



BRAIN CHEMISTRY, UNIVERSAL CONSCIOUSNESS

AND UKRAINIAN CIVILIZATION

*A Study of the Neurochemical Foundations of Human Consciousness
through the lens of Trypillian Civilization, the Steppe Community,
and the Dual Heritage of Ukrainians*

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A Philosophical-Psychological Treatise

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I. THE MIND AS PHYSICAL SUBSTANCE AND RECEIVER OF CONSCIOUSNESS

In November 2025, the journal AIP Advances published an article by Swedish physicist Maria Stremme that sparked broad discussion among physicists and consciousness researchers.

“In this theory, consciousness is primary, and structures such as time, space, and matter arise only after it.”

This is a radical inversion of the standard materialist view. Not “the brain generates consciousness” — but “consciousness generates reality, including the brain.” Consciousness is treated not as a byproduct of brain activity, but as a fundamental field underlying everything: matter, space, time, and life itself. The author presents entirely scientific, contemporary physico-mathematical evidence for the existence of such a Universal Consciousness Field. For our study this is the point of departure. Modern science converges with ancient teachings.

The Pre-Flood Mind Hypothesis

Before the catastrophic civilizational reset caused by a comet impact 12,900 years ago — resulting in the “Great Flood” attested in Sumerian, Jewish, Hindu, Greek, and dozens of other traditions — humanity may have possessed a qualitatively different form of consciousness. One that interacted with reality in ways modern neuroscience does not account for. You may carry identical genes yet have entirely different types of consciousness.

The Psychological Dimension

Psychologist Julian Jaynes, in his work “The Origin of Consciousness in the Breakdown of the Bicameral Mind” (1976), proposed that ancient people lacked unified self-reflective consciousness. Instead, the two hemispheres of the brain functioned more separately, with one “speaking” to the other as if hearing divine voices. Ancient humans were not hallucinating — they were operating within a different cognitive architecture.

The Mind as a Tuned Physical Receiver

The brain does not produce Consciousness — it is a transceiver whose physico-chemical composition determines which frequencies of Universal Consciousness it can receive, process, and manifest. This completely reframes neuroscience: we must study not the mind as a generator of consciousness, but the filters and tuning that capture one or another bandwidth of Universal Consciousness.

This is close to Aldous Huxley’s “reducing valve” theory — the brain does not create consciousness, it narrows it down to what is biologically and socially useful for survival.

Physical Analogy — Receiving a Spectrum

The electromagnetic spectrum covers an enormous range from radio waves to gamma rays. Human eyes detect an extremely narrow band — approximately 380–700 nanometres. The rest of the spectrum is equally real and present — we simply lack the biological apparatus to detect it.

Apply this to consciousness: Universal Consciousness exists as a full spectrum — an omnipresent background analogous to the cosmic microwave background in physics. The biological brain in its current chemical state perceives only a certain narrow band. Different chemical compositions shift, narrow, expand, or entirely reorient this reception window.

The Cosmic Environment as a Real Factor

This Is Not a Metaphor

Most civilizational discussions ignore the fact that the human brain exists not in a vacuum — but in a physical environment that constantly changes.

Several real mechanisms:

Solar activity and neurochemistry. The connection between solar activity cycles and human behaviour was studied by Alexander Chizhevsky in the 1920s. His findings were inconvenient — but the physical mechanism is real.

Geomagnetic storms directly affect melatonin and serotonin. This is not astrology — it is biophysics. The pineal gland is sensitive to magnetic fields. Sharp changes in the geomagnetic background destabilise the serotonin system — and through it, social hierarchy and behaviour.

Cosmic rays and mutagenesis. During periods of reduced solar activity, more galactic cosmic rays reach the Earth's surface. This affects **mutation rates** — not catastrophically, but statistically. Over long timescales this may be a factor in accelerating evolutionary change.

Precession and changing cosmic environment. The Earth passes through different regions of the galaxy in a ~26,000-year cycle. The density of cosmic dust, the intensity of various radiations — these are not constants but variables capable of influencing the neurochemistry of the human brain, and therefore individual and collective consciousness. And accordingly, the spiritual world of a person, a specific community, and its expression in the civilizational dimension.

The Chemistry of Reception

At the molecular level, several factors determine the “tuning” of the brain:

Neurotransmitters and receptors:

Serotonin (5-HT_{2A} receptors) — psychedelics such as psilocybin and DMT bind here, significantly expanding the reception window. The pineal gland and lungs produce DMT (dimethyltryptamine) endogenously, and research by Rick Strassman suggests it may be released at birth, death, and in deep meditation.

