

FROM RUSSIA WITH MYSTERY

*From ER physician
to producer and author,
Vladimir Lange
turns brain scanning
into a techno-thriller.*

Lange (center) and
his climbing team near
Mount Everest base camp





Vladimir Lange, MD, had decided to write his autobiography instead of the newly released techno-thriller *Fatal Memories* (Red Square Press, 2005), the story would have been just as interesting. Multilingual, world traveler, emergency room (ER) physician, mountain climber, pilot, award-winning producer, author ... the list goes on. His life experiences in themselves read like a romance novel: Each chapter leads to one even more exciting.

But for now, Lange has combined his knowledge of MR and PET scanners and some not-so-distant technologies to give us a story that will literally tap the hidden resources of the brain.

Multi-Cultural

Lange's story begins about 30 years before he was even born. As the Communist Revolution began in Russia in 1917, Lange's grandfather sent his wife and infant son (Lange's father) from the war-torn country to safety in Czechoslovakia while he joined the pro-Tsar white army battling the communists for control of the country. When the white army finally capitulated in 1921, Lange's grandfather escaped Russia to join his family in Czechoslovakia.

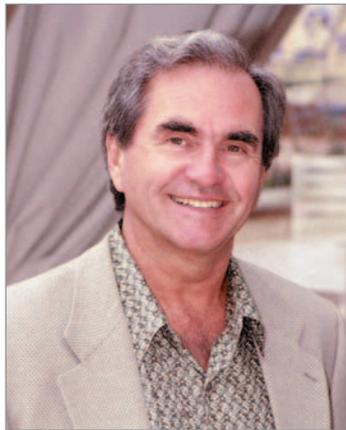
What seemed like an ideal existence for the Langes became a nightmare when Germany annexed the country in 1938. Although supposedly liberated by the Soviets in 1944, the communists remained in Czechoslovakia, only to replace the Nazi regime with an equally ruthless government of their own.

In 1945, the family once again found themselves fleeing their home – this time to Allied-occupied West Germany. With hopes of a new life free from war and oppression, the Langes decided they would leave Europe all together and start a new life elsewhere.

“My family found the first boat leaving Europe was to Brazil and said, ‘That sounds like a great choice.’ So off we went,” says Lange of his family's plight. Vladimir was only 2 years old at the time.

Things were not easy for the Langes in South America. Not knowing a word of Portuguese or a soul in Brazil, Lange's engineer father and his architect grandfather were forced to take jobs stringing beans in order to support their families.

“Growing up in Brazil was interesting in a sense that it was a totally different culture from what I originally knew,” Lange says. “[Early on], I would hear Russian music and learn Russian history and geography. But as I grew up in



Vladimir Lange

Brazil, I became multicultural.” Lange further expanded his multicultural upbringing spending his summers at his grandmother's house in the Brazilian mountains, riding horses and picking coffee beans.

But the simple life Lange had come to know growing up was about to change. In 1960, his father was offered an engineering job constructing a dam for the Shah of Iran. Lange now found himself living in a small, barbed wire-encircled community composed mostly of Americans and Italians. His school consisted of one tiny room, with Lange as the oldest child.

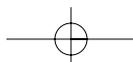
It was in Iran, of all places, that Lange started to learn English. Little did he know how important this new language would be to him in a few years.

Within a year, it was clear that Lange was too old to be in school with the other kids, so his parents sent him to live with an aunt in Paris, where he attended a bilingual French and Russian school run by Jesuits.

While at the Jesuit school, Lange experienced the first of many epiphanies that would change his life. While dissecting frogs in his biology class, Lange discovered he had a knack for surgery. “On the side, I would do little operations on the frogs,” he says. “I would put them to sleep with nail polish remover and perform a partial gastrectomy (the surgical removal of all or part of the stomach) and then sew the frogs back up, and they would live. I know it is not politically correct now, but the entire experience was amazing.”

With his career goal set, Lange's parents decided to send him to school in the United States where opportunities abounded. At the young age of 17, Lange could already speak four languages and had lived on three continents. He was about to add a fourth.

By Tom Schaffner



The MEG Procedure



In *Fatal Memories*, the MEG scanner is based on MRI and PET technologies. (MEG graphic created by Tim Doherty)

IN

Fatal Memories, the fictional magneto-encephalograph, or MEG, uses two familiar technologies – MRI and PET – to scan the brain for memories. The MEG can do in a few minutes what conventional psychotherapy can only hope to accomplish in years. For many patients, it offers an effective treatment for phobias, schizophrenia, multiple personality disorders and other afflictions. The procedure is simple.

