

Roots of Chaos

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Dedicated to: Hypatia

About five thousand years ago. Marduk split Tiamat open like an oyster shell, to create the sky and the earth. Ever since, our culture and consciousness have been obsessed with law and order. This obsession, an evolutionary dead end, may now be changing, thanks to the revolution of science due to chaos theory.

One by one, scientific disciplines are falling into the chaotic attraction of a new paradigm. The recent history of this wave began a century ago, with the mathematical discoveries of Henri Poincare. In response to a prize offered by King Oscar II of Sweden for a mathematical proof that the solar system was stable and orderly, Poincare invented totally new methods for the geometric analysis of the problem. He observed chaotic behavior in his geometric pictures, casting doubt on the orderliness of the solar system, but won the prize anyway. With the advent of the computer revolution came an explosion of new understanding, in the computer graphics of Ueda, Lorenz and Stein and Ulam in the 1960's. Then, in the 1970's, the mathematical wave of chaos theory crashed on the beaches of the sciences. First, in 1973, fell fluid dynamics. This was occasioned by the proposal of Ruelle and Takens to model turbulence with a chaotic attractor. Then, in 1975, population dynamics was given a chaotic mathematical model, and rapidly the other physical and biological sciences followed suit. Recently, the earth sciences and social sciences, and even psychoanalysis have fallen into the new paradigm of chaos.

In this paper, we will try to dig out the roots of this paradigm shift. In our archeological search, we will find a rich layer of root material in the ancient creation myths of our culture. This layer in the geology of ideas is known to specialists as cosmogony. In historical cosmogony, we will find the remains of a vital struggle between chaos and order. This struggle, still going on, is the emotional motor driving the scientific revolution now in progress.

Cosmos means order or arrangement, and cosmogony means the theory of the origin of the order of the universe, the root gony signifying birth. Most cultures seem to have a developed cosmogony, which is seen as an indicator of cultural sophistication by anthropologists. Our own cosmogony, including the version prevalent among astrophysicists, may be understood as an outgrowth of the ancient Babylonians. And in these early myths, we find chaos playing a special role. Chaos now means disorder but in the older myths there are important variant meanings, to which we now turn.

Apparently, humans must have cosmogony. Sooner or later, every tribe or town will create one. Sooner or later, however, must in any case be fairly late in the game of creation itself. For we must have language, and a considerable degree of sophistication. So cosmogonification is a step in creation itself, a kind of cultural self-reference. Much is known of prehistorical cosmogonies

of various cultures, but we will be satisfied with the written record.

The written record begins in Mesopotamia, in a milieu of patriarchal dominance, while the mythology of the displaced goddess culture is still in a process of transformation. Some outstanding features of the widespread goddess culture of the early neolithic are peace, partnership of women and men, and love of the earth. Also, it has been suggested that the partnership of chaos and order existed before patriarchal domination around 3500 B.C.

The earliest written material documents the goddess worship of the Semitic people of Mesopotamia. On Ishtar, worshipped since 5000 B.C., we have

*Queen of Heaven, Goddess of the Universe, the One who walked
in terrible chaos and brought life by the law of love and out of
chaos brought us harmony and from chaos She has led us by the
hand . . .*

in the rendering of Merlin Stone.

Another early historical cosmogony is known from a Sumerian cuneiform text, circa 2000 B.C., refers to Nammu, the Sumerian goddess who gives birth to heaven and earth, by an ideogram signifying sea. Another early historical cosmogony, from Eridu, a Babylonian seaside town (Fig. I), is known from a bilingual (Sumerian and Babylonian) cuneiform tablet dating from before 700 B.C. and discovered in 1891.

The cast of characters include Apsu, the "Deep," the watery home of Ea, the culture-god, and Tiamat, (Hebrew, Tehom), the watery chaos:

*enemy of the gods of light and law, pictured as a dragon (Fig. 2).
Apsu and Tiamat are the male and female aspects of the watery deep.*

The creation story begins:

*No holy house, no house of the gods
in an holy place had as yet been built,
No reed had grown, no tree planted,
No bricks been made, no brick-mold formed.
No house been built, no city founded,
No city built, no man made to stand upright;
The deep was uncreated, Eridu unbuilt,
The seat of its holy house, the house of the gods,
unereected:
All the earth was sea,
While within the sea was a current . . .*

Later, circa 1800 B.C., is the better known Enuma Elish, also known as the Epic of Creation.

