

## PRE-CONFERENCE NEWSLETTER

Attend The Biofeedback Society of California's  
40th Annual Conference!  
Oakland, CA–November 7-9, 2014.

3 pre-conference workshops November 4-7.

See page 14 for full details

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## FROM THE PRESIDENT

You may have received a formal invitation to attend the Presidential Reception on Friday, November 7th at our 40th annual meeting and birthday party. I am happy to say that this is not merely a reception for this year's president, but rather a celebration of presidents across our 40 years of being the BSC. We hope to get as many of our prior presidents to attend as we can, having sent them all formal invitations to the reception. Steve Kassel has been gathering many of these past presidents' biographies for our newsletter. Though some have passed or have not been located, most remain available, and we hope to interest them all in attending this Presidential Reception along with our members and presenters.

Networking is always a key part of any professional meeting, and this year we hope to bring in a bounty crop of past board members, presidents and luminaries to network with. The Reception is only the start, as we have a banquet and birthday party on Saturday, and plenty of speakers to draw people with similar interests to the event.

We also are always interested in having new energy on the BSC Board, and this opportunity allows all of us to contribute back to the field. The meetings are your chance to meet the Board, and discuss any ideas for projects or initiatives you may want the society to undertake.

Finally, in self-defense: I have to let you now that the fancy printed invitations you receive have not cost the society anything, as they were designed, printed and donated by my partner, Renita, who will also be at the meeting helping with administrative tasks. I have thanked her for her generosity, but if you like the printing or design, she will be happy to talk printing and art with any of you at the meeting.

Clear your calendar, and arrange your travel and room soon, because this will be a year's meeting not to be missed! ♦



Jay Gunkelman, QEEGD

## FROM THE EXECUTIVE DIRECTOR

Hey There, BSC Member,

This November marks my one year anniversary as Executive Director of the Biofeedback Society of California. From last conference until this one, we've made some big moves, including a still-pending name change and a focused effort towards regionalization. For the first tier of regionalization, we will be inviting practitioners from the states of Oregon, Nevada, Arizona, Washington and Hawai'i to join us. We are going to be actively soliciting members from neighboring states to join our ranks soon. Please, send your fellow practitioners in neighboring states our way, so that we might include them in our ranks and our database.

We often receive calls from individuals seeking qualified practitioners from different regions in California and elsewhere; I would love to give them your name! Check your provider status on the website and update your profile with a picture and some interesting facts about yourself. Our website is visited frequently by individuals seeking aid for themselves or a loved one. Your expertise is in demand.

Lastly, I cannot fail to mention the upcoming conference. It really ought to be something. With the combination of excellent speakers (many of them founders of the fields of biofeedback and neurotherapy), a classy President's reception, a lively student party, and an wild birthday party, you can expect to create memories that you'll share with your colleagues for years to come. So come! And please introduce yourself to me and the other board members. We're all in this field together, like a tight knit family, dysfunctions and all. Glad you're a part of the BSC. ♦

Tiff Thompson, Executive Director, biofeedbackcalifornia@gmail.com



## FROM THE STUDENT LIAISON

Hi everyone! What an exciting time of year as we get ready to celebrate our 40th Annual Biofeedback Society of California (BSC) Conference. As your student liaison, one of the many objectives we have set out for ourselves this year is to increase student involvement with the goal of connecting young professionals to seasoned biofeedback enthusiasts. Our students have responded to the wonderful line up of presenters this year and several have applied for the travel scholarship opportunity. Spots are running out so if you are still interested in applying for a scholarship, please do so soon! Also, if you are interested in donating to help a student attend the conference, please visit our website for more details on how to make that happen. Remember, the students of today are the biofeedback professionals of tomorrow. We look forward to celebrating with you in November! ♦



Robert A. F. Guiles, MA

## MY EXPERIENCE AS A STUDENT AND NEUROFEEDBACK PRACTITIONER

Jason Von Steitz

As a member of the BSC's Student Committee, I have accepted the task of promoting student membership and involvement in the BSC. I'm well suited for this task because like so many of us in the field, I find neurofeedback to be simply fascinating. As is often the case, my introduction to neurofeedback was largely due to chance.

Nearing the completion of my undergraduate work, I searched the job listings at my university's career center and stumbled upon one of the few positions that piqued my interest. Soon I interviewed and began my education in clinical neurofeedback as a technician for Psychologist Gary Schummer, Ph.D. As Dr. Schummer's technician I spent years running about a dozen neurofeedback sessions a day, conducting one to two qEEGS a week, collecting data for international studies, and co-authoring the presentation and publication of a case study. As an undergraduate in a classroom I found neuroscience dry and boring, as a neurofeedback technician neuroscience suddenly came alive.

Now, as a Ph.D. student I have jumped at the opportunity to introduce my fellow students to a field that they might never learn about otherwise. I have recently collaborated with a student club to give a neurofeedback presentation at my graduate program, the California School of Professional Psychology at Alliant International University-Los Angeles. The students and professors in attendance were captivated and asked question after question. In fact, the barrage of interest and questions prevented me from completing the rest of my presentation and made me late for my next class! I was pleased by the receptivity of those in attendance and hope that, if nothing else, a seed was planted.

The BSC is a great organization that affords students the opportunities to not only learn from leaders in the field but also to work alongside them. I look forward to continuing to grow in my career and hope that I can give back to the BSC and the neurofeedback field in general, as it has given so much to me. ♦



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# AN INTERVIEW WITH ALAN MACY

Tiff Thompson

There is a building in Goleta California that is all steel, three stories, 16,000 square feet. In the year 1984, a group of four guys in the mid 20s—friends from Cal Poly and UCSB—began renting a small room there in quest of a passion. With no agenda, no timeframe, and no real funding, Marc Wester, Rick Nakazawa, William McMullen, and Alan Macy began a mutual pursuit: the simplification and streamlining of an electrocardiogram machine at the behest of a frustrated physician from Goleta Valley hospital.

Today, they are the founders of BIOPAC Systems, Incorporated, an international company specializing in life science hardware and software for research and education. BIOPAC now owns that building, which stands complete with assembly production, test production, software quality assurance, programming, hardware engineering, marketing, sales, shipping and receiving, stock room, and administrative offices. And this is only their Goleta branch. BIOPAC Systems, Incorporated, has offices in Canada, as well as in Europe, and representative offices in 31 countries.



The following is the story of the company's development from the perspective of one of the four: Alan Macy. Part engineer-inventor, part mad scientist, and part innovative artist, Macy sees physiology everywhere. He sees the future as

*Part engineer-inventor, part mad scientist, and part innovative artist, Macy sees physiology everywhere.*

enabling the connectivity between the operational environment and all of its sources. Through the course of his career, he has seen the evolution of BIOPAC's physiological equipment from chart recorders to computer-aided digital and now to wireless.