Dietary chemistry:

Foods rich in tryptophan → serotonin → melatonin → DMT pathway. Fasting — reduces glucose metabolism, shifts the brain to ketones, measurably alters consciousness. The gut microbiome — the gut produces ~90% of the body's serotonin. The composition of gut bacteria may be a hidden variable in the tuning of consciousness.

Advaita Vedanta — the Philosophical Foundation

In Advaita, Brahman is the single, undivided, self-luminous consciousness that is the foundation of all existence. Individual minds (Jivas) are not separate from Brahman — they are Brahman, limited (conditioned by the instruments of body, mind, and ego).

Brahman = the full spectrum of Universal Consciousness. Maya (illusion) = the mistaken acceptance of a narrow band as the whole. Upadhi = the specific chemical composition of the mind-body. Moksha (liberation) = the dissolution of chemical filters – receiving the full spectrum while remaining in the body.

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II. THE NEUROCHEMISTRY OF SOCIAL STRUCTURES

Social Structure as Collective Brain Chemistry

Social structure is not merely a political or economic system. It is a collective neurochemical environment that systematically tunes its members to specific reception bands of Universal Consciousness. Different societies are not simply organised differently – they are chemically different organisms at the collective level.

Effectively, social arrangements can be reduced to Hierarchy (vertical connections) and Network (horizontal connections without a single centre). Of course, combinations in various proportions are possible.

The Neurochemistry of Hierarchy

Hierarchical societies function primarily on cortisol – the hormone of stress and threat. Constant awareness of rank creates a chronically low-level cortisol state. This literally narrows attention to survival and status; over time it reduces the hippocampus – diminishing memory, pattern recognition, and temporal depth.

Serotonin is known to track social rank in primates. High-ranking individuals have more stable serotonin. Low-ranking individuals have chronically depleted serotonin – anxiety, depression, tunnel vision. This means hierarchy chemically disrupts consciousness reception in the majority by its very design – not through suppression, but through the mere existence of rank awareness.

The Neurochemistry of Network Societies

Oxytocin – the molecule of bonding and trust – is released through touch, eye contact, shared activity, gift-giving, and shared rituals. Oxytocin literally chemically induces a mild ego permeability – dissolving boundaries between self and other. Network societies structurally maximise oxytocin-producing interactions.

Endorphins – synchronised movement, singing, dancing, drumming – all documented in network societies – release mass endorphin cascades synchronously throughout the group. This creates collective neurochemical coherence – minds clearly synchronised to similar frequencies simultaneously.

The Deeper Meaning

Hierarchy is not merely politically unjust – it is epistemologically limiting. A hierarchical society does not merely distribute resources unequally – it distributes consciousness unequally. The majority are chemically tuned to a narrow band of survival.

Hunter-gatherer and other network societies were not primitive people waiting to be civilised. They may have been communities of broader receivers — ones living in a participatory, animistic, deeply ordered reality that hierarchical civilisation cannot perceive at all, because it has chemically closed the corresponding reception windows.

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III. TRYPILLIAN CIVILIZATION

General Profile

Flourishing on the lands of modern Ukraine, Moldova, and Romania, the Trypillian culture represents one of the largest, most sophisticated, and most enigmatic civilisations of the ancient world:

- Cities of 10,000–15,000 inhabitants — among the largest on Earth at the time.
- No evidence of existential warfare for thousands of years.
- No evidence of hierarchy — no palaces, no elite burials, no centralised storage.
- Extraordinary ceramic and symbolic art.
- The practice of ritually burning entire settlements every 60–80 years.
- Predominantly female figurines in religious contexts.
- The Land of the Great Goddess.

The Network Chemistry of Trypillia

Their social architecture was almost perfectly designed to sustain a broad-reception neurochemical profile:

Settlement design:

Houses arranged in concentric circles — without a centre of power. Each household is architecturally equivalent. The central space was used for collective ritual, not administration. The circle is a profound statement: no beginning, no hierarchy, no apex. It physically encodes equality that generates oxytocin — every member equally distant from the collective centre. I emphasise: the absence of grand temples or gothic palaces does not indicate a “pre-state, pre-civilisational” level, but is on the contrary a mark of a spiritually higher society.

