

Invaders from Mars, with commentary from Robbie Burns

Martin A. Samuels, MD

The author is chairman of the Neurology Department at the Brigham & Women's Hospital, professor of Neurology at Harvard Medical School, and president of the Association of University Professors of Neurology. This essay was originally presented as a speech at the annual AΩA banquet at the University of Nebraska and at Indiana University.

Just about a half-century ago, in the mid-1950s, at the height of our paranoia about Communists and the Soviet Union, a boy sees a flying saucer land in the distance. No one else sees the event. The occupants of the mysterious spacecraft prove to be invaders from Mars. Their strategy is to capture people, one-by-one, and to perform brain surgery on them, implanting an electrode controlling device in the victims' brains and rendering them pawns of the invaders, while retaining their appearance as human beings. The only clue to recognizing one of these unfortunate robots is to look for the telltale electrode at the base of the hairline in the back of the neck.

To understand the profound meaning of William Cameron Merzie's film, *The Invaders from Mars*, a little neurology review is needed. There are really two people within each of us, a fact that reflects the two almost mirror-image cerebral hemispheres, each responsible for the opposite side of the body and extra-personal space. Damage to the left hemisphere will cause paralysis and loss of sensation on the right side of the body, including loss of perception from the right side of the world. This loss of perception is more profound than simple blindness. It reflects the fact that anything that the brain does not record is actually not there. We live, after all, in virtual reality. What our brains do not sense is, for us, not there.

Even though the two cerebral hemispheres are roughly symmetrical, there is one striking difference. For almost everyone, only the left hemisphere has the circuitry for language. Millions of years ago, the pressures of evolution selected those of our ancestors who could communicate with each other, an enormous advantage for social animals. The massive amount of computing capacity needed for language could not be duplicated in both hemispheres. The head, already too large for the body, is simply not large enough; so a compromise occurred. Language would only be represented in one hemisphere, while other important functions related to attention would be represented in the analogous structures in the other hemisphere. All right-handers have left hemisphere dominance for language. Even some non-right-handers have substantial components for language in the left hemisphere. Only true left-handers are the throwbacks to our primitive ancestors.

When I talk to someone, I am only talking to the left hemisphere person, because that is the hemisphere with



language. When I ask a person: "How are you?" he really responds, "We are fine." I, the left hemisphere person am fine, and I hear from my mute friend, the right hemisphere, that he is also fine. When the right hemisphere is damaged, the left hemisphere person may well say, "I am fine," even though the left side is completely paralyzed. This phenomenon is called anosagnosia, meaning denial of deficit.

In 1971 I was asked by my classmates to speak at Medical Class Day on their behalf. They wanted me to tell the faculty about the electrodes in the back of their necks. We students



could see them. Though talented, dedicated, hard-working and well-meaning, many of them had gradually been captured by the Invaders from Mars. They had lost touch with our needs, hopes, and dreams, and, worst of all, they didn't and couldn't have known it. They had anosagnosia. What had happened occurred outside of their field of vision. My words were met in some quarters by resentment, disappointment, and disbelief, but, in fact, I was performing the most important function of a true friend. People who care nothing about you will not tell you that there is a piece of spinach between your two front teeth just as you are rising to deliver a commencement address.

As you leave here today, you are looking forward, and rightfully so. You have a marvelous education that allows you to become internists, surgeons, psychiatrists, radiologists, neurologists, biomedical scientists, and clinical research-

ers. But as you move forward, find someone to watch for an electrode in the base of your neck. Only your dearest and most trusted friend can and will tell you that you have been captured by the Invaders from Mars.

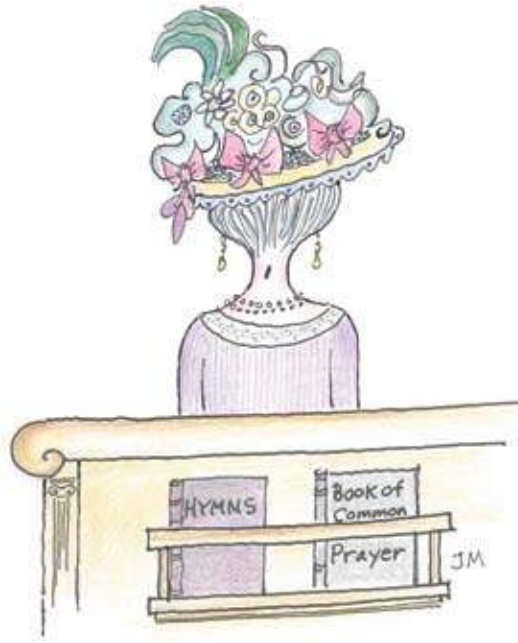
Don't become one of them!
We are counting on you to cure pancreatic cancer, to solve the problem of urban blight, to find the treatment for drug resistant tuberculosis, to ameliorate dementia, and to follow any one of an infinite number of other pursuits that will change our world in ways than none of us can currently imagine. The greatest threat of failing to reach your goals is falling victim to prejudices and fears like those of the 1950s, Communism and Soviets. What are the modern analogues of the Soviet Union and the Communists of the 1950s? Xenophobia and blind devotion, ever-present throughout human history, has spawned a new wave of pseudoreligiosity, anti-intellectualism, and blind faith. In 1958 musical satirist Sheldon Harnick wrote "The Merry Minuet," popularized by the Kingston Trio:

They're rioting in Africa, they're starving in Spain
There's hurricanes in Florida, and Texas needs rain
The whole world is festering with unhappy souls
The French hate the Germans, the Germans hate the Poles
Italians hate Yugoslavs, South Africans hate the Dutch
And I don't like anybody very much!

When some of our friends and allies told us that they didn't believe there were weapons of mass destruction in Iraq, we denounced them as cowardly, insular, weak, naive, and short-sighted. But they were trying to be our best friends. They could see the electrodes in the back of our neck. The problem, of course, is anosagnosia. How can you know? You depend on someone else telling you.

Sitting in church one day in 1785, the great Scottish poet Robert Burns noticed a head louse climbing up the neck and onto the hat of an elegant lady seated in front of him. He says to himself:

Ha! whare ye gaun ye crowlin ferlie?
Your impudence protects you sairly;
I canna say but ye strunt rarely,
Owre gauze and lace;
Tho' faith! I fear ye dine but sparely
On sic a place.



Ye ugly, creepin, blastit wonner,
Detested, shunn'd by saunt an' sinner,
How daur ye set your fit upon her—

Sae fine a lady?
Gae somewhere else and seek your dinner
On some poor body.

He goes on to describe the critter impudently climbing right to the top of her stylish hat; she, of course, arrogantly never imagining that such a low-life could be standing right on the top of her head. Unlike what most of us would do, Burns turns to the woman and says:

O Jeany, dinna toss your head,
An' set your beauties a' abroad!
Ye little ken what cursed speed
The blastie's makin:
Thae winks an' finger-ends, I dread,
Are notice takin.

He's done it. He has performed the most valued and rare duty of a real friend, and he and I conclude:

O wad some Power the giftie gie us
To see ourself as ithers see us!
It wad frae mony a blunder free us,
An' foolish notion:
What airs in dress an' gait wad lea'e us,
An' ev'n devotion!

Once more, in English:

O, would some God that gift to give us
To see ourselves as others see us!
It would from many a blunder free us,
And Foolish notion:
What airs in dress and gait would leave us,
And even devotion!

Godspeed.

The author's address is:
Brigham and Women's Hospital
75 Francis Street
Boston, Massachusetts 02115
E-mail: msamuels@partners.org