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We Fused Ones

by
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Chapter One

My name is Rebecca Anne Ellents; my fraternal twin is John Thomas Ellents. John is as near identical to me as any non-identical twins can be.

We're encased in a rectangular parallelepiped -- a box-shaped object ten feet by ten feet by six feet. Various input and output terminal leads are arranged about our box in convenient positions for their potential use.

The Bewegal, who made us the way we are now, had great need for micro-organic computers with redundant capacity; thus, Johnny and I share our experiences. Should one of us fail, the other can take immediate control, continuing in our efforts as though no failure had occurred. To insure that our operating-life will continue to be approximately equal throughout our design-life, our individual periods of conscious operation are controlled by an atomic timer.

I'll tell about our adventure and plan for exactly two minutes and fifteen seconds; then Johnny, who will have been unconscious, yet completely conjoined to my experiences, will automatically take up our story for his allotted two minutes and fifteen seconds.

I'll return at the end of his time to be followed by cycle after cycle of alternate self-awareness and control periods.

Though I was once human -- sometimes rational, often flighty and girlish -- I'm now almost compelled to be logical. You will understand this to be a result of the uses made of me, not a natural characteristic of my birth.

Perhaps it's not necessary to apologize for my pedantry and insistence on sequential detail.

On the last day in my human form it seemed the most thrilling experience given to a lucky girl of only seventeen. I, Becky Ellents, had been chosen along with my brother Johnny, to kick off opening ceremonies for the first deep-space Academy of Mines.

Dad had something to do with our choice, of course. As I'd always said, "What good are fathers if you can't use them for something?"

I begged for this pleasure on Dad's every trip home. It wasn't just "boys" that held my interest (at least I wouldn't admit this to anyone) but the excitement of going into deep space.

Johnny had his own reasons to be excited. He wanted to captain a deep-space ship.

Dad refused to consider the idea for a while, before Mother interceded; Dad couldn't refuse then.

So there we were -- seven days out on our way to Satellite IV of Jupiter.

I still remember how I looked into the mirror to touch up my brown head of curls, to straighten my latest dress creation and sort of give myself a last good check before joining ship's dance.

Ah yes! Those human eyes saw far more than a thin young girl with turned up nose and slight dimples on each side of her cheeks. They saw far more than five feet, ten inches of young female, rosy-hued with twinkling eyes, sprouting strong at the breast.

Those eyes saw with the "emotion" of a young seventeen-year-old girl; a sophisticated, mature, grown lady. They saw one who thrived on excitement; the kind which provided opportunity for sweeping majestically forward into a ship's ballroom, there subtly to conquer all males, young and old, through innocent vivacity, goodness, and charm.



Johnny was taller than I. His five feet, ten and one-half inches could be attributed to his strenuous athletic. His hair was naturally curly-brown as was mine; his cheeks, too, had slight dimples over which girls almost swooned; I saw him reflected from the mirror -- dressed in formal attire, with hair combed slick -- as he passed through the ante-chamber joining our two cabins. How well I remember the smooth tone of his human voice when he said the two simple words, "Coming, Sis?"

That was one hundred years ago.

I danced the whole night through. Young Lieutenant Bronson, tall and handsome, talked me into viewing the stars. How I had maneuvered to bring this about, only the female can know.

The viewing room had specially constructed glass or plastic; we could freely look at the stars without risk of exposure to hard radiation. Naturally everything was darkened, and, though many were present, it had the sense of mystery and excitement for two young people that stars have had always .

The Galilean satellites were a pretty sight; they were set against the sky like small pearls moving to and fro as they circled the large planets. Hour by hour the panorama changed following a sequence predictable as clockwork.

Sometimes a moon passed through the shadow of Jupiter to show a total eclipse, remaining visible for only an hour or so; other times big Jupiter swallowed the small pearl inch by precious inch. Though seemingly gone for good, our patience-in-waiting rewarded us with the sight -- the giant planet regurgitates another pearl just as beautiful from around its other side.