And so the story goes:

In 1983, Alan Macy was fresh out of a Master's in Electrical Engineering, working at Applied Magnetics. A local physician, Dr. Vogel from Goleta Valley Hospital, had an enormous, unwieldy machine that would play back tapes of electrocardiogram data taken from chest straps. Vogel was disappointed in the shortcomings of the machine and requested Alan's friend from Cal Poly, William McMullen, to help in making data acquisition and processing more friendly.

McMullen asked Macy, Wester and Nakazawa, to help with the project. They decided they could gather the ECG recordings straight to high density memory arrays. Their calculations suggested they could store up to 24 hours of data onto a dynamic memory chip, which had just been invented by the demands of the personal computer industry. Familiar with embedded systems, the guys began the initial wave of smart instrumentation. Making printed circuit boards, they



*The four founders of BIOPAC, from left to right: Alan Macy, William McMullen, Rick Nakazawa and Marc Wester*

trained themselves and worked on the project from early 1983 until late 1984.

They were in the middle of building their own computer to process the data when Apple's Macintosh PC came out. On the Macintosh, text was beautiful to look at and raw data began to look visually appealing—especially physiological data, which had before been under pen and paper chart recordings. The PC enabled them to produce digital data that presented the same way as visual permanent records would show, except now the data could be stored on a floppy drive and all measurements could now be done on a computer.

At this time, that they had a prototype Electrocardiogram recording belt, but they needed to take the project to the next level. Realizing they would need funds for injection molding, FDA certification, and more, they began to grok how very expensive this would be, and decided to change directions. They turned the Electrocardiogram recording belt into a box called the "MacPacq", a general-purpose data acquisition unit for the Apple Macintosh. They borrowed funds from their parents. Approximately \$30,000 afforded them the continuation of the project, the procurement of parts, and the purchase of advertising space. All they could afford for advertising, however, was a tiny ad tucked in the classified section of the MacWorld magazine, consisting of three lines of text.

That ad pulled in their first phone call and first order; the year was 1986. And they began to sell the units. Not only that, they began to sell well. The people who were buying these were life science researchers who began to ask for more hardware: amplifiers, modular add-ons, et cetera.

They grew exponentially from 1986 to 1990. By 1991, they had all quit their jobs, had incorporated the company, and were beginning to hire more people. Macy noted:

"We were lucky to be doing that work at the beginning of a revolution, the metaphor of catching the wave, when you are swept up in currents that are really big. There was a fair amount of money in life science research at that time. It was driven by academia because there were a lot of new kids coming in who were teachers and wanted the laboratories computerized. This was an advantage to research because the information was portable and the data was shareable. The first modem systems would allow you to collaborate with someone in Europe."

And of course, this was hugely enabling for researchers because it allowed for the sharing of data, with greatly in-

*Continued on page 11*

# MODULATING PAIN SIGNAL CONDUCTION

Peter Behel

During the time I've spent as a member of multidisciplinary treatment teams involved in coordinated care, it hasn't been uncommon to run across pain sufferers who have been diagnosed with neuropathy, the numb, shooting pain phenomenon that can often accompany nerve impingement and/or degenerative discs.

Often referred to as peripheral neuropathy, or sensorimotor polyneuropathy, symptoms can include feelings of prickling or 'pins and needles' in affected areas, tingling sensations or sharper, stabbing pains that are more intense at night. Sensations of burning can be involved, which frequently begin in the feet and legs, and then as the condition progresses, to the hands and arms. This can also be described as electric pain.

When left unattended, peripheral neuropathy can sometimes progress to include muscle weakness, coordination problems and even paralysis in some cases. Included among the causes of neuropathy are physical trauma and repetitive injury, in addition to chronic liver and kidney disease, lymphoma, and diabetes, the latter being the most common cause of neuropathy.

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*Typical CRPS features include temperature and color changes in the affected areas, as well as excessive sweating.*

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Diabetic neuropathy in fact constitutes its own level of sub-classification, emerging from long term damage to the tiny blood vessels that supply nerves, especially in the legs and feet, as a result of elevated levels of blood glucose.

I first encountered this condition during the course of working with vision disorders back in the 1980's, when I used biofeedback as part of an integrative approach aimed at restoring visual field deterioration. Among the individuals I saw then were sufferers of diabetic retinopathy, who shared some of the same characteristics that those afflicted with diabetic neuropathy exhibit.

While the diabetic retinopathy individuals I saw didn't report the kind of electric pain that diabetic neuropathy sufferers often describe, there were some similarities in blood vessel damage based on excessive glucose levels that was common between the two conditions. One of the things I learned then was that the effects of these conditions weren't necessarily etched in stone, or completely irreversible. We in fact noted visual field increases of up to 16% in some individuals, although long term follow up was not provided for under the original terms and conditions of the pilot probe (Behel, 1985-86).

Because of these experiences, when I went on to encounter the effects of neuropathy later in the 1990's. Based on repetitive strain and subsequent impingement, I wasn't necessarily convinced that the symptoms were intractable. As mentioned in a previous edition of California Biofeedback,



I had the opportunity to administer biofeedback to a group of Pixar Studio animators who had become stricken with peripheral neuropathy as a result of repetitive strain while attempting to meet production deadlines during the making of Toy Story 2.

These individuals were largely diagnosed with thoracic outlet syndrome, a condition involving compression of the blood vessels and/or nerves at the superior thoracic outlet, an area between the collarbone and first rib. Many of them exhibited symptoms of dystonia, a movement disorder characterized by involuntary contractions and/or spasming.

The multidisciplinary treatment team consisted of a neurologist, physical therapists and myself. As a group, the Pixar animators responded reasonably well to the biofeedback: the neuropathy became much more manageable, and production efforts on Toy Story 2 were able to resume and achieve completion.

Given that autonomic neuropathy occupies its own level of sub-categorization, these sorts of results should hardly seem surprising. Autonomic neuropathy commonly refers to non-specific damage to the autonomic nerves, resulting in transmission disruption between the central nervous system and the autonomic nervous system, which affects the operation of one or more of the autonomic functions (heart, blood vessels, etc.)

For me the noteworthy aspect of this standard way of defining autonomic neuropathy is its resemblance to autonomic dysregulation (unspecified "damage", defined by signal 'disruption' between the brain and the ANS, affecting autonomic functioning). Were I more casually inclined, I might be tempted to broadly chalk it up to sympathetic overdrive, a conclusion this condition by definition does nothing to discourage.

Moreover, to the degree that autonomic neuropathy involves burning sensations, one becomes reminded of Complex Regional Pain Syndrome (CRPS), a condition defined by intense, burning feelings in the skin and extremities. CRPS is generally accompanied by allodynia, a disproportionately magnified pain response to neutral or benign stimuli and hyperalgesia, or pain amplification.

Typical CRPS features include temperature and color changes in the affected areas, as well as excessive sweating. In fact, sympathetic dysfunction in the form of vasomotor instability is one of the hallmarks of the condition, as is the presence of hyperhidrosis. Additional characteristics include joint stiffness and swelling, muscle weakness, and dystonic movements, which caused me to recall the dystonia diagnosed in the Pixar animators who suffered from repetitive strain-based neuropathy.