First, the location of the memories that need to be eliminated are pinpointed. Then an injection of glucose containing a small amount of radioactive compound is administered, marking the active areas in the brain. The MEG arms rotate, emitting harmless, painless magnetic beams. The magnetic field depolarizes the synapses in the brain, providing easier access to repressed memories.

It is like regression under hypnosis, but much more precise and short-lived. As the patient is guided with questions related to their particular cases, the radioactive glucose collects in whatever area of the brain is active, enabling the technologists to detect the precise location of the unwanted memory – called the locus.

Now comes the most critical part of the procedure: the ablation phase. The cells where the memory is stored – and only those cells – need to be destroyed. This is accomplished through radiofrequency (RF) ablation. Two narrow RF beams intersect over the locus and their combined energy damages the cells, permanently eliminating any record of the unwanted memory.

The procedure may need to be repeated if the affected area is large. The patient can go home within a day or two. If the MEG procedure is successful, there will probably be no need for conventional psychotherapy or medications.

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To see how the MEG in *Fatal Memories* works, visit www.rt-image.com/0328russia and click on the video link.

Setting the Stage

“I arrived in New York City a few days after President Kennedy was shot in November 1963,” Lange recalls. “When I started my undergrad work at New York University, I was firmly committed to being a heart surgeon, and since I wanted to be the best heart surgeon possible, I would go to the best school possible – Harvard.”

Not long after attending Harvard Medical School in Boston, Lange met the woman he was to marry. “When I met Marilyn, it was love at first and an image engraved in my mind to this day,” he says, foreshadowing things to come. The couple married in 1969 and honeymooned by riding through Europe on a motorcycle.

Upon graduation from Harvard in 1972, Lange was accepted into a surgical residency at a hospital in California. But once again, fate stepped in and presented him with another career opportunity.

“At this point, I had already fall[en] in love with flying and I desperately wanted to own my own plane,” he says. “I started moonlighting in emergency rooms to make some money to finance my hobby and realized that I really liked the emergency room life.”

From a career as a full-time surgeon, Lange glided into the emergency room, landing him in a hospital ER on the outskirts of Los Angeles.

“Emergency is obviously fascinating in the beginning because it is fast-paced and interesting, but after five or 10 years, I think anyone in the ER will tell you that it becomes predictably exciting and, therefore, some of the excitement is lost,” Lange says. Looking for a new form of excitement in life, Lange turned his attention to mountain climbing.

His love for mountain climbing took him all over the world, from the Sierras in California to the Himalayas in Asia. But it was a climb in Russia in 1984 that proved the most exciting – and the most rewarding.

“At 18,000 feet, on a glacier, our climbing team came upon an injured Russian climber. He had fallen into a crevasse [deep crack in ice], had broken a few ribs and developed a tension pneumothorax – a potentially life-threatening deflation of the lung,” Lange explains. “Along with a Russian doctor on the scene, I performed an emergency thoracostomy on the injured climber.” (Thoracostomy is a procedure in which a tube is placed into the chest cavity to help drain the area around the lungs.) With only a Swiss army knife and a piece of rubber tubing, Lange re-inflated the injured man’s lung and saved his life. “I don’t know why, but this flash came to me on that mountain that doctors used to submerge the tube in a bottle of water and keep it below the patient’s body level to generate a one-way valve suction.” Lange maintained suction by sticking the tube in a canteen filled with water.

During his mountain climbing excursions, Lange snapped many photos so he could share his stories with others. “Describing them verbally is not my forte, so I used to take a camera on the trips and shoot up a storm,” he says. “When I returned from a trip, I converted the photos into slide shows and set them to music.” Lange then distributed the slide presentations to outdoor recreational stores throughout California. The exposure



(Clockwise, from top left) Lange with his son Chad (left) pre-flight in Catalina, Calif.; (next two photos) Lange stars in his educational videos; climbing the Andes Mountains

from these slide shows found him a side job creating a slide presentation about the hospital where he worked.

The hospital presentation was an “eye-opening experience” for Lange. Although new to the field, the success of the presentation gave him the confidence to branch out on his own in video production.

“I figured I could make a video, and since mammography was big at the time with compliance issues, I chose to make a patient education video motivating women to get mammograms,” Lange says. With its timely message, the video was well received. A number of companies approached Lange, vying to get their mammography units in the video. As the income generated by the videos increased, Lange took the next step and in 1988 formed Lange Productions, a multi-media company.