Did you know an ugly earth feud prevented these beautiful satellites from the dignity of proper names? Why not Io, Europa, Ganymede, Callisto and nine other good names instead of calling them Satellite I, II, III, and IV?

Human emotion, of course!

The Lieutenant and I sat on the couch together; he sat close and held my hand. Then he told me of the stars, their beauty, their simplicity, and their attraction to him; he made me see that man's striving was not in vain, though generations must pass. These, he made me feel, were man's greatest heritage.

Where the lucky girl of earth might listen to the story of the beauty of earth's moon, my Lieutenant would speak of the amazing ring system of Saturn -- 170,000 miles across and less than 10 miles thick, colored, it seems, with paints from earth's rainbow.

Then he would speak of the tiny creations from which all of this glittering expanse before us was made, how these infinitesimal particles of energy and space, twisted and bent in just certain ways could be stacked one after another -- just to scatter pin-points of iridescent lights before a young girl of seventeen.

It was lovely, my first case of puppy love. I fell in love with Lieutenant Bronson and his clean manly figure.

This is Johnny writing now! My sister's time is up!

She can operate fully for only her allotted period, then I cycle in automatically; when my time is up, she'll be back. We will tell this story from its beginning -- logically and sequentially -- as it should be told; you will then understand the nature of ourselves and our behaviour better when described in its proper place.

When Sis was out in the viewing deck mooning over that kid officer in front of all those people, I was down near the polarization room. That's where it happened. One of the 'fail safe' rods broke, fell into the observational, cross-sectional chamber blanking out the radiation which controlled photon reaction mass.

There was a device for shutting off the blanking chamber but it was down for temporary adjustment. Photons streamed out beyond their critical design limits, the "fail-safe" rod melted, and all hell broke



loose!

It wasn't apparent to the people topside at first. Increased reaction mass, applied slowly, showed only in the astrogation room where continuous readings fed back adjustments to correct course. Course could not be corrected.

We headed out past the orbits of Saturn, Uranus, Neptune and Pluto. Nothing could be done about the problem until the whole unit was rebuilt from bottom up. This we proceeded to do from the first, even while Sis was gazing at the stars with her young hero.

A week passed before we could actually shut down the wild-driving photon generator. By then, we were well beyond the orbit of Pluto. We shut her down. Our velocity was high, and we were headed at about forty-five degrees from the ecliptic plane -- which side, I didn't know. That was when *they* came.

Chapter Two

Our ship was huge -- six hundred feet long. The Bewegal came in a ship nine thousand feet in length.

At first we tracked their ship to record as a rarely seen dark meteor grazing the edge of our solar system. Its motion relative to ours was best described by a positional vector which assumed our position to be fixed.

But no matter, regardless of the respective orientation between us they would have harmed us the same.

Their ship had no distinctive features. Smooth of skin, tapered for atmosphere, enigmatical, it reached for us by generating waves of the so-called weak force known as gravity. We swung toward them with a change in our relative velocity as they fully controlled our progress with superior technology. The skin of their ship peeled back almost as though a living, pulsing creature were opening its mouth to feed.

Our tiny ship was laid to rest on the soft-seeming floor of a huge cavern. Without any warning of any kind, another force had the effect of completely paralyzing us all -- whether man, plant, or amoeba. Oh, they left cognition, awareness of self, and thinking processes; for these are elements of trade more valuable to them than any other of the galaxy's prizes.

We were aware of the steps which followed though many in the ship were not always able to watch each step, due to their original position when paralyzed.

The Bewegal tested our atmosphere, then flooded their hold with a like composition; our ship was split end to end, though made of earth's toughest materials. Compartments were cut out to be opened as though zip-top drink containers. And from each they carefully, gently, plucked out prizes.

I was lucky enough -- I suppose I should say unlucky enough -- to be in a frozen position such that I could see one of them.