What's interesting about CRPS is its relationship with Reflex Sympathetic Dystrophy Syndrome. Up until around 1998, Reflex Sympathetic Dystrophy (RSD) existed as a stand

alone category that described the severe burning chronic pain that originally resulted from penetrating limb injuries first recognized in the Civil War and termed causalgia. The term RSD is based on the idea that a pathologic sympathetically maintained reflex arc is responsible for the generation and perpetuation of pain. This notion has been reinforced by anecdotal reports of pain relief following local anesthetic or pharmacological sympathetic ganglion blockade.

More recent studies have revealed that the sympathetic nervous system is not necessarily involved all cases, and doubt has been raised as to whether a "reflex arc" has been substantiated. In an attempt to lend some level of uniformity to post traumatic neuropathic pain conditions, an International Consensus Conference adopted the use of the term Complex Regional Pain Syndrome (Stanton-Hicks, et al., 1998). Pain that is accompanied by sympathetic dysfunction and is relieved by sympathetic blockade is said to be sympathetically maintained. Pain that is not relieved by sympathetic blockade is said to be sympathetically independent pain.

Because no specific test is used to evaluate CRPS, testing can be used to rule out other sorts of conditions. For example, vascular studies can be used to rule out a vascular cause when vasomotor signs and symptoms are present. The diagnosis of CRPS is made only in the absence of other sorts of diagnoses to explain the symptoms, for example, diabetic peripheral neuropathy or thoracic outlet syndrome. Successful treatment of CRPS is said to depend on an aggressive and multidisciplinary approach.

However despite the level of distinction arrived at by the International Consensus Conference, it appears as though the majority of CRPS cases seem to fall into the sympathetically maintained category, which makes up the entire classification of Reflex Sympathetic Dystrophy.

This leads to a greater level of appreciation for the prominence that sympathetic nervous system activation plays in the generation and perpetuation of chronic pain. The role that autonomic dysregulation assumes in pain signal generation is not an incidental aspect of the process; it instead appears to be the reason why the condition perpetuates and

takes on the characteristics it tends to exhibit. Hyperalgesia and allodynia don't just drop out of the sky in these instances, they are a reflection of the properties of the circuitry that

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generates them. This is as true for autonomic neuropathy as it is for complex regional pain syndrome, and it seems to constitute the basis for how the condition develops.

I recently had cause to notice these features in my private practice, when an individual whom I had seen for anxiousness some months previously asked to come in for a tune-up. When she arrived she mentioned the recent onset of some level of neuropathy that was beginning to surface in her right arm and hand when she worked on her computer.

The following week she brought in the results of an MRI she had undergone, which revealed some level of disc degeneration in C5-C6. She then reported that the neuropathy she had been experiencing had progressed during the week, to the extent it had become constant, rather than solely appearing when she was on the computer. At the conclusion of the biofeedback, she reported that her now continuous neuropathy had just decreased by 40-50%. All of which did nothing to lessen my appreciation of the centralized role the autonomic nervous system plays in neuropathic pain signal transmission. ♦

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## A PAIR OF GLASSES, HEADPHONES, SOME WIRES AND A MADE-TO-ORDER STATE OF MIND

Dave Siever

A senior puts a pair of eyeglasses and headphones on and dials up a Brain Brightening session. She has been using Audio Visual Entrainment (AVE) for about a month and has already noticed a doubling of her short-term, working, and long-term memory systems. She is better at crossword puzzles, feels more cheerful, finds herself more sociable, and notices that she has a better awareness of her surroundings when she walks. She also realized that her back pain is gone and she walks with a better gait. It's great to feel sharper and younger! She often lends her AVE unit to her son, David, who developed PTSD following his deployment in Iraq, as it clears his mind and helps him with his PTSD and aggressive feelings. He in turn lends it to his son to boost his grades and relieve the stress of going to college.

A middle-aged gentleman who has been struggling

with back pain from a work-related injury and an addiction to prescription narcotics attaches two little clips to his ears, put the device in his pocket and goes about his day. His pain settles

from a stabbing pain to a dull ache. He used to experience overwhelming anxiety and craving for the drugs he is now addicted to, but noticed that with the stimulation on, he drifts into an oasis and can go about his day quite calm and relaxed. He can actually think again as the fog has lifted, so he reads the paper and then buys some groceries. He feels



# OP-ED ON THE HISTORY OF THE FIELD

Robert Grove, Ph.D

I've been coming to our biofeedback meetings in California since 1978. Back then, the field was smaller, and the expectation was that this new modality would somehow simplify mind-body work and revolutionize medicine and psychology. I had just completed a series of studies in Canada showing that voluntary hand warming in patients with severe arthritis not only improved function, but also reduced erythrocyte sedimentation rate—a major indicator of autoimmune disorder. I began working in the clinical psychophysiology unit at the VA, Sepulveda/UCLA. Professor and UCLA scientist Barry Sterman was next-door, and Psychologist David Shapiro was over the hill at UCLA. William H 'Rick' Rickles, my director, invited me to a conference in the San Gabriel Valley. Thus began my association with BSC. It was an exciting time.

However, it was also a time when many biofeedback practitioners did not appreciate that there were other forces at work in this country, forces that would make biofeedback work difficult. For example the press over-sensationalized "biofeedback" as another mind-altering experience, equated with psychedelic drugs by many enthusiastic believers in holistic medicine. Then, in the 80s, several academic studies reported that ten sessions of biofeedback treatments were as effective as ten sessions of relaxation for a variety of problems, and—not surprisingly—found no differences between the two.

These comparative academic studies were flawed; they ignored testing for the learning effects of biofeedback. These design flaws were largely overlooked, and the perception remained among many good people that biofeedback was simply overrated. As a result, few universities added biofeedback to their academic programs and biofeedback struggled as an orphan child in academia without a legitimate university pedigree. Fortunately for us, a few schools emerged to teach biofeedback, with varying degrees of success. In many cases, training was often restricted to a few weekend courses. Students came from all levels of education and experience. These courses were often taken after a vendor had sold them biofeedback hardware. Thus, biofeedback equipment often became a toy for those that could afford it. During the 1990s, I heard from many professionals about being required to pay \$15,000 for equipment and training. Some of this occurred in California. For a while, BSC also offered a certification program. It soon became apparent that this program was becoming unwieldy, and was discouraging potential members from joining BSC.

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*The field was further hurt by infighting in the 90s, when AAPB took the official position in a white paper that EEG biofeedback was "experimental."*

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Membership began to pick up when the certification program was dropped from BSC in the early 1980s. Also in the 1980s, BSC gained a new generation of members who were delighted to share both research and practical knowledge



to a wider audience, at a reasonable price. This was aided by the sponsorship of several manufacturers who also sought a wider audience. By the 1990s, biofeedback became computerized, and rapidly spread to Europe and Asia. In many countries, biofeedback was accepted as a complimentary medical modality, and took root. The future was looking better.

Meantime, a movement was brewing to make biofeedback training legitimate in the USA. It started well, but got bogged down in politics for a long time. A torturous route to BCIA certification further restricted participation at that time.

