the manuscript was reviewed by a PhD in biology, a PhD in biological anthropology, and a PhD in theoretical and computational chemistry who has taught quantum mechanics, theoretical physics, and computational methods for over 20 years.

It should also be noted that I am not a Ufologist. Naturally, in order to write an informed book on the topic, some facets of UFOs and the sentient beings associated with them must be skeptically considered and discussed. However, this represents only a small part of what is otherwise a broad-based examination of long-term patterns of biological, cultural, and technological change throughout hominin evolution.

Moreover, it is important to emphasize that proof of the existence of UFOs and aliens, now or in the past, is not an essential prerequisite for this new model examining the phenomenon in the context of persistent long-term evolutionary changes in the hominin lineage. This is simply because the current hypothesis predicts that we will eventually become them

and, as such, validation or refutation of this predicted state of our distant progeny will inevitably be revealed by the passage of time itself. In fact, this is a critical component of the current model, which distinguishes it from the prevailing paradigm of extraterrestrial life and interstellar space travel. More specifically, demonstrating the existence or non-existence of intelligent life elsewhere in the universe involves a much more tenuous search, with far more places to look than simply toward a future point in human time on this planet.

1.4. Temporal Bounds of Understanding

The most critical component of a scientific hypothesis is that it must be testable and falsifiable, and though it may seem counterintuitive, the current proposed time-travel model actually adheres to this requirement. More specifically, the continued existence (or extermination) of humanity on this planet innately allows this hypothesis to be tested and falsified. Fortunately, there is no statute of limitations on a working hypothesis. Rather, the longer an idea is around, the more opportunities there are to falsify it, which, while slow, is good for the scientific process. For as time passes without refutation and evidence in support of an idea mounts, the hypothesis grows and strengthens as it moves toward potentially becoming an accepted theory or law.

Take the process of evolutionary change for example, which is a key component of the current proposed model. Charles Darwin and Alfred Russel Wallace first proposed this novel and comprehensive explanation for the diversity of life on earth in the mid-1800s[8] and, while accepted as law by those who understand it (hence my not referring to it as evolutionary "theory"), there remain others who still attempt to refute it. Currently, the majority of challenges brought against evolution are the result of misapprehension, misinformation, bias, religious conviction, and perhaps even intellectual insecurity. However, although misguided, the questioning process itself is healthy, as it pushes researchers to develop and address novel inquiries in new and different ways.

The main objective of this ever-evolving theory of time travel and human evolution is to spur dialog regarding the holistic existence of our species. It is also to examine whether we may someday unravel the mysteries of time travel, and if we could already be seeing indications of this future outcome in the form of our distant descendants researching us in their own past. Additionally, this inquiry seeks to elucidate questions such as: what are UFOs, who is inside, why do they and their craft look the

way they do, what are they doing, why are they so commonly reported doing the same types of things, what would be the motivation for doing these things, and what might all of this reveal about the future state of our species if they are indeed our distant human descendants?

However, without the advantage of future hindsight, and because we cannot see the many complex factors leading up to that future from which we may someday return, there are bound to be many more questions than answers. Even those who report having close contact with what are presumed to be our distant human progeny see only the end result of a long and multifaceted evolutionary process. While we may be able to infer some things from what they report seeing, it is impossible to know exactly what forces will contribute to that future human state between now and then, as it remains veiled by our obscure and enigmatic future.

Without the ability to become unstuck from time, we are limited by when we can be and how far we can see in either direction. As such, the purpose of this book is not to make predictions about specific future environments, or how the forces of evolution may shape our species in response to these disparate conditions. Instead, the majority of evidence regarding the probable future state of our distant human descendants is drawn from long-term morphological, cultural, and technological trends, which have occurred across vast stretches of our own much more perceptible past.

It would certainly be helpful to be able to draw from first-hand experiences with our anachronous scion. However, I have never had such an encounter, nor have I ever even seen a UFO that could not be explained by some other phenomenon. Subsequently, this smaller component of the current investigation must draw from the testaments of others, who describe in intricate detail a set of experiences that are exceedingly consistent, regardless of when or where they occurred throughout the world.