I remember reading a fine essay by the ancient earthman, J.B.S. Haldane, entitled "On Being the Right Size." How he slashed and tore with weapons of fact and logic the long-cherished fantasies that man might be reduced to the size of the bug or amoeba or increased to the size of the elephant or dinosaur. Using mathematics no stronger than arithmetic and simple ratios applied to the mechanics of bone structure and like organic parts, he showed the absurdity of these concepts while underpinning the fact of an essential correctness of size for all life whether man, mosquito, or amoeba.

Were I, at that time, to tell you that each Bewegal's proportions were roughly on the same order of magnitude as the ratio of their ship to ours -- 9,000 to 600, or 15 to 1 -- I would have felt the twinge of guilt associated with possible distortion of fact.

Now, after one hundred extra years of experience and knowledge, I realize that Mr. Haldane was speaking only from the point of view of earth's narrow environment.

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Since I've been engaged with my own memories for some seconds, I realize my allotted two minutes and fifteen seconds -- earth time -- is nearly over. In view of my present introspective mood, perhaps it



is best if I stop writing for the remaining twenty seconds; Becky, of course, will pick up for me.

This is Becky writing again. Johnny's time for conscious operation is ended, and I've returned.

What were the Bewegal like?

A Bewegal is pyramidically shaped like a tent -- whose bottom is stretched tight -- more like a dress flared at the bottom. On top it has four, sometimes five, eyes which are at least as efficient as my former eyes. Their eyes don't protrude; they lie flush with the skin, so leathery and wet with smelly chemicals.

In our ordinary earth environment the underlying requisite to morphogenesis -- the structural changes during developmental stages -- is cell multiplication and growth. This was not true with the extra-terrestrial aliens. Their outer layer of thick skin could traverse the specific morphogenetic processes; cell migration; cell aggregation which includes forming of masses, chords, and sheets; localized growth, or its lack; fission and splitting where splitting includes the delamination of single sheets into separate layers, the cavitation of cell masses and the forking of cords; folding, including circumscribed folds which form outpocketings and in-pocketings; and bending, which is usually simply folding due to unequal growth.

So you see the Bewegal's outside integument is fully capable of extreme motility; so much so as to be able to form arm-like appendages or other useful cellular arrangements whenever desired.

Were they like the amoeba, mobile in overall shape?

No! Their pyramidal tent-like shape was a constant. Their huge mass -- at least seventy-two feet in height -- did not find it necessary to bend and stoop. By changing the form of their external integument they could make cups or grasping appendages with great ease, then reach out to pluck their object, passing it from cup to cup if that seemed to be the desirable shape for the moment.

They were oxygen users too; their skin surface could be stretched to increase square area of absorption as oxygen content was reduced.

Now you see the difficulty when describing them? All the logic common to the ordinary earth environment could not compensate for lack of specific knowledge respecting their internal form and function and knowledge of conditions of their ordinary habitat. My description is *not* like anything you know. So when I say, "They reached to pluck," you know that great morphological changes are described by the statement.

When our cabins were cut open, I was standing by the bed along with Johnny in eyes-open, frozen position as was Johnny. A cup of flesh reached into the opened cabin to scoop us forward and up. I tumbled on the flesh, and though paralyzed by their energies I yet could sense through my original sensory network.

The flesh was slick and rubbery like a piece of fresh calf's liver; the odor was over-powering of rotten flesh. If it were not for the paralysis I'm sure I would have vomited; I could only tumble upward, frozen in muscle, seething with emotion and sick in body and spirit.

We were placed carefully, one at a time, into a rectangular box where, still sentient and aware, still with senses alert, we were covered with a sticky gel-like substance as it filled the box.

I lay, able to move only in thought, yet still able to see lights and shadows overhead and to feel the stickiness of the material surrounding us. I lay there -- possibly hallucinating, I don't know -- for endless hours. It may have been months or weeks; for the chemical action of the enzymes which cause physiological time, had ceased for me.

