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The Future Will Be Better Tomorrow

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Suggested classic soundtracks for this article
https://www.youtube.com/watch?v=Wb9By-lODgk
https://www.youtube.com/watch?v=-uyV7tYJ56s

"The tropical zone is increasingly impacted year round. Without the great seasonal changes elsewhere, the heat raises ocean levels to the point where many communities are threatened. Floods and droughts are found here as well. Our tropical boundaries are expanding with each passing year. The increasing heat and humidity adds ever more countries to what may be considered a torrid or tropical zone, eventually one that may cover the planet with very few exceptions. This makes our successful human adaptations to a more tropical world more essential to learn and share." (Morgan, 2015)

Time and Tomorrow

It was 2012 in Singapore. There I saw a young boy in a mall wearing this hopeful T-shirt message: "*The future will be better tomorrow.*" This paradox of incidental wisdom suggests that our future path can be changed and we are the artists.

If scholars from Einstein to Vonnegut are right, time is a place. It follows that whoever was alive in that time and place will always be there, alive, in that very specific time and place. In each moment of our experience, we create enduring dramas, statues in time, one for every moment of our life.

Some of these statues are true art, testament to the greatest successes of the best life sculptors in our human family. Once a time statue is found, we have only to recognize the fourth dimension in which it resides. Then, when we choose, these statues can become a form of temporal vignettes. A theater that we can see from an audience distance and, all, so far, through memory.

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Those we love will always be vibrantly alive in their own time and place. Those moments we shared with them can be revisited as we wish, at least in our mind.

As we live our life, scene by scene, we are all creative artists in the temporal theater.

This complete life sequence of moments does of course include temporal vignettes that would not be happily visited by any time tourist. Then again, we can be very proud of other scenes that we have created, particularly if we become aware that, as we shape each moment of our existence, the results endure.

Some of these time dramas glow. Some are just fun. Some may highlight a new path forward. Better paths we might need as the world accelerates into a completely tropical planet.

Here are some samples of temporal vignettes that I can recall clearly.

Equity with Rodents

"*WE WANT WHAT THE RATS GET!*" said one sign.

It is said that three blindfolded (politically correct version) men put in a room with an elephant would each describe a different creature based on where they groped the animal. We say "would" because an elephant groped in such a manner would likely object and few survivors of this experiment are likely.

Self-aware elephants are unlikely laboratory animals for most psychological experiments. White rats are more traditional, while dogs have been used in many parts of the world since Pavlov. Signing chimpanzees have also been used as experimental animals. Yet in their case, we see a cousin species with demonstrable self-awareness. Their sophisticated communications have led to a growing understanding that any inhumane treatment or experimentation must cease (Fouts, 2003).

There is also a very famous gorilla named Koko who has been taught by psychologist Francine Patterson to communicate with sign language (Patterson, 1999) and even, with Dr. Patterson as intermediary, in an internet interview a few years ago. When the Scientific Organizing Committee of our 1998 International Congress of Applied Psychology (ICAP) World Congress in San Francisco asked for some original ideas, one of my own suggestions was to invite Koko as a keynote speaker: there was no apparent international interest in this at the time.

In the twenty-first century, university students are often the key species of experimental interest. Yet the rat colonies survive and are normally protected by a series of environmentally friendly laws and ethical codes dedicated to the humane treatment of these animals.

One day, when I was a psychology department chairperson in a high desert Southern Colorado university, the department secretary came to me to complain of headaches and eye strain. Her desk was well lit by large fluorescent lights.

A review of earlier research (Morgan, 2012; Morgan & Wilson, 2005) suggested that fluorescent lights could cause headaches or even narcolepsy for some people by synchrony with the flicker. Another problem was the restricted light spectrum in most such lights which, over hours and days, could lead to eye strain.

