Dear Listserve members!

We welcome to our mailing list: Kenneth Gergen, Richard Bargdill, Xuefu Wang, Michael Jawer, Sandy Rosenberg, Dan Gaylinn, Rubye Cervelli, Chelsea Rose Sargent and Ami Ronnberg. Our small group is growing larger! Also, note the new name of our newsletter.

We are pleased to include an article and some further information on Michael Jawer and are hoping to hear from some other new members in our next mailing. As always, we welcome any input from members of this list. Ilene is off to Israel for a month in July, so no doubt will have plenty of news for us next time.

Best wishes,
Ilene and Heather

IN THIS NEWSLETTER:  
APA events  
Michael Jawer bio  
Book Review: *Trauma, Tragedy, Therapy*  
Embodied Learning : a Reflection  
Mature Brains Take on Immature Brains and the Winner is?!  
Aras/Arts and Psyche Online Journal  
Qualitative Inquiry – a message from Kenneth Gergen  
Attachments: *Advances* Interview with Michael Jawer  
Aras book flyer

*APA EVENTS*

*The following proposal has been approved for Continuing Education units for Division 32:

**Whole Person Healthcare: Tool Kits**

2010 APA Convention  
Sponsored by Div. 32; co-sponsored by Div. 42, Div. 10  
**Date/Time:** Friday, 8/10, 8-9:50AM  
**Place:** San Diego Convention Center, Rm. 3
Chairs: Ilene Serlin and James Bray
Participants: Kirwan Rockefeller: Using Guided Imagery  
Richard Harvey: Biofeedback Stress Profile  
Jeffrey E. Evans: Incorporating Creativity into Clinical Practice
Discussant: Melba J T Vasquez

Integrative therapies have become increasingly popular in clinical and psychotherapeutic settings, complementing traditional medical and psychotherapeutic practices. A whole person approach brings psychologists into a collaborative relationship with other health professionals, and can introduce integrative methods from a uniquely psychological perspective. While integrative psychology is a field that is ripe for clinicians, most clinicians are not trained in how to integrate these techniques into their ongoing therapeutic practices.

This workshop, therefore, teaches clinicians basic whole person psychology and integrative Tool Kit practices. It is based on the textbook Whole Person Healthcare’s foundation in research and theory. Whole person healthcare integrates the best of medical and psychological practices into a biopsychosocialspiritual model. While traditional psychology has celebrated the Decade of Behavior and the Year of Cognition, it is now time for a psychology of the whole person, which integrates behavior, cognition, and consciousness—body, mind, and spirit. It looks at the impact of life-style on health issues and educates patients to be informed consumers who practice prevention and make changes in their lives toward self-care and health. It relies on experiential as well as theoretical learning and utilizes symbolic and nonverbal as well as linear and verbal modes of expression, data gathering, and verification. It embraces diversity in all its aspects: cultural, interdisciplinary, and methodological. A psychological approach to whole person healthcare begins with the primacy of the human relationship and the therapeutic process. It looks at the meaning of symptoms, and their biological and behavioral causes. It helps people with a broad spectrum of medical conditions, as well as reducing stress and enhancing personal effectiveness through methods such as meditation, imagery, biofeedback, movement and art.

This workshop will teach practitioners how to integrate simple whole person approaches into their ongoing clinical practices through lecture, demonstration, and experiential exercises.

(1) Using Guided Imagery

Guided imagery is a term used to describe a simultaneous information processing mode which underlies the holistic, synthetic, pattern thinking of the unconscious mind. As a mental thought process, guided imagery has sensory elements; guided imagery is something we see, hear, taste, smell, touch or feel. Guided imagery has been shown to affect almost all physiologic control systems of the body including respiration, heart rate, blood pressure, metabolic rates in cells, gastrointestinal mobility and secretion, sexual function, cortisol levels, blood lipids, and even immunity responsiveness. Guided imagery has an ancient
lineage for healing that applies across a wide diversity of cultures. The benefits of healing imagery are evident in Ayurvedic, Chinese, Japanese, European, Native American and various indigenous healing cultures. Indeed, what some in the United States call 'alternative medicine' constitutes primary health care for 80% of humans worldwide."

The dramatic consumer increase in and use of complementary and alternative treatments attests to a paradigm shift incorporating a holistic approach to integrated healthcare, prevention and wellness. Guided imagery often ranks high within lists of the most popular and accessible integrative modalities that resonate across different sociocultural ethnicities.