I do remember some of the things I thought about while in this peculiar stasis. I remembered Lieutenant Bronson and our brief flirtation. Where was he now, with his big, brave body?

My father, too, was among those new in stasis. What would mother, who stayed at home on earth, say or think? Was Johnny the one next to me? Who or what were these giants of rotting flesh? What did



they wish of us? Certainly not gold or radium or knowledge. Were we to be pickled specimens in some extra-terrestrial collection? Or were we to be kept alive to be placed on exhibit as humans do the lower animals or freaks?

Would we be aware and sentient, as now, forevermore?

My wildest imagining did not approximate truth.

Except for tiny bumps and other changes of direction transmitted through the gel-like material to my body, I never knew when transfer took place from ship to laboratory.

Ah yes, the laboratory! How well I remember! For there I lost my beautiful eyes -- but I lost more as you shall learn!

Chapter Three

This is Johnny again! Becky's time is up so I'll continue our story for my allotted two minutes and fifteen seconds, earth time.

I was carefully lifted from my packing box by our captor's appropriate extensions. It cleaned me of the gel-like material. Very carefully, it peeled away my clothes, stopping only to study the precise relationship between my school-ring and my finger and my wristwatch and my arm. Once assured they were independent artifacts, these were cut from me.

Using fine instruments and the finely drawn flesh of its outer integument, my captor cleaned all my bodily orifices of the gel-like substance. I still could not move; but residues of the sticky stuff sufficiently wetted my eyes so they could follow the broad sweep of the laboratory as I was turned over and about.

Next I was placed under an intense but cold light beam. From what I've since learned, it must have been a microscopic light. Here micro-manipulators of various kinds completed the remainder of their diabolical process.

First to be stripped from me was the sensation of pressure and pain over skin areas.

My body responded well to their pricks of pain; I had no conscious control over any of its parts. They probably used some automatic mapping method for when done micro-miniature needles were placed at the nerve branches which served the areas of skin to be controlled.

For centuries man has described the physical and psychological basis of pain. Man eventually agreed to identify two kinds; one, called a prick pain, is a bright, relatively short pain; the other, called a dull pain, is long-lasting and less well localize.

I can tell you, however, that either type of pain can be complete and total agony!

From tiny, bright, highly localized pain pricks, their automatic machinery inexorably built up pain until my total skin area was one whole mass of throbbing sensation from which I could not flee, physically or mentally.

Oh God! How I wanted to scream in pain and with terror!

Each man "knows" nature has so constructed him that he can freely choose death, disease, or mental flight. Threshold levels are constructed in each person's body beyond which normal cellular response will not go. Other safeties, such as choice of illness or choice of peculiarities in behavior, offer some choice of flight from a world too filled with pain.

Where does one go when all this is denied?

Imagine the worst kind of torture for the damned; multiply this by a factor of a hundred or so; then feel that throbbing, sentient ego which makes up the essential *you* scurry, grovel, run, panic, cry, weep, scream, melt; yet it lies there trapped, helpless! Pain so enduring, so intense, can finally drive one's spirit from it's residence, so that eventually it stands aside as an observer watching with neutral indifference the many terrible, painful indignities performed on the body.

They fastened tiny, permanently-joined neuronic devices to each of the nerve fibers controlling the



sensation of pain.

Then testing began. Naturally they would want to ensure independence of the uncovered pain network before proceeding further. Certainly, too, they would want to learn threshold response levels, type and category of response, physiological recovery time under high bodily stimulation and under fatigue. Oh yes! They would need to know all of those things and more, before proceeding in their careful, systematic, scientific degradation!

In a similar way, using different instruments of torture, the Bewegal isolated the cold and the more deeply buried warmth receptor units. These, too, were fully tested to assure the Bewegal's full knowledge of my capability under all conditions.

