



# THE NATURAL SCIENTIST

| by DANIEL GOLEMAN |

*Born into a culture that believed the world was flat, the Dalai Lama developed a passion for the natural sciences that transformed his view of his own tradition.*

THE LINEAGE OF THE DALAI LAMA dates back to the fifteenth century, but Tenzin Gyatso, the Fourteenth Dalai Lama, is the first in that line to be thrust so fully beyond the circumscribed universe of Tibet into the stark realities of the modern world. In a remarkable way, he seems to have been preparing himself from childhood for his encounter with the scientific worldview that so dominates the modern sensibility.

The Dalai Lama exhibits a sophistication about methods and issues in science that is unexpected, even surprising, in a spiritual leader. I've long been curious about the source of this scientific sophistication—and he was kind enough to let me interview him about his lifelong interest in science. These interviews with him and with his close associates have let me sketch, for the first time, his scientific biography. A detour into this little-known side of his personal history reveals just why he places such importance on dialogues and collaborations with scientists.

That story begins with the Dalai Lama's traditional schooling, which was extremely rigorous, covering a sophisticated system of theology, metaphysics, epistemology, logic, and several schools of philosophy. It also touched on the arts, including poetry, music, and drama. From age six onward, he spent many hours each day engrossed in his studies, which

included a great deal of memorization, as well as meditation and concentration—all vehicles for mental discipline.

He also received intensive training in dialectics and debate, forms at the heart of a Tibetan monastic education. Indeed, the favored competitive sport of Tibetan monks is nothing like soccer or chess: it's debate. For the monks, their abilities in debate were the primary way their intellectual achievements became known, and so judged. While the traditional monastic curriculum provided a keen understanding of the nuances of Buddhist philosophy, it offered not a hint of the scientific findings of the last thousand years. For instance, a classic Buddhist text brought to Tibet from India nearly twelve centuries earlier posited a cosmology in which the world was flat and the moon shone with its own light, like the sun.

To protect its political and cultural integrity, Tibet had sealed itself off from most foreign influences for centuries. By the time of the Dalai Lama's childhood, a few members of the families of Tibetan nobility or wealthy traders had been sent to schools run by the British in Indian towns such as Darjeeling, and so were able to speak English. But by the protocol of the time, the Dalai Lama had little or no direct contact with these English-speakers. And in any case,

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there was not a single Tibetan in all of Lhasa with any special training in science.

Though he lacked a basic textbook on any scientific subject, the young Dalai Lama became a science polymath, voraciously learning everything he could on his own. This intellectual drive also made him eager to read books in English; he found a Tibetan official who could help him translate the English alphabet into Tibetan phonetics, and he set himself to mastering the vocabulary in a Tibetan–English dictionary. Already accustomed to memorizing long passages of scripture, he applied the same skill to building his English vocabulary. “I learned the words by heart,” he recalls.

The Dalai Lama had also discovered in the cache of foreign goods left by his predecessor, picture books of the First World War, which he read with a boyish enthusiasm. Despite his embrace of the Buddhist doctrine of nonviolence, it was the machines of war that caught his attention: Gatling guns, tanks,

indicate time zones and how they changed through the day—that when it was noon on one side of the earth, it was midnight on the other. All these insights came along with a still more fundamental discovery: he deduced that the world was round!

That small epiphany was one of a series of independent childhood discoveries for this budding scientific mind. Another came via a different legacy from the days of the Thirteenth Dalai Lama: the telescope. Because his lofty status in Tibetan society kept him sequestered in his isolated quarters in the Potola Palace, one of the Fourteenth Dalai Lama’s favorite pastimes during his free hours was spying on the comings and goings of people in the city below through his telescope.

But at night he turned the telescope to the skies, studying the stars and the volcanic peaks and meteor craters on the moon. One night as he peered through the telescope, he saw that the craters and peaks cast shadows. Surely, he suspected, this means that the

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biplanes, the German Zeppelins and U-boats, and British warships.

Those same books featured maps of the great battlefields of the war and of the countries involved in the grand alliances. Through studying these maps, he became familiar with the cartography of France, Germany, England, Italy, Russia—and found his interest in geography ignited.

That interest, in turn, brought the young monk to a discovery that signaled, even as a boy, his scientific bent of mind. In his private quarters, there was a hand-wound mechanical clock, another gift of his predecessor, the Thirteenth Dalai Lama. At first the Dalai Lama was intrigued by the mechanisms of the clockwork, which rested atop a globe that gradually moved through the day. “The globe had some patterns on it,” the Dalai Lama recalls, “but I didn’t know what they were.”

But as he pored over those books showing maps of Europe, a realization dawned, and in the etchings on that globe he started to recognize the outlines of the countries of Europe, and then of other countries he had read about—America, China, Japan. The Dalai Lama still remembers that startling moment when “I realized it was actually a map of the world.”

The turning of the globe, he saw, was designed to

source of that light comes from somewhere outside the moon—not from inside that heavenly body, as he had been taught in his monastic studies.

To check this hunch, he scrutinized astronomical photos of the moon in a magazine. He found they showed the same thing: a shadow to the side of craters and peaks. His own observations were now supported by independent evidence. From that the young Dalai Lama confirmed his deduction that the moon was illuminated not by some intrinsic source but by the light of the sun.

As the Dalai Lama recalled that stark moment of confronting scientific truth, “there was some kind of awareness” that dawned: “a realization that the traditional description was not true.” A twelve-hundred-year-old teaching was being contradicted by his own systematic observations!

That discovery in basic astronomy was followed by other challenges to that traditional Buddhist cosmology. He saw for himself, for instance, that, contrary to what he had been taught, the sun and moon are not the same distance from Earth, nor are they roughly the same size. These childhood discoveries were to become one seed of a principle the Dalai Lama has repeated many times since: if science can prove that some tenet of Buddhism is untrue, then Buddhism will have to change accordingly. ▼