(2) Biofeedback Stress Profile

Profiling the human stress response in a clinical setting provides for both training personal awareness of stress as well as learning about biofeedback principles. For example, visibly displaying a response to a stressful task not only brings insight, but also awareness of HOW MUCH overexertion is occurring in areas such as muscle tension. This part of the workshop explores step-by-step methods for profiling stress. It covers theory, such as why the sequence of tasks matters during a stress profile protocol. It also covers practice, focusing on learning clinical skills such as sensor placement as well as on skills for building rapport. Whereas clinical biofeedback usually focuses on treating symptoms, such as increasing circulation for people with cold hands, or increasing muscle strength for people in need of occupational therapy, biofeedback also assists people with enhancing their performance, such as achieving a deeper state of meditative consciousness using brain-wave training, or improving a variety of performance characteristics in sports. Whole person health care has a useful tool in biofeedback protocols that complement existing cognitive and behavioral psychotherapies.

(3) Incorporating Creativity into Clinical Practice

This talk presents a way of thinking about the creative process that serves as a guide to incorporating the concept of creativity into clinical practice, teaching and self-development. Inspired by Graham Wallas’s (1926) classic stage model of the creative process in science and mathematics, we update the language and extend that model to increase its applicability to the arts. Wallas’s four stages are Preparation, Incubation, Illumination and Verification, which we modify as Inspiration, Preparation, Incubation, Insight, Execution, and Evaluation. Also, in keeping with not taking stages of psychological development too literally, we replace “stages” with the term “moments,” recognizing that realistically, actual creative activity involves states of mind that are not sequential and always the same, but rather are recursive and dependent on the person, the medium and the context. In further modification of Wallas, these moments are also plastic. That is, they can be applied broadly, to the “big picture” of a creative endeavor over days, months, or years; they can also be applied more narrowly to a single session in the studio or even to a few minutes of work. In this talk we will define these moments and illustrate them with examples from a variety of perspectives – broad and narrow. We will discuss the utility of naming and defining these moments as breaking down the complex concept of creativity into states of consciousness and behaviors, recognizable as what people actually do when they create, and as skills that
Whole Person Healthcare understands the psyche as part of a whole that includes the body, other people, and forces larger than the self. In this workshop, Michael Jawer provides a radical alternative to conventional psychology by showing how aspects of the psyche, particularly its ways of knowing, lie in what we feel in our bodies. His research demonstrates new ways that emotions affect our health and conditions such as fibromyalgia and allergies.

Do you have clients who seem extraordinarily sensitive – who are highly reactive physically and emotionally, and who may be susceptible to “psychosomatic” distress in the form of allergies, chronic fatigue syndrome, fibromyalgia, migraine, irritable bowel syndrome, and similar complaints?

Evidence gathered by speaker Michael Jawer suggests that highly sensitive individuals become that way through a combination of nature and nurture. Not only are they more...
environmentally sensitive than the norm but also more suggestible, fantasy prone and have a more “thin-boundary” personality overall. Intriguingly, these are the same people who are prone to anomalous perceptions and compelling spiritual experiences.

Could such predilections be explained through a close examination of our biological processes – the way our brains and bodies are linked and the flow of emotion that characterizes our existence?

Author and researcher Michael Jawer believes so. In tandem with Marc Micozzi, MD, PhD, a pioneer in the field of complementary and alternative medicine, he has produced *The Spiritual Anatomy of Emotion* (Park Street Press, 2009), a book that considers the whole person – the embodied person – as the key to a host of perennally puzzling conditions.

Contemporary neuroscience suggests that the brain is the be-all and end-all of the human being. *The Spiritual Anatomy of Emotion* proposes otherwise: that what we feel in our bodies, and the energy that moves us, is of greatest import in assessing our perceptions and understanding our personalities. People differ in what they sense and literally how they feel. Those differences may be crucial in coming to understand phenomena ranging from phantom pain and PTSD to apparitional and so-called “out of body” experiences.