At this time Babylon had become the big apple in Mesopotamia, and Bel-Merodach, better known as Marduk, the city god of Babylon, had replaced Ea, the culture-god of Eridu, as Mister Big (Fig. 3). Bel was a masculine form of Belili, the Sumerian mother goddess. Many gods underwent sex changes during the cultural transformation from a partnership to an patriarchal society.

Enuma Elish is an epic hymn in honor of Marduk and his overthrow of Tiamat and the powers of chaos. The Epic begins thus:

*When above unnamed was the heaven,
And earth below by a name was uncalled,
Apsu in the beginning being their begetter,
And the flood of Tiamat the mother of them all,
Their waters were embosomed together (in one place),
But no reed had been harvested,
no marsh-plant seen;
At that time the gods had not appeared,
anyone of them.
By no name were they called, no destiny was fixed.
Then were the gods created in the midst of heaven, . . .*

Then unrolls the creation scenario. The appearance of the gods of light and order was followed by the revolt of Tiamat. Then the forces of darkness and chaos were overthrown by BelMerodach, originally a sun-god, who split Tiamat in half like the shell of an oyster, making the sky and the sea. Then followed the regulation of the solar system and calendar, the creation of plants and animals, and the making of humanity. In still another Babylonian cosmogony, from Nippur in the North, Tiamat, the dragon of the subterranean waters of chaos, was the source of creation.

The cosmogony of Enuma Elish was later summarized by Damascius, a contemporary of Justinian I (483-565, Roman emperor, 527-565) thus:

The Babylonians, like the rest of the barbarians, pass over in silence the one principle of the universe and constitute two, Tiamat and Apsu, making Apsu the husband of Tiamat, and denominating her the "mother of the gods." And from these proceeds an only-begotten son Mummu, which, I conceive, is no other than the intelligible world proceeding from the two principles.

Mummu, the flood, represents chaos, and is identified with Tiamat in the cuneiform text. But by the time of Damascius, apparently, a bifurcation has occurred, and Mummu has become the child of Tiamat and Apsu.

In Cretan mythology, there is a contemporary cosmogony in which Gaia brings forth Earth and

Eros from Chaos. The Orphic tradition in Greece is said to derive from Crete. In the oldest Orphic myths, the first principles are Earth, Night and Heaven. The oldest Greek literature includes Homer (Iliad, Odyssey) and Hesiod (Theogony, Works and Days). In Homer, there is a cosmogony in which Night is the supreme principle, and Oceanus and Tethys are the father and mother of the gods, including Zeus, modeled on Marduk. It is not certain which of these two traditions is older.

In Hesiod's Theogony, verses 116-136, among the oldest, is another cosmogony, in which Chaos (feminine) is supreme. Here are verses 116-122, in the faithful translation of Athanassakis.

*Chaos was born first and after her came Gaia
the broad-breasted, the firm seat of all
the immortals who hold the peaks of snowy Olympos,
and the misty Tartaros in the depths of broad-pathed earth
and Eros, the fairest of the deathless gods;
he unstrings the limbs and subdues both mind
and sensible thought in the breasts of all gods and all men.*

Then came Erebus and Night, Ether and Day, Ouranos and the other gods. This is the first occurrence of the actual word Chaos, as far as we know, and its most probable meaning is gap, that is, the gap between the sky and earth, or gaping void. It did not acquire its current meaning, any condition or place of total disorder or confusion, until the Stoics, around 500 B.C. at least. In order to prevent the confusion of Hesiod's Chaos with disorder, it is sometimes translated as Void rather than simply writing Chaos in English translations.

