

A CRITICAL EXAMINATION OF FREUD'S SCIENTIFIC PREMISE
THAT ONTOGENY RECAPITULATES PHYLOGENY
IN *TOTEM AND TABOO*

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Abstract

After an introduction to the history of the principle “ontogeny recapitulates phylogeny” (the development of the individual repeats the evolution of the species), this article discusses how Freud used this now out-dated scientific assumption as a foundation to support his theory of the origins religion as developed in *Totem and Taboo*. According to Freud, religion originated in pre-historic collective experiences that became repressed and ritualized as totems and taboos; vestiges of these experiences are still seen in unreflective, everyday, descriptions by people concerning primitive peoples, neurotic patients, and normal children to which educators must respond. The article examines the consequences of linking “savages,” neurotic patients, and children as evidence for his theory of religion, and what happens to his theory of religion when the premise of “ontogeny recapitulates phylogeny” is withdrawn.

Introduction

In the *Introductory Lectures*, Freud says that science deals human megalomania or narcissism three “wounding” blows. First Copernicus demonstrated that humanity is not the center of the universe. Second, Darwin took from humanity the title of “crown of creation.” And now third, Freud, himself, proves that the ego is not even the master of its own house. That is to say, in a battle between the rationality of reason and unconscious primal instincts, the unconscious will always be more potent:

In the course of centuries the *naïve* self-love of men has had to submit to two major blows at the hands of science. The first was when they learnt that our earth was not the centre of the universe but only a tiny fragment of a cosmic system of scarcely imaginable vastness. This is associated in our minds with the name of Copernicus, though something similar had already been asserted by Alexandrian science. The second blow fell when biological research destroyed man's supposedly privileged place in creation and proved his descent from the animal kingdom and his ineradicable animal nature. This revaluation has been accomplished in our own days by Darwin, Wallace and their predecessors, though not without the most violent contemporary opposition, but human megalomania will have suffered its third and most wounding blow from the psychological research of the present time which seeks to prove to the ego that it is not even master in its own house, but must content itself with scanty information of what is going on unconsciously in its minds. We psycho-analysts were not the first and not the only ones to utter this call to introspection; but it seems to be our fate to

give it its most forcible expression and to support it with empirical material which affects every individual. (Freud, 1966, p. 353)

While claiming his own place in the history, Freud was also making the claim that his discovery, systematized as the science of psychoanalysis, was supported by empirical research and impartial logic. Throughout these lectures, Freud presents the methods and conclusions of psychoanalysis as cutting-edge theory, based on sound, well-documented principles. From his earliest papers, Freud grounds his psychology in physiology. The mind, whether conceived of as conscious/unconscious or ego/superego/id was always a product of the brain. Wherever possible, he substantiated his conclusions using arguments based on physical, biological reality. Thus Freud understood psychoanalysis as a form of archeology, where therapists and patients unearthed, despite stringent defenses, artifacts—mental artifacts, to be sure; but artifacts that when brought to light, via insight, would cause a material difference in the patient. Further, Freud believed that these artifacts revealed something about the etiology of the patient’s neurosis originating in childhood.

This article examines Freud using his own measuring stick—scientific research. What happens to Freud’s theoretical apparatus if one of the supporting assumptions crumbles? And what does this do to his theory of religion? Specifically, the approach is to discuss Freud’s scientific assumption that ontogeny recapitulates phylogeny, and how it supported his theory of the origins of religion. A look at Freud’s scientific assumptions is warranted for at least two reasons: first, because he regarded them so necessary and second, because he built such theoretical skyscrapers on top of them. While Freud’s thought developed over time, he first laid out his theory of the origins of religion in *Totem and Taboo: Some Points of Agreement Between the Mental Lives of Savages and Neurotics*.¹ So a close look at *Totem and Taboo* can help us untangle this particular scientific assumption from one of Freud’s major theoretical constructs.

