Christianity and the Brain

Contents

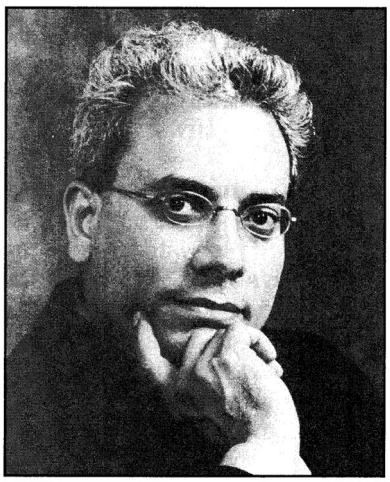
COVER PAGE

What are the basic understandings of brain, mind, conscious, heart, will, soul, body, spirit, meditation, and near death experience? The book calls everyone to learn about the human brain, God's hidden treasure, and its development and kinds. It reflects on spirituality and science; the ties between Christianity and the human brain, neuroscience and God, faith and medicine, universe and heaven, and birth and life beyond death. This learning will make each of us closer to the Creator and bring some important understanding of God. Dr. Ramsis F. Ghaly is a Christian Neurological Surgeon and Anesthesiologist inspired by the Coptic Orthodox faith while growing up in Egypt and continued his journey in USA. The medical career is viewed as a sacred vocation with high ethical morals and values. The ideal neuroscience health care structure is illustrated in view of holism and patient empowerment, especially toward the dire need of modern care in the world including USA. A chapter is dedicated to wide variety of testimonial cases from hundreds of neurological patients.

INTRODUCTION

RAMSIS F. GHALY, M.D., F.A.C.S.

Dr. Ghaly is a triple board-certified neurosurgeon, anesthesiologist and pain management. He is a Fellow of the American College of Surgeons, American Association of Neurological Surgeons and American Society of Anesthesiology. He has broad experience in a variety of neurosurgical areas; cranial, spinal, and peripheral nerves, in addition to neuroanesthesia and critical care.



Ramsis F. Ghaly, MD, FACS

He served as chair of the American Stroke Association Medical Subcommittee for Will, Kane, DuPage and Kendall counties. He is instrumental in establishing neuroscience programs including the Neuroscience Institute at Rush-Copley Medical Center, 2000 Ogden Avenue, Aurora, Illinois 60504, U.S.A.

In 1981, Dr. Ghaly earned his medical degree from Ain Shams University School of Medicine, Cairo, Egypt. In 1991 he completed a residency in anesthesiology and critical care and pain management at Cook County Hospital, Chicago, Illinois, U.S.A. He also completed fellowships in neurophysiology and neurotrauma. In 1995, Dr. Ghaly completed a residency in neurological surgery at the University of Illinois Hospital at Chicago with special training in complex cranial and spinal surgery. He is attending staff anesthesiologist at Cook County Hospital, Chicago, Illinois.

Currently, Dr. Ghaly is the medical director of Ghaly Neurosurgical associates, 1900 Ogden Ave, Suite 200, Aurora, Il 60504, USA. He sits on the board of several organizations and is a member of more than sixteen medical societies and has lectured and published widely. Dr. Ghaly's greatest aspiration is to serve community medicine and people and to elevate neuroscience awareness and manage-

ment in American communities. He is a member of Rotary Club International and Rotary One and Who's Who Club.

Dr. Ghaly was featured in numerous Illinois newspaper articles for his care to patients with complicated neurosurgical problems including "In the Master's Hands," in the March 25, 2001 Joliet *Herald News*; "Miracle Worker" in the June 10, 2001 *Chicago Tribune;* "Truly a Miracle: An Aurora neurosurgeon uses faith and science to combat brain tumors," in the June 30, 2002 *Beacon News;* and "Mind, Body and Spirit," in the June 30, 2002 Naperville *Sun.*

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DR. GHALY—HOW I TRAVELED HERE!

Since I was a small child, I have been fascinated with medicine. Growing up in Egypt in a deeply religious, purely Coptic Christian home, my faith guided my path to medicine. My family has been Coptic Christian since the early years of the church in the 1st few centuries AD. I have always loved people, and medicine has allowed me to work to relieve suffering. I was the third oldest child, with six brothers and two sisters. Four of the brothers have become physicians. We are scattered all over the world, from the United States to Europe and Egypt.