In Hesiod, Gaia means the Earth, and Eros is Desire, the immanent creative energy, the soul of all the unions of the creation story. More abstractly, we may think of Gaia and Eros as Matter and Spirit. For Hesiod, there are three primal cosmic forces: Chaos, Gaia, Eros. From Chaos issues Darkness and Light, Night and Day. From Gaia comes Mountains, Sea, and Sky. And from them are born all the other deities in four generations. A later Orphic cosmogony, probably sixth century B.C., begins with Cronos (time) from which Aether and Chaos emerge.

Finally, we may consider the Hebrew cosmogony from the Old Testament, Genesis 1. This chapter is said to date from the early post-exilic period, before 800 B.C., but is based on older myths, derived from Babylonia. In the English of the Dartmouth Bible, it begins:

*1. In the beginning God created the heaven and the earth.
2. And the earth was without form, and void;
and darkness was upon the face of the deep.
And the Spirit of God moved upon the face of the waters.*

1. God created the heaven and the earth: Marduk rearranged Tiamat's oyster shell,
2. without form, and void (Hebrew *tohu wabohu*): the watery chaos aspect of Apsu and Tiamat, and the waters (Hebrew *Tehom*, which is philologically related to Tiamat: Mammu, the flood, offspring of Apsu and Tiamat).

In summary, the creation of the universe in our tradition means the subjugation of chaos by cosmos. Ours is a universe of law and order. This tradition dates from Eridu, as early as 2000 B.C. at least. Note that throughout, creation means creation in form, not creation from nothing.

An important element in Enuma Elish is the cosmic battle with a snake-god, common throughout the Near East. In the Babylonian myths, the serpent is identified with the disorderly currents in the ocean, which connect with the current meaning the word chaos (Fig. 4).

When chaos emerged as a word in Hesiod's Theogony, around 700 B.C., it may have meant the gap between the sky and earth, without suggestion of disorder. But within a few centuries, it acquired this modern meaning, which is definitely part of the signification of Tiamat. Further, it seems likely that Tiamat developed in Sumer from earlier mythical serpents, representing disorder and creativity in the goddess religion of the early neolithic. Thus, Hesiod's concept of chaos merged with an earlier tradition, to form our modern concept of chaos.

When Genesis I (1-2) was written, Chaos and Tiamat reappeared as Tohu wa Vohu and Tehom. But besides the obvious similarities, there are also important differences between Enuma Elish and Genesis. Chief among these is the omission 10 Genesis of the cosmic battle theme, common to most of the Near Eastern precedents, in which order subdues chaos after a titanic struggle. Monotheism may be the basis for this transcendence of conflict in creation. Remnants of the pagan combat theme do survive in Genesis, where "they practically always appear as a literary device expressing the evil deeds and punishment of the human wicked in terms of the mythical conflict of God with the rebellious forces of primeval chaos."

Here primeval chaos and evil are identified, a bad omen for the essential chaos of life. Further, Joseph Campbell has identified the cosmos/chaos battle theme as the origin of the mythical concepts of Heaven and Hell. Apsu and Tiamat, sky and underworld, male and female, order and chaos, heaven and hell, good and evil: all are the same. As Heraclitus says,

Listening not to me but to the Logos, it is wise to acknowledge that all things are one.

In our current paradigm, order is to chaos as good is to evil, and this has been the status quo for the past few millenia. Meanwhile, while culture says disorder is Bad, Chaos is obviously the favorite state of nature, where it is truly Good. But this truth has been banished to the collective unconscious for all these centuries. From the shadows of the unconscious it pushes forth into our consciousness and literature in poetry and song, romance and struggle. It erects heretical monuments in the history of our art, architecture, music, science, and philosophy.

We are learning now that chaos is essential to the survival of life. The myth of the evilness of chaos is a threat to our future coevolution. Our challenge now is to restore goodness to chaos and disorder, to replace Tiamat on her rightful throne, in mythology and in daily life, to reestablish the partnership of cosmos and chaos, so necessary to creation. This will require a major modification to our mythological foundations, unchanged these past millennia: no mean feat.