It would seem that fluorescent lighting, using less energy at less cost, might well be useful for areas requiring bright inexpensive lighting at short time intervals – places like library stacks. However, for people using this light all day long, it would seem that natural or incandescent lighting would be the far better choice. Health should not be a lost variable when considering contemporary economic choices.

Today many countries mandate cheaper fluorescents while the manufacture of equally inexpensive non-fluorescent lighting can be overlooked. Another better choice is the enhanced use of natural lighting in buildings, a potential abundance in tropical zones.

As a first step, I told the department secretary I would place an order so that the fluorescent tubes in her lighting could be changed to full spectrum lighting, an array approximating the range of natural light.

I called the appropriate university manager and asked for this.

He declined: "Those tubes each cost a dollar more than the ones we are using now." He was concerned everybody working in the university might want the better lights, thus multiplying his costs.

After some thought I called him back.

"Are full spectrum lights being used anywhere in the university now?" I asked (expecting they might be in the President's office). But he surprised me.

"Yes, in the rat colony. These lab animals get sick with regular fluorescents."

Having acknowledged this, the purchase request was still declined.

Luckily, my department secretary was a very assertive individual. Learning of the priority of rats she, with my delighted support, organized the university staff in a protest march:

> "*EQUITY WITH RATS!*" was one sign and "*WE WANT WHAT THE RATS HAVE*" was another.

The protest, with suitable publicity, succeeded and they got their full spectrum lights.

Probiotic Cultures

When I was 11 and my brother was 3, we were both given massive dosages of radiation to our thyroids as "prevention." My only symptom had been a low body temperature, now recognized as a sign of longevity (Morgan & Wilson, 2005). My brother's only symptom was apparently his relationship to me.

It was two decades later that all those of us who had received radiation as children were recalled for testing. This

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"prevention" led to a 25% incidence of thyroid cancer with a latency of several decades. My brother, now an adult, understandably balked at first at the method of testing which called for us to drink a radioactive isotope. Wasn't this how it all began? In the end, we were lucky and had no evidence of thyroid cancer, although it was recommended we have our thyroid glands removed as "prevention." We declined.

Some years later, at the beginning of the twenty-first century, I lost my life for a very short time. I soon had a second chance at existence after open heart surgery, first in Guam and then in Hawaii. This surgery of course involved extensive antibiotics and periodic radiation from x-rays. A post-operative infection, including the common hospital strain of antibiotic-resistant *MRSA*, was so powerful that it began to dissolve my chest bones. This lethal invasion did not respond to six weeks of intravenous antibiotics. Nor did it respond to an intervention at California's Stanford Hospital including the obligatory bone scans (radiation) and CAT scans (radiation). The bacteria that were eating my bones were not *Ebola* but rather ordinary internal villains, just multiplying in epidemic swarms.

It finally occurred to me that my natural immune system, including the benign internal bacteria we need to keep the harmful bacteria at bay, had been depleted, if not exterminated, by the excessive radiation and antibiotics. This was an ecological opportunity for the wrong species of microscopic vermin to thrive and feast on the calcium in my bones.

A colleague had been selling a powerful probiotic called "*Primal Defense*" (from the *Garden of Life* company) which combined 12 species of benign probiotic bacterial cultures. While this was used often for gastrointestinal health issues, it seemed to me that putting a few armies of the friendlies in my internal environment might push back the invasion. And so it did.

More than 16 years later now, there has been no recurrence. My bones remain unmolested.

Since then I have been sharing this with many physicians and friends undergoing major surgery. The anecdotal feedback has been that the expected post-operative infections were no longer a problem.

More research is needed, but it seems reasonable to consider powerful internal probiotic communities when intense antibiotics or radiation are introduced. Some excellent controlled studies found probiotics substantially reduced the duration of colds, fevers, bronchial symptoms, and even the diarrhea of international travelers or antibiotic takers (Schardt, 2006). The *International Scientific Association for Probiotics and Prebiotics* is a useful resource for ongoing research.