My family was middle class, or perhaps, below. My father was a teacher, who worked from 6 a.m. to midnight to support his family. My mother always dreamed of getting an education, but she could not because of the culture which did not encourage education for women. She valued education greatly and worked very hard to protect her family from harm.

The **Coptic Church** says education and religion are both highly valued. After being a student in Sunday school, I became a Sunday school teacher. I have always liked reflection and vision, prayer and such. I like to think about God and nature. This book was written to share my reflections with patients, others in the medical profession and with people who share my belief in God. I found myself often thinking about why things are the way they are. What is our role in life? What really happens after death, after our moment of leaving? I have always had a searching mind. I used to go to some of the monasteries in the desert in Egypt to read and reflect. There are more than 40 such monasteries in Egypt.

The culture in **Egypt** is different than America and it has shaped my life, for both good and bad. Because I come from a minority, a **Coptic Christian, I** have known difficulties since I was a child. Only 10 percent of the people in Egypt are Christian and they find challenges from childhood a normal thing. The Coptics have suffered a great deal of persecution since the beginning of their faith. Many died, many were tortured, many starved and much more. All are because of being Christians. The Coptics struggled and are no longer a majority, but a minority. We learned to put all our complaints and suffering with God because of this. We find we have to try to use every spiritual power. Thus I was able to see God work, how He protected us.

His Holiness Pope Shenouda III Pope of Alexandria and Patriarch of the See of St. Mark

The biggest impact on my life was **Pope Shenouda III.** I would go to the church to hear his weekly sermon, which often ran three hours or more. I would record it and then transcribe it. I learned a lot from the sermons and from my spiritual father, Father Isaac, who, along with others, encouraged me to leave the country. Two others helped me on my spiritual journey: Munir, a medical student and Sunday school teacher, and Philip, another Sunday school teacher.

I was confused in high school over what I wanted to do when I grew up. Eventually I decided on medical school. I wanted to understand the human body and reflect on its magnificence. I also wanted to help patients, like the Good Samaritan of the Bible. I wanted to make a difference in people's lives. And I wanted to be a good testimony to Christ.

Through my studies and my practice I have watched people suffer and die. I developed a philosophy about **medicine and faith.** If a physician can make his mind open to God, God can work with it to help patients. I found if I do my part in healing, God will do the rest.

I also found myself have to continue to read and learn, to be a continuing student. As my mother always said, "A good student does not waste a minute of learning, always a student reading until death." I knew my father had little financial resources, so I had to study to be the best in order to ask for help from my government with my studies. Several times I went to England and the Netherlands to work on a farm or at a restaurant during the summer in order to support my studies. But through it all, my dream was to come to the United States.

So I worked and studied hard, purchased books to study for the exams, and kept my focus. The first time I was faced with a cadaver in my first year of medical school, it upset me. I wondered who this person had been. Did they know they would end up a cadaver in a medical school after death? This experience taught me that surely God created man, and God created me to help those in the flesh. I began my fascination with the brain and nervous system.

The study of the nervous system is so difficult that many doctors do not spend much time on it at all. It's all like imagination. You don't really see the tracts and transmitting signals, like you do the circulatory system. So many physicians stay away from the field of the nervous system. But I found it so complex, so fascinating. I saw that it was the brain that distinguishes us from animals. I saw in the

brain God's hand, and God's universe. Medicine became part of my reflection on how to understand God's gift to us.

After I graduated from **medical school** in 1981, I was sent for an internship year at university hospital. There I studied neurosurgery as an elective. I used to sit by the bed of stroke patients, trying to understand their condition. I had been told they were going to die, but I kept coming back. The chairman of the neurosurgery department noticed my interest in the patients and supported my decision to enter neurosurgery as my specialty. He also urged me to consider leaving my family and country and to specialize in neurosurgery abroad. I was placed in villages with no clean water or electricity. I could not find a neurosurgery position to work in.

I served a year in the military and continued to focus on medicine. I was hungry for research, and I thirsted for spiritual things as well. Finally, I passed my American medical exams and came to the United States. The first two years were very difficult. I continued to suffer, but I prayed to God. At that time I found two more spiritual mentors: Father Shenouda, a monk at the Coptic Church in Burr Ridge, Illinois and Bishop Karas at the only Coptic monastery in North America, Canada, and South America, located in Yermo, California.

