A Quantum Leap
In Our Thinking
Richard Hill
E
rnest Rossi, in collaboration with Kathryn Rossi, have been challenging our thinking for nearly 50 years. Ernest Rossi’s collaboration in the 1970s with Milton Erickson was the early expression of his deep fascination and curiosity for what else things might be, could be, and might well be. His discovery in the literature of the 90–120 minute basic rest and activity cycle, determined by the research of Nathaniel Kleitman, was an academically and emotionally stirring moment, for both Rossi and Erickson, and gave foundation to the unusually long session times of 90–120 minutes, practised by Erickson, the main reason being that Erickson found it took that long to “…get something done.”

Rossi began investigating the relevance of mind-to-body therapeutic effects and the nature of gene expression to psychological experience before there was even a broad acceptance of brain plasticity. Papers and books in the 1980s and 1990s were the preparation for his seminal book, The Psychobiology of Gene Expression: Neuroscience and Neurogenesis in Hypnosis and the Healing Arts, published in 2002. This was a book with the explosive adventurousness of thought and theoretical validation that should have transformed our way of thinking about psychotherapy and Ernest Rossi’s already stellar career. Like so many trailblazers, this was not exactly the case; but the landscape of perception was forever changed, and so were the minds of many people, including myself.

The paper in this issue by Rossi and Rossi continues to push our thinking and perception beyond the edge. Although I have been involved with the Rossi’s for over a decade, they still push me and demand that I investigate further, delve deeper, and explore knowledge and disciplines that are unfamiliar. That is what makes reading a paper like this both a challenge and an exciting opportunity to expand at our “growing edge”. To facilitate the best experience in reading their paper, I will share something of what I have learned with the Rossi’s and how I make sense of some of the more dense complexities, terminologies, and concepts.

Psychosocial genomics is a field that has emerged from the writings and research of the Rossi’s and others over the past couple of decades. It is fundamentally important for us to understand that seemingly abstract experiences such as thought, memory, emotional response, and cognitive change are expressed in our biology and ipso facto involve gene expression and protein synthesis. There is a growing body of research that shows beneficial gene expression, epigenetic changes, and a range of other gene expression variations and alterations that occur in response to non-invasive processes like therapy, therapeutic hypnosis, meditation, and mindfulness. Equally, the difficulties of trauma, insecure attachment, other childhood distress, and mental disturbance also involve gene expression. It is better to think of our biology as a complex system that operates in response to all forms of experience in an interplay of activity that can be both linear and dynamic at the same time.

Our tendency to try to pin things down to an evidence-based, linear, or causal framework can be beneficial in some ways but totally missing the point in the broader scope. The introduction of quantum field theory is a natural progression when we consider our existence as a complex interplay—nothing should be left out or isolated in our exploration of what might enable beneficial therapy for an individual. Although we do need to differentiate the elements in order to understand the components, we must never forget that the entire organism and all the influences of the surrounding environment are not reducible.

Having said that, the study of genetics, genomics—and how this plays out in mind-to-body therapy—is crowded with elements that can be examined differentially. To enable the conversation, it is necessary to understand some aspects of genes, and the processes of gene expression, to begin to see the whole picture.

There are a number of genes that express themselves in an automatic manner that is related to fairly stable and established biological needs. Cells that have been differentiated for specific purposes—liver cells or kidney cells, for example—alter their DNA through epigenetic processes to only function as that type of cell, producing the proteins required for that particular pur-
pose. Most genes, however, are expressed in response to the stimuli produced in daily life, which is called ‘activity dependent gene expression’. This is the area of interest for therapeutic processes—instigating genetic activity that will move the system toward a beneficial and healing response.

Gene expression is, however, far from straightforward. The way in which the biology determines when to respond to a stimulus is achieved biochemically. Our genes are tightly stored in DNA in the chromosomes of the cell nucleus. They are unpacked for a brief period to create a single-sided string called RNA, or more specifically, messenger RNA or mRNA. This mRNA is then processed in the body of the cell to synthesise proteins, which organise into necessary protein structures as required by whatever the stimulus was in the first place. This is, of course, going on billions of times simultaneously all over the body in a never-ending process, shifting and altering in response to what is required. Amazing.