In the United States, hospital infections were the eighth-leading cause of death (Greider, 2007). Today, after heart disease and cancer, such preventable iatrogenic errors (Morgan, 2005b) have typically risen globally to become a third leading cause of patient fatalities. Within the last decade, a variety of strains that are non-responsive to any antibiotic available have spread across the world's hospitals. For example:

> *"TOKYO, Sep. 8, 2010 (Kyodo News International) – Teikyo University Hospital said Wednesday that four more people have died among inpatients infected with Acinetobacter, an antibiotic-resistant bacteria, and it will not receive any new admissions for an indefinite period to prevent more infections. The university hospital in Tokyo's Itabashi Ward said 53 inpatients have been infected – seven more than the 46 announced earlier – and four of the seven inpatients have died."*

It may well be that instead of trying to generate yet more and more brand new antibiotics, a process that is not working at all on these new strains, multiple strains of powerful pro-biotics might also be tested.

The field of antibiotics and probiotics provide a microcosm of transformation in the face of trauma. The tiny bacterial colonies we need as humans to survive, individually and as a bio-connected community, must be protected and replenished. We each are our own community.

An Alternative Healing Theory

Alaska is a long way from being a tropical location (but give it time). It does serve tourists from Hawaii and other Pacific tropical regions as a favorite cooler spot.

Then again, I found a fresh indigenous way of looking at temporal pathways there.

As a visiting professor at the University of Alaska in Fairbanks, I found the understanding of the temporal environment there to be quite sophisticated, possibly because of the seasonal diurnal cycle. Half the year in Fairbanks has little light and the other half has nonstop light. I recall both a midnight full family community parade in June and a four-hour day of daylight in January.

The Clinical-Community Psychology PhD program I worked in at Fairbanks was thoroughly advised by indigenous Alaska Natives, to its great advantage. One was a distinguished native psychologist who by strange coincidence shared my first and last name. He worked effectively with the indigenous healers to educate us on site.

At one faculty/student week-long retreat with our Native Alaskan advisors, each of us was asked to tell a very important memory. The previous rat equity story came to mind. Smiles all around. Later we were asked to share an important memory that we did not yet understand. By then it was dark and only the campfire lit our thoughts.

My memory now was about being in that previously described apparently terminal condition years earlier. While there, I retreated into a hypnotic "safe place" visualization in my mind to get away from the pain (Morgan, 2000). To my surprise at the time, the scene I found myself in was something new. I was in an ice fishing hut with a small fire and a hole in the ice through which I could see some large beautiful fish swimming near the surface underneath.

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Strange, since when I was sick, I was living in tropical Guam, a place that never knows ice fishing. But the safe place I created in my mind had been as cold as an arctic night.

Whenever I needed to, I kept going back to this visualized hut. There I gained energy and a sense of peace. What I did not get was better.

In what seemed like my final visit of many, I realized that I didn't want to catch these fish. I already had some sandwiches to eat and I didn't want to damage their beauty or take their life. I pulled the fish hook out of the hole. Then I dropped pieces of my sandwiches down the hole and fed the fish. The next day I began probiotics and my recovery followed, eventually regaining my health.

Back to the night fire. The Native Alaskan advisors interpreted my visualization in this way: "What you did with light for the secretary is what you psychology people are here on earth to do. In this memory you are told to come to Alaska and help, not hurt, the beautiful fish- which are most likely us and people like us."

May we all try our best to do so.

The Time Zone Defense

A married woman, approaching her decade transition to age 40, was referred to me by her physicians. A series of tests had found no apparent somatic reason for her poor appetite and stomach aches. She had moved to sunny California from an overcast London 17 years before.

I asked her to describe her typical day and diet. She drank only a six-pack of Pepsi in the morning, followed by two packs of cigarettes by 2 pm in the afternoon. It was tempting to have stopped right there, upset stomach explained.

