



9-1-2020

Fitting Fractals Into Our Toolbox for Studying the Human Mind

Herb Klitzner
Independent researcher

Follow this and additional works at: <https://digitalcommons.ciis.edu/ijts-transpersonalstudies>



Part of the [Philosophy of Mind Commons](#), [Philosophy of Science Commons](#), [Religion Commons](#), [Somatic Psychology Commons](#), and the [Transpersonal Psychology Commons](#)

Recommended Citation

Klitzner, H. (2020). Fitting fractals into our toolbox for studying the human mind. *International Journal of Transpersonal Studies*, 39 (1). <http://dx.doi.org/https://doi.org/10.24972/ijts.2020.39.1-2.104>



This work is licensed under a [Creative Commons Attribution-NonCommercial-No Derivative Works 4.0 License](#). This Response to Article is brought to you for free and open access by the Journals and Newsletters at Digital Commons @ CIIS. It has been accepted for inclusion in International Journal of Transpersonal Studies by an authorized administrator of Digital Commons @ CIIS. For more information, please contact digitalcommons@ciis.edu.

Fitting Fractals Into Our Toolbox for Studying the Human Mind

Cover Page Footnote

N/A

Fitting Fractals Into Our Toolbox for Studying the Human Mind

(Commentary on Marks-Tarlow's "A Fractal Epistemology for Transpersonal Psychology")

Herb Klitzner

Independent Researcher,
New York City, NY, USA

How do we actually apply Terry Marks-Tarlow's (this issue, and subsequent references refer to this paper unless dated otherwise) deep insight that mathematical fractals can offer a measurable, orienting model to characterize transpersonal phenomena and issues?

Do we approach the problem mathematically, fitting parameters in our model? Or, alternatively, do we approach fractals as a characterization, an insight into a special form of complex, patterned, dynamic behavior? Does our choice depend on the context?

The path of developing transpersonal applications of fractals requires the build-up of intuition and judgment in relating specific fractal function classes to specific transpersonal psychology case types; experimentation with conventions and templates; and the creation of case-history reference points and the gradual emergence of "canonical textures and distinctions" (distinctive, useful qualities in objects studied) in order to gain perspective on the subject matter, just as happens in traditional mathematics and other forms of intellectual exploration.

In mathematics, types are used to give clarity and meaning to differences between types of mathematical processes, such as those associated with cardinal versus ordinal numbers; different dimensionalities of spaces and objects, and their consequences (e.g. there are no knot problems in 4D spaces); and even dimensionality of sets for generating fractal patterns (Mandelbrot sets, which 2D, yield simple repetition of patterns at each level of zooming in; Julia sets are 4D and produce more complex patterns).

Also, as an aside, one additional interesting approach could be the use of AI pattern-searching of fractal-model classes of output to help answer these questions, such as classification of patterns and textures in the domain of transpersonal happenings and objects.

Fractal Epistemology and Paradigm Shifts

Now let us look closer look at what we are doing in creating an epistemology using fractals. Imagine structures and perspectives for *seeing what was previously strange, but now is seen in an orderly and motivated way*: This characterization describes the functioning of both fractal epistemology in transpersonal psychology and paradigm shift in science. Marks-Tarlow's paper enlarges a tradition started by Benoit Mandelbrot and touches base with another tradition begun by Michael Polanyi (brilliant chemist, philosopher of science, and sociologist of science) and distilled by Thomas Kuhn in *The Structure of Scientific Revolutions* (Kuhn, 1996). I will have more to say about Polanyi later.

Marks-Tarlow's fractal-mathematical paradigm is a very good one, and is very clearly stated. It fits the requirements she set down for a workable epistemology candidate that is objective, in terms of offering a theoretically measurable object, and has an unlimited depth for what is being measured or observed. It pushes the door of science open wider into human experience, and it lets more focused light and new images into transpersonal psychology.

The question will be how to apply it – by analogy, by model-building, or by a combination of both of these being available via a palette to capture the qualities and behavior of the specific type of case at hand.

The key factor seems to be "do we need to deal with in detail with behavior, studying and predicting it, or do we simply want to legitimate and better understand a system by analogy as having fractal-like processes and relationships?"

- In the first case, modeling, we would want to use an operational model with appropriate

software tools. This lets us approach (1) making comparisons, (2) developing intuition – a feel for different types of objects and processes, and (3) determining relevant associated variables.