That is the simple version of the story. Shifting a gene from the secure helix of the DNA into an mRNA is a highly complex process that involves many elements. The Rossi’s draw our attention to eRNA or enhancer RNA. These are important because they are a vital element in the system to enable a gene to be expressed. A gene is triggered for expression by a transcription factor connecting to the promoter site on that gene. Enhancer RNA is one of the transcription factors, but this is only a part of the story. It is the large number of activities involved in the transcription of a gene to successfully synthesise a workable protein that makes writing about psychotherapy from the genetic frame so difficult. So much has to be left out, and there is still so much to be clearly understood about what everything does. Sometimes I feel that exploring gene expression is like looking through the bits-and-pieces drawer in my desk: not everything is relevant or useful, even though it might have been once. Still, we are learning more every moment.

An area of the human genome, named the human accelerated regions (or HAR), is one of these very interesting new discoveries. Found in 2006, HAR are a set of segments on various parts of the genome that are strikingly different in humans compared to chimpanzees (and all other species). The mutations in these regions are involved in, amongst a variety of things, increased neural development and opposability of the thumb and ankle variations that enable upright walking. This makes the HAR very interesting when considering mental states in the context of a more complex and developed brain, especially the frontal cortex. Although the paper only mentions these areas briefly, the HAR are very important in our understanding of how we evolved as a species, moving rapidly away from other
The 4-stage creative cycle is a description of the way in which new experience develops.

**Stage 1** begins after a new stimulus enters the experience and is a stage of gathering information—we first seek to find out more about whatever it is.

**Stage 2** is when there is an engagement with the new information to find personal relevance, meaning, purpose, and value. In psychological issues, it is the phase where we try to find out what this all means for oneself or how this relates to our life—how to make personal sense of the information. This stage can be difficult and a struggle as we wrestle with the problem. This is the “dark night of the soul” stage. Breaking out of Stage 2 comes with some form of breakthrough, or breakout, that feels like an external inspiration or insight that creates a realisation that triggers...

**Stage 3**, which is the creative, expansive, responsive, and reactive expression that comes from the pleasure and excitement of the breakthrough. This is the most productive stage in the cycle.

**Stage 4** is a period of verification of what has been learned and what has been developed, and is often a time of contemplation and consideration when the change is incorporated into the system and the human experience, the person.

Primates and the potential for continuing evolutionary change and adaptation. This evolutionary development is just one of the reasons why we need be aware of the impact of top-down processes that are stimulated by psychotherapy, therapeutic hypnosis, meditation, mindfulness, and other non-invasive activities.

In the spirit of continued growing at the edges of knowledge, the Rossi’s push the reader into the realm of quantum field theory and associated mathematics. How do we find a manageable engagement with these quantitative and quite complex sciences, when many therapists feel they work largely with the qualitative experiences of the client? I believe that this information is deliberately triggering the first stage in the 4-stage creative cycle by providing information, but the purpose is to excite our curiosity and wonder to move beyond the information and toward the development of a personal engagement with what becomes possible because of this information.

The Rossi’s have previously stimulated my curiosity and wonder of complex self-organising systems. Over time, I was able to progress through the 4 stages and come to the realisation that this is a fundamental concept in my understanding of how client-centred therapy and Ericksonian utilisation can be incorporated into my practice. I certainly know more, but I can equally say that I can feel more too. Knowledge is always a stepping stone to a deeper and richer experiential state. Pursuing new information opens the possibility for creativity, a heightened sensation about the world, and deeper connection with other people and life in general.

The beauty of the uncertainty principle, which is introduced to us in this paper through mathematics, reminds us that it is not predictability that is the baseline of successful functioning in life, but the acceptance and management of change and variation. Freeing up rigidity and inflexibility is often the purpose of therapy, and we need to be armed with not only the knowledge to help, but also steeped in the wonders of the rich complexity of our being everywhere, from the overt, observable behaviours to the molecular activity that is acting in a constant interplay to create our existence at any given moment. So, I suggest that you read this paper with the appreciation that you may linger on some sections and perhaps move lightly over others to maintain the flow. I needed to move over some of the mathematics lightly at first, only to return later to study that in detail. In the end, I am richer for it.