*The Spiritual Anatomy of Emotion* has received strong reviews and endorsements from the likes of Andrew Weil, Larry Dossey, and Stanley Krippner. It has been the subject of articles and interviews in *Spirituality & Health, Advances in Mind-Body Medicine,* and *Psychology Today.* (The book is also slated for review in *PsycCritiques.*) Jawer’s talk in the Society’s hospitality suite at the APA convention will enable psychology professionals to more fully consider the importance of body-based personality differences – and the role of emotion itself – in certain people’s extraordinary sensitivities. Questions will be welcomed and discussion encouraged. More information is available at [www.emotiongateway.com](http://www.emotiongateway.com).
“In its zealousness to explore the brain, contemporary neuroscience is missing the boat – namely the body,” asserts emotion researcher Michael Jawer in The Spiritual Anatomy of Emotion. “Of even greater importance than the brain is the degree of connectedness between head, heart, and all the bodily systems. That’s the real key to personality, and to the quality of our lives.”

Jawer has spent the past 10 years delving into the subject of how bodily feeling underlies consciousness – and how the energy of feelings plays an integral role in immunity, stress reactions, and numerous psychosomatic conditions, including migraine headache, synesthesia (overlapping senses), chronic fatigue, phantom pain, and post-traumatic stress disorder. Most startlingly, he and his coauthor, Marc Micozzzi, MD, PhD, argue that paranormal perception -- apparitions, telepathy, poltergeist disturbances, and ‘out of body’ experience -- also arises from distortions in the way individuals process feeling. “Although they have long resisted explanation, each of these phenomena involves a discernable pattern and is amenable to scientific inquiry,” Jawer posits.

A professional communicator, Jawer has, over the last twenty years, written on diverse subjects for trade and professional associations as well as the Federal government. His guidebooks have sold more than 75,000 copies...he has been quoted in the Wall Street Journal and New York Times...he has presented to scores of audiences nationwide...and composed remarks delivered verbatim by a sitting U.S. President. His success stems from the ability to master specialized knowledge, frame it in a way that makes it widely understandable, and put it across compellingly.

Jawer has diligently applied this strength in the development of The Spiritual Anatomy of Emotion. Sifting through reams of research in disciplines ranging from biology to
anthropology, he consulted with numerous scientific authorities and conducted his own research – findings that have been published in a trio of peer-reviewed journals. The result is an entirely fresh take on the mind, on emotion, on immunity -- on all the elements that make us sentient and, indeed, human.

Jawer’s thesis came together gradually, and from a most unlikely source. In the course of his ‘day job’ at the time – which was developing indoor air quality guidance for office building owners and managers – he was researching so-called Sick Building Syndrome and another poorly understood condition called Multiple Chemical Sensitivity. (In the former, groups of people feel unwell inside buildings for no immediately discernable reason; in the latter, people claim to be ‘allergic’ to trace amounts of chemicals, aromas, even electricity.) Jawer read various accounts and went on to speak with people who said they were affected by these conditions. Rather than chalk up their complaints to a hyperactive imagination or some shade of mental illness, he suspected they might have a threshold sensitivity much lower than average. When several individuals confided to him that they’d had apparitional experiences, the wheels started turning.

Since then, Jawer has delved deeply into the possibility that a variety of odd sensitivities may have a common neurobiological foundation – stemming at least as much from the body as the vaunted brain. The Spiritual Anatomy of Emotion blends cutting-edge scientific concepts, first-person accounts, and systematically gathered data into a pioneering explanation of perceptions that people have had for centuries, and yet have been told by science to ignore, doubt or dismiss. “By taking renewed account of our bodily senses, bodily energy and bodily feeling, we have the means to understand experiences that would otherwise elude and confound us,” Jawer believes.

The Spiritual Anatomy of Emotion supplies a bold and timely counter to neuroscience’s assertion that the brain rules the body and alone determines the self. But the mind is not solely mental, emphasizes Jawer. “The bedrock determinant of who we are is our sensory apparatus, the experiences that inform us, and the flow of feeling that literally moves us.” The Spiritual Anatomy of Emotion offers a fresh – and much needed – market adjustment to the brain-dominated worldview of our age.

Jawer resides with his wife and children in suburban Washington, D.C.

Trauma and the Arts

A Review of
Trauma, Tragedy, Therapy: The Arts and Human Suffering

Reviewed by
Ilene Serlin

Trauma, Tragedy, Therapy: The Arts and Human Suffering is a beautifully poetic title for a book that looks at the role of the arts in working with trauma and human suffering. I believe that this book, and this approach, should be required in all trauma curricula. In my own experience working with trauma as a psychologist and dance therapist, I see over and over the power of the arts to reach, express, and transform human suffering (Serlin, 2009a). With troops returning from Iraq and new deployments in Afghanistan, it is imperative to find new and creative ways to work with trauma. The expressive arts therapies are a cost-effective, noninvasive, hopeful new possibility (Serlin, 2007).