Before moving to a discussion of *Totem and Taboo*, I would like to discuss the history of the scientific principle of “ontogeny recapitulates phylogeny” in order to show how important and pervasive the concept was. From this I will show how the concept became foundational not only to biology, botany, and later genetics, but also the social sciences with repercussions that still echo today.

History of “Ontogeny Recapitulates Phylogeny”

“Ontogeny recapitulates phylogeny” was a key scientific assumption of Freud’s time and a biological premise of Darwinian evolution. The principle means that as an

¹ According to James Strachey’s note in his translation (1950), the essays were first published in the periodical *Imago* (Vienna) in 1912 (the first two essays) and 1913 (the second two essays).

individual develops, it goes through a series of stages that duplicates the historical development of its species. In other words, the development of the individual repeats the evolution of the species.² This 1892 diagram below shows how the development of the human embryo was thought to repeat evolution from lower forms. At that time, scientists believed that the human embryo went through a fish form with gill slits, a lizard form with a long tail, etc., showing, therefore, both the human evolutionary path and individual human development.



Figure 1. Haeckel's drawing of human embryonic development

This 19th century scientific law (ontogeny recapitulates phylogeny) was “documented” by Ernst von Haeckel, the German zoologist (1834-1919).³ What Haeckel and others saw was an *apparent* visual similarity in the comparative morphologies; even though the observations do not bear this out.⁴ Haeckel's theory became reified and, therefore, difficult to dislodge, affecting psychology, sociology, and educational theories well into the 20th century.

The biological model of Darwinian evolution was quickly adapted as a theory of social evolution, especially by Herbert Spencer⁵ as early as 1857 although he favored

² This diagram is Romanes's 1892 copy of Ernst Haeckel's embryo drawings from Richardson and Keuck, 2002, "Haeckel's ABC of evolution and development," p. 516, http://nsmserver2.fullerton.edu/departments/chemistry/Evolution_creation/Web/Richardson2002.

³ He was also first to consider psychology as a branch of physiology.

⁴ In fact there was a polemic against “ontogeny recapitulates phylogeny” in my comparative anatomy textbook back in the early 1970s. In the text, the author marshaled evidence derived from embryonic tagging, showing, for example, what appears as “gills” are embryonic pharyngeal arches, one of which becomes the bones in the human ear. Even though Stephen Jay Gould finally put the theory that ontogeny recapitulates phylogeny to rest in his 1977 book, *Ontogeny and Phylogeny*, one can still hear its echoes. These echoes are usually heard not in terms of biological development but in terms of social development and learned behavior. For example, a recent public television program on the evolution of flight used young birds to show how their dinosaur “ancestors” may have flown.

⁵ Herbert Spencer (1820-1903), English philosopher, political theorist, promoted evolution as progressive development of the physical world, biological organisms, and the human mind and culture. He wrote books in the areas of ethics, religion, politics, philosophy, biology, sociology, psychology. He also originated the phrase, *survival of the fittest* in 1864.

Lamarck's version rather than Darwin's theory of natural selection. Freud frequently quotes Spencer in *Totem and Taboo* and elsewhere.⁶

It is also instructive to recall what was known about the science of genetics when Freud wrote *Totem and Taboo*. Gregor Mendel's work, although done much earlier (1856-1863) and published in 1866 in the *Proceedings of the Natural History Society of Brünn*, was only rediscovered in 1900 by Hugo de Vries (Dutch botanist), Carl Correns (German botanist), and Erich von Tschermak (Austrian agronomist). Even then, Mendel's work was not without controversy or opponents such as William Bateson, a British zoologist. In fact, Bateson only first used the word "genetics" in 1905. The idea that genetics could be useful in embryonic development did not emerge until the late 1920s and 1930s by such people as Salome Gluecksohn-Schoenheimer and C.H. Waddington.⁷ All this to say that when Freud wrote the essays that become his book, *Totem and Taboo*, genetics and its eventual synthesis with Darwin's theory of evolution were still in their infancy.⁸ However Social Darwinism, in full-swing, freely borrowed foundational assumptions, e.g., ontogeny recapitulates phylogeny, from biological evolution; using it to prop up theories in other fields, for example, anthropology and psychology. Inevitably the view infiltrated other disciplines at a more popular level, including education, shaping both classroom competition and tacit assumptions of the nature of the learner.