In the early 1990s, it became clear that biofeedback advocates needed representation and presence the seats of government, especially in Washington DC. I had attended a special meeting with the President's medical advisor, who told us in confidence that biofeedback did not have sufficient clout to compete with others in the medical market. So, colleagues and I lined up a well-versed health care lobbyist to advocate in Washington DC for biofeedback recognition in the fields of nursing, chiropractic, psychiatry, and physical/occupational therapy. This lobbying proposal fell on deaf ears at the BCIA headquarters in Colorado. So by the early 90s, one could get nationally certified, but the certification carried no official weight with healthcare providers, and was perceived as a restraint of trade issue by many competing medical organizations. Thus, biofeedback still did not have a road to getting insurance coverage, because there was no one to advocate for us in DC.

The field was further hurt by infighting in the 90s, when AAPB took the official position in a white paper that EEG biofeedback was "experimental." This designation devalued work in neurofeedback, as well, and led directly to the founding of ISNR, both splitting and reviving interest in the field. The field was further split and also revived by private training centers, some for somatic biofeedback, and others exclusively for neurofeedback. It was a difficult decade for BSC.

In the meantime, neuroscience was emerging as a solid discipline, completely transforming older theories of mind-body function. Throughout the course of it all, the BSC has stood the test of time as the premier leader of those interested in serious discussions of the many cost-effective applications of somatic and EEG neurofeedback.

So, the question remains: where should we go from here? Biofeedback is part of many health care systems overseas, and I think it is high time we helped bring it back home. Personally, I embrace the new trend of mindfulness, with its neuroscience roots, as well as hypnosis, another established mind-body technique. We should quit being so clannish, and come into this century as the longest-running advocate of any technique that enhances neuronal regulation, from EEG to HRV, from mindfulness to hypnosis. Today mindfulness,

*Continued on page 11*



# 40 YEARS OF BIOFEEDBACK IN SPORT: THEN & NOW

Vietta “Sue” Wilson, Ph.D

For centuries athletes have sought out different strategies, teachers and devices as a way to improve their performance. The use of instruments that help quantify performance efforts go back thousands of years. Crude instruments fashioned in classical Greek and Roman antiquity were actually rudimentary biofeedback devices. Labs with psychophysiological measurements used to ultimately enhance sport performance were first documented in the 1930’s in North America and Europe.

My personal biofeedback history extends back to the 1971 when Francine Butler introduced me to Tom Budzynski in Colorado and then arranged a visit with Elmer and Alyce Green in Kansas. Their enthusiasm was contagious and having had training and experience in the application of physiol-

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*There were few, if any, full time professional paid biofeedback trainers and most were still “learn as you go.”*

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ogy, biomechanics and psychology in sport, the purchase of biofeedback equipment seemed like the logical progression. The Canadian national gymnastics teams of 1972-74 were the first guinea pigs for biofeedback training. They liked it and I, believing it was valuable, figured it would be a short time period before everyone did biofeedback in sport. Little did I know what being a pioneer meant: 1) not knowing what to do or where to go (I pestered people such as Joe Kamiya, Barry Sterman, John Basmajian and Eric Peper with endless questions); 2) the dismissal and ridicule from professional colleagues; and 3) the sheer amount of work in maintaining mountains of important data.

The positives, however, outweighed the negatives in those early years. Biofeedback was a new means of communicating with the other via psychophysiology, it engendered the energy and trust of the athletes, and provided the excitement of learning. Every application was like trying out new toys. I was given the opportunity to travel the world and meet other excited, interesting people.



Sue and Korean Olympic skater

ogy, biomechanics and psychology in sport, the purchase of biofeedback equipment seemed like the logical progression. The Canadian national gymnastics teams of 1972-74 were the first guinea pigs for biofeedback training. They liked it and I, believing it was valuable, figured it would be a short time period before everyone did biofeedback in sport. Little did I know what being a pioneer meant: 1) not knowing what to do or where to go (I pestered people such as Joe Kamiya, Barry Sterman, John Basmajian and Eric Peper with endless questions); 2) the dismissal and ridicule from professional colleagues; and 3) the sheer amount of work in maintaining mountains of important data.

The primary process of biofeedback in sport involves the athlete, the equipment, the trainer, and the purpose or goal. You need to know who you are training, for what you are training (sport and situation specific) and how to integrate these factors

into the sport setting. Athletes are different from non-athletes in that they are generally more compliant, disciplined, and challenge-oriented (Wilson & Peper, 2013). They also enjoy visible changes to their physiological/psychological functioning.

Each sport and situation within the sport requires different tools and methodologies. For example, a weight lifter may only need be trained to control their breathing/heart rate and muscle relaxation, whereas a tennis player would need attentional control skills. Additionally, being a good biofeedback performer in the office may or may not transfer to the field. The trainer typically has to progress to biofeedback on the field. They must progress from being in a non-stressed situation, such as practice, to a highly competitive situation (i.e. millions of dollars differentiating the winner from the loser).

What did we learn from our early days of modern biofeedback (1970’s)?

Initially, biofeedback was not integrated into sport but merely associated with sport. Individuals were typically trained in an office setting and the results were then “mentally applied” to the particular sport. Each instrument was stand alone and no physiological cross effects could be noted between, say Surface Electro Myography (sEMG) for muscle control, electro dermal activity (EDA) for emotional control and heart rate (HR) for arousal control. What little research that was done in sport was typically by people not experienced in biofeedback, was one shot, and was done in a laboratory with no concern for the mental state of the experimenter or the athletes. Most of the research and clinical work was in sEMG and EDA with mixed results reported.

By the 1990’s, more people and places were using bio-

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*Last year, the United States Olympic Training Center hired their first full time psychophysiological, Lindsay Shaw Thornton to do assessments and training.*

---

feedback and the exploration of EEG in sport was occurring both in the lab and clinically. There were few, if any, full time professional paid biofeedback trainers and most were still “learn as you go.” Typical usage still consisted of sEMG, EDA, and HRV. More psychophysiological lab research in EEG was being conducted; a few controlled biofeedback research studies providing encouragement for its effectiveness in sport.

By 2004, more organizations in more countries began to use biofeedback for a variety of sports on the applied level.



Continued on page 11

# BSC PAST PRESIDENTS: PART III

Compiled by Steve Kassel

With the approaching 40-year anniversary of BSC, we thought it was a good to put our detective hats on and find some of the past presidents of BSC to whom we are much indebted. This year at the BSC conference, we will be honoring all presidents past with a President's Reception on Friday night, following biofeedback pioneer, Patricia Norris's, speech on the Evolution of Alpha Theta. We invite you to come and celebrate among those who have contributed to the founding and subsequent growth of the field: Friday, November 7th, at the Hilton Oakland Airport hotel.



## Yair Lurie -2003

Yair graduated from Andrews University with a B. S. in Psychology and minor in Biology, and completed his M.S. in Psychophysiology and Biofeedback under Richard Gevirtz, Ph.D. at the California School of Professional Psychology. From 1999-2012, Yair worked

as a biofeedback therapist under Dr. Naras Bhat at the Cybernetix Medical Institute in Concord, CA. He received BCIA certification in 1999. He also had a small biofeedback company where he developed and sold biofeedback respiration sensors.