Archived reports provided by credible individuals and institutions are considered in association with the scientific evidence described throughout this text.[9] [10] [11] [12] Such accounts are certainly not the primary focus of this inquiry. However, these resources are important to consider in conjunction with other lines of evidence, and may be of interest to individuals who have had their own encounter with a UFO, or to those who lend credence to the experiences of countless others.

Moreover, it is important that these individuals not be immediately dismissed as crazy, drunk, high, psychotic, etc., as was far too often the case over the last 70 years. Instead, they and their distinctive narratives should

be considered rationally and objectively, as they may represent an integral tool that could help provide a better understanding of this misconstrued phenomenon, as well as a broader conceptualization of humanity through deep time. After all, in addition to formal eyewitness accounts provided by numerous law enforcement officers and high-ranking military officials, even the former governor of Arizona, Fife Symington, staunchly asserts that he, along with thousands of other Arizonans, had observed a UFO in the skies above Phoenix in 1997.[13]

1.5. Looking Forward Toward Us Looking Back

Modern human cultural complexity is primarily the result of incremental changes that have occurred since we last shared a common ancestor with chimpanzees approximately 6 million years ago. We are fortunate to have at our disposal a wealth of skeletal and fossil specimens, as well as a large sample of tools and other materials left behind by our human ancestors. However, because we are stuck moving along a seemingly linear path through time, our view of the future remains shrouded in ambiguity. Nonetheless, if reports of close encounters with UFOs and "aliens" can be understood as instances of intertemporal interaction, they could potentially offer up a wealth of information about the future state of our species.

If time travel technology were currently available to anthropologists of our own time, there is no doubt that we would be using it to gain a much deeper understanding of our own past. For instance, we may choose to return to East Africa 1.5 million years ago to examine the biology and culture of *Homo erectus*. Additionally, if they were able to recognize us as their distant descendants, they would be offered the opportunity to learn something of their own future biology and culture, simply as a consequence of us investigating our own past.

In the same way that *Homo erectus* would struggle to recognize modern humans and the intricate instrumentation we currently possess, it seems natural that modern humans would also be limited in our ability to comprehend the morphology and technology of future humans investigating their own past. Though by examining the long-term biological and cultural trends that have gotten us to where we are today—while also taking into account what may be fleeting glimpses of our own future—the broader composite mosaic of human time may begin to come into view.

1.6. Cladistics, Classification, and Catalyzing Contention

Biological organisms change over time. The speed of this change varies depending on the rate of environmental modification, and the relative influence of the four forces of evolution: gene flow, gene drift, mutation, and natural selection. Examining shared characteristics among organisms that are also present in the ancestors of those species—known as *synapomorphies* or *shared derived characteristics*—allows us to identify evolutionary relationships among them.

If we can take into consideration reports provided by sound-minded individuals who assert that they have seen what are presumed to be our future human descendants, it is clear that both they and we share a number of derived characteristics that are unique to the hominin lineage. Among the most recognizable of these shared traits is bipedalism. In fact, this is a rare form of locomotion among all animals on Earth and, as will be discussed later in the context of astrobiology, is likely to be even rarer on earthlike exoplanets elsewhere in our known universe.

In addition to bipedalism, which is the trait that defines our hominin lineage above all others, reports of close encounters also suggest that we share bilateral symmetry, the lack of a tail, relative hairlessness, highly dexterous hands and fingers, a large and globular brain, large eyes, and small noses and mouths. Additionally, and perhaps most importantly, these synapomorphies could not exist if the alien creatures in these reports had undergone a separate evolutionary trajectory on another planet in a different solar system.