Levine introduces his book with an artful challenge to the dominant scientific paradigm on which trauma studies are based. This dominant paradigm is scientistic and produces psychotherapy outcome measures that are based on quantity rather than quality. Its outcome measures are reductionistic and extract “treatments” out of the context of real-life experience. These treatments are based on the old Cartesian mind/body dichotomy, are expressed in a mechanistic discourse, and do not address the speechless, frozen quality of trauma. In this model, trauma is pathologized, adding to shame and guilt, and blocking exploration of feelings and meaning.

Levine looks for an alternative to this paradigm in the area of the arts, which represent an embodied, playful, creative approach to express and transform human suffering into creative action.
Understanding Trauma Is Key to How We Work With It

Levine describes the phenomenology of trauma as a shattering event that marks a life. Trauma is not a concept or an event; it is an experience that cannot be grasped with a purely cognitive approach. Most trauma diagnoses and therapies are too rational and cannot convey the experience of fragmentation, meaninglessness, absurdity, or horror.

In the old paradigm, human beings are understood as information-processing machines that can be understood in terms of their mastery of existence. In the new paradigm, human beings can also create themselves in the future by means of the traumatic imagination. This imagination can see and express images of fragmentation while also seeing the underlying unity of connections and patterns.

The traumatic imagination helps us see that all human experience is shaped by joys and suffering, celebration and mourning. Creating art out of the whole range of human experience is an act of courage, a leap into the void (May, 1975; Serlin, 2009b). Through it, we can transform terror into beauty and imagine new possibilities for the future.

What Therapy Helps Us Give Voice to These Joys and Sufferings, and Create New Lives?

We heal by facing our mortality. Many people who suffer or have suffered awful trauma report that facing death has taught them how to live (Kubler-Ross, 1997; Serlin, 2004, 2007; Serlin & Cannon, 2004; Yalom, 1980). Sometimes death comes in the form of chaos, threatening dissolution of the self. In this case, one heals by embracing the chaos of existence, the Greek god Dionysus, who passes between life and death.

We heal by facing the fragmentation of postmodernity and finding a creative way to live with the reality of constant change. We gather the disparate pieces of our existence and find new connections; these connections live in the truths of our lives and in our embodied relation to the earth (Stolorow, 2007). Art powerfully takes us to the very center of our experience. Sometimes this confrontation with the truth of our experience brings us terror; Rilke, for example, has observed that terror and beauty are often comingled.

We inoculate ourselves against terror by immersing ourselves in tragedy. Through an immersion in the performative mode of Greek tragedy, we achieve catharsis, or purification. The healing power of tragedy comes, according to Aristotle, when pity and terror are transformed into compassion and awe. As Levine says, “This is the effect of poiesis, the mimesis that works through aesthesis to bring about catharsis, the purification and sanctification of human life” (p. 50).

When it lives in our bodies, trauma calls for an embodied therapeutic approach that is based on tacit, not cognitive, ways of knowing. Levine quotes Merleau-Ponty’s idea of the lived body and gesture as the links between perception and language (p. 34). In my own work with dance therapy, I have called the integration of body and imagination kinaesthetic imagining (Serlin, 1996). I have seen that it can be cultivated as a way of knowing in therapists and students.
Sharpening our embodied response to others heightens the use of our own bodies to understand the other. As therapists, art therapists are not blank slates but resonate with others. We know through sensing as aesthesis.

Finally, unlike most discursive therapies, the arts can convey a sense of the sacredness of life.

**Summary**

On the whole, Levine makes an important contribution to the field of trauma study by identifying philosophical problems within the current field of trauma study. He then shows how a new discourse, a new imagination of the problem and of new possibilities, can be created through the expressive arts therapies. He introduces trauma therapists to Aristotle and Plato, Merleau-Ponty and Jacques Derrida, Rudolf Arneim and James Hillman. Strangely enough, Levine overlooks Rollo May (1975), whose views are close to his own. These writers, artists, and therapists offer trauma therapists a new language to understand and work with trauma. For this introduction, Stephen Levine is to be greatly commended, and his contribution will continue to influence generations of trauma therapists.