I kept going, asking her when she ate real meals. She got hungry twice a day, but never when anyone else did. Using time-zone calculations, it seemed she was still stuck on her original London time zone when it came to the two daily meals she had enjoyed when there.

I told her she was still on London time. Jet lag should not last 17 years. Unconsciously, she was making an existential choice to be in a safe familiar place. One far removed, since her California marriage had turned out to include severe continuing problems.

We agreed on an intervention.

In the following months she gave up Pepsi and smoking (diagnosed emphysema made the latter mandatory). But her husband continued to give her his second hand smoke, even at the risk of her life. She reported that he was still angry about her affairs at her bartender job ("I get asked for sex a hundred times a week and I usually turn 99 of them down" she argued).

The husband refused to join us in the counseling.

Based on many sessions of review and reflection, she realized that marriage problems were the main source of her escalating trauma. Consequently, she decided on a more fundamental intervention: she was unsuited for marriage, at least to her present husband. Counseling now was to assist her through her divorce.

On the day this divorce was final, she at once became hungry three times a day at regular hours for her time zone of residence. The stomach problems were gone with the marriage. She could now live on California time and was able to do so throughout our follow-up sessions (Morgan, 2005B).

Graduate Student Solvency through the Lie Detection of Earthworms

It was a new year, 1963, and the beginning of January.

I began my psychology Ph.D. program at Michigan State University. At the age of 21, I had just begun a family with a wife and her three young children, all of which needed to be fed, clothed, and sheltered. The best solution for us all was a National Institute of Mental Health (NIMH) Research Fellowship.

My supervisor was Professor Stanley C. Ratner, an exceptionally decent person and a brilliant expert on animal behavior (Ratner & Denny, 1964, 1970). He urged me to immediately apply for the NIMH support. It would pay my tuition, give a stipend for every member of my family, and provide research funds. All I had to do was send NIMH a research proposal, one I would use some of their money for.

While at that time I was on an experimental psychology degree path, the NIMH research application seemed to me to require an applied mental health component. I chose something original: clinical application of the auto-kinetic effect.

This effect was done by putting a volunteer (always undergraduate students in those days) in a dark room with a spot of light projected on a wall in front of them. They would be told to say out loud what words or sentences the moving light would spell. In fact, the light spot never moved or spelled anything. The volunteer's moving head would create the illusion of movement. This, plus the expectation that a perceptive volunteer would see words, often led to enunciation of nonexistent sentences.

I thought this could be a very interesting projective test for clinical practice. So I developed that proposal and submitted it to NIMH with my application. It was so original an idea that I could find no clinical research references to cite.

The response was fast. Rejected. The proposal had no clinical research references. Too original.

The reviewers did sent an encouraging note though.

I was asked to realize that I was only a low level trainee and originality was not the point nor expected. On the other hand, if I submitted a proposal that fell within the research scope of my much published and cited supervisor, they would fund me. Hmm.

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Professor Ratner at that time was doing research on the simplest animal with a central nervous system. This turned out to be *Lumbricus terrestris*, also known as the "night crawler," an earthworm.

Not high on my own evolutionary scale of clinical interest. But family to be fed.

(Rollo May came to give a talk at our MSU psychology colloquium that year. Following his discourse on the meaning and application of existential psychology, Stanley Ratner arose and asked "*How would existential psychology apply to earthworms?*" Rollo considered this carefully and then responded with only "*That is a very interesting question.*" Two decades later when Rollo was a friend and godfather to my daughters, he still remembered Ratner's question; he advised that acknowledging the question was the best answer when you had no answer. My wife, Becky Owl Morgan, has her own Cherokee-Choctaw alternative to this dilemma: "*That is a mystery even to this day*".)

The earliest publication on the perceptual world of the earthworm was by Charles Darwin. He put one on top of a piano and noted that it contracted to the vibration of a piano key. Well, I knew that I could do this research better than Charles had.