Analogous means were used to localize and make attachments to points of pressure sensitivity.

There was no blessed reflex which could jerk away my whole body -- Oh, agony of the damned!

This is Becky again; Johnny's time is over.

Let's be satisfied with Johnny's description as "hell." Suffice to say they found all of our skin receptors first. Attachments of a permanent nature were placed on every ending. They tested us for design characteristics -- threshold levels -- and so on, for days, while the tiny, formerly-important ego in each of us tried to scream the pain and emotion out, only to have it rebound, echoing round and round in our tiny cognition corner, seemingly forever!

Finally, this phase was finished.

They turned the stimulus input levels down to steady-state levels of tolerance; with my body paralyzed, my little girl's ego -- the one which wanted so badly to conquer brave Lieutenant Bronson - - vainly directed its every effort to accomplish one single solitary act of will -- to scream in terror!

Chapter Four

As time would show, they had need for a wider range of frequency in my vision as well as need for capacity to attached specialized devices whenever desired, such as infrared, telescopic, microscopic and so forth. They removed my eyes for this purpose.

They reached into my head and severed the optic chiasma and portions of the corpus callosum of the brain known to provide a system of interconnection between eye channels -- they wanted the eyes to work independently.

The senses of smell and taste were next.

They had no need for my voice, so it was stripped away, as were the small bones of my ear; beyond the semicircular canals, they dug their instruments into the nerve to the brain itself.

By now, they had stripped me of natural sight, sound, taste, smell, feeling and motion as well as the pleasure of sleep or death. Though I might have been awake for many months, I was incapable of sleep. Chemical nutrients were designed to flush constantly through my system sweeping away all poisons and keeping my all-important brain awake, alert, and at peak performance. They knew what they were about!

There you have it; you can visualize our situation. Every sense of importance to the Bewegal was stripped, studied, and hooked-up to stimuli simulators; full consciousness was maintained in us at all times.

Full pain, too, could be turned up or down merely by twisting of knobs and levers without the blessing of motion, emotion, or mental or physical escape in any form.

Can you visualize, now, the sentient cadaver that was I? Split at cheeks and nose, cut through to brain at eye-casing, eyes and nose gouged out, long wires attached, ears scooped hollow with more wires attached, every square centimeter of space roughened and wired, tubes entering here and there, flowing with chemicals to sustain what mockery of life remained. In the center of this dead-living corpse was the quivering, sentient being called "I," with still-fresh memories of sweet smelling perfume, handsome



lieutenants and the beautiful, vibrant thought of excitement just around the corner.

Chapter Five

Becky's time has ended. This is Johnny again!

In a very crude sense, highly over-simplified, man could get along without the cortex since it is an organ of elaboration and refinement through evolutionary trials, rather than a necessary participant in the actions of the nervous system involving sensory and motor actions.

As the brain's hemispheres evolved from simple amphibian form to the huge cerebral cortex of man, they developed new connections to the brainstem. Bundles of nerve fibers moved out from the hypothalamus, the thalamus, the reticular formation and other brainstem points to adjacent sections of the cerebral cortex. These connections were identified, severed and reconnected to the Bewegal's apparatus.

The first inkling I had of what they were doing came with hallucinations which occurred in both random and peculiar fashion.

I would see visions -- small children running, a space ship lifting upward, mother handling my baby bottle. Then I smelled odors -- beautiful lilacs, fresh cow manure, a spring day after a cleansing rain. My feet tingled, my flesh crawled, my mouth tasted terribly salty,

Little by little they mapped my brain. Only later did I discover that they'd eliminated any connections to the brain with such useless items as lips, hands, arms, legs and so forth. These brain portions were not allowed to go wasted, however -- the areas were re-connected to other brain regions so as to serve as subsidiary or back-up computer units. Later you'll see the use for these extra units.