The 60–80-year burning cycle:

This is perhaps the most enigmatic and psychologically significant practice. Each time a whole generation came of age, an entire settlement was deliberately burned to the ground. In parallel, the community built a completely new settlement in a new location. Findings indicate these fires were ritualised — objects were carefully arranged, figurines were typically broken in half and scattered in different directions, buildings were ceremonially ignited. And before that — the hearth, the heart of the home, was ritually killed. Archaeologists have not found a single intact Trypillian hearth.

Through our lens this reads as: deliberate prevention of material accumulation. Collective renewal — rebuilding social bonds from zero. The burning itself as a chemical event — collective ritual stress followed by collective reconstruction. This is perhaps the most sophisticated anti-hierarchical technology ever devised.

Pottery as a Map of Consciousness

Trypillian ceramics are visually extraordinary — dense spirals, wave forms, interconnected flowing patterns. These patterns are universally documented in threshold psychedelic states and deep meditation. They represent the visual signature of broad-band reception — the geometric substrate of consciousness itself.

A community that collectively produces this art is a community that collectively accessed these states — not as an exotic exception, but as a cultural norm.

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IV. THE HIERARCHICAL NEUROCHEMISTRY OF THE STEPPE YAMNAYA

The Dnister-Dnipro Origin Hypothesis

Geographic Logic

The Black Sea steppe between the Dnister and Dnipro rivers is the most fertile part of the steppe zone: the highest-quality black soil, adequate rainfall, river valleys as corridors, proximity to the forest-steppe. This is not “pure survival steppe” — it is the steppe of abundance.

The further east one goes — the Don steppes, the Volga region, Kazakhstan — the more risky and less productive the environment becomes. Adapted groups could live there, but civilisational impulses would not originate there.

Sequence: Dnister → Sredny Stog → Yamnaya

Dnister burials — the earliest manifestations of the individual kurgan rite. Not yet fully Yamnaya-kurgan culture, but already a different logic of death.

Sredny Stog (~4500–3500 BCE) — the critical link. It is here that we find: the first evidence of horseback riding, the transition to pastoralism as the primary basis, the beginning of patrilineal property transmission. Sredny Stog is the laboratory where the steppe type of person emerged. Not in the Kazakh steppes, but here, between the Dnister, Dnipro, and Don.

The Neurochemistry of the Steppe Dweller: Why It Is Hierarchical

Ecology Shapes Neurobiology

The steppe environment is one of chronic unpredictability. In such an environment, natural selection reinforces:

- The dominant testosterone/cortisol axis — rapid decision-making, aggressive threat response, hierarchy as a group survival mechanism.

- Serotonin hierarchy — serotonin in social mammals is directly linked to social status. Hierarchy is not an ideology, it is a biochemical reality.
- Dopamine orientation toward the horizon — the nomadic way of life constantly activates the seeking system. The steppe dweller is literally neurochemically dependent on the new horizon.

The Neutral Corridor and Mutually Beneficial Exchange

The Neutral Corridor — a Living Map of Psychological Boundaries

Archaeology confirms that for a long time, thousands of years, a 50-kilometre buffer zone existed along the steppe/forest-steppe boundary — this is in effect a living map of psychological boundaries. This corridor is not merely geography. It is an institutionalised distance between two types of consciousness. Both sides silently agreed: no one lives here. Both sides had no reason, for the time being, for large-scale existential conflicts. Border skirmishes, misunderstandings, and internal feuds were not excluded, but these are trifles.

Ceramics as Diplomacy

The Trypillians produced specialised, simplified ceramics to order for the steppe dwellers. This is evidence of regular trade contact — not chance encounters. The Trypillians understood the aesthetics and needs of the steppe dwellers well enough to adapt the product. Simplified ceramics for nomadic life — practical, purely utilitarian, and carrying none of the expanded-consciousness symbolism that was simply absent in the steppe dwellers.

FOOD AS A NEUROCHEMICAL PROGRAMME

The nutritional systems of the Trypillians and steppe dwellers and their influence on consciousness

Soil as the Primary Factor: 7,500 Years Ago

Before speaking of food — we must speak of soil. Because 7,500 years ago, when the Trypillian civilisation flourished on the territory of modern Ukraine, the soils of this region were fundamentally different from today.

Pristine Black Soil: What This Meant Neurochemically

The Black Sea and forest-steppe black soils had never by that time experienced exhaustion. Millennia of dying and decomposing steppe grasses, countless herds of horses, wild oxen, and other animals had created a soil with exceptional characteristics:

- Trace element profile: zinc, magnesium, selenium, iodine, manganese, copper, iron — in concentrations that modern industrial soil no longer provides. These trace elements are the direct cofactors in the synthesis of neurotransmitters.
- Organic saturation: the humus layer. This meant plants with maximum concentration of secondary metabolites — polyphenols, flavonoids, antioxidants — that directly affect neuroplasticity. We know that dried herbs and roots were kept in Trypillian homes, just as they were in Ukrainian homes until very recently in time.