- In the second case, analogy, we would use description and analysis to show fractal structure and specific fractal properties. How many properties? Which ones are crucial? Partial dimensionality and coming close to filling a space? Repeated patterns at every level of scale or development? Unlimited number of levels?

What is a good way to develop intuition and judgment in these things? Here is one approach: how would a cross-section of classical transpersonal cases look under the following analytical tasks?

- Which would fit the operating model case view better, and which the analogy case of simply relevant fractal properties?
- How might fractal textural pattern clusters such as sub-families or be constructed from the cross-section, and how might they look and feel?
- What insights would contrasts of different *knowledge-domain types* yield, in terms of texture differences or model/analogy suitability dichotomies?

In the longer view, the software tools will start out by using standard, familiar fractal tools. But, with experience, these tools can be customized to the needs and nature of transpersonal objects and questions.

In essence, the value of these tools is that they facilitate comparisons of transpersonal phenomena and relationships in a common measurable, relatable space motivated by fractals.

Why should this this mathematical/conceptual space be creatable and why should these comparisons succeed in advancing scientific knowledge? To remind the reader, the whole point of advocating fractals as an epistemology framework for transpersonal psychology questions and findings is that these *tend to involve rich borders*, and that fractal thinking has often been found to be useful for exploring and representing such environments.

Space, Time, and Borders

The concept of dynamically revealing borders is central to fractals and to transpersonal psychology.

Before dealing fractally with transpersonal psychology, Marks-Tarlow dealt extensively with interpersonal psychology and the process of people exploring the infinitely deep borders between them in the article, “Fractal Geometry as a Bridge between Realms” (Marks-Tarlow, 2013), and the book, *Psyche’s Veil* (Marks-Tarlow, 2008).

Borders of time in memory can also be porous and distributed in a transpersonal context. Marks-Tarlow describes this as “transpersonal in the literal sense of the word, in occurring in the cultural space between people” (T. Marks-Tarlow, personal communication, September 28, 2017). We apparently have mind processes to navigate, interpret, and contribute to cultural space.

Below, in the same personal communication, Marks-Tarlow gives us a clinical example of memory and boundaries the time dimension:

Synchronistically, I just had a session where we were talking about impulses to take seconds in a Jewish family, in the presence of other people, possibly being an epigenetic residue of ancestral memory of being in the camps and starving. So, when we add non-conscious levels to memory, we get even longer time stamps in these fractal edges! (T. Marks-Tarlow, personal communication, September 28, 2017)

So boundaries of time may behave fractally in memory, as do infinite and porous interpersonal *boundaries of space*.

Here is another time dimension example from a lecture I attended at the *University Seminar on Cultural Memory* at Columbia University in the fall of 2017.

The speaker was a researcher from France, Ruth Zylberman. She is a novelist and film-maker, drawing autobiographically to tell her novel, *The Department of Missing Persons: A Novel* (Zylberman, 2017) on her memory of her interactions with her mother, who experienced being deported and sent to Bergen-Belsen camp at age 5 with her own

mother, Ruth's grandmother. One question raised in the seminar discussion by someone was about the *boundary of endings*. Ruth was asked when she was able (and by implication, others) to put her vicarious holocaust experience (and her accompanying self-consciousness of being somehow different) behind her, and move on: Was it 1945 – liberation? 1971 – Mitterrand's declarations and actions? Another date? Ruth answered that it was *all* of these – it was not a single point.

This reminded me strongly of fractal interpersonal boundaries that get explored. Here the context is not a relationship between two individuals, but an individual and her culture and society. I believe this extends our available examples and prototypes thus far of fractal-boundary-processes within social relationships.

Cognitive mechanisms dealing with constructing and perceiving space, relative distance, the extended present, and the self as imbedded at the center of space, have an important anchor in the inferior parietal lobe (IPL) region of the parietal lobe, according to Arnold Trehub (Trehub, 1994, 2007, 2013). The IPL is the staging area for a 4D integration of sensory information concerning an object. It is 4D because it is composed of autaptic cells that contain neural structures that leave and re-enter the same cell, creating a sense of an "extended present", with multiple integrated experiences of the same moment or session:

Thanks for your interest. I'm not knowledgeable enough to respond to your detailed observations about music, but I must point out that all autaptic-cell activity in retinoid space is 4D because autaptic neurons have short-term memory. This means that there is always some degree of temporal binding of events that are "now" happening and events that happened before "now". The temporal span of such binding probably varies as a function of diffuse activation/arousal. The temporal envelope of autaptic-cell excitation and decay defines our extended present. This enables us to understand sentences and tunes. (A. Trehub, personal communication, December 2, 2014)

I think it is likely that the IPL region of the brain, in concert with other regions, is engaged in

some form of fractal processing involving the layerings of the extended present. Also, the psychological distance of objects to us, are perhaps explored via the IPL in the process of relating these objects to us, emotionally and functionally. For example, Carl Jung said that reality is filtered by archetypes in order to establish meaning in the reality:

This notion [atoms] had its origin in archetypal ideas, that is, in primordial images which were never reflections of physical events but are spontaneous products of the psychic factor. Despite the materialistic tendency to understand the psyche as a mere reflection or imprint of physical and chemical processes, there is not a single proof of this hypothesis. Quite the contrary, innumerable facts prove that the psyche translates physical processes into sequences of images *which have hardly any recognizable connection with the objective process* [emphasis added]. (Jung, 1959, pp. 57–58)

The brain in some cases can function as a mathematical generator of objects. Jack Cowan in (Cowan, 2013) demonstrated this with respect to subjects' generating various geometric mental images under the influence of hallucinogenic substances in a rest state.

My conjecture is that the brain may produce mental fractal mathematics of objects or environments under the right conditions. These objects could take on a spatial form, or could give a sense of state of being of "knowing" another realm or person in a new way.

These could account for some of the unusual states of mind and awareness reported in some transpersonal studies and theory. They could account for a mystic sense of receptiveness and passivity, and being in touch with exceptional experiences, such as reported by Emerson (Andrews, 2017) about the qualities felt in his mystical experience during his walk across Boston Commons, or similar images in reported dream materials analyzed by Carl Jung in (Jung, 1959), drawn from European theological history. These are discussed below.

Emerson and Jung

Now I will describe mysticism in relation to Emerson, and then in relation to Jung. Rev. Barry Andrews, a talented and enquiring retired

minister from the Unitarian-Universalist congregation I attend on Long Island, and an authority on Emerson, published an article on the modern nature of Emerson's mystical experience and ideas. The publication was in the journal *Religions* in 2017, titled "That Which Was Ecstasy Shall Become Daily Bread." (Andrews, 2017).

Andrews' main point was that Emerson was a modern mystic, as defined by the norms which emerged by 1975. He believed that the divinity and the mystical experience lived in the human consciousness, or more broadly, in Jung's terms, the psyche. By contrast, divinity, or the higher principles of the universe, did not live in an external supernatural realm, the focus of some types of traditional mysticism, but in the specialness and receptiveness of the human mind. Furthermore, Emerson believed that anyone could have a mystical experience, not just a few extraordinary and well-trained people, and that the depth of the experience would range from cozy-warm to very hot. Emerson wrote:

We stand on the edge of all that is great yet are restrained in inactivity and unacquaintance with our powers. ... We are always on the brink of an ocean into which we do not yet swim. ... We are in the precincts, never admitted. There is much preparation—great ado of machinery, plans of life, travelling, studies, profession, solitude, often with little fruit. But suddenly in any place, in the street, in the chamber, will the heaven open, and the regions of wisdom be uncovered, as if to show how thin the veil, how null the circumstances. As quickly, a Lethean stream washes through us and bereaves us of ourselves.

What a benefit if a rule could be given whereby the mind, dreaming amidst the gross fogs of matter, could at any moment east itself and find the sun. But the common life is an endless succession of phantasms. And long after we have deemed ourselves recovered and sound, light breaks in upon us and we find we have yet had no sane hour (Emerson, 1960–1982, pp. 274–275).

