

Where Do Humans End?

By Walter Cummins

Robotics and artificial intelligence are now in the news almost every day, and at the movies and on TV. Some hi-techers believe we have entered into new relationships with our digital devices. The boundaries between Us and Them may be vanishing. If we are becoming “transhumans,” is it more threat than benefit? This is the first in a series of posts that explore—from an amateur’s perspective—a few of the actualities and possibilities.

Captain Ahab’s peg leg did provide him physical balance, but—as a reminder of his maiming by the White Whale—not mental balance. It’s doubtful that any member of the Pequod’s crew would have considered Ahab’s wooden implement a true leg replacement. We live in a different time. Late in 2014 a college student created an operational plastic hand for a 7-year-old and did it for approximately \$20 in less than twenty-four hours with a 3D printer. The boy, Holden Mora, born without a natural hand, explains his prosthetic, “So when I bend my hand in like this, it closes. When I bend it like this, it opens.”

A video called “The Bionic Man,” which was posted as part of the *New York Times* online Robotica series, demonstrates two prosthetic arms controlled by the thoughts of a man, Les Baugh, who, when a teenager, lost both of his flesh and blood arms in an electrical accident. His upper body ends at the shoulders. The experimental contraption, developed at John Hopkins, straps to his torso and, without incisions, engages nerve endings, allowing him to grasp objects by activating the mechanical joints through conscious mental signals. While still learning and occasionally dropping, his arms are functioning with a form of touch, his robotic fingers closing on objects.

Are Holden’s hand and these arms when worn and controlled by Les Baugh integral to them or are they foreign objects? Where does the boy or the man end and an external reality begin? The question applies not just to appendages and visibly obvious prosthetic devices.

In recent years the explosion of sophisticated technologies, including biological ones, have added complexities to the issue of what’s me and what’s not me. Where do I end? By asking this question, I am not exploring mystical or metaphysical matters such as the connection of my being to the One, or some form of universal consciousness. I am asking about our physical bodies as they relate to various extensions and substitutions.

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Such extensions and substitutions are becoming more available, with future developments sure to yield even greater refinement. They can be fashioned from organic matter, formed from metals or plastic, or involve implantation of miniaturized computer software. Whether organic or artificial, they are not the limbs and organs we were born with, or—in Holden’s case—should have been born with. Does their source make a difference in their “naturalness”?

Replacement organs are already available. Some, like Holden’s hand, are products of 3D printers. Of course, a successful artificial heart has been around for decades. It is a mechanism. Alternatively, patients’ stem cells have generated synthetic 3D tracheas through a bioreactor process. A number of these tracheas have been surgically implanted. Because they possess the same immunological characteristics as the host patient, they do not require immune suppressant drugs. Organs such as hearts, livers, and kidneys might emerge from similar processes.

The use of stem cells may be considered a highly developed variation of procedures in which one part of a patient’s body is given a new function from its original role. For example, a piece of a leg artery ends up in the chest after heart bypass surgery or a tendon is relocated in the elbow of a baseball pitcher through “Tommy John” surgery. In these examples, it’s still material from the same person. But what of a pig heart valve that replaces a defective human heart valve? Should that valve be considered a foreign object in a different category from the repurposed artery or stem-cell trachea?

Let’s consider a hybrid circumstance, that of a urostomy resulting from the removal of a cancerous bladder. None of us can live without a bladder, or some semblance of one. The semblance is usually an internal surgical concoction of stents from the kidneys to a tube called an ileal conduit, which is fashioned from a piece of small intestine emerging near the navel as a protrusion called a stoma. So far the system is all reconfigured flesh and tissue. But then a urethane pouch must be taped to the patient’s middle with an opening for the stoma. That pouch collects a constant flow of urine for emptying through a drainage outlet. It’s a lifelong situation.

The pouches are temporary, usually changed every few days. As a result, although the intestinal section for the conduit is permanent, the pouch is transitory. Is it a foreign object, or is it part of the person? Does the relationship change from the time the pouch is taken out of a box and adhered to flesh? Once on the bladderless individual, it’s an essential substitution.

From one perspective, external or even internal devices could be considered separate entities even though connected or implanted to serve as integral parts of our daily functioning. From another perspective, those who rely on such devices would be incomplete without them. They allow the wearers to be themselves.

We are past questioning the essential relationship of the device to the person, according to Tamar Sharon in her 2013 work, *Human Nature in an Age of Biotechnology*.

In the abstract to one of her chapters she writes:

Radical posthumanism argues for a reflexive model of technology, in which technologies are both seen as the product of human creativity and a force that shapes human existence, i.e. technologies are determinative of human experience, though not deterministic [i.e.: a likely source rather than an inevitable one]. And methodological posthumanism introduces the key concept of technological mediation, which implies that technologies are active mediators of how humans experience the world and how humans act, transforming ourselves and the world in the process. Both approaches imply an “originary prostheticity”, the idea that the human exists in relation to and is dependent on its technologies; that the human emerges as a result of this relationship.

To support her position, Sharon quotes from Gregory Bateson’s 1972 work, *Steps to an Ecology of Mind*:

It is not communicationally meaningful to ask whether the blind man’s stick or the scientist’s microscope are “parts” of the men who use them. Both stick and microscope are important pathways of communication and, as such, are parts of the network in which we are interested; but no boundary line—e.g., halfway up the stick—can be relevant in a description of the topology of this network.

The example of the blind man’s stick leads Sharon to refer to Maurice Merleau-Ponty’s earlier discussion of such a stick. He contends (in the English translation), “The blind man’s stick has ceased to be an object for him and is no longer perceived for itself: its point has become an area of sensitivity, extending the scope and active radius or touch and providing a parallel sight in the exploration of things.”

Following this line of thought, Holden Mora’s hand, Les Baugh’s arms, and urostomate’s pouch are also incomplete objects in themselves, meaningful only in relation to their actualization through human use. If we need the device to function, it is part of us. In their use, they actualize the human.

We have come a long way from Ahab’s inanimate peg leg and are probably in the early days of redefining the nature of “me,” now that the bodies of our birth continue to merge with fabricated parts and pieces in a manner that blurs and could eventually erase the distinction.

Physical supplements and replacements, whether internal or external, may belong in the same category as other devices, such as the scientist’s microscope, that enhance our functioning. What of our GPSes, computers, smartphones, smart watches, Google glasses, and digital clothing? What of devices that tabulate the steps we take, the stairs we climb, the level of our blood sugar, our blood pressure, even our emotional states. Millions of people, most with their original limbs and organs, have come to rely on them as the Apples, Googles, and Microsofts of the world create and sell paraphernalia we soon find we can’t

live without. As these extraordinary our capacities multiply, do they result in a vastly expanded “me,” or are we on the verge of making the notion of “me” meaningless?

Sources

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