In *The Chalice and the Blade*, Riane Eisler proposes an anthropological theory in which there are two basic forms of social organization, the partnership, or gylanic, and the dominator, or androcratic forms. The partnership form characterized the early neolithic period. This gave way around 4000 B.C. to the dominator form, which includes both matriarchy and patriarchy.

This bifurcation coincides with the discovery of the wheel, and the beginning of the Periodic Era now coming to a close. According to her theory, the peaceful partnership society of the Garden of Eden finally disappeared altogether by 1500 B.C. But it lives on in our collective unconscious as a memory. This racial memory wells up from time to time of itself, in gylanic resurgence waves such as the early Christians, or the eleventh century renaissance or the troubadours in the south of France. As Eisler says:

Moreover, these historical dynamics can be seen from a larger evolutionary perspective. As we saw in preceding chapters, the original cultural direction of our species during the formative years for human civilization was toward what we may call an early partnership, or protogylanic, model of society. Our cultural evolution was initially shaped by this model and reached its early peak in the highly creative culture of Crete. Then came a period of increasing disequilibrium or chaos. Through wave after wave of invasions and through the step by step replicative force of sword and pen, androcracy first acted as a "chaotic" attractor and later became the well-seated "static" or "point" attractor for most of Western civilization. But all through recorded history, and particularly during periods of social instability, the gylanic model has continued to act as a much weaker but persistent "periodic" attractor. Like a plant that refuses to be killed no matter how often it is crushed or cut back, as the history we will now reexamine shows, gylany has again and again sought to reestablish its place in the sun.

We now seek to replace dominance with partnership, in a context of psychological and mythological factors deep within the collective unconscious system of global human society.

With chaos and cosmos we have a conflict situation similar to, and related to, the gender-based cultural bifurcation described by Eisler. During the millennia since the beginning of monotheism and the association of chaos and evil in our mythological and religious foundations, there have been revolutionaries of chaos, tossed up into history by chaotic resurgence waves. Heraclitus, 500 B.C., Christ, 37 A.D., and Hypatia, 350 A.D., are the best known chaos revolutionaries of ancient times. More recently, Giordano Bruno, 1600, William Whiston, 1700, Immanuel Velikovsky, 1950, and Wilhelm Reich, 1957, stand out. All suffered some kind of calamity: crucifixion, burning at the stake, dismemberment, or some such.

Naturally, we do not wish to stand out in this way! Perhaps we need not take any intentional action, for we see now that science is in a major upheaval at last, and science is one of the primary watch-dogs of the law and order domination of society. Its main strategy is to suppress any experience contrary to its dogma, somewhat like organized religion in the medieval period. Before the Period Age, science banished oscillation. Scientists finding oscillation in their laboratory data, in many fields, would jettison the data, as homeostasis was demanded by dogma. Before

the recent dawn of the Chaotic Age, science banished non-periodic behavior. All disorderly data was called noisy, and rejected. Now, at last, anything goes. Rest, oscillation, or chaotic behavior; all are admitted in the scientific observation of nature.

However, there still exists an evil shadow over chaos. In *Order from Chaos*, one of the first books about the reenchantment of science, Prigogine and Stengers say:

our vision of nature is undergoing a radical change toward the multiple, the temporal, and the complex... A new unity is emerging: irreversibility is a source of order at all levels. Irreversibility is the force that brings order out of chaos.

They identify reversibility as the disenchanting hypothesis of science, and irreversibility as its reenchantment. The role of this reenchantment is creativity and evolution: to bring forth order from chaos. Our brief is different, for we agree with Homer:

Creation came out of chaos, is surrounded by chaos and will end in chaos.

That is, order does not come from chaos, leaving chaos behind. With no ongoing chaos, there can be no ongoing creation, that is, evolution.

In short, science is rediscovering chaos, and this is seen as a major paradigm shift. Perhaps, with conscious attention, this may evolve into a reenchantment of the world, in which, instead of switching from the domination of chaos by cosmos to the reverse, chaos and cosmos enter into partnership, spiritual gylany along with gender gylany, and we regain the garden of eden, with our creativity intact: Tiamat rejoined!