He helped found TeleVital, a company that developed, marketed and sold telemedicine and browser-based tele-biofeedback software applications. The applications allowed remote physicians real time access to patient vital sign, radiology studies, medical records and live audio and video communication. Yair joined InTouch Health in 2006, and is Product Manager for CS Interface and Core System software. He has recently released an FDA Class II cleared iPad App that provides physicians remote access to acute care patients via an autonomous remote presence robot. Yair received a graduate certificate in Biomedical Informatics from the Oregon Health and Science University (OHSU) in 2012 and is certified by the American Health Informatics Management Association (AHIMA) as a Registered Health Information Administrator (RHIA). He is also a certified Professional in Healthcare Information and Management Systems (CPHIMS).

Yair has been interested in psychophysiology and biofeedback for over 16 years and has published several articles on biofeedback over the years. He spends some of his free time in Santa Barbara thinking about how mobile devices can be used to provide biofeedback.



## George von Bozzay, PhD - 1976

George is the Founder and Clinical Director of the Biofeedback Institute of San Francisco. He is a Licensed Clinical Psychologist in independent practice. He is also a Clinical Instructor in Psychiatry and

Behavioral Sciences, Stanford University Medical Center; Associate Clinical Professor in the Department of Biological Dysfunction, UC School of Medicine, SF; Staff Psychologist, Adult Psychiatry Department, Children's Hospital, SF; Faculty, City College of SF and UC Berkeley Extension; 1976 President, Biofeedback Society of California, past Co-chairman of State Societies and Chairman of Insurance Committee, Biofeedback Society of America; He is the author of Biofeedback: Methods and Procedures in Clinical Practice (Biofeedback Press, 1977) and Psychology: Today and Tomorrow (Harper and Row, 1978) as well as other books, chapters and publications.

His professional memberships include, but are not limited to: American Psychological Association (APA), California State Psychological Association (CSPA), S.F. Bay Area Psychological Association (SEBPA), Biofeedback Society of California, Biofeedback Society of America (Board Member) (BSA), American Association Biofeedback Clinicians (Diplomat) (AABC), Biofeedback Certification Institute of America (BCIA) (Biofeedback and Neurofeedback), Society for the Study of Neuronal Regulation (SSNR), Academy of Behavioral Medicine (ABM) and many other. Dr. von Bozzay earned his MA and PhD at the University of Massachusetts, Amherst, in Clinical Psychology (NIMH Fellow) and was a UC Fellow in Medical Psychology at the Langley Porter Neuropsychiatric Institute, UCSF Medical Center.



## Erik Peper, PhD - 1978

Erik is an internationally known expert on holistic health, stress management, and biofeedback. He is a professor at San Francisco State University, where he was instrumental in establishing the Institute for Holistic Health Studies, the first holistic health program at

a public university in the U.S. He is president of the Biofeedback Federation of Europe (BFE) and former president of the Association for Applied Psychophysiology. He is an author of numerous scientific articles and books: Biofeedback Mastery, Muscle Biofeedback at the Computer, Make Health Happen Training: Yourself to Create Wellness, De Computers and Fighting Cancer-A Nontoxic Approach to Treatment. He has a biofeedback practice at BiofeedbackHealth in Berkeley, California ([www.biofeedbackhealth.org](http://www.biofeedbackhealth.org)) and publishes a blog The peperperspective: Ideas on illness, health and well-being ([www.peperperspective.com](http://www.peperperspective.com)).



## Don Nadler, PhD - 1987

I was president in 1987, but my biofeedback interests began in 1977 with my dissertation on the use of thermal biofeedback in the treatment of depression in older adults. In fact, there was plasticity in those old brains.

BSC was and is a wonderful forum to interact with colleagues and learn new skills and techniques. We had 400 members in 1987. Perhaps the fall in membership is due to the economy and / or the separation of the disciplines that use biofeedback-- psychologist, PTs, pelvic floor specialists, pain practitioners, etc. Biofeedback was the focus back then rather than the specific application or modality.

So my thanks and recognition goes out to those in the field that mentored and excited me, and to those of you who created and those of us who have maintained BSC, a truly important society. My best to all – Don



**Bill Barton, PhD – 1990 & 2001**

I am now 68 years old, and am seeing about 20 clients per week as a licensed clinical psychologist. I am working out of the same office adjacent to the St. Mary Hospital since 1984. I love the tool and techniques of biofeedback and remain very

enthusiastic about the field's future. I got into biofeedback to help with anxiety and sleep onset or latency issues with alpha/theta training in the early 1970s with Arthur Gladman, MD, Tod Mikuriya, MD, and Barbara Schneider, using Autogen equipment.

There is a unique and special affinity with abounding mutual respect among biofeedback practitioners around the world that is difficult to fully explain. We are family. To me it is like a club where we trust each other, share similar perspectives on health and the magic in healing and helping others, including ourselves! We bio clinicians each have some amazing stories where we have been the conduits for significant help to others. We give our clients the credit. Often we receive those that have not been helped by traditional medicine. I am forever grateful to Steve Wall for developing the incredible BioIntegrator!

I have great respect for all those who have developed instrumentation in the early years and currently, and believe that we still are in nascent developmental stage with a huge exciting future.

After the death of my mother in 2005, "the keel of my being was lost", I flipped my car over on the way to a lecture on Freud's "Death Instinct", and knew that it was time for me to connect with a therapist! This Jungian analyst encouraged me to write a book, and I completed *The Legend of Imp* after nearly 5 years of tinkering in my "spare time". It was a healing enterprise that re-anchored me. Sailing and racing sailboats has been my lifetime passion that has given me incredible sailing experiences all over the world and kept me free spirited and connected with nature. I love doing clinical work and am challenged personally to begin the process of divesting of things I don't need! What to do with a library of great books, hundreds and hundreds of vinyl albums, and art work that I have spent a life collecting. As a new hobby I have bought an old acoustic guitar and am dedicated to at least 20 minutes per day. I continue to race boats and ride my mountain bike. Let's all keep our "club" going and enjoy meeting up at our annual meeting. See you there and hope to share some more stories and memories with each other!



**Kati Twinem Jones**

I am currently semi-retired and seeing patients in private practice a couple of hours a week. I was fortunate to work in a multi-disciplinary pain management program from 1981 to the end of 2012. Interacting with top-notch professionals from various

disciplines further enhanced my skills as a Biofeedback Therapist. My current interests include bike riding and playing the ukulele, not at the same time. I remember Jack Sandweiss inviting me to become active in the state society and reactivate a regional group in the LA/Long Beach area. Calling members and inviting them to evening gatherings with discussions and presentations about Biofeedback wasn't work to me. It was a way to make new friends and develop lasting relationships. I also have fond memories of the 9 years I spent on the board and as president. Maureen McKenna, the president before me, and I worked together during her presidency to keep the society afloat while looking for a new administrative group. It was a challenging time and at the same time very invigorating. I am pleased to see the society continuing to offer intellectual stimulation and camaraderie.