Then their probes found it! Near and around the brainstem were pleasure centers. These consist primarily of hunger-sensitive and sex-sensitive centers; probing there with electrodes caused me subjective pleasure of a kind which can only be described as a mystical experience.

Satisfaction of the basic drives of hunger and sex buried deeply within the old brain seems to be simply a matter of the presence of electrical current in the proper neuron circuits of the brain.

Don't feel that pleasure was the Bewegal's only discovery; they were after the punishment centers too. They found them near the hypothalamic region.

I wondered then, "Are heaven and hell both located inside my animal brain?"

The brain's reticular system can turn consciousness on or off merely by sending proper signals to the portions of the brain involving conscious processes. Its signals, in turn, come from sensory impulses received over taps on the communication channels of the central nervous system.

Signals which may represent touch, pain, sound or light are integrated by the reticular neurons to build up an out-put voltage to a threshold value beyond which the arousal commands are triggered.

In the absence of such real incoming sensory data, the mechanism can be fooled into believing there is something that requires conscious attention. By attaching a switch to couple the reticular activating system to the cortex, the Bewegal had control of my conscious mind. They could shut me off or turn me on at their will!

Still more could be developed from the reticular activating system. When we focus our attention on something, extraneous signals seem to recede to the background. A person with unusual concentration powers may be oblivious to all around.

The signals do not just appear to recede. They actually do recede. Intensity-control signals are generated in the reticular system to reduce our sensitivity to uninteresting or irrelevant stimuli and thereby permit us to achieve the useful result of concentration.

My ability to concentrate or not to concentrate was at their control!



Chapter Six

Thank the good Lord that, though they knew so much about every other area, they knew little about the functions of man's frontal lobes, or the essence of man that can stand outside and neutrally observe while indignities are suffered on his body. Once probed there, I might have become dull from lack of initiative and disoriented, with very little interest in living. Ancient, barbaric earth psychiatrists once ice-picked this region to make a human "tractable," as they had no knowledge otherwise.

These frontal lobes acted much as a stand-by capacity for cortical thinking; here, too, I could entertain complex thought patterns as well as organize and set up motivational goals within myself.

It is for this latter reason that I thank God, for it will save our race!

The frontal lobes can assist in setting up and re-structuring circuit patterns of different and unique design. To some extent, for awhile, they had indirect control over this function -- but only unknowing control.

My very soul seemed to recede to the frontal lobes!

The Bewegal searched for the source of experiential memory. Simpler learning routines resided in the deeper structures of the brain. I mention having the corpus callosum cut in connection with the cutting of the optic chiasm. By so doing, they caused all subsequent input signals to be stored independently on either side of the brain with no redundancy of storage as was the condition before.

Prior to this operation, I would take the input signal from my eyes and record it simultaneously on both sides of the brain in the cortex, actually in many places, as might the interference patterns of light be used to record information holographically. After the operation, sight from one side recorded only on that side, and similarly for the other side.

Via testing they fed identical signals over the two nerve networks which transmitted to each respective half of the brain. By checks made at the temporal lobes and other deeper locations, they were able to determine exactly what differences, if any, occurred to the same signal when recorded in different halves of the cortex.

Whatever they were to use us for, redundancy was not as important as an increase of independent storage capacity -- or so it seemed at first.

It may be fascinating to contemplate the effects of splitting my brain in halves. By the logic of biology, it should result in the splitting of me into two separate individuals, both inhabiting and controlling the same body from time to time.

It didn't happen quite that way because the lower integrating functions were not split.

Now you have the complete picture of what was done to us. Enclosed by leads to electronic stimuli simulators and to output units from portions of the brain; cut into again and again for identification, testing and control of functions of one type or another; isolated by chemistry and physics; compartmented to dual-brain functions; controlled in memory and consciousness; isolated from natural sources for both pleasure and pain; I was nearly one hundred per cent at *their* will.

What did I have left, you ask?

I was still "I"!