Finding a position to practice medicine was also difficult when I first came to this country. I used to work at non-medical jobs for many hours for $2 an hour in order to pay rent and eat. Finding a position in a medical residency program was impossible. Finding a position in neurosurgery residency was far from possible. I knocked on many doors. I contacted all the programs in the country. No single residency program accepted me. In fact, some believed that I would never be a neurosurgeon or even make it through a neurosurgery residency program. I begged many professionals to help me pursue my sincere desire. I received mocking laughs of disbelief. I used to sit in medical libraries, studying and doing research, constantly. It was difficult for me to get into the libraries because I was not on staff, but I persevered and gained access to them. I did a lot of research into neurophysiology, or how the physiology of the brain and nervous system work.

I wanted to work at **Cook County Hospital,** Chicago, Illinois, but they did not want to allow me to join the staff there. Finally, I told them I would work there for no charge for three months. And that is what I did. Eventually I became a fellow in neurosurgery there. Fellows assist the residents. I was able to learn a lot and I read a lot of books. From 1986 to 1991 I lived full time in the dormitory at Cook County, only leaving the hospital campus once a month or so.

At the same time I was studying neurosurgery, I also went into **anesthesiology.** It fit my interests to understand the effects of anesthesia, the coma state and neuroanesthesiology. It fascinated me that we could put the patient to sleep and then at the appropriate time, wake the patient back up. But I kept returning to neurosurgery. I began studying magnetic stimulation of the brain. Most of the research was personally funded.

Numerous difficulties hindered me from pursuing **neurosurgery,** but I felt my attachment to the brain and surgery was so great, real and destined that I carried on with an honor. I applied to all neurosurgery programs in the USA yearly for 3 years with refusal from all. I kept listening to the deep calling with perseverance, patience and determination. At the eleventh hour at the end of my residency in anesthesiology, there was a position for me at the Department of Neurological Surgery, **University of Illinois Hospital in Chicago.**

I want to thank several mentors who helped me in developing my medical career. Dr. Antonio Aldrete and Dr. James Ausman (both) contributed to my professional development. At the Cook County Hospital and University of Illinois Hospital I dealt with many problem cases. I used my residency to the fullest and did research in different aspects of neuroscience. I continued satiating my hunger and thirst for knowledge. I spent a total of 16 years in residency training and 35 years in education. I became board certified in neurological surgery in 1998, in anesthesiology in 1993 and in pain medicine in 1997. I became the only physician to have these three board certificates. I am still trying to know more and more. Without the opportunity that America has given to me, I would not have been able to achieve what I achieved. I feel now that I want to give back to the U.S.A., the land of opportunity and continue to serve the world. I would like to thank all my mentors and friends and whoever believes in my mission throughout the years. Over the last eleven years, I have found my passion toward serving community medicine. I began my mission for better **neuroscience care close to home** away from "city" medicine.

A charity **foundation for neuroscience care** was established in July 2003. It's goals and vision are directed to neuroscience quality care mixed in faith and science, love and care, getting ride of the worldwide misconception about neurological illness, building hope, not giving up, standing by the patient until the end and not playing God's role in the destiny of people even when it seems dismal.

As my medical career developed, I saw more connections between medicine and Christianity. I began to mix faith and medicine even more. The foundation of the three volumes of Christianity and the brain was established. The high school vision became reality as the idea of caring for the sick and the brain scien-

tifically stood hand in hand with the hand of God. I have found that we should not be afraid of the nervous system and the brain. My mission has just started. In the 21st Century people should start to look at the most treasured part of the human body-**the brain**. The medical community has ignored it for too long. Back in ancient Egypt the brain was removed through the nose of the body when it was mummified. Then the brain was discarded and its existence was ignored. But the heart was preserved in a special vessel. Medicine has always treated the brain with little respect. Philosophers have tried to locate the soul. I hope the reader of this book looks at the brain and nervous system with a new perspective. Then they will become closer to God, to try to understand God's hand in this magnificent creation.

