Another Adam

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Medical care in the future

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Adam

I heard my name and woke up to the aroma of hot, fresh coffee. â The rest of your favorite breakfast will be along shortlyâ said the nurse. As I savored the coffee, Dr. Ellison came in.

â How are you feeling?â

â Nevcr better. Iâ m amazed. I havenâ t felt this good in a long time. I am, however surprised to to learn that I can eat and drink.â

â I thought we had explained about that, but maybe we missed it. Eating and drinking are such important social functions that we left the alimentary canal intact when we gave you your new body. As you are our very first we thought it best to get a repot from you before deciding whether or not to keep it in others It will work just as it did before but you donâ t actually need it and we can easily remove it if you decide later that you donâ t want it.â

â I think Iâ ll like having it. Letâ s leave things as they are until I get some experience with the system. Did you have any problems with the operation?â

â No, weâ d worked out the problems with the monkeys, chimpanzees and cadavers. By the time we got to you it was pretty routine.â

An orderly brought in my breakfast. As I ate I thought about the games that chance plays with us.

I went back fifteen years to where this began; I remembered the scene clearly.

The mouse ran around the tabletop exploring among the books and mugs.

â Heâ s used to people and very friendly, arenâ t you Adam?â Something about the mouse was not right but I couldnâ t quite put my finger on it.

â Go ahead, pick him up, he wonâ t mind, will you Adam?â

I picked Adam up and he sat quietly in my hand, sniffing and twitching his whiskers, an ordinary mouse. David reached over, took him from my hand and, in one quick motion stripped all the skin off the mouseâ s body, leaving only the skin on the head, and set him back on the table. The mouse, giving no sign that anything had happened, continued exploring.

â What do you think?â asked David.

â Bloody amazing, what am I looking at?â

â Mostly graphite and titanium, a few silicone rubber tubes, some copper wire and an ultracapacitor. Adam is the living brain and head of a real mouse running a completely mechanical body. Whenever he feels hungry, that is, when his capacitor runs down, he plugs his right fist into a wall outlet and has lunch. There is

also a station where he can replenish the tank that supplies essential chemicals to his artificial blood. We call him Adam because he is the first of his kind.â

I sat dumbfounded, speechless. Of all the people I knew, if anybody was going to do something like this, it would be David. He and I were classmates at a private high school. I was there because my parents were abroad; he was there because his father was determined that his son would not spend his life in a coal mine as he himself had done. I was probably as close to David as anybody, not because he was in any way difficult â everybody liked him â but because he was in some way different. Although he joined in our conversations and seemed to be interested, I think we all sensed that we usually engaged only part of his mind. He exasperated and frustrated his teachers, acing tests but generally â forgettingâ to turn in his homework.

We graduated together and, as was customary in those days, did a stint in the military. Weâ d lost touch until today. A business trip had taken me to this city. I had learned that David lived here and called to invite him to dinner at my hotel. He insisted that I come to his home instead.

The taxi took me to a subdivision of elegant homes and dropped me off at one of the less ostentatious establishments. Helen, another schoolmate, met me at the door with a big hug. I wasnâ t surprised to see her; Helen and Davidthey had been high school sweethearts. â Itâ s great that you called when you did. David has wanted to get in touch with you. Heâ s waiting in his office; Iâ ll take you there.â

David cleared his throat, bringing me back to the moment. Staring in amazement at Adam I said, â How did this happen?â

â Well, I never went to college. While I was in the Army I studied the market, did a little investing. By the time my enlistment was up I had some capital and decided that I could make a decent living in the market. In fact, I got lucky and rich. Helen didnâ t want me to just make money. She thought I ought to do something useful. I agreed but I didnâ t know what. Bless her heart, she subscribed to everything: the Times, The Economist, Nature and Science, among others, and filled the house with books. One day an article, I think in the Times reported that the brain used two hundred calories per pound per day while the rest of the body used, on average, about seven calories. A little later I saw that some expert said that it could be argued that the body was simply a device for supporting a brain. At about the same time stories began to appear about the remarkable prostheses that Walter Reed and the Defense Advanced Research Projects Agency, DARPA, had developed. Then there was the work on artificial blood being pursued at various labs around the world. Put all that together and you get Adam.â

â You mean you built Adam?â

â No, I couldnâ t have done that. Adam is the work of several hundred people working in a lab supported by a foundation I helped start. The Alpha Foundation is supported by several wealthy people, all much richer than me, whose names youâ d recognize. We intend to keep it out of the media until we achieve our goal.â

â Obviously, your goal is not mechanical mice.â

â No. Our aim is to do for people what we have done for this mouse. Itâ s a fairly obvious idea once you start thinking about the human body. Consider this: The heart is a pump, the lungs, kidneys and liver keep the blood clean and oxygenated. The mouth, esophagus and intestines, the alimentary system, provides nutrients for the blood. The arms and legs find and bring food to the alimentary system. Looked at this way, it does

seem that the body is just a way to keep a brain running.â

â I think I can see where this is going. Most of the diseases that kill people, cancer and heart trouble to mention the biggest killers, are diseases of the body, not diseases of the brain.â

â Yes,â said David, â diseases of the brain are uncommon causes of death. Itâ s not too big a leap to conclude that if the body could be easily renewed, the brain could live a long time. Alphaâ s goal is to build mechanical systems to do what organs do. The advantages of a successful development are impressive. Break a leg, replace it with a new one. Circulation not doing well, put in a new pump and change out some plumbing. Such repairs could be done in shops, quickly and cheaply. Now you take your car to the dealer, the mechanic plugs in a diagnostic computer and replaces whatever the computer says. Human bodies would have the same sort of diagnostic port.

â Considering the materials the old girl had to work with,â he continued, â Mother Nature did a remarkable job in evolving a human being. Still, itâ s not a very practical design, complicated and difficult to maintain, particularly when it comes to replacing worn out parts. We think we can do better. As you can see from Adam, Alpha is making very good progress. Right now, itâ s testing a mechanical rhesus monkey to support a rhesus brain. The next step, clearly, is to build a mechanical chimpanzee. As the genomes of chimpanzees and humans are more than 98% percent identical, a successful chimpanzee will put us in sight of our goal.â

â Then what, immortality?â

â No, brains do eventually die but they can live a long time if they arenâ t sacrificed to organ failures.â

â What,â I asked, â does Alpha think humans will do with, say, an extra hundred years?â

â We donâ t know. What do you think?â

â I havenâ t any idea. As far as I know, all attempts to predict the future have failed. When the future arrives we adapt in ways that our forefathers could not have imagined. I would say, keep up the work and letâ s see how things turn out.â

Helen called us to dinner. Over coffee we sat and chatted. â In a few years,â said David, â Alpha will be ready for a human Adam and you and I will be old. I already feel a creak in my bones now and then.â

â I know what you mean but I hope to stay on the green side of the grass for a while longer, even if I do get a bit rickety.â

We sat silently for a few moments.

â Would you like to be an Adam?â asked Helen.â My first thought is that my brain isnâ t particularly worth saving for an extra hundred years or so. The brain that should be saved is Davidâ s.â

â See?â said Helen. â I told you thatâ s what heâ d say.â

The hour was getting late. It was time for me to go. Helen called a taxi. We said our goodbyes at the door. As I started down the walk David said, â You will think about it, wonâ t you?â

In recent years an increasingly frail body and constant pain made me think about it often. My wife and I talked it over and I called David.

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