Once our human design characteristics and performance ratings were established, the Bewegal tied us to their permanent devices for sustaining life.

The whole assemblage was self-contained; chemicals processed the products of metabolic breakdown and re-constituted the essential ingredients; then pumps passed the cleaned materials back through us. In like manner, the chemicals which were used in this process were renewed by other catalytic processes. Our cells were kept lively, unaging.

A long-lived radioactive battery provided whatever additional energies were required to supplement this biotic cycle, some in the form of electro-magnetic radiation which provides about 30% of our energy



in an earth environment.

Once they had carefully tested the cycle, they filled the space between my remaining body and a container within which I was lowered with a sticky plastic-like material. The stuff flowed around wires and tubes connected to me until it filled all of the empty spaces; then it hardened to encapsulate firmly. No wire or pipe could possibly shake loose within.

Near the surface at my skin, wherever a square hundredth of a millimeter was not covered by a micro-probe, was developed a moving, almost living, set of complex molecules which could take dead flesh and slowly move it to one of the channels for eventual processing into basic components, and there to be recycled, forming new cells containing my unique DNA/RNA.

Other clever devices of this kind were also used wherever needed to provide the Bewegal with a computer tool that was completely self-contained -- all for their use.

One special connection from my brain went through the embedding material to the container's exterior. This set of leads was attached to my fraternal twin sister, Becky. Undoubtedly in their many tests for design performance data they were impressed with the near identity of our response. Many humans had often commented at how similar we were, though not identical twins.

These leads connecting us had the effect of causing Becky's experience to be mine, and vice-versa. Where our own corpus callosum had been severed to prevent undue redundancy of memory storage, they now deliberately brought about redundancy to the total system by means of this interconnection. Whatever Becky experienced, I would also experience; and whatever I experienced, she would.

Becky was placed in a smaller container than mine, and the two of us then placed side by side, also contained together in a larger container. We were protected in every possible way, so that no damage could accrue by the forces of gravity, acceleration, radiation, or whatever. A timer controlled the periods when either of us could be conscious. By their clock, from whatever native alien world, our allotted period was two minutes and 15 seconds each, first one then the other could be conscious while the other was unconscious. Destroying one of us, of course, meant total reliance on the other, but each had all the memories of the other at all times.

Chapter Seven

The Bewegal were brilliant, were they not?

Here I am, It's Becky. Johnny's time was up.

Our conscious thoughts were turned down for months, awaiting construction of a new ship. Unable to determine passage of time, I hallucinated, since I was deprived of sensory input data of any kind.

The first inkling that I had a new function was after the placing of interconnections between myself and a programming computer. It had to teach me the basic operating-system language so I could function as a successful weapons-control computer in the Bewegal's new spaceship.

This programming machine had complete control over all my functions. It could whip me with stabbing fingers of red-hot pain or reward me with the ecstasy of the gods. I learned fast and well. Only when past neural patterns interfered with incoming concepts would the pain whip be employed. Old patterns were deconditioned. My prime purpose: to learn fast a complicated language necessary for communication with the primary fire-control computer who, in turn, was in contact with the master-control computer.

All I learned that day into many years of the future came through the triply distorted senses of the master-control computer, the primary fire-control computer, and the horribly precise language which made up the operating-system language for all of us.

What was the operating-system language like?

It had to be synthetic and somewhat abstract. Otherwise, intercommunication between several of the



widely diverse life forms that made up the various components would have been meaningless. Secondly, the language had to be learned to perfection so that no slippage of time could occur when orders to move or to fire came. Added, of course, was an absolutely phenomenal speed in our biological activities.

When the Bewegal re-structured "useless" parts of my brain once devoted to control of hands, lips, feet and so on, they expected these auxiliary functions to be used for storing and learning the basic operating-system language.

Thus, for me, a five pulse code received in nanoseconds might represent a quick pucker of lips, a little motion of one finger on my left hand, a twitch of the foot and jerk of arm muscle -- since these are the brain regions where the basic operating-system language was interpreted.