**Naras Bhat, MD - 2002**

Dr. Bhat earned his M.D. degree from the Institute of Medical Sciences at Banaras Hindu University (India) in 1969. He completed his Internship at Loyola University at St. Joseph Hospital (Chicago) in 1971, and his Residency in Internal Medicine at Charity Hospital

at Louisiana State University in 1973. He completed a fellowship in allergy and immunology (1973-1975) and served as a medical researcher associate (1974-1975) in immunology, at Scripps Clinic and Research Foundation (La Jolla CA). He received advanced training in Bariatric Medicine during 2006-2009, and in Sleep Medicine during 2008-2010. His Board certifications include: Internal Medicine, Allergy and Immunology, Sleep Medicine, Stress management Education, Advanced Metabolic Cardiology, and Bariatric Medicine (weight control).

Dr. Bhat has won many professional honor awards, has published numerous articles and books in his areas of expertise, has appeared on numerous media shows (e.g., CBS TV), and has made hundreds of presentations, including lectures, workshops, courses, and seminars for healthcare practitioners worldwide. He is widely recognized for his work in behavioral medicine, which includes his expertise on the subjects of sleep disorders, weight control, stress & burnout management, anger & anxiety self-regulation, and the psychophysiology of heart disease. Dr. Bhat is the founder of the Allergy and Weight Clinic (1976) and the Concord Sleep Clinic (2007) in Concord CA. He serves as Medical Director of both clinics and has been practicing and teaching integrative medicine since 1976.

*Continued on page 16*

## A Pair of Glasses

Continued from page 6

sharp and functional enough to get a job again.

Curtis is struggling with depression. He visited a local practitioner who completed a full 19-channel QEEG, finding a fairly severe alpha "hot-spot" at F3. This clinician, who normally uses tDCS to treat apraxia and aphasias following stroke, has no trouble treating depression. He places an anode electrode over F3 and the cathode on his client's shoulder. His client feels a small tingle and talks to his clinician about his depression. After that, he reads a book while the stimulation does its magic. This is his third treatment, and he cannot believe how much better he is already feeling. He uses AVE at home to supplement his positive outlook in between tDCS treatments. Those dark and scary thoughts and feeling are beginning to feel like something of the past.

The brain enhancement technologies of Audio-visual Entrainment (AVE), Cranio-Electro Stimulation (CES) and transcranial DC Stimulation (tDCS) provide a power means of tuning the brain and enhancing mental functionality. These technologies have been around for all of 50 years, but are receiving wide-spread reputation in recent years as the drug model continues to diminish and brain electronics continues to flourish. CES carries with it over 200 studies, with 50 of them double blind. tDCS is backed by 700 studies on almost every cognitive and emotional condition imaginable. AVE is less studied, but still carries with a robust collection of about 1000 physiological and 50 clinical studies.

Stimulation Technologies are emerging into the new area of brain treatment as they are easy to use, may be used at home, and are effective. Given that so many people with cognitive impairments and emotional instability struggle to work, they are often struggling financially. The low-cost and affordability of Stim Tech allows practitioners to treat a wide-ranging and large portion of the population while continuing to sustain a good income for themselves. ♦

## 40 Years of Biofeedback in Sport

Continued from page 8

Canada paid for a sport psychology/biofeedback program for Olympic level athletes as one of their 'secret weapons' in preparation for the hometown Vancouver 2010 Winter Olympics. Since the medal results were the best ever, the government continues to support biofeedback for some Olympic teams/athletes. Teams and athletes in many other countries, Olympic as well as professional, are using biofeedback/neurofeedback in their training programs. And last year, the United States Olympic Training Center hired their first full time psychophysiological, Lindsay Shaw Thornton to do assessments and training.

Today, has the equipment changed? Are the people using the technology different? Have the athletes acceptance and response changed? Have sport performances changed? Yes and no. The equipment has changed a little (it is now possible to do on field assessment and training in most modalities with less cumbersome technology) but the measurements are basically the same physiological processes. What has changed is an understanding of the meaning of the measurement and the refinement of data. Additionally, the availability of measurement equipment has lead to applications on smart phones and ipads for at-home training; QEEG can deliver a preliminary analysis within an hour; and psychophysiological assessment data can be integrated in with QEEG data to inform a mind-body training plan for high performance.

In our seminar we will emphasize what biofeedback trainers in sport use in working with developing and world-class athletes. We'll consider what measures you ought assess, who you train, what you train, and how you translate this to practice in the field? Using the primary elements that need to be assessed (biofeedback, psychologically, programme wise), we will cover typical/normative type data use, software choices, and ways to estimate success. I will cover the "then," and Lindsay Shaw Thornton will cover the "now." ♦

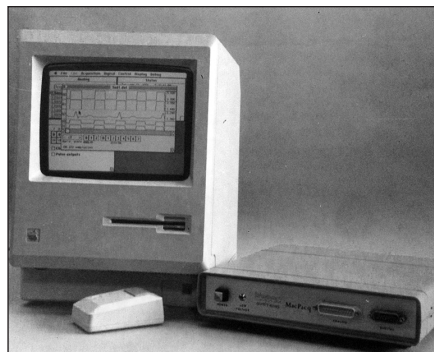
## Macy Article

Continued from page 4

creased orders of magnitude. The company would struggle over the challenges associated with software and the Cambrian explosion, in terms of getting their hardware and software to interface with all the different operating systems. A Macintosh programmer named Edward Peterlin encouraged BIOPAC to adopt Qt, a kind of a meta-level software development system — a cross-platform application framework. Because of this decision, BIOPAC today is platform agnostic.

As the company continued growing, they became aware of different demands to the market: they were soon pulled into the life sciences, and people began to use their equipment for teaching applications. BIOPAC began to enter curriculum development. The trappings of the curricular model was hugely successful. An entire wing of the company became the BIOPAC educational systems. The company bifurcated and branched into education and research-focused products.

Today, BIOPAC is looking to the future with a wide angle lens; physiology is everywhere. The story is captivating, as is Macy. He will be discussing his thoughts on this and more, in his talk at the BSC conference: Beauty and the Origins of Electrophysiology, Telecommunications and the Global Theater, November 8th at 3pm. ♦



## Op-Ed on the History of the Field

Continued from page 7

not biofeedback, has emerged as the legitimate child of neuroscience.