Freud's Theory of the Origins of Religion

Freud's purpose in *Totem and Taboo* was to reconstruct the birth and the process of development of religion as a social institution. His intent was to discuss the "genesis of religion." (Freud, 1950, p. 100) He wanted to demonstrate how the study of psychoanalysis "is important in the understanding of the growth of civilization." (Ibid., p. 78) Freud's interest was not simply intellectual curiosity, it was part of his own theory-building agenda to promote psychoanalysis as the means to relieve neurotic patients and, by extension, temper the social or cultural causes (including religion) of neurosis. However, he did not argue that psychoanalytic evidence alone was enough to trace the origin of religion as a cultural phenomenon, he marshalled evidence from other sciences, i.e., most notably, anthropology, sociology, and psychology. By doing this, Freud sought to build an interdisciplinary case for his view of the origins of religion. It was helpful to his argument that these sciences each premised their understandings on the assumption that ontogeny recapitulates phylogeny.

⁶ For example see *The Interpretation of Dreams*.

⁷ See Scott F. Gilbert's "Induction and the Origins of Developmental Genetics," from *A Conceptual History of Modern Embryology*, pp. 181-206, <http://zygote.swarthmore.edu/gene3a.html>.

⁸ See James Strachey's translator notes in the front matter of *Totem and Taboo*, published by W.W. Norton & Company in 1950. Here Strachey says that the last version of *Totem and Taboo* was published in Freud's *Gesammelte Werke*, vol. 9 in 1940. Apparently, none of the later editions show "any variations of substance from the original." (p. vii). So Freud never updated *Totem and Taboo* with more current evolutionary theory.

Freud understood that social sciences, as well as psychoanalysis, were Science. As such, they were ultimately grounded in physical reality and empirically validated assumptions. Even though the principle that ontogeny recapitulates phylogeny was adapted in the social sciences and later became a part of Social Darwinism, Freud, as a trained scientist, valued empirical verification so highly that he would not have used those social sciences as he did if he did not believe they were grounded in physical reality and could be experimentally verified.

Totem and Taboo and the Origins of Religion

Freud believed that religion, like all social institutions, evolves like or in concert with humanity into “newer,” by which he meant “higher” forms (Freud, 1950, pp. 1-7). Vestiges of these older, lower forms appear in immature adults, i.e., primitive peoples, children, and mentally ill patients. He concludes the preface of *Totem and Taboo* by saying:

“An attempt is made in this volume to deduce the original meaning of totemism from the vestiges remaining of it in childhood—from the hints of it which emerge in the course of the growth of our own children.” (Ibid., p. x)

In our own context, some of Freud’s assertions may be difficult to hear, but they do betray his operating assumptions. On page one of *Totem and Taboo*, he says that he is going to illustrate his argument using the Australian aborigines; because these “savages or half-savages” can give a “well-preserved picture of an early stage of our own development.” He then wants to compare the psychology of these peoples with the psychology of neurotics in order to show similarities. When Freud discusses what he believes to be the cultural context of then current Australian populations, he assumes that he is also taking the reader back in time, so that we can glimpse our own primitive pre-history.

Totems

As Freud describes it, a totem is usually an animal; although sometimes a plant or natural phenomenon (e.g., rain, water) that stands in or represents the common ancestor of the clan and who is their guardian spirit or helper. Reciprocally, the clan members are under the sacred obligation not to kill or destroy their totem and to avoid eating it. The character of the totem is inherent in all individuals of a given clan (Ibid., p. 2). The totem is also the basis of all social obligation and it is the most important. (Ibid., p. 3). It is in effect “supernatural.”