Almost a hundred years later, Jung examined the written accounts of dreams of theologians and others, and expanded the forbidding water plus wind-or-stream motif of the unconscious that I described above for Emerson in terms of "on the brink of an

ocean into which we do not yet swim" (Andrews, 2017, p.3) and "a Lethean [*forgetting yourself*] stream washes through us." (Andrews, 2017, p.3). Jung wrote:

A Protestant theologian often dreamed the same dream: *He stood on a mountain slope with a deep valley below and in it a dark lake. He knew in the dream that something had always prevented him from approaching the lake. This time he resolved to go to the water. As he approached the shore, everything grew uncanny, and a gust of wind suddenly rushed over the face of the water. He was seized by a panic fear, and awoke.*

This dream shows us the natural symbolism. The dreamer descends into his own depths, and the way leads him to the mysterious water. And now there occurs the miracle of the pool of Bethesda: an angel comes down and touches the water, endowing it with a healing power. In the dream it is the wind, the pneuma, which bloweth where it listeth. Man's descent to the water is needed in order to evoke the miracle of its coming to life. But the breath of the spirit rushing over the dark water is uncanny, like everything whose cause we do not know – since it is *not ourselves* [*emphasis provided*]. It hints at an unseen presence, a numen to which neither human expectations nor the machinations of the will have given life. It lives of itself, and a shudder runs through the man who thought that "spirit" was merely what he believes, what he makes himself, what is said in books, and or what people talk about. ...

Yes, that erstwhile fiery spirit has made a descent to the realm of nature, to the trees and rocks and waters of the psyche, like the old man in Nietzsche's *Zarathustra*, who, wearied of humankind, withdrew into the forest to growl with the bears in honor of the Creator.

We must surely go the way of the waters, which always tend downward, if we would raise up the treasure, the precious heritage of the father....

Water is the commonest symbol for the unconscious. The lake in the valley is the unconscious, which lies, as it were, underneath consciousness.... (Jung, 1959, p. 17)

My theme throughout has been exploring borders—the conscious and unconscious; the old and new system of knowledge and information processing; and the border between one individual and another. And in the future, our culture’s individuals will explore the border between the human biological mind and body, and artificial intelligence processes in computers and robots.

**Polanyi and Damasio:
Personal Knowledge, Elementary Knowledge,
and Bridging of Borders**

Polanyi wrote a pivotal book in 1958 entitled *Personal Knowledge*, describing how our individual knowledge is neither objective nor subjective knowledge, but is an intermediate state combining aspects of the two, called *personal knowledge* – that is, knowledge that is qualified by external rule-based means but is also committed to by the person, who asserts his/her belief that the knowledge statement is true. This could be based on, for example, his understanding of the reliability of the people who generated the knowledge statement. We can say there is a dynamic border between subjective and objective.

This resonates with the ideas of Antonio Damasio (2012), who has combined science and humanism in his work. Damasio has a model of the nature and formation of *elementary knowledge*—he says it is a synthesis of cortical and body state images created by the thalamus (which is sometimes likened to a comprehensive switchboard and data-transformation device for the brain).

Elementary knowledge (based on elementary experience) is created out of fine-detail sensory cortex images and simple-detail body state images, whose formats are very different and inaccessible to each other’s coding system and strategy. The thalamus bridges this gap through its transformational abilities—it creates the experiencing of cause (external sensory object image) and effect (altered body state image, expressed in the form of a delta of body-state images *before* and *after* an event).

Fractal processes and transpersonal effects are both suggested in Damasio’s model of the role of the thalamus in dynamically linking two brain

regions that need a resourceful broker that can bridge the border between the two different realms.

Putting together Polanyi’s and Damasio’s view of the bedrock view of “knowledges,” it is evident that comprehensive brain mechanisms must work to bridge borders between *inner* realms of self-sensing and *external* realms and their meanings. One of the consequences is the need for periodic paradigm shifts. Another consequence is the need for cognitive-perceptual tools resembling fractal processes to dynamically bridge *differences in realms* using exploratory strategies.

Cognitively, the IPL integrated-image “staging” area of the parietal lobe and the transformational-connective thalamus appear to have roles in this process. The control and switching functions needed for such resources may come from another quarter. My candidate for neural controlling of perspectival switching is chiral quaternions (Marks-Tarlow, Hay, & Klitzner, 2015).

Quaternions are useful in that they can perform space transformations that change perspective. Two basic kinds of visual perspective change are possible—measured rotation of spatial attitude/orientation, such as 180° (i.e., facing backward), and inside/outside reversal, such that being on the outside face of a cube now places you on the inside of the same face. This action is represented by multiplying by the transformation element -1. *Note: Multiplying by the +1 transformation element leaves everything unchanged, and is called the identity element, because it preserves identity.*

Inside and Outside

One of the key bridging of borders takes place in the context of *inside* and *outside*.