Each time I look at the brain during surgery, I feel very humble. I appreciate its incredible complexity. It amazes me how the brain stem and spinal cord, only two fingers in width, can carry millions of signals to control the entire body below the head-all with instructions from the brain.

There is a reason why most of the diseases Christ cured while He was in the flesh were neurological diseases. There is a continuum in how we look at things. You can see the same Hand that created nature has created the human brain. There is only one hand, only one Spirit, only one God. The summary of my limited self is the brain and Christianity and Christianity and brain are all inseparable as evidenced in the three volumes series.

Ramsis Ghaly, MD F.A.C.S.

August, 2006

The Ghaly Foundation
for
Neuroscience Care
Improving Neuroscience Care and Community Outreach through:
Awareness • Education • Prevention • Support

The Ghaly Foundation Mission Statement

The Ghaly Foundation is an organization formed to improve neuroscience care and provide support for individuals, families and communities through holistic medicine and personal faith. The Foundation pursues the following goals through education, awareness, prevention and support:

Improve the delivery of care and the quality of medical awareness in understanding the unique needs of neuroscience patients.

Develop neuroscience services, including screening tools, public education and community awareness programs.

Establish an information network to identify and support national and international neuroscience resource needs.

Promote the development of patient advocacy programs through educational outreach.

Empower individuals and communities to help support and enhance quality of life through improved neuroscience care.

The Ghaly Foundation Support Group
Mission Statement

The Ghaly Foundation Support Group is formed to accomplish the following goals:

Provide a supportive environment to individuals who have experienced brain, spinal or other neurological condition, including trauma, brain tumor, stroke, hemorrhage or aneurysm.

Encourage community awareness of the support Group and family participation in meetings.

Offer a positive and motivational environment to give you the strength to move forward in your life, become aware of your quality of life options, and create an opportunity to use your skills and talents for yourself and others.

Participate on community outreach, education, and prevention programs.

Develop and promote patient empowered strategies.

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PREFACE

Some say it is impossible to be both a Christian and a scientist, to believe both in the Bible and the teachings of science. Yet, as I move along my life's path as both a neurosurgeon and a devoted Christian, I see more and more connections between these two seemingly disparate areas. As I hold a man's magnificent brain in my hands during surgery, I am convinced God created the **human brain** as a receptacle for all things human.

It is only the human brain which differentiates us from animals. Only man can reason. The animal brain controls the animal's bodily systems, much as it does with the human body. But the human brain is unique in its cognitive functions. God put His secrets-all the unique systems—in the human brain. We can look at God's hands, at **God's universe,** in the human brain.

Three volumes are written to discuss the amazing network of ties between the human brain and Christianity, faith and medicine, neuroscience care and Jesus. In volume I, I will discuss the connections between the brain and Christianity, using mainly the Bible as a reference. God has always used things we can understand to explain His universe. When Christ was on the earth in the flesh, He used things we all know and understand in the parables to help explain God's universe. The Bible also uses these things to help us to understand our world, and our place in it.

God created the physical things to help us understand spiritual things. My goal as an author here is to use the physical brain to understand the spiritual universe.

The brain in all its magnificence is little understood itself. The brain has a myriad of functions and we only understand about 10 percent of them. Even the most genius among us only uses about 20 percent of the brain's capacity. Every part of the brain fascinates me a lot, yet science has not studied the brain as much as other organs of the body. People do not credit the brain and its functions enough.

For instance, **the heart** has been studied and treatment for heart disease is advanced. We say a person's heart is broken when they have some set back or emotional upset. But the heart has nothing to do with emotions, personality, or thought. When a person's heart stops, people think the person has died. They do

not pay attention to the brain, which controls those heart beats. We have concentrated on the heart so much that we have really mastered how to treat the heart when it is ill.

But we have ignored the master organ, **the brain.** Even in medical school there is little interest in the brain. Our future doctors don't get to be familiar with the brain. It was during this time, as a medical student at Ain Shams Faculty of Medicine in Egypt, that I became fascinated with the brain. I began to see the brain as so much more than just a pathway for neural impulses. It became more and more to me.

My goal here, in this book, is to show people how magnificent God was when He created the nervous system and the human brain—so Holy is He that we as human beings have this incredible organ throughout our lives.