I had already done a quick study with the galvanic skin response or GSR, a measure of electrical resistance of the skin (low tech: a simple ohm meter would work). Startle a volunteer, they did get course credit, and the GSR would jump. The understanding was that immediate reaction perspiration on the surface of the skin reduced the electrical resistance. This had become a key component of lie detection because it was assumed to measure anxiety. (Lie detection equipment used then by law enforcement never measured lies - just anxiety level changes in response to questions. Police equated anxiety with falsehood; sometimes it led to a confession while other times it just misled everybody).

I used GSR to compare the efficacy of the multiple page questionnaire Taylor Test of Manifest Anxiety (TTMA) with a 5-point scale responding to the question "*Are you anxious?*" My 5-point scale correlated higher with the GSR than the TTMA and was much faster. Also somewhat disrespectful to the author, Janet Taylor Spence, an eventual American Psychological Association president, or so I have been told.

Still, I thought my GSR research might have some application value for this NIMH proposal I needed to submit.

It was reported anecdotally in the literature that earthworms could not see the red light portion of the spectrum. Fishermen hunted earthworm bait at night more successfully with red lights. What if I tested this assumption with the GSR?

Professor Ratner (animal behaviorists tended to have last names like Fox, Wolf, and Ratner but I found that none agreed that their name had anything to do with their chosen career path) liked my idea and the proposal was submitted. NIMH approved it and my family was saved.

Now I had to do the research.

First, per my supervisor, I must read all I could about earthworms.

They turn out to be essential to the fertility, porousness, and reduced toxicity of the soil, all essential for the world's human agriculture. An essential element for tropical food production.

They have eye spots all along their very sensitive skin (salt is corrosive to them). They breathe through this and so need to be constantly hydrated.

They do have a primitive central nervous system but with a lump of neural cells, a brain if you like, on either end, with the smaller one in its posterior. If they are blocked going one way, they could switch to their posterior brain and still move forward but in the opposite direction. Interesting animals.

I got stewardship of a refrigerator in the basement of the psychology building. On the lowest level would be placed an earthworm on a moist sponge surrounded by their (delicious?) edible moss. A biology friend of mine sewed thread around its mid-section to keep it on the sponge. She was amused but made it clear that I owed her bigtime. All worm subjects (participant or volunteer doesn't seem to fit ethically well here) had the same treatment in turn. GSR electrodes were gently placed on the worm.

At a higher level of the refrigerator, a white light bulb was ready to flash.

Now: for the first worm. A white light flash led to a GSR jump. Did that prove the worm perceived it?

Not necessarily. Ratner had taught me to look at alternate explanations and then control for them.

What if the GSR reaction was to the heat of the light and had not anything to do with the worm?

Removing the worm, I flashed the light and still got a GSR reaction to the empty sponge.

So, had to control for heat. Or assume the sponge had a life of its own.

I put a bowl of cold water between the light and the sponge and flashed the light. No GSR now.

Leaving the heat control bowl of water there, I retested the earthworms on sponges. GSR showed they could perceive white light flashes but, when a red bulb replaced the white one, there was no response. This was a consistent finding.

For this proposal, NIMH funded my graduate years all the way to the doctorate. This study became my M.A. psychology thesis. With Ratner's urging, we published the earthworm research (Morgan, 1964; Morgan, Ratner, & Denny, 1965). Based on the 1964 publication, I was surprised to learn that very year that I had been made a Life Member of the Michigan Academy of Science. But none of this kept my interest in any further research on *Lumbricus terrestris*.

(Serendipity note: Following my study, the eventually deceased earthworms were left in a jar of water in the refrigerator. I had meant to dispose of them but, well, you know how life can be in graduate school. After a month had gone by, I was summoned by another student who demanded

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I clean out the stench from the jar in the refrigerator. The smell was so overpowering that nobody would go near it. Sure enough, even a drop of this wormy potent potion would easily empty an auditorium. We did find a use for this but that is another story, best avoided in print or in the presence of authorities.)