We usually think of the inside and outside of ourselves as a physical border situation, but we also can think of the inside and outside of us emotionally – referring to our own inside feelings and another person’s inside feelings which are outside of us – in which a “psychological space” exists in-between them.

The following quote from the well-crafted *Mirror of Intimacy* blog captures the meaning of this for people who have a feeling of considerable closeness:

“Everyone wants more than anything to be allowed into someone else’s most secret self. Everyone wants to allow someone into their most secret self...(Aidan Chambers).

In the spaces between two people who share familiarity and closeness, lives intimacy. A vibrant atmosphere that weaves connection, mutual understanding, and the sense that the other perceives you as nobody else does--these ingredients make the heady cocktail out of which love and eroticism emerge...

Intimacy reveals our inmost self--our inner sanctum which we ourselves often discover only in communion with another...

Such openness can be frightening because there’s the possibility we’ll discover something unsavory, distorted, or out of sync with whom we think we are lurking in the corners of our psyches. Courage is a requisite for this most intimate of all tasks, as are a willingness to venture into the depths of the unknown and the faith that we will emerge changed for the better. (Katehakis, 2017, Erotic Intimacy entry [emphasis added])

One of the wonderful challenges to applying fractal epistemology will be to find the right combination of tools to apply—such as which types of fractals and which types of other basic tools to use such as quaternions -- to express the development of the kinds of relationships described above. Something similar can be said of other deep relationships – for example, parent and child, and teacher/mentor and student/disciple.

A Synchronistic Transpersonal Case Involving Inside and Outside

Earlier, I described how the thalamus was the bridge between two realms of the brain – sensory/cortical and body status monitoring. If we look at synchronistic experience involving one person somehow becoming aware of a worry or a threatened condition of a close friend or relative, and the nature of the possible communication involved, I believe we should focus not on the sensory/cortical structures,

and processes such as telepathic-message bit-rates, but rather focus on the body status structure and the operation of a form of quantum entanglement based on a partially-shared perceived identity. I believe that our brain representation of our body status transforms an outside identity to an inside identity – a psychological part of us that triggers an alert when there is a significant problem in a person close to us. Their closeness shrinks to a distance of zero under the right circumstances.

The significance here of having a fractal epistemology for transpersonal psychology is that it can *send us off to the thalamus bridge environment to create a metaphor or model for fractal attributes and processes* that can then connect with others we know of in the body, and eventually build a “body/brain/mind atlas” of interconnecting fractal processes and related universal-transformative processes involving quaternions and other transformatively rich mathematical assets. This will help transpersonal psychology models to generalize and for our theories to evolve and be connectable.

The Transpersonal Space Between Social Robots and People

Modeling the transpersonal relational space between social robots and people will eventually materialize as a research pursuit, and will fit in well with our research strategy above. It is the next frontier.

Empathy has been described as the number one design goal for social robots today. This is true for the Social Robotics Group at M.I.T. and the crowdfunded startup company, Jibo, Inc. Both are led by Cynthia Breazeal (Breazeal, 2010, 2014). Social robot capacities of expression and empathic-like behavior can be seen in a sample of imaginatively conceived experimental social robots in action in videos by Ryan Wistort (2010a, 2010b), who is a member of the Social Robotics Group.

Fractal aspects of social robot design and behavior should be analyzed for clues of robot-person interaction with respect to effectiveness, robustness, and generativity of the exchange.

It would be good to know the following: In what ways are robots and people fractally alike? In what ways are they fractally different? And how do

they fractally interact? The fractal filter could add new insights and data to our existing research on social robots, people, empathy, and social exchange and demonstrate the power of this approach.