“The videos started with mammography, then we added breast self-exam, biopsy and other women’s health topics. Now we are the largest multi-media patient education system in breast health,” he says.

But just as business was booming and everything was going right, Lange received some news that would, once again, change his life.

Facing Reality

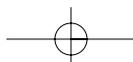
The week his production company won its first award for the breast self-exam (BSE) video, Lange discovered a lump in his wife’s breast. Marilyn Lange had just had a xerogram – a picture of the body recorded on paper rather than on film – which

turned up negative. A good friend of Lange’s at Long Beach Memorial Medical Center, Lázló Tabár, was the visiting professor at that time and suggested that Marilyn come to the medical center to have a mammogram.

“We didn’t think anything of the lump at the time,” Lange recalls. “After all, Marilyn was only 44, and since we just did a BSE video, there was no way she could have breast cancer, right?” Three hours after his wife’s mammogram, Lange received a call from a radiologist at the center. “‘Dr. Lange, I’m looking at your wife’s X-rays and she has breast cancer,’ the radiologist said straight off. To this day, that call still gives me chills,” he says.

The next memory Lange has of the experience is sitting in a physician’s office, listening to various healthcare providers explain the options to him and his wife. “It was total overload. After three hours, we left frightened and confused and not understanding a thing they said. When the dust settled, we checked out some educational materials available at the time and then scheduled Marilyn’s surgery and chemotherapy treatments.” Lange is happy to report that 14 years since Marilyn was diagnosed with breast cancer, she has been given a clean bill of health. But the experience left the couple emotionally shaken.

“Looking back, we realized that this was not the way to present information to patients,” Lange says. “If two doctors (Marilyn is a pediatrician) could not understand what was being told to them, then how could a layperson understand?” Lange decided to spin the other videos that his production company



had created into a better educational system and came up with a CD-ROM that was then converted into a book titled *Be a Survivor: Your Guide to Breast Cancer Treatment* (Lange Productions, 1999, 2002, third edition, 2005).

Be a Survivor is aimed at helping breast cancer patients and their loved ones better understand what they are facing, so everyone involved can participate in the recovery process. In addition to facts on breast cancer and presentations of the latest information, the book also includes candid comments by patients and their partners.

"[The book] was totally different from anything on the market," Lange says. "Instead of a thick 600 pages of fine print, *Be a Survivor* was only 150 pages long and exactly 1 cm in thickness, so we called it the '1 cm solution.' It's the only book that is copiously illustrated with graphics, diagrams and photos, all in four-color, which is prohibitively expensive to print, but really spoke to the women." Now in its second edition (a third edition is scheduled to come out in May), the book has received high marks. Both the American Cancer Society and the Susan G. Komen Breast Cancer Foundation have endorsed the book and the Y-ME Breast Cancer Organization uses it as a training tool for its hotline staff.

In addition to breast cancer, Lange Productions features educational videos on prostate and colorectal cancer, with the book version of the later scheduled to come out in October. To date, videos produced by Lange Productions have garnered more

than 100 major awards.

Be a Survivor would not be the only time that Lange would put his ideas to paper. With Hollywood right in his backyard, it was only a matter of time before bigger fish would draw him back to the writer's pool.

Fatal Memories

"My whole life seems to be full of delusions of grandeur, pushing the envelope and reaching for the moon," Lange says. Encouraged by the success of his medical videos, Lange looked to move from video production to film direction.

He decided to write a screenplay and took a number of screenwriting classes at the University of California, Los Angeles. With a good story in his head, he wrote a screenplay titled *Fatal Memories*, with hopes of turning it into a feature film.

"You know that every waiter [in Hollywood] has a screenplay," Lange jokes. "We passed the screenplay around, but I was still so busy with the video productions that I didn't put much effort into it. To make a long story short, the screenplay wound up on my shelf."

But it was too late. Lange had really fallen in love with the story and decided instead to turn *Fatal Memories* into a book. "I was just going to make 50 copies for my closest friends and then that would be the end of it," he says. "But when I sent the finished work around to my friends, the book ended up in the hands of other people who did not know who I was. The response I got was fabulous. 'You have to publish this,' they said.

Fact vs. Fiction

CAN a medical device access our subconscious? Do we carry the memories of our past lives in our genetic DNA? The facts may surprise you ...

Fact: Today we can routinely pinpoint the location of brain activity using established imaging devices – PET, CT and MRI.

Fact: Surgeons can destroy tiny portions of the brain using finely aimed beams of radiofrequency waves, with minimal damage to healthy tissue.