Freud goes on to say that the totem represents the primal ancestor, Father, who was murdered and then eaten by his sons. In order to deal with the collective guilt, they repressed the act but memorialized it by totem rituals. The collective guilt⁹ is then inherited by subsequent generations who deal with the repression by means of a

⁹ Freud’s version of Original Sin.

repetition compulsion to keep the rituals alive in a culturally acceptable form. The commemorative meal celebrated by primitive peoples is a example of a ritual that therefore necessarily becomes imbued with religious significance. He can say these rituals take on religious significance because they are marked by magical thinking, projection, ritual, and belief in other-worldly spirits. For Freud, modern Christian Communion is a vestige of this totem ritual, which reenacts the wishful fantasy of killing and devouring the primaeval father as demonstrated, again, by primitive peoples.¹⁰

Taboos

In discussing taboos, Freud leads the reader to a discussion of incest, particularly incest between a son and his mother or sister, as the foundational taboo that precedes all others. Although Freud discussed incest between a father and daughter, this subject is considered secondarily. Freud says that prohibitions of incest between mother and son are older (more primitive) than between a father and daughter (Ibid., fn. 1, p. 5). Hence as more primitive, it is less evolved. He goes on to assert that psychoanalysis shows (empirical evidence)¹¹ that a “boy’s earliest choice of object for his love is incestuous” (Ibid., p. 17). So a neurotic “invariably exhibits some degree of psychical infantilism.” Through this line of reasoning, Freud’s argument leads the reader toward an understanding of the origins of the Oedipal Complex—the lynch pin of his psychology.¹² Yet, this concept is also related to the origins of religion, because it is linked to the fantasy of wish-fulfillment of killing the father in order to possess (sexually) the mother and to an individual’s image of God, which was for Freud a projection of the father.

The Oedipal Complex

The reasoning behind Freud’s naming of the Oedipal Complex is instructive. He gives his rationale in *The Interpretation of Dreams* (Freud, 1952, pp. 246-248), written years before *Totem and Taboo*. There are, he says, good reasons why the subject matter of *Oedipus Rex* speaks to us so powerfully:

We recoil from the person for whom this primitive wish of our childhood has been fulfilled with all the force of the repression which these wishes have undergone in our minds since childhood. As the poet brings the guilt of Oedipus

¹⁰ Freud says, “All that I have been able to add to our understanding of it is to emphasize the fact that it is essentially an *infantile* feature and that it reveals a striking agreement with the mental life of neurotic patients” (Ibid., p. 17).

¹¹ Freud understands this as material not just efficient cause.

¹² Because Freud considered the incest prohibition between son and mother and sister foundational and the father/daughter prohibition secondary or derivative, Freud believed that the son/mother prohibition was more important. Hence, the vast majority of his writing, and perhaps patient care, involved the Oedipal Complex (son/mother) with only minimal asides given to what he called the “feminine Oedipal Complex” (daughter/father).

¹² Although it is not mentioned in *Totem and Taboo* at all, possible because Freud understood women to be the “second” sex, by which he meant inferior.

to light by his investigation, he forces us to become aware of our own inner selves, in which the same impulses are still extant, even though they are suppressed. (Ibid., p. 247)

Here Freud links normal dreams and fantasies with infantile sexuality, neurosis, ancient peoples with the origins of religion and myth, much like he will later do in *Totem and Taboo*. So his representation of the origins of religion in *Totem and Taboo* represents his more general view; although, in *Totem and Taboo* he more fully develops the connections between primitive peoples, neurotics, and children, thus depending even more heavily on the premise that ontogeny recapitulates phylogeny.