Here is a tentative concordance:

Cosmogonical Principles

Babylon	Hebrew	Greek	English	Remarks
Apsu	Tehom	Oceanus	Deep	father, ocean
Tiamat	Tohu	Chaos	Void	mother goddess, sea serpent
Mummu	X	X	Flood	mist
Marduk	Yahwey	Zeus	God	law and order, cosmos
X	X	Gaia	Earth	matter
X	X	Eros	Desire	spirit
Anu	X	Ouranos	Sky	heaven
X	X	Tartarus	Underworld	X

Figures



Figure 1: Map of Babylonia, showing the ancient coastline.

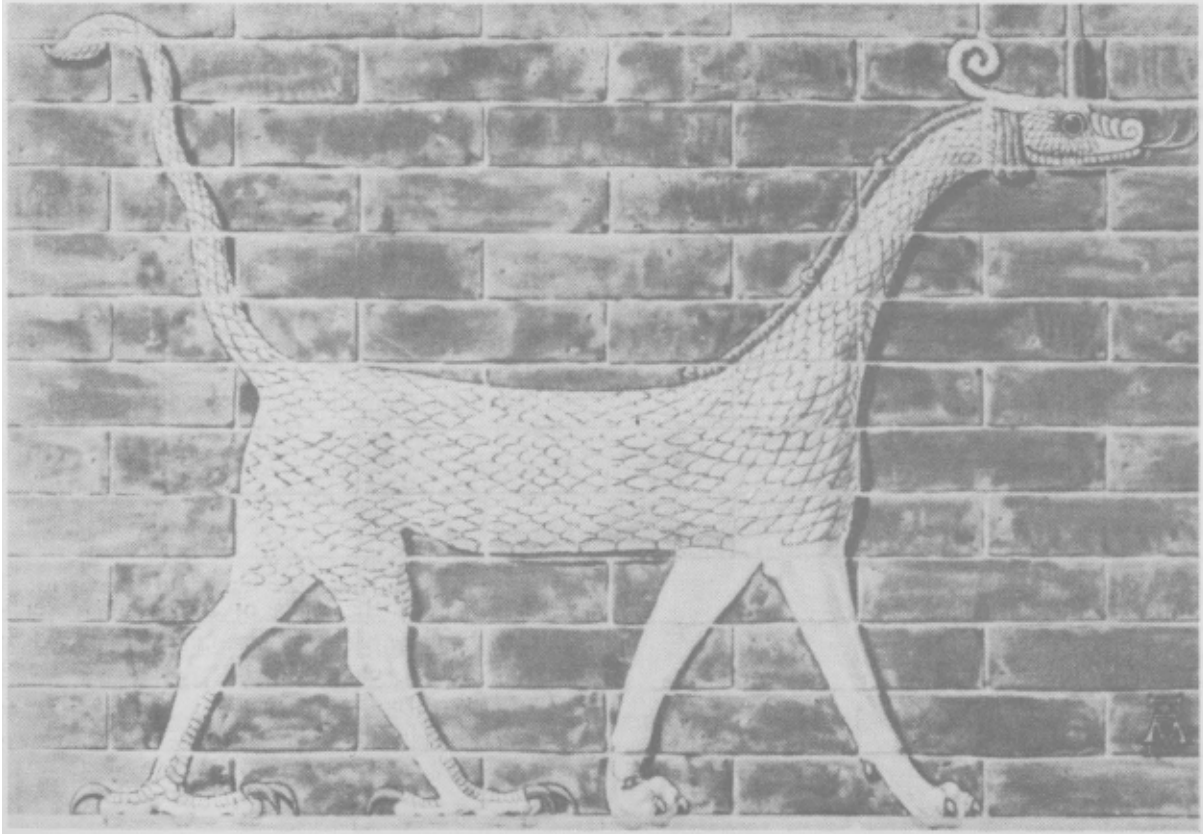


Figure 2: Babylonia drawing of Tiamat.



Figure 3: Babylonian drawing of Marduk.25



Figure 4: Battle of cosmos and chaos.