We know so little about the brain and how the nervous system works. We all have cognitive paths, but all we have are theories about how they work. We are just beginning to learn. For instance, why are some people more intelligent than others? More intelligent humans do not have significantly larger brains. They do not have more developed neurons. So what controls such traits as intelligence? We don't know. We can only differentiate between brains under a microscope. To the naked eye, it is just convoluted tissue. We can't tell a person's race, gender, ethnicity, or even if they are a genius, by looking at their brain. We can only tell if there is a congenital anomaly or a developed pathology in their brain.

In the past, even scientists have avoided studying the brain. It was thought to be so holy, so sacred, that it was hidden, tucked away safely in the head, protected by muscle, bone, and tissue. It was thought no one could touch it, and so the subject was over before it started.

Today that school of thought is changing. We are finding we can not only touch the brain, but we can repair it. We are learning more about the anatomy of the brain and how it functions. With this knowledge we are finding we will never be the same again.

My fascination with the brain began in medical school. Every aspect of the brain fascinated me, and, as I studied more and more about the brain, I found myself exploring not only the brain, but God's creation of the universe. Exploring the brain tells us a lot about God and the gifts of God to humans. The study of the brain opens our eyes to what has been a **hidden treasure,** a pearl of great price. By exploring the brain, we also explore what we are as a human. The more I became an experienced surgeon and an experienced scientist, the more I became humble. The more we know, the more we are all humbled, because the more we know, the more we know we do not know.

As we develop and grow from childhood to adulthood, our brains grow and develop along with us. The brain's development is especially fascinating. Its complexity increases from birth until about three years old. Most of its growth is in the first three years, and then it remains relatively stable after the age of eighteen for the rest of the person's life. The growth shifts from the cellular level, and maturation occurs. It's followed by atrophy and the cycle ends.

The brain is not a large or heavy organ. It averages about 1.5 kilograms, and it is the same size after maturation regardless of the age. It is weightless inside the cranium. It is the same in a small person of only 100 pounds and a large person of 300 pounds. The size and strength of the other organs in the body are related to their function and the size and health of the person, but not the brain.

That incredible spurt of development in the small child is the reason it is easier for a small child to learn than for an adult. Think of all the things a small child has to learn in its first few years. It needs to learn how to communicate its wants and needs, to control its muscles, to learn to love. Educational researchers have found children learn a second language more easily, for instance, than a teenager or an adult.

So we have a golden time, after that child is born, to shape this new person. The growth of every person is individual, directed not only by their genetics, but also by their environment. We are so sensitive to our environment that learning comes from the environment. God gives us the opportunity to change children as they learn and develop. Only the brain is affected by the environment, by experience. The other organs of the body do not change like the brain does.

When the brain is injured it reacts in a manner different than any other organ in the body. The brain's recovery period is much longer after injury. When the skin is cut, it heals very quickly. But when the brain is injured, it takes a long time to recover, if at all. Some think the injured brain has to go back to day one of life and begin once again to learn and develop. Why does recovery take so long? We don't know, but we do know things with the brain take time. Developing cognitive function takes time. So sensitive, so unique is the brain that it takes a long time to heal after injury.

Why is the brain so fragile? Because it is so complex? Because it is so sophisticated? Why is it so vulnerable to any change? Why are injuries so disabling? So devastating? We just started to understand its complexity.

We do know God placed the brain in the head, with many layers to protect it. God placed the brain inside the skull, protected by hard bone, muscles, tissue, even a layer of fat and cushioned with water inside and around the brain. All these structures protect the brain from a strike, and even from a sneeze or cough.

Why did God place the brain at the **top of the person?** Was it because He recognized its importance? Of course. Even from ancient times people have recognized the brain's importance, its sacredness. The Bible stresses the vital importance of the brain as well. When David killed Goliath, even a small boy, David, knew that by striking Goliath with a stone in the middle of the forehead, he was attacking a vulnerable place and would bring down Goliath.

God placed the brain at the top of the person because recognition is found there. People are identified by their head and face. Look how many people there are in the whole world. What a miracle it is for God to make each one's brain and face different. For 7,000 years or more, each person has been different. Yet, by an MRI scan, all normal brains appear the same. How can this be? If I look at the brain as a surgeon, I cannot see circuits, I cannot see different colors or different structures. No, they all look the same, as they would in the brain of any other person.