It is extremely unlikely that extraterrestrial life evolving on a different planet would ever develop traits so similar to those of our own species, genus, or even the whole of the primate order. It is also improbable that an intelligent lifeform on a distant planet would ever be able to locate us around one of the many billions of stars in our nondescript galaxy, or that we would possess the same level of technological advancement, and at the same time, so as to facilitate mutual discovery. Even if contact were made, would we be able to communicate with each other, or traverse thousands or millions of light-years of space to visit one another? Furthermore, if visitation were possible, extraterrestrials would not be expected to simply observe us from a distance or perform covert medical examinations on us, then simply return home without any formal contact.

Because an extraterrestrial explanation for the UFO phenomenon is so implausible, it seems compulsory to modify the language used to discuss

it. For instance, "extraterrestrial" is the term used to refer to these alien creatures under the current space travel model. However, these pioneers of time are in all likelihood terrestrial, or earth-dwelling, just like us. In fact, we may well live, work, and play in the exact same space as our distant descendants, in the same way we now reside in the same space as those living on Earth 25,000 years ago, 500 years ago, or as recently as a few minutes or seconds ago. So, in order to stay consistent with this proposed paradigm shift concerning the origin of these alleged alien creatures, the term extra*terr*estrial, meaning from outside of earth, will be replaced by extra*temp*estrial throughout this text, as the Latin root *tempus*, meaning time, is much more aligned with this cross-temporal model.

In changing the terminology used to describe the visitors themselves, it also seems fitting to put forth a new term for these "unidentified flying objects," which are likely the very devices that allow our future progeny to venture backward across the landscape of time. After all, it doesn't make sense to refer to something as "unidentified," when the purpose of this work is to identify that very thing. Additionally, those opposed to the discussion of contentious ideas, people, social movements, etc., often vilify the terms and phrases used in association with them, in an attempt to undermine their opponent's cause. "UFO," "flying saucer," "extraterrestrial," "alien," and others like them, have all fallen victim to this common social practice.

In order to overcome the indignity associated with these syntactical tactics, it sometimes becomes necessary to abandon such terms once they have become tainted by stigma. So, to help break away from the practice of subconscious dismissal of discourse as part of this cultural conditioning process, while at the same time offering up an identifiable term for a previously unidentified phenomenon, the phrase *Identified Flying Objects* will be used subsequently, and with the acronym "IFO" replacing "UFO" throughout this text. It is hoped that IFO is similar enough to the previous terminology that it may sustain a cognitive connection with the idea as a whole, while also being different enough that it may elude the shackles of shame presently associated with talking about the subject.

It is a bit curious that such a strong social taboo surrounds the subject of UFOs at all, particularly given that so many people consider it a real phenomenon. In fact, a 2013 survey conducted by YouGov and the Huffington Post asked a diverse sample of 1,000 individuals whether they "believe some people have witnessed UFOs?" Among those polled, 48% answered in the affirmative, 35% answered in the negative, and 16%

stated that they were unsure.[14] When asked about these recent results, nuclear physicist Stanton Friedman, who has worked as a Ufologist for decades, unequivocally stated that "It's always been intriguing to me how we act as though only kooks and quacks and little old ladies in tennis shoes believe in flying saucers. And it's never been true, at least for 30 or 40 years…. The believers are far more quiet, but far more on the side of reality."[15]

Another interesting result of this survey was that individuals who earned a postgraduate degree were the most skeptical group, with only 30% stating that they believe some people have witnessed UFOs. As someone with a postgraduate degree, I would appear to be in the minority here. Although I can certainly understand this result, given that the majority of us who end up going to graduate school enter a course of study that centers on rational and presently falsifiable explanations for things. However, I also believe that by assimilating established knowledge drawn from multiple academic disciplines, it may be possible to bridge this unnecessary divide between the science and science fiction of IFOs. Furthermore, it is hoped that this rigorous yet reserved academic approach can draw a more inclusive audience into the developing conversation, and initiate viable dialog among skeptics, and among those who represent various scholarly disciplines within the commonly incredulous scientific community.

1.7. Future Research into the Future Past

Throughout time, humans have conjured up faulty explanations for all kinds of odd and even entirely ordinary natural phenomena. Once our intellect and ability to test theories had developed to the point that we could begin to tackle the bigger questions, many of these false interpretations were replaced by valid scientific hypotheses. However, despite an ever-evolving understanding of the natural world and the development of technology necessary to test increasingly complex ideas, many unknowns still exist.