- Soil microbiome diversity: pristine soil contains thousands of species of microorganisms. Through plants and fermented products this microbiome diversity was transmitted to the human gut — and through the gut-brain axis — directly influenced neurochemistry.

*Modern research shows that *Mycobacterium vaccae* — a bacterium found in healthy pristine soil — upon contact activates serotonin neurons and reduces anxiety. A Trypillian woman kneading clay and working with the earth with her hands was literally receiving a daily “serotonin injection” through her skin.*

The Trypillian Diet and the Neurochemistry of Merging

Dietary Composition

An agricultural culture means primarily cereals (einkorn wheat, emmer, millet), legumes, root vegetables, mushrooms, wild herbs and berries, fermented products, honey. An abundance of river fish, from countless rivers that were then far more full-flowing than today. Ukraine is in truth a civilisation of river valleys from time immemorial. Meat — present, but not dominant, and entirely natural, with livestock grazing on natural pastures.

Neurochemical Consequences

Stable Serotonin Background

Complex carbohydrates from micronutrient-rich grain provided a steady and prolonged blood glucose level. Without sharp peaks and drops. Tryptophan from cereals — the direct precursor to serotonin. This is the genuine chemical basis of cyclical, calm, collective world perception.

90% of serotonin is produced not in the brain, but in the gut. A healthy microbiome — the result of fermented products and diverse soil — is the foundation of serotonin stability.

Fermentation as a Neurochemical Tool

The Trypillians actively used fermentation: lacto-fermented products, fermented grain beverages, soaked fruits. This provided:

- Probiotic enrichment of the gut — direct support of the gut-brain axis.
- Increased bioavailability of trace elements — fermentation breaks down phytic acid, which blocks the absorption of zinc and magnesium.
- A mild psychoactive effect of fermented beverages — relaxation, a sense of unity with the group, reduction of cortisol.

Phytoestrogens and Oxytocin Sensitivity

Legumes and some cereals contain phytoestrogens — plant analogues of oestrogen. A mild influence on hormonal balance enhanced oxytocin sensitivity — the capacity to feel connection, trust, and belonging to the group. The collectiveness of Trypillian culture is reinforced literally at the molecular level by the daily diet.

Magnesium — the Mineral of Calm

Magnesium-rich soil produced plants with high magnesium content. Magnesium is a cofactor in over 300 enzymatic reactions, including serotonin synthesis and regulation of GABA receptors — the system for inhibiting the stress response. Chronic magnesium deficiency (typical of modern humans) is chronic anxiety. Its abundance is calm and groundedness.

The Steppe Diet and the Neurochemistry of Dominance

Dietary Composition

Meat (primarily horse and beef), animal fats, blood, milk and fermented dairy products — primarily mare's milk and kumiss. Plant food was minimal and seasonal.

Neurochemical Consequences

Testosterone and Dopamine as Primary Mediators

Red meat and saturated animal fats directly support testosterone synthesis. Testosterone is the hormone of dominance, competition, hierarchical ambition, and sexual aggression. Dopamine — the neurotransmitter of seeking and reward — is also actively supported by a meat-based diet through tyrosine. Aggressiveness, hierarchical orientation, focus on prey and horizon — all encoded in the daily diet.

Cortisol as the Baseline Hormone

A diet without complex carbohydrates means an unstable glucose background. The brain responds by activating the cortisol axis — the hormone of stress and readiness. Chronic readiness for danger, heightened vigilance, a rapid aggressive response — not a psychological stance but a metabolic reality of the steppe dweller. This saved lives in the steppe.

Kumiss — Ritual Neurochemical Synchronisation

Fermented mare's milk is a separate and extraordinarily important topic. Kumiss contains:

- Mild alcohol (1–3%): reduction of cortisol, relaxation of defensive boundaries, heightened sense of group unity.
- Specific peptides from mare's milk: casomorphins — opioid-like compounds that bind to opioid receptors and produce a sense of bliss and unity.
- Probiotics: support of the microbiome, though less diverse than in the Trypillians.

The ritual consumption of kumiss before a campaign or at a council is a collective neurochemical synchronisation. Warriors entered a state of reduced anxiety, heightened cohesion, and readiness for risk simultaneously.