For Freud, as “savages” are less evolved and, thus, similar to our ancestors, so the early stages of our individual mental development and the mental lives of neurotic patients represent present-day examples of lower, less evolved forms. This again suggests to him that both psychological and physical individual development repeat the evolution of the species.¹³ Thus mental illness, as immaturity, blocks or stymies individual development but also the evolutionary progress of humanity.

Freud's Study of Neurotic Symptoms

Freud understood that individuals with mental illness had blocked or unresolved development. Because normal childhood development repeated human evolution, that meant that for Freud neurotic patients exhibited less evolved (e.g., “savage”) religious behavior as well. Because Freud believed that there was similarity (at least in form or as formal cause) between the experience of primitive, less evolved peoples with neurotics, he believed that studying the symptoms of neurotics would help science understand the experience of more primitive peoples and the ancient roots of religion. In other words by examining neurotic behaviour (in this case obsessive compulsive disorder), he could explain or “verify” the “psychological determinants of taboo,” (Ibid., p. 35) which he says are foundational to religion, including religious institutions. From Freud’s point of view, he is explaining religion as a rung on the evolutionary ladder. He believes that he can explain religion using his patients as evidence. But he also inverts the argument by saying that understanding behavior of primitive peoples can help uncover otherwise unknowable causes of neurotic illness. While discussing neurotic guilt in obsessive patients, he says:

In fact, one may venture to say that if we cannot trace the origin of the sense of guilt in obsessional neurotics, there can be no hope of our *ever* tracing it. This task can be directly achieved in the case of individual neurotic patients, and we may rely upon reaching a similar solution by inference in the case of primitive peoples. (Ibid., pp. 68-69)

Because Freud made the logical move of asserting the similarity of childhood psychological development, neurosis, and the behavior of primitive (less-evolved)

¹³ For Freud, the psychological was grounded in the physical.

peoples, he is then free to make various *causal and explanatory assertions*. And as noted above, the move rests, at least in part, on the then scientific premise that ontogeny recapitulates phylogeny.¹⁴

Also important is the effect on Freud's clinical view of his patients. While Freud does distinguish between neuroses and cultural institutions, such as religion, he does it this way. He says that neuroses are social structures with private solutions (i.e., to inhibit individual sexual impulses) while cultural institutions, as found in religion, are a collective means to preserve the species. He goes on to say the nature of neuroses has its "genetic origin" to turn the patient away from painful reality into pleasurable fantasy, following the pleasure/pain principle. (Ibid., p. 74)

Here, Freud again clearly states his understanding of the origins of religion. From his point of view he has marshalled scientific evidence from a variety of disciplines, including his own theory of psychoanalysis. He says, in essence, that vestiges of religion's origins are all around, including in normal children/infants, mentally ill patients, and aborigines. He does not refute the argument that religion is core to who humans are because it stems from the same source as the "nucleus of all neuroses," the Oedipal Complex. (Ibid., pp. 156-157) God and God's attributes are defensive projections from the human unconscious. The Passion of Christ recalls the suffering of the hero in the primaeval tragedy of killing the totem. Christians partake of Communion as a means to reenact the wishful fantasy of killing and devouring the primaeval father as explained by totemism and taboos. Religions teach about souls and other supernatural phenomena because of primitive thought patterns like animism and magical thinking. Even the religious feelings of awe and dread originate, for Freud, in the ambivalence originally brought about by breaking taboos.

Religion Causes Neurosis as the Price of Social Control

Clearly Freud believed that individual human development mirrored less evolved and "savage" humanity. Likewise Freud argued that "savages" who are not as constrained by cultural restraints (implied: "as we are") showed less mental illness because they do not need to repress their instincts to the same degree (implied: "as we do").¹⁵ Freud believed that religion evolved as a social institution to control individuals' instincts. He sums this thought up nicely in his *Introductory Lectures*:

For society must undertake as one of its most important educative tasks to tame and restrict the sexual instinct when it breaks out as an urge to reproduction, and to subject it to an individual will which is identical with the bidding of society. It is also concerned to postpone the full development of the instinct till the child shall have reached a certain degree of intellectual maturity, for, with the complete irruption of the sexual instinct, educability is for practical purposes at an end.

