

Flesh, Spirit, and Emptiness

Chapter 3 from *The Silent Pulse: A Search for the Perfect Rhythm That Exists in Each of Us*
by George Leonard

The subtle dance of the body joins us to the world. But what is this body? Of what is it made?

The distinction has always seemed clear enough: flesh is that chunky, solid stuff that is heir to ills, desires, ultimate decay. Spirit provides a contrast, having no odor, taste, or feel, no appetites. Flesh is substantial and vulnerable. Spirit is elusive and everlasting. Seeing the two in opposition, philosophers and religious leaders have had no hesitation in taking the spirit's side. For Plato, the world of matter and flesh was only a pale copy of a higher realm of Ideal Forms. Manichaeism, an

early Persian religion that profoundly influenced St. Augustine, saw the whole universe as divided into two kingdoms. God ruled the kingdom of spirit, while Satan held sway over the kingdom of matter. The human body, being a gift of Satan, was totally evil. Thomas à Kempis referred to the body as "that dung heap." St. Francis vacillated between denigrating the body and reluctantly cooperating with what he called "Brother Body" or "Brother Ass."

The body, in short, has seemed hardly worthy of serious religious or philosophical consideration, being too stubborn, too obvious, too solid. Even the least philosophical of us has sometimes wished, with Hamlet, that "this too solid flesh would melt,/Thaw and resolve itself into the dew."

But is the body really solid? Our customary perceptions tell us that the skin is relatively smooth and inoffensive, while the flesh beneath is something terrible to behold: an oozing mass of sinews and tubes and meat. Through a microscope, however, the skin on a fingertip is a series of mountain ranges on a desolate moonscape, a crusting flaking surface pockmarked with holes. A section of muscle tissue, on the other hand, appears as an elegant latticework, a thing of symmetry and beauty. Whether skin, flesh, or bone, however, this body of ours seems to be entirely solid and substantial.

We can penetrate more deeply. The electron-scanning microscope, with the power to magnify several thousand times, takes us down into a realm that has the look of the sea about it. Now the



pores of the skin open like ocean caves, and we have to be told that the submarine creatures clinging to the convoluted walls are nothing more than ordinary bacteria.

Moving through the body with newborn perceptions, we observe a sea serpent lying on a giant walrus—actually a bundle of nerve fibers winding its way across segmented muscle fibers. Bulbous glial cells in the brain have the look of kelp rising from the floor of the sea. Ciliated cells in the fallopian tube appear as seaweed waving rhythmically in an undersea current. And now we see thousands of tadpoles swimming past, directly against the current, sperm cells engaged in a contest with unfavorable odds; the prize is a new life.

There is something dreamlike about these images. Auditory cells in the inner ear are like sea anemones in a tidal pool. And in the semicircular canals are giant boulders that tumble hither and thither on matted seaweed. The boulders are calcium crystals that move when the head moves; sensing this movement, the seaweed (receptor cells) signals the brain as to the head's position. *

Some Captain Cousteau of this silent world could spend a lifetime in the study of blood cells alone, which come in almost every conceivable guise. Most red cells are disks with depressions in the center. But some are like spiny balls or sea urchins. Others are shaped like bells or Mexican hats or Chinese spoons. And you could create a whole marine zoo of these creatures, not only sea horses, but sea hippos, rhinos, long-tailed rodents, lizards, and storks.

In the kingdom of corpuscles, there is transfiguration and there is samsara, the endless round of birth and death. Every passing second, some 2 ½ million red cells are born; every second, the same number die. The typical cell lives about 110 days, then becomes tired and decrepit. There are no lingering deaths here, for when a cell loses its vital force, it somehow attracts the attention of a macrophage. This large scavenger cell, as formless and inexorable as The Blob of science fiction, approaches the doomed red cell, opens its huge round mouth, swallows, and digests it.†

The electron microscope allows us these perceptions of the body, a beautiful and terrible place, seemingly as spacious as the sea. Within this spaciousness though, is still solidity; the flesh has not yet resolved itself into a dew.

The moment comes now to penetrate even more deeply. To do so, we must sacrifice sight for insight. No microscope using light or even electrons can take us where we want to go. Information gained in powerful atomic particle accelerators will be our illumination, mathematics our microscope. The power of the rational mind will provide the magnification we need on our quest.

As the magnification increases, the flesh does begin to dissolve. Muscle fiber now takes on a fully crystalline aspect. We can see that it is made of long, spiral molecules in orderly array. And all these molecules are swaying like wheat in the wind, connected with one another and held in place by invisible waves that pulse many trillions of times a second.

What are the molecules made of? As we move closer, we see atoms, tiny shadowy balls dancing

around their fixed locations in the molecules, sometimes changing position with their partners in perfect rhythm. And now we focus on one of the atoms; its interior is lightly veiled by a cloud of electrons. We come closer, increasing the magnification. The shell dissolves and we go on inside to find . . . nothing.

Somewhere within that emptiness, we know, is a nucleus. We scan the space, and there it is, a tiny dot. At last, we have discovered something hard and solid, a reference point. But no—as we move closer to the nucleus, it too begins to dissolve. It too is nothing more than an oscillating field, waves of rhythm. Inside the nucleus are other organized fields: protons, neutrons, even smaller “particles.” Each of these, upon our approach, also dissolves into pure rhythm.

Scientists continue to seek the basic building blocks of the physical world. These days, they are looking for quarks, strange subatomic entities, having qualities that they describe with such words as “upness, downness, charm, strangeness, truth, beauty, color, and flavor.” But no matter. If we could get close enough to these wondrous quarks, they too would melt away. They too would have to give up all pretense of solidity. Even their speed and position would be unclear, leaving them only relationship and pattern of vibration.

Of what is the body made? It is made of emptiness and rhythm. At the ultimate heart of the body, at the heart of the world, there is no solidity. Once again, there is only the dance.

*For striking photographs of the images described here, see Lennart Nilsson’s *Behold Man: A Photographic Journey of Discovery Inside the Body* (Boston, 1974).

†See Marcel Bessis, *Corpuscles: Atlas of Red Blood Cell Shapes* (New York, 1974).