This book cautiously examines the premise that IFOs and extratempestrials, if real, are simply our distant human descendants, using time travel technology to visit and study us in their own evolutionary past. Presently, some elements of this idea are untestable, largely because of where we currently reside in time. However, due to significant advancements in paleoanthropology, astrobiology, astronomy, and physics over the last 50 years, we are now at least poised to begin investigating this question in real terms.

Because the human mind is so inquisitive, we must wonder if something has acted to stifle inquiry into the IFO phenomenon. Results from the aforementioned poll, as well as numerous others like it, suggest that most people have at least heard of IFOs, while a large percentage of people also accept that others may have had direct contact with extratempestrials. Anecdotally, in discussing this idea with countless individuals over the last 25 years, I have been astounded by how many have had an IFO experience of their own. This includes a fellow scientist who occasionally witnessed lights hovering above the horizon of their family ranch late at night, only to discover the following morning that some of their cows had been dissected with surgical precision.

It is rather unfortunate that this subject matter is so taboo, and that people don't speak freely about their encounters. It is also regrettable that we don't openly converse about the possibility of disc-shaped craft soaring about the heavens, or big-headed aliens picking people up to do odd things to them in the wee hours of the night. Though is it really that surprising? After all, it does sound a little crazy. Moreover, it is difficult for many outwardly intelligent people to understand even simple, well-established scientific facts—such as the process of biological evolution or why vaccines are important, for example—let alone a concept so far removed from our conventional collective consciousness.

For those who have seen an IFO or had a close encounter of any kind, the event is surely a part of their reality. Though for other members of society who lack any direct involvement, it is unquestionably more difficult to wrap their minds around such a situation, as it deviates considerably from more orthodox facets of everyday life. Indeed, for those who have had such an experience, no explanation is necessary, but, for many of those who have not, none may be possible at all.

On the other side of this same coin, it must be exhilarating for an extratempestrial granted the privilege of studying us in the past, as we represent an important erstwhile element of their own existence. As a paleoanthropologist, I can only imagine what it would be like to jet back to the past by means of a highly advanced time-traversing research vessel, pull an unsuspecting representative of *Homo neanderthalensis* out of a cave along the Dordogne River of France some 75,000 years ago, and conduct an in-depth analysis of their biology and culture. The knowledge that could be gleaned from that one short period of observational research would likely surpass all that has been acquired from the multitude of Neanderthal sites across Europe, since the first skull of this close relative

of modern humans was discovered by limestone quarry workers in Kleine Feldhofer Cave, Germany, in 1856.

I have been fortunate to work at a number of archaeological sites in different parts of the world, including an *Australopithecus africanus* site in South Africa dating back to 3.5 million years ago, a Neanderthal site in southern France dating to 175,000 years ago, and numerous prehistoric Native American sites throughout Ohio and Southwest Montana. Though inevitably, toward the end of the day, while scraping back yet another 5-millimeter-thick layer of dirt to reveal a casually different piece of chert that was slightly modified from its original form, the same thought always seemed to creep back in my mind…

In the future, our anthropological colleagues may ritualistically burn their Marshalltown trowels in favor of a far more rousing and illuminating means of studying their ancestral past. Someday, our distant descendants could usher in a new era of archaeology, when we would no longer be required to sift through layers of dirt, or blast through layers of brecciated rock in order to glimpse a tiny fragment of our ancestral past. Instead, we may simply be able to spin back through layers of time, all the while garnering a far more holistic and scientific understanding of our linguistic, cultural, and biological condition, by means of the novel four-dimensional archaeological tool of time travel.

Endnotes

Epigraph

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Chapter 1

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5 Image Credit: Mad Dog/shutterstock.com (left), Makc/shutterstock.com (center), Brian Goff/shutterstock.com (right)

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Chapter 12

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