My only reservations come through my own direct clinical experience and observations. For example, despite Levine’s disclaimers in the chapter “Is Order Enough? Is Chaos Too Much?,” I found that there is still a slight note of romanticizing chaos. I find this to be true in some Jungian and archetypal writings (Hillman, 1964); sometimes it seems clinically naïve. I also am personally more inclined to a more Zen and orderly approach to healing and thus found Levine’s style sometimes repetitive and baroque.

It almost seems that Levine recycled previous work as a retrospective of his oeuvre. Instead of deepening the focus and understanding of the phenomenology of trauma, he stays theoretical and repeats endorsements for the expressive arts therapies in general. I thought it odd that he did not review other approaches to using the creative arts therapies to work with trauma (Carey, 2006; Haen, 2009).

Finally, although Levine begins his book with a story about his discovery of his family’s Holocaust history and his own confrontation with trauma, unfortunately he does not return to this theme at the end of the book, which ends on a very theoretical note. It would bring emotional closure to this significant book if he could tell the reader how his work with trauma has transformed his own relationship to it. Connecting his own search back to specific cultural roots would support his method’s cultural diversity and applicability (Carey, 2006; Haen, 2009; Serlin & Speiser, 2007).

However, his students and other arts therapists can follow this book with more concrete case studies and narratives. What Levine has done with *Trauma, Tragedy, Therapy* is an enormous gift to the literature on the psychology of trauma, and it lays the foundation for careful and productive new studies.
References

EMBODIED LEARNING: Some reflections on a training workshop for aged care lifestyle and pastoral care coordinators. (Heather)

Recently, I led some staff from a large aged care provider in a movement session which aimed to highlight aspects of the non-verbal “dance” between them and the residents they work with: aspects such as personal space – how do they enter a resident’s space, how do they make that first contact, how do they leave or even how do they finish an activity – and energy/movement dynamics, ie the individual “style” of each resident. This work seemed to elicit lots of new awarenesses from the staff participants that were very relevant to their work. Another shift in perception came as they realised the impact of their own embodied presence on residents. Participants also highlighted the importance of building relationship as a precursor to anything else one offers by way of “activity”.

In section on APA events, Ilene noted how whole person psychology draws on experiential and multiple ways of knowing. This I believe is very relevant to aged care where physical – but not “embodied” – care is so often the major focus of training. From running training workshops like this, I’ve found that training is most potent where it meets the care staff as WHOLE people and enables them to learn through their own embodied experience.

Mature Brains Take on Immature Brains and the Winner is?! 

From the blog of Dr. Bill Thomas of the Eden Alternative: http://changingaging.org/

Posted: 10 Jun 2010 05:48 AM PDT

How do memories formed in children differ from those formed in adulthood and elderhood? It turns out that mature brains remember things in a richer, more detailed, way.

From the Japan Times:
Forty-nine healthy volunteers ranging in age from 8 to 24 were tested recently on their recognition of 250 common scenes, such as a kitchen, shown to them as they lay in a functional magnetic resonance imaging (MRI) scanner. Their brain responses were recorded by researchers at the Massachusetts Institute of Technology as the volunteers tried to commit each picture to memory. Shortly after the volunteers left the scanner, they were shown 500 scenes and asked if they had seen each one before, and if so, how vividly did they recall the scene.

[There were] age-related differences related to the quality of the volunteers’ memories. The older the volunteers, the more frequently their correct answers were enriched with contextual detail. Ofen found that the enriched memories also correlated with more intense activation in a specific region of the prefrontal cortex. In other words, the older brains remembered things better, more deeply.

“We found no change with age for memories without context. All the maturation is in memories with context,” Ofen says. “Our findings suggest that as we mature, we are able to create more contextually rich memories, and that ability evolves with a more mature prefrontal cortex.”