Placing the brain at the top of the person puts it in an area connected with the unique six senses. The brain is responsible for mentation in humanity, also recognition, understanding, thinking, intelligence, knowledge, abstraction, locomotion and sensation and many others. The brain's 12 cranial nerves control sight, hearing, touch, speech, smell, tracking, swallowing, tongue and neck movements, balance, autonomic nerves including blood pressure and bowel movements. And of course the brain also controls those body functions which we do not have to consciously think about, such as breathing and heartbeat.

The brain is really the main station-the main center—of the body. Like the NASA space projects, the brain is the control center. The rest of the body is just the ship the brain controls.

If the brain starts to suffer, until recently, we could not diagnose the condition early. The brain is so sensitive, it begins to suffer almost immediately if you cut its blood or oxygen supply acutely. Within minutes, lack of blood and oxygen is enough to kill it. The metabolic rate of the brain is very high, and it does not have a lot of storage for nutrients. The brain works on the ultra cellular level. Its billions of circuits require the ultimate balance of nutrients.

Other organs in the body complain if they are suffering. The heart complains with pain. The stomach tells a person when it is not happy. But the brain does not complain. It offers minimal complaint, if any, and is usually ignored e.g. headache and dizziness. Usually we find a problem based on incidental findings that we cannot explain until we find a tumor or other problem with the brain. A patient may come in with a large tumor in the brain; one that we say has probably been there for five years or more. But until it presses on an important struc-

ture in the brain, the brain does not complain. The brain almost never complains. We find it is suffering through symptoms in another structure in the body. The brain is a silent and tolerant organ.

I think the function and structure of the human brain is God's way of teaching us about His kingdom. The Kingdom of God is like a little seed. This little seed eventually becomes this huge tree. If we look around us in nature we see many things like that. No matter how small things are, they can still be magnificent, like the brain. The brain gives the power, growth, and ego to the rest of the body and positions the person best in the environment.

So, He made a little organ which can do magnificent things, but it can be destroyed in seconds. This brain is so magnificent, how can it be destroyed so easily and quickly? What is God's message here? I believe God is saying 'Yes, I'm giving you this wonderful brain, but you're still human flesh. You're vulnerable. You're still under God's power.' And He can take it in seconds.

The tissue of the brain is very soft, almost like Jello. It can be suctioned easily. Generally it can not be repaired. There are no pain cells in the brain. We can do surgery on the brain while a person is awake, and, once the skull, skin and muscles are penetrated, the brain does not transmit pain signals. The brain works for the well being of the body. It is the center of energy and the command center to the rest of the body. If we can keep the head nourished, it could survive alone, without the remainder of the body. The rest of the body could never survive without the brain for more than hours without supportive measures. The functions of the rest of the body are controlled by the brain, through the brain stem, which is only about two fingers in width, to the spinal column, which is only about one finger in width. Imagine all those signals controlling such complex functions, transmitted through only about a finger's width.

Nerves to the extremities, for instance, are very thin and easily destroyed by trauma. They can be difficult to be appreciated by the naked eye. Yet they are tucked between muscle and bones supplying each function of the extremities including movement and various sensory abilities. This is why we have developed microsurgery, where we do surgery with the aid of a microscope. I often think of these neural circuits, as taken from nature, like a tree with its extensive root system. The circuits take a lot of information from all the parts of the body and transmit them to the brain, which processes the information, much like modern computer circuitry. The neural circuits and the nerves are like a computer network, all directed by the brain.

Deep in the brain, protected and hidden, I think we find the conscious soul. Deep in the floor of the brain, on the floor of the ventricular system, we find

essential nuclei located there. Injury to these areas results in a vegetative human state.

This is why I find my passion in medicine. The Holy philosophy of medicine is that medicine is a Holy mission. It is a gift from God to help the sick. When I am in surgery, I do my best with that gift God has given me. I do my part, and trust in God to do the rest. This is why I love neurosurgery. When I hold the brain of a magnificent man or woman in my hands, this is their essence. I am humbled, as if I am looking at God's universe. I treat the brain with all my respect.

As I move on to the following chapters in the three volumes, I would like to caution the reader regarding some personal bias to certain issues and opinions.

This book explains how the heart of the person is located in the depths of the brain.