This is a situation that needs your input, and is overdo for a mid-course correction. I think BSC could help lead this part of the neuroscience revolution. Are you on board?" ♦



# BSC

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DATE - DAY	TIME	WORKSHOPS		INSTRUCTORS
TUES	4-Nov	8am-5pm	[Pre-Workshop 1A]	(Brain Science International) - Biofeedback Certification Program Cynthia Kerson, PhD and Chris Gilbert, PhD

WED	5-Nov	8am-5pm	[Pre-Workshop 1B]	(Brain Science International) - Biofeedback Certification Program Cynthia Kerson, PhD and Chris Gilbert, PhD
	5-Nov	8am-5pm	[Pre-Workshop 2A]	(Brain Science International) - QEEG Certification Program Jay Gunkelman, QEEG Diplomate

THURS	6-Nov	8am-5pm	[Pre-Workshop 1C]	(Brain Science International) - Biofeedback Certification Program Cynthia Kerson, PhD and Chris Gilbert, PhD
	6-Nov	8am-5pm	[Pre-Workshop 2B]	(Brain Science International) - QEEG Certification Program Jay Gunkelman, QEEG Diplomate

FRIDAY	7-Nov	8am-5pm	[Pre-Workshop 1D]	(Brain Science International) - Biofeedback Certification Program Cynthia Kerson, PhD and Chris Gilbert, PhD	
	7-Nov	8am-5pm	[Pre-Workshop 2C]	(Brain Science International) - QEEG Certification Program Jay Gunkelman, QEEG Diplomate	
	7-Nov	8am-5pm	[WS-1 Workshop]	Intro to Biofeedback Peripherals Frank DeGregorio	
	7-Nov	8am-12pm	[WS-2 Workshop]	All About Stimulation Technologies Dave Siever	
	7-Nov	8am-12pm	[WS-3 Workshop]	Then & Now: 40 years of Biofeedback in Sports Sue Wilson, PhD and Lindsay Shaw Thorton, PhD	
	7-Nov	1pm-5pm	[WS-4 Workshop]	The Path: Mastering the Nine Pillars of Resilience & Success Stephen Sideroff, PhD	
	7-Nov	5:30-7pm	KEY NOTE-1	Patricia Norris - The Evolution of Alpha Theta from the Insider's Perspective Patricia Norris, PhD	
	7-Nov	7-9pm	PRESIDENTIAL COCKTAIL PARTY		
	7-Nov	9pm-Sunrise	STUDENT PARTY		

SATURDAY	8-Nov	8-9am	[SC-1]	The Combined Effects of Neurofeedback and Biofeedback Training for Treating Children with Autism Spectrum Disorder Matthew Goodman, Rita Sharna and Swan	
	8-Nov	8-9am	[SC-2]	The Future of Biofeedback: Wearables and Apps George Fuller-Von Bozzay, PhD and Steven Kassel, MSW	
	8-Nov	9:30-10:30am	KEY NOTE-2	Siegfried Othmer -The Common Core of Neurofeedback: Fissures & Reunification Siegfried Othmer, PhD	
	8-Nov	11am-12pm	[SC-3]	Meditation revisited: Comparative QEEG studies Juan Acosta-Urquidi, PhD	
	8-Nov	11am-12pm	[SC-4]	Restricted Environmental Sensory Therapy: Biofeedback from the Inside Out Jeffrey Bruno, PhD	
	8-Nov	12:30-1:30 pm	MEMBERS MEETING - BOX LUNCH AVAILABLE		
	8-Nov	1:30-2:30pm	[SC-5]	Neuropsychological & Psychophysiological Aspects of Surgical Candidates with Chronic Condition Amir Ramezani, MD	
	8-Nov	1:30-2:30pm	[SC-6]	ADD and Autism: QEEG Subtype Assessments & Guided Neurofeedback Michael Linden, PhD	
	8-Nov	3-4pm	[SC-7]	Beauty and the Origins of Electrophysiology, Telecommunications and the Global Theater Alan Macy	
	8-Nov	3-4pm	[SC-8]	The Mechanisms of Migraine Peter Behel	
	8-Nov	4-5pm	[SC-9]	What are we trying to Do? The Critical Role of Accurate Operant Conditioning Neurofeedback Barry Sterman, PhD	
	8-Nov	4-5pm	[SC-10]	Historical Links Between Biofeedback and Psychoneuroimmunology Rick Harvey	
	8-Nov	5:30-7pm	KEY NOTE-3	Neurofield's Applications for Autism, Depression, Anxiety & Traumatic Brain Injury Nicholas Dogris, PhD	
8-Nov	7-11pm	BIRTHDAY PARTY & DINNER			

SUNDAY	9-Nov	8-9am	[SC-11]	Identifying the Therapeutically-Meaningful Signal: Sharpening Your Bio and Neurofeedback Skills Bob Grove, PhD
	9-Nov	9am-12pm	[PN-1]	THE FOUNDER'S PANEL: Past Presidents of BSC, Memories and the History of the Field
	9-Nov	9:30-10:30am	KEY NOTE-4	Brain States & Dimensionally Defined Psychopathology - A New Approach to Understanding ADHD Sigi Hale, PhD
	9-Nov	11am-12pm	[SC-12]	Biofeedback and Common Sense in the Treatment of Challenging Disorders Erik Peper, PhD

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	BSC Member	Non-Member	full time students BSC mem.	full time students non member
Conference Registration before 10/16/2014	\$ 210	\$ 235	\$ 75	\$ 90
Conference Registration after 10/16/2014	\$ 225	\$ 250	\$ 85	\$ 100
Conference Registration at the door	\$ 245	\$ 295	\$ 95	\$ 110
Conference Registration 1 DAY ONLY (Fri, Sat, Sun) Circle one	\$ 175	\$ 205	\$ 45	\$ 60
Pre-Workshop 1a,1b,1c, 1d 4-day BFC Cert. Course	Register at <a href="http://www.brainsinternational.com">www.brainsinternational.com</a>			
Pre-Workshop 2 2a, 2b, 2c 3-day QEEG Cert. Course	Register at <a href="http://www.brainsinternational.com">www.brainsinternational.com</a>			
Pre Workshop 2 on site-registration	\$ 190	\$ 215	\$ 170	\$ 195
Workshop 1 (full day on Friday) with Registration	\$ 175	\$ 200	\$ 150	\$ 175
Workshop 1 - on site-registration	\$ 190	\$ 215	\$ 170	\$ 195
Workshops - (4 hours) with FULL Registration	\$ 105 each	\$ 130 each	\$ 85 each	\$ 95 each
Workshops - on-site-registration	\$ 120 each	\$ 145 each	\$ 95 each	\$ 105 each
Keynotes, Panel and Short Courses (1 hour)	Included with full registration			

**COURSE REGISTRATION:** Please enroll me in the following short courses and workshops. (circle desired choices.)

Workshops: WS1 (full day) / WS2 (4hr) / WS3 (4hr) / WS4 (4hr)

Short Courses: SC1 / SC 2 / SC 3 / SC 4 / SC 5 / SC 6 / SC 7 / SC 8 / SC 9 / SC 10 / SC 11 / SC 12 /

Conference Fee Total:  
 CE FEE: (\$45.00) ..... \$ \_\_\_\_\_  
 Members Luncheon (\$15.00) ..... \$ \_\_\_\_\_  
 Dinner Banquet (\$45.00) ..... \$ \_\_\_\_\_  
 Workshop 1 on Friday: (see pricing) ..... \$ \_\_\_\_\_  
 Workshops (4 hr): \_\_\_\_\_ # of WS (see pricing) ..... \$ \_\_\_\_\_  
 2014 BSC Membership: New (\$125) ..... \$ \_\_\_\_\_  
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 Refunds will be issued minus a \$50.00 processing fee if requests are received by October 16, 2014. No refunds will be issued after that time. Any nonattendance without prior notification will result in forfeiture of the registration fee.