¹⁴ Freud notes that Australians, Polynesians and other groups are "savage," but he does not go so far as to make the assertion that "primitive" peoples are sub-human or *Untermensch*.

¹⁵ This is Freud's understanding of the "noble savage."

Otherwise, the instinct would break down every dam and wash away the laboriously erected work of civilization.... The motive of human society is in the last resort an economic one; since it does not possess enough provisions to keep its members alive unless they work, it must restrict the number of its members and divert their energies from sexual activity to work. It is faced, in short, by the eternal, primaeval exigencies of life, which are with us to this day. (Freud, 1966, pp. 311-312).

For Freud, the price of culture is neurosis; the price of social harmony is individual illness. This does not mean that we jettison culture or its laws, but it does mean that we can use insight to mitigate those unreasonable or primitive parts of the cultural landscape, such as religion, in order to give individuals enough freedom to contribute by means of meaningful work and loving relationships. Hence life, for Freud, is like a tragedy (e.g. *Oedipus Rex* or *Hamlet*), but one in which individual characters can live and die heroically. Freud believed that given sufficient insight, religion would fade away and that humanity would eventually discard it, just as they discarded other useless myths.¹⁶

Knocking Away a Scientific Prop

So, by using the scientific assumptions of his day, Freud built his theory of the origins of religion, but also his theories of human social development and psychological pathology. If one takes away the assumption that ontogeny recapitulates phylogeny what happens to Freud's theory of the origins of religion? At least two things happen. First, the causal links between primitive peoples, neurotic patients, and children dissolve. There is no basis on which to associate them, because the premise that postulated that an individual's psychological and social development recapitulated the evolution of the species is eliminated.¹⁷ This makes his relating ancient totems and taboos to modern religious institutions problematic, making his idea of inherited guilt as a manifestation of the brain wide of the mark.

Second, Freud's concept of religion as an example of a collective mind collapses because Freud grounded his theory of the mind in the brain where psychological processes and structures were inherited genetically. As mentioned above, Freud believed that the ancient repressed memories that became totems and taboos were inherited and manifested in the lives of aborigines/primitive peoples, patients, and normal children. He says, "I have taken as the basis of my whole position the existence of a collective mind, in which mental processes occur just as they do in the mind of an individual..." (Ibid, pp. 157-158). And "[w]ithout the assumption of a collective mind, which makes it possible to neglect the interruptions of mental acts caused by the extinction of the individual, social psychology in general cannot exist." (Ibid., p. 157)¹⁸

¹⁶ A reference to "survival of the fittest"?

¹⁷ Even if one maintains the truth of ontogeny recapitulating phylogeny, it is nonverifiable; and therefore not good science.

¹⁸ At the very least, this is an overstatement.

Conclusion

While we cannot expect Freud to write from any historical context other than his own, we can examine his theories in light of current scientific principles, as, I suspect, Freud would expect. But by the very fact that Freud uses science (logic) to unearth the origins of religion, as he understands it, he is also wounded by his own narcissism by supposing that insight and reason can explain away the powerful human need for religion. Insight may not be as potent a tool as he thought and the connections between primitive peoples, neurotics, and normal children may be more apparent than real. In addition, the Oedipal Complex may be less central to the origins of religion. So by eliminating the assumption that ontogeny recapitulates phylogeny, educators dismantle Freud's theory of the origins of religion in totems and taboos, with its vestiges in primitive peoples, neurotic patients, and normal children. Teachers rarely invoke Freud's categories today, yet we may often find ourselves facing tacit allusions to the same set of assumptions due to Freud's influence in the general public. Understanding the limitations of Freud's premise may assist educators overcome popular, though hidden, assumptions that often permeate western thinking.

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