I was gladly done with earthworms and never went back to earthworm research. My next big project was a doctoral dissertation. For that, I chose instead to focus on the psychology of time, but only for humans (Morgan, 1965, 2005b). That interest in the psychology of time never faded. As you can see.

Finding another path

Decades later I was invited to give a luncheon talk at the Menlo Research Institute (MRI) in Palo Alto. For these celebrated scholars and luminaries, I was asked one more time to share my research on anxiety, lie detection, and earthworms. So I did. There it was I began to see at least a metaphorical usage.

The early career understanding of earthworms helped me in these later years to put a modern group in an understandable context. These are individuals among us who deny our climate is well on the way to a full global torrid zone, one barely inhabitable at best. Despite all science to the contrary, and often in ludicrous defense of lucrative but destructive greed, walking down their temporal path jeopardizes the survival of our entire human family.

How do the primitive central nervous systems of earthworms assist us to understand the successes and excesses of climate change deniers? This in the face of obviously increasing global hardships now inflicting so many struggling countries, particularly in the tropical regions.

As they strategically apply overwhelming amounts of money toward this denial and destruction, including their own, they do routinely create an illusion. The illusion that they are leading us forward, progressing, while actually they lead a retreat in the opposite direction.

Much like the earthworm, they may be led in this by a smaller secondary brain located in their posterior.

We have much to do as psychologists to find a better path.

Or: *May our future be better tomorrow.*

References

Fouts, R. (2003) *Next of Kin: My conversations with Chimpanzees*. New York: Quill/HarperCollins.

Greider, K. (2007) Dirty hospitals. *AARP Bulletin* (January) 12–14.

Morgan, R.F. (2015) Climate change in a multinomial world. *Journal of Tropical Psychology*, *5*, 2015, Cambridge University Press.

Morgan, R.F. (2012) *Trauma Psychology in Context: International Vignettes and Applications from a Lifespan Clinical-Community Psychology Perspective*. Santa Cruz, CA: Sentinal/Morgan Foundation.

Morgan, R.F. (2005a) *The Iatrogenics Handbook: A Critical Look at Research & Practice in Helping Professions*. Albuquerque, NM: Morgan Foundation.

Morgan, R.F. (2005b) *Training the Time Sense: Hypnotic & Conditioning Approaches*. (With Linn Cooper, Elizabeth Erickson, Milton Erickson, Gary Marshall, Christina Maslach, Paul Sacerdote, & Phillip Zimbardo). Albuquerque, NM: Morgan Foundation.

Morgan, R.F. (1965) Temporal conditioning in humans as a function of inter-trial interval and stimulus intensity. *Dissertation Abstracts*, *37*, No. 66–6153. From R. Morgan's Ph.D. dissertation, Michigan State University, 1965.

Morgan, R.F. (1964) A galvanic skin response technique for the sensory evaluation of annelids. *Michigan Academy of Science Papers*, *50*, 337–342.

Morgan, R., Ratner, S.C., & Denny, M.R. (1965) Response of annelids to light as measured by the galvanic skin response. *Psychonomic Science*, *3*, 27–28. From R. Morgan's master's thesis, Michigan State University, 1964.

Morgan, R.F. & Wilson, J. (2005) *Growing Younger: How to Measure and Change Your Body's Age*. Albuquerque, N.M.: Morgan Foundation.

Patterson, F. (1999) *Conversations with a Signing Gorilla*. New York: Dutton.

Ratner, S.C. & Denny, M.R. (1964, 1970) *Comparative Psychology: Research in Animal Behavior*. Belmont, CA: Dorsey.

Schardt, D. (2006) Helpful bacteria: Should you take probiotics? *Nutrition Action Health Letter of the Center for Science in the Public Interest*, *33* (10) December, 7–9. Cf. *Vaccine online* (doi:10.1016), J. Vaccine.2006.05.048, *American Journal of Gastroenterol*ogy, 101: 812, 2006.

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