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# A BRIEF HISTORY OF BIOFEEDBACK

Patricia Norris

I am delighted to have the opportunity to address the BSC at the forthcoming 40th Anniversary conference. My talk is titled *The Evolution of Alpha Theta from an Insiders Perspective* and will focus on the History of Alpha/Theta Training at the Menninger Foundation, and the Life Sciences Institute for Mind-Body Health. I expect it will be a review, a trip down memory lane for many attendees, and brand new information for others. What follows is a biographical and autobiographical history of the field.

I first learned about instrumental feedback in the mid-60's, before it received the name Biofeedback. However, I knew about self-regulation all my life. As a child in Canada in the 40's I learned to warm my feet at Elmer Green's suggestion, by stretching them out in the cold bed, and imagining them (visualizing them) as being warm. Voluntary control of self regulation has historical roots that go back thousands of years in both the Eastern Western cultures. The theory and philosophy of biofeedback is one of self-regulation, of feedback that enables self-regulation by bringing conscious awareness to an ongoing physiological process.

The film *Biofeedback: The Yoga of the West* is an early depiction of a number of individuals, many of them in India, who demonstrate various types of voluntary control over autonomic processes. These unique skills were gained through years and decades of practice. Examples from the film include voluntary control of pain and bleeding monitored by EEG and GSR, temperature regulation; voluntary control by an adept placing daggers through his tongue, abdomen and side while maintaining normal EEG and EKG; and voluntary control of heart rate over an extended period of time, monitored continuously by a polygraph. These extraordinary feats were not learned by instrumental feedback, although some sort of feedback would be required. It is apparent to all of us in the biofeedback world that all learning, without exception, depends on feedback.

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*In April of 1969, a number of researchers were gathered by biofeedback practitioner, Elmer Green at a conference in Council Grove, Kansas, including Joe Kamiya, Les Fehmi, Barbara Brown, Tom Budzynski and many others.*

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Instrumental, "modern" biofeedback emerged in the early 1960's in several psychophysiological domains. Canadian academic and scientist, John Basmajian, demonstrated an interesting example of voluntary control with subjects who were able to exhibit single motor unit firing via inhibiting the surrounding motor units and causing a single motor unit to fire a rhythm, a single beat, a roll of three, or whatever was wished. He called the people who were able to do this SMUGS, i.e. Single Motor Unit Geniuses.

About this same time University of Chicago psychologist, Joe Kamiya, began demonstrating that with feed-

back, college students could turn alpha rhythms on and off at will. His professional interest was, and still is, primarily in the study of consciousness.

At the Menninger Foundation, the history of the Voluntary Controls Program began with the intention of demonstrating the psychophysiological correlates of consciousness and volition. The first research project measured the effects (i.e. the psychophysiological correlates) of Wolfgang Luthe's Autogenic training. Thermal feedback given during intention to warm increased the magnitude of warming and decreased the time to generate it. Photoplethysmographic signals showed increased blood volume.

These events were exciting, and in April of 1969 a number of researchers were gathered by biofeedback practitioner, Elmer Green at a conference in Council Grove, Kansas, including Joe Kamiya, Les Fehmi, Barbara Brown, Tom Budzynski and many others. At this gathering, Green demonstrated an EEG machine that had a different tone for each frequency between 6hz and 26hz, giving melodious feedback that went up and down the scales. It was decided, at that time to have a conference of these researchers and others working in psychophysiological research that fall. In October of 1969 this meeting was held; Barbara Brown convened the meeting. The outcome was a new society, the Biofeedback Research Society (BRS), and Brown was elected as the first president.

In 1972, I attended my first BRS meeting in Monterey, California. Many interesting papers were presented. At this stage in the society's evolution, invited clinicians were not allowed to present or to vote, however. There was an auxiliary, non-voting membership for those of us doing primarily clinical biofeedback work. A campaign to include clinicians was eventually successful, and the BRS became BSA (Biofeedback Society of America) and later its present name, Association for Applied Psychophysiology and Biofeedback, AAPB.

My own clinical work since 1970 has centered on biofeedback. The work for my PhD thesis, *Working with Prisoners, or There's Nobody Else Here*, utilized biofeedback to help promote self-image change and empowerment in small groups of imprisoned participants. Each group met daily for five weeks. The central idea was that we cannot operate outside of the image we hold of ourselves. The way we see ourselves determines our behaviors. Many of the inmates held poor self images, and the objective of the study was to use biofeedback to expand their self-image. I continued to work with prisoners in a number of settings, culminating in Alpha/Theta training for addictions in many prisons in Kansas.

The other major thrust of my career was/is psychoneuroimmunology, brainwave and thermal biofeedback. The book *I Choose Life "The Dynamics of Visualization and Biofeedback"* by Patricia Norris and Garrett Porter illustrates





the role of these modalities in health and healing in many conditions, especially cancer and disorders of the immune system. This book is available on Kindle and paperback, and I believe it will be of great interest to many clinicians working directly with clients. ♦

### Past Presidents: Part III

Continued from page 10



#### Stephen Francis, PhD

In the fall of 1986 I entered the Masters in Psychology Program at UOP to study under the late Doug Matheson. In his office were several editions of California Biofeedback. I saw there was an upcoming conference in Monterey. I drove down there on a Friday morning

feeling shy, as I had never been to a professional conference before. I took workshops by Marjorie Toomin and Jack Sandweiss. I strolled through the exhibit booths. The BSC remains to this day one of the warmest and most welcoming groups of individuals I have experienced. Several years later I joined the Board of Directors and eventually had the privilege of serving as President. Shortly thereafter I was consumed with finishing my dissertation and getting

licensed. As a result I drifted away from any sort of Board involvement.

Most of my work nowadays is divided between pain management and neuropsychological assessments and almost all of it in the CA Workers Comp System. I spend about half of my time doing medical legal evaluations for the workers comp system. I am bringing on two newly licensed psychologists and one post doc to my practice and after a several year hiatus will be finally integrating biofeedback into my clinic. Psychophysiological regulation remains for me one of the most potent tools available to help individuals learn about their bodies and harness increased control over aberrant processes. Happy Birthday, BSC! ♦



We are always interested in having new energy on the BSC Board, and this opportunity allows all of us to contribute back to the field.

Jay Gunkelman, QEEG (Current President)



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NJ/NY	May 15 – 17
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Ft. Lauderdale, FL	Nov 13 – 15

### 3-Day Quantitative EEG

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Chicago/St. Charles, IL	July 24 – 27
Washington, DC	Sep 21 – 24
San Diego, CA	Oct 11 – 14
Ft. Lauderdale, FL	Nov 16 – 19
Mill Valley, CA	Dec 11 – 14

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