References

- Andrews, B. M. (2017). That which was ecstasy shall become daily bread. *Religions*, 8(75), 1–18. <https://doi.org/10.3390/rel8040075>. Retrieved from www.mdpi.com/journal/religions
- Breazeal, C. (2010). The rise of personal robots (TED conference presentation). Retrieved from https://www.ted.com/talks/cynthia_breazeal_the_rise_of_personal_robots
- Breazeal, C. (2014). Jibo: The world's first robot for the home. Notes: Jibo, Inc. Retrieved from <https://youtu.be/3N1Q8oFpX1Y> (3:13)
- Cowan, J. (2013). Psychedelics research discussion 8/10. Retrieved from <https://www.youtube.com/watch?v=TqxQ4Z-I7kY>
- Damasio, A. (2012). *Self comes to mind*. Vintage Books.
- Emerson, R. W. (1960–1982). In W. H. Gilman, A. R. Ferguson, G. P. Clark, & M. R. Davis (Eds.), *The Journals and Miscellaneous Notebooks of Ralph Waldo Emerson* (Vol. 5). Cambridge, MA: Harvard University Press.
- Jung, C. G. (1959). The archetypes and the collective unconscious. In H. Read et al. (Series Eds.) *Collected Works of C.G. Jung* (Vol. 9, Part 1 Chps. 1–3, pp. 3–72). Princeton University Press.
- Katehatis, A. (2014). Erotic intimacy. *Mirror of intimacy: Daily reflections on emotional and erotic intelligence*. Alexandra Katehatis. Retrieved from www.centerforhealthysex.com
- Kuhn, T. S. (1996). *The structure of scientific revolutions* (3rd ed.). University of Chicago Press.
- Marks-Tarlow, T. (2008). *Psyche's veil*. Routledge.
- Marks-Tarlow, T. (2013). Fractal geometry as a bridge between realms. In F. Orsucci & N. Sala (Eds.), *Complexity science, living systems, and reflexing interfaces: New models and perspectives*. IGI Global.
- Marks-Tarlow, T. (2020). A fractal epistemology for transpersonal psychology. *International Journal of Transpersonal Studies*, 39(1–2), 55–71 (this issue). <https://doi.org/10.24972/ijts.2020.39.1-2.55>
- Marks-Tarlow, T., Hay, M., & Klitzner, H. (2015). Quaternions, chirality, exchange interactions: A new tool for neuroscience? *Newsletter of the Society for Chaos Theory in Psychology and Life Sciences*, 23(1), 8–14. Notes: October, feature article. Retrieved from https://www.researchgate.net/publication/284300243_QUATERNIONS_CHIRALITY_EXCHANGE_INTERACTIONS_A_NEW_TOOL_FOR_NEUROSCIENCE
- Trehub, A. (1994). *The cognitive brain*. MIT Press. Retrieved from <http://www.amazon.com/The-Cognitive-Brain-Bradford-Books/dp/0262700492>
- Trehub, A. (2007). Space, self, and the theater of consciousness. *Consciousness and Cognition*, 16, 310–330. Retrieved from <http://people.umass.edu/trehub/YCCOG828%20copy.pdf>
- Trehub, A. (2013). Where am I? Redux. *Journal of Consciousness Studies*, 20, (1–2), 207–225. Retrieved from https://www.researchgate.net/publication/236952250_Where_Am_I_Redux <http://www.ingentaconnect.com/content/imp/jcs/2013/00000020/F0020001/art00011>
- Wistort, R. (2010a). *Introducing Mochi*. Social Robotics Group, MIT Media Lab. Retrieved from <https://vimeo.com/4197879> (1:02)
- Wistort, R. (2010b). Introducing tofu mini. Social Robotics Group, MIT Media Lab. Retrieved from <https://vimeo.com/6409030?from=outro-embed> (1:27)
- Zylberman, R. (2017). *The department of missing persons: A novel*. Arcade.

About the Author

Herb Klitzner, MPhil, is an independent researcher, computer scientist, mathematician, personal technology market forecaster and theorizer, and amateur historian, with advanced training in cognition and learning. With T. Marks-Tarlow and M. Hay, he co-authored, “Quaternions, Chirality, Exchange Interactions: A New Tool for Neuroscience?” which appeared as the feature article in 2015 of the Newsletter of The Society for Chaos Theory in Psychology & Life Sciences. His commentary is entitled “Fitting Fractals into

Our Toolbox for Studying the Human Mind” urges “experimentation with conventions and templates, and the creation of case-history reference points and the gradual emergence of “canonical textures and distinctions” (distinctive, useful qualities in objects studied), in order to gain perspective on the subject matter, just as happens in traditional mathematics and other forms of intellectual exploration.”

About the Journal

The *International Journal of Transpersonal Studies* is a peer-reviewed academic journal in print since 1981. It is sponsored by the California Institute of Integral Studies, published by Floragrades Foundation, and serves as the official publication of the International Transpersonal Association. The journal is available online at www.transpersonalstudies.org, and in print through www.lulu.com (search for IJTS).