(Bill Thomas’s comment): Aging is a kind of growth but we live in a culture that blinds us to many of its possibilities

ARAS/ARTS AND PSYCHE ONLINE JOURNAL

New member, Ami Ronnberg, has kindly provided us with some information on ARAS:

ARAS - The Archive for Research in Archetypal Symbolism - is a pictorial and written archive of mythological, ritualistic, and symbolic images from all over the world and from all epochs of human history. The collection probes the universality of archetypal themes and provides a testament to the deep and abiding connections that unite the disparate factions of the human family. (From the ARAS website: http://aras.org/aboutaras.aspx )

ARAS Connections: Image and Archetype connects art, culture, and depth psychology from a
multi-disciplinary perspective. This quarterly online newsletter includes papers from the 2008 Art and Psyche Conference* in San Francisco, original artwork and reviews of books and exhibitions related to art, psyche and archetype. The newsletter is free of charge. Subscribe by emailing ARAS at arasnewsletter@aras.org.

*The 2008 conference on Art and Psyche, held in San Francisco, revolved around the mutual influence of the visual arts and psychoanalysis, especially Jungian analysis. At the conference, members of the analytic/psychotherapy and art/art history communities explored Jungian-inspired notions of psyche and its visual representations as it manifests in artistic expressions emergent both in the studio and in the consulting room. Common to all was the centrality of image, which also reflects the approach of ARAS. Papers already published can be found on: http://aras.org/artandpsyche.aspx

FORTHCOMING BOOK FOR PUBLICATION FALL 2010: THE BOOK OF SYMBOLS: REFLECTIONS ON ARCHETYPAL IMAGES (See attached flyer)

QUALITATIVE INQUIRY – A MESSAGE FROM KENNETH GERGEN

Dear Friends and Colleagues,

This is first to bring you up to date on developments in our collective attempt to establish an APA division on qualitative inquiry. It is also an urgent invitation for you to participate in building the future.

As most of you know, we were invited by Division 5 (Division for Measurement, Evaluation, and Statistics) to join with them to form a division on research methods. Although reluctant at the outset, there were good reasons for pursuing this option. Among them, qualitative inquiry would immediately gain legitimacy and political power within APA. Further, our proposal for an independent division was blocked by the APA council primarily because there was already a division (5) devoted to practices of research. This could happen again. Thus, after a year and a half of deliberation with the executive board of Div. 5, we have reached what we believe to be a very promising set of agreements. Our joining together would include:

- The development of a new and more inclusive name of the division.
Our forming a sub-division on Qualitative Inquiry within the new division, which would also be recognized as The Society for Qualitative Inquiry in Psychology. (One could also join the Society without being a member of APA or Division 5.)

- Representation on the Executive Committee of the division.
- Control over the content of our share of the APA program.
- Reduced dues for at least two years, and no requirement that our group would have to subscribe to the current journals of the division. This includes the freedom to develop our own journal.

We hope you agree with us that there is substantial merit in these agreements, and a commanding opportunity for us to move ahead.

Now, as these plans are becoming solidified, it is essential for us to begin organizing more concretely. Of particular moment is establishing the Society for Qualitative Inquiry in Psychology. We have already set up a listserve, which is being used now to send this message. However, it is imperative for us to know at this point to know of your interests in further participation. Depending on your response to this e-mail, you will receive specific information on how to join in. So, please let us know if you would be interested in:

1. Joining the Society for Qualitative Inquiry (with a minimal dues requirement).

2. Joining the new APA Division (a dues requirement of approximately $16, but the opportunity to vote and present at the national meetings. With sufficient numbers we could also have a significant impact on educational and publishing policies in APA).

3. Both 1. and 2.

Please let us know very soon by RESPONDING TO THE FOLLOWING ADDRESS: kendalg1@hotmail.com
(as indicated above).

With potential participants established, we can move ahead with next steps.

with best wishes to all and high hopes for the future,
Kenneth Gergen
Ruthellen Josselson
Mark Freeman
We have built a world of rectilinearity. The rooms we inhabit, the skyscrapers we work in, the grid-like arrangement of our streets and the freeways we cruise on our daily commute speak to us in straight lines.

Yet outside our boxes the natural world teems with swooping, curling and crenellated forms, from the fluted surfaces of lettuces and fungi, to the frilled skirts of nudibranches and the animal undulations of sea slugs and anemonies.....

The human discovery of hyperbolic space initiated the formal field of non-Euclidean geometry and opened men’s eyes to the possibility that the cosmos itself may have other options than the Cartesian box of canonical scientific faith.

Though it had long been thought that the space of our universe must ipso facto confirm to Euclid’s ideals, data coming from telescopic studies of the early universe now suggests that the cosmological whole may embody an hyperbolic form.

(From Margaret Wertheim, A Field Guide to Hyperbolic Space)