Fact: Various magnetic devices (including MRIs and magnetic coils applied to the brain) are currently under investigation for treatment of depression, schizophrenia and other mental disorders.

Fact: Psychiatrists rely more and more on brain imaging to ensure the best use of drugs to treat their patients.

Fact: In 2002, researchers developed a pill that can help erase a specific traumatic memory. They continue their search for a MEG-like device that will do the same.

Fact: Many behaviorists feel that many of our bio-imperatives (sex drive, quest for dominance, territoriality, etc.) have been hardwired into us for millions of years. We may be closer to our animal ancestors than we might be willing to admit. We are what we were.

Fiction?: While the brain scanner described in *Fatal Memories* is fictional, it is based on medical technology that exists today.

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‘You just can’t let it languish in your private library.’” Lange spent the next year polishing the copy and found a publisher to market the book.

“A lot of what’s in *Fatal Memories* is based on the medical school experience, the Harvard campus and the Boston environment,” Lange says. “The story is a combination of science and a love story. One of the seeds of the story focuses on love at first sight and how an instant connection can be made,” says Lange, recalling how he and his wife immediately clicked when they met on the Harvard campus many years before. “We only use a portion of our brain capacity. So what’s in the idle majority part of the brain? And what if we could tap into it?”

For the science part of the story, Lange attributes his video work with radiology equipment manufacturers like Siemens Medical Solutions and GE Healthcare for providing a believable technology for the brain scanner in his book. “While making these videos, I got an opportunity to see technologies that were still on the distant horizon, like certain types of CT and MR scanners. I was fascinated how an MRI realigns all of the hydrogen atoms in the brain without any side effects,” he says.

The brain scanner in the book combines MR and PET technologies currently used in clinical settings. “You could construct a brain scanner like that tomorrow if you wanted to,” Lange says. “There’s nothing Hollywood about it.”

The storyline follows the plight of neuro-psychiatrist, Anne Powell, and her magneto-encephalograph (MEG) brain scanner (see “The MEG Procedure” on page 28), developed as a shortcut to psychotherapy, accomplishing in seconds what would take years for conventional psychotherapy to achieve. In essence, the brain is scanned, the phobia detected and then treated with radiofrequency beams – similar to the way the gamma knife is currently used for brain surgery. Powell has a clash with the FDA, which forces her to move her research from Boston to Russia, where there is a large pool of candidates for her to amass her clinical data without setbacks. After a laboratory accident, Powell starts having flashbacks that make her realize that she had a previous life and that the MEG is capable of far more than brain scanning.

“It’s basically a love triangle set in medieval Russia that replays itself in the present,” Lange says. “It’s a good combination of believable science and a poignant love story, which is basically what I always wanted to write in the first place.”

Lange notes that the MEG does exist, but purely as a diagnostic device (see “Fact vs. Fiction” on page 30). Lange says he came up with the name years before the release of the actual MEG. “Basically, the MEG in the book doesn’t exist today, although several centers are studying the use of MRI and other magnetic influences on the brain to deal with schizophrenia, depression and other disorders,” he says.

“Other than surgery, writing *Fatal Memories* was probably one of the most enjoyable things I have ever done because [writing] gives me a wonderful change of pace in my mind,” Lange says. “I can sit in front of a computer and instantly transport myself somewhere else entirely. Unlike in the

emergency room, I can kill a villain or save a life with just a few keystrokes,” he jokes.

Lange has gained inspiration from fellow doctors-turned-authors like Tess Gerritsen, Michael Palmer and fellow classmate Michael Crichton, who was two years ahead of Lange in medical school at Harvard.

The Next Chapter

Lange plans to continue writing, already developing a few outlines for possible books in the future. “I love combining medical technology with exotic locations, like the jungles of Brazil or in the Himalayas, and strong characters and interesting relationships. The next book will be in a similar vein to *Fatal Memories*, but will take at least another year before it could be published.”

As Lange continues to add credits to his resume, his children are starting a few of their own. Daughter Christy recently received her master’s degree as an art critic, while son Chad just enrolled in Colorado University Medical School, hoping to become an ER physician and follow in dad’s footsteps – or at least one important step of his father’s illustrious career.

► Tom Schaffner is editor in chief of RT Image. Questions and comments can be directed to tschaffner@rt-image.com.

VLADIMIR LANGE

fatal memories

By the time they met, they had been in love for centuries...

A riveting techno-medical thriller that asks:

Does our brain harbor memories of past lives?

VLADIMIR LANGE, MD is an emergency physician and a healthcare multimedia producer.

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