Magnesium and Serotonin Deficiency

A meat-based diet without micronutrient-enriched soil produced chronic deficiency of magnesium and tryptophan. This meant a structurally lower serotonin baseline — greater anxiety, impulsivity, a need for external stimulation. The horizon as a neurochemical necessity, not merely a cultural value.

V. THE GREAT COLLISION — TWO NEUROCHEMICAL CIVILIZATIONS

Two Worlds Before Contact

Around 3500 BCE, two radically different human experiments existed in immediate proximity on the Pontic landscape — in essence two different “species of consciousness” inhabiting the same geography.

The Trypillian world — broad-band receivers:

Despite the enormous size of settlements, archaeologists find no evidence of social hierarchy, large public buildings, or centralised governance. Neurochemical profile: oxytocin-dominant, stable serotonin throughout the community, theta-wave baseline, cyclical perception of time.

The steppe world — narrow-band warriors:

The steppe dwellers were Europe’s first true nomads, physically unusually large and presumably quite warlike. Their neurochemical profile is the precise opposite of the Trypillian: cortisol dominance, testosterone hierarchy, dopamine loops of status.

Two Burial Rites — Two Cosmoses

Trypillian burial in a sacred grove

The body returns to the cycle. The tree absorbs the human’s chemistry and passes it on. There is no personal point in space. This is a worldview in which:

- Time is cyclical — the person enters the great cycle.
- The boundary between the living and the dead is permeable.
- Individuality dissolves into a greater whole — the clan, nature, the earth.
- The sacred is the forest, the water, the earth — that which lives and breathes, and transmits the chemistry of elements from ancestors to descendants not only through the fact of birth, but through the inheritance of the land itself. An eternal cycle.

Steppe burial — the kurgan

A mound is raised. Visible from afar. It marks space forever. This is a worldview in which:

- The hero does not die — he is a point in space.
- Death is a transition to another dimension, but with the preservation of identity.
- Hierarchy exists even after death — the great kurgan is visible for tens of kilometres.
- The sacred is the vertical: the sky, the ancestor-heroes, power.

Two Bands of Consciousness

Trypillian — this is the consciousness of merging. Dissolution into the greater. Strength is drawn from the roots. The feminine principle as the principle of reproduction and return.

Steppe — this is the consciousness of individuation. I exist, I act, I leave a mark. The kurgan is a frozen wave of individual will. The masculine principle as the principle of breakthrough and the marking of space.

The Tragic Paradox

The Trypillian broad-band receiver was neurochemically defenceless against the narrow-band warrior. Not because the Trypillians lacked intelligence or value — but because their entire chemistry was tuned against detecting threats, competing for status, and coordinating violence, which the steppe dwellers had perfected. The very chemistry that made them better receivers of Universal Consciousness made them worse survivors against hierarchical violence.

This is perhaps the most tragic irony in the neurochemical history of humanity.

The Synthesis — What Ukraine Became

Genetic and cultural evidence shows something more complex than simple conquest. Mitochondrial DNA points to pendulum migrations back and forth — suggesting prolonged contact, mixed marriages, and gradual synthesis. Trypillian women survived and transmitted their chemical and cultural heritage through the maternal line.

This creates a Ukrainian neurochemical identity as a genuine synthesis of two opposing architectures of consciousness — carrying both within a single genome and culture.

From the Trypillian substrate:

- Spiral consciousness — the symbolism of embroidery corresponds to the symbols of Trypillian material culture.
- Cyclical perception of time.
- Network social instinct — the Hromada (community), reviving across centuries.
- Memory of the Great Goddess — transformed but persistent in folk customs, in the image of Berehynia.

From the steppe overlay:

- The structure of the Indo-European language — the very grammar of Ukrainian thought.
- The warrior archetype — the Cossack as steppe horseman, reinterpreted across millennia.
- The heavenly father pantheon — Perun the Thunderer, replacing or coexisting with the Great Goddess.

The Pysanka — a Living Fossil of Broad-Band Consciousness

The Ukrainian Easter egg — the pysanka — is perhaps the most astonishing artefact of this transmission. It is a practice maintained by grandmothers for 5,000 years: the geometric visual language of broad-band consciousness reception, preserved in wax and dye on an eggshell, passed from hand to hand through every conquest, every empire, every suppression — including the Soviet-era ban.

This resilience is not mere sentimentality. It testifies that the patterns carry something the body recognises — chemical memory encoded not only in culture, but potentially in the epigenome. The hands that create these spirals may be accessing a frequency the conscious mind has forgotten, but cellular memory has not.

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