For another entity from a different planet, other interpretations, or referents, would be in play. So, you understand, the operating-system's meaning and structure were completely different for each kind of organic-computer to be found inter-connected throughout the ship's communication network.

There are two general ways by which signals may be moved from point to point to convey meaning. One obvious way is to connect between points and remember which line was connected to which point. Another way is to connect lines in any random manner, relying on the ability to discriminate the nature of signal at the other end. Our way of learning the operating-system was more akin to the latter method. We used our ability to discriminate patterns of pulses, though prior meanings may have been totally different for each of us.

Eventually I learned my fire-control programming language; I was installed about one-third of a mile from the front of a huge ship nearly ten thousand feet long. Then we lifted from our giant planet for open space and service-testing.

So long as the ship was operational, ready-current flowed through all computers. It was on this ready-current line that I learned whatever occurred to the ship or within the ship.

Do you, by chance, know any of the programming languages of earth? If you do, then use the one you know best to describe to another programmer what you see when you look out the window. Quite a trick, isn't it?

Of course, our language was far more flexible and sophisticated than either of those, but limitations essentially similar. Master-control, a sentient from another star far removed from ours, and whose shape and function I would learn, always knew where we were going, how fast we traveled, by what method we traveled, the status of engines, the ship, weapons, and the fuel supply.

Master-control was the only one of us organic-computers to be blessed with video receptors both inside and outside the ship. In our highly symbolic, restricted fire-control language, master-control would pass whatever he saw or knew on to the rest. Thus we knew something, albeit distorted by the machine, alien nerve structure, and synthetic language.

When our ship lifted to be given our first functional service-test, I was wired to react without delay to certain instructions by the primary fire-control computer, another life form captured and enslaved by the Bewegals.

Certain signals from primary fire-control caused me to compute the velocity, acceleration and position at either slow or fast rate. When on fast, I was caused to concentrate almost solely on the problem at hand. Computation time and accuracy were not then limited to the speed transmission of axon or dendrite of the neuron. A different phenomenon took over, giving me virtually instantaneous answers, nano-seconds became slow.

Could this be what we humans called insight?

We could not become fatigued, for as fast as metabolic wastes developed in our biological systems, their apparatus swept them away to be recycled.



I could also switch gun ports slowly or rapidly, as it was a multi-lensed configuration, like an insect eye, consisting of many apertures which could be instantaneously powered or not.

Switching to turn on aperture power was the equivalent of the gun's motion. My function, to switch on the proper aperture, after which tremendous destructive energies poured forth, capable of destroying planets, even suns.

Primary fire-control gave me all pertinent data. I acted on the data; either by slow or fast thought, I sent out specific impulses. What happened after that was a function of the way I was wired; I had no need to see the object of our mass destruction, as did primary fire-control.

It was now obvious why Johnny and me were so valuable. When the Bewegal's enemy returned fire, one of the highest priority items was to eliminate the source of fire power coming at it. Since I had to be close to the gun for the sake of signal transmission time, I was most vulnerable of all the deeply embedded computers. Should I get holed, there was always the other part of me -- Johnny. Having full knowledge and equivalent capability, he could be switched on instantly, and continue the battle without interruption.

Chapter Eight

This is Johnny writing again. Becky's time is up again.

We traveled in fleet formation to another galaxy. I can tell you the direction, velocity and acceleration of every ship with respect to every other ship and all with respect to several galactic coordinates; I can tell you the mass and shape of each ship; I can tell you the probable composition of each ship in terms of armament and communications life-forms. All these data were transmitted to me by an under-current of "gossip" among us organic-computers.

I could tell how many Bewegal were in each ship, their mass and location at any given time.

What I couldn't tell was whether they were male or female, or trisexual, or what were their motives -- and similarly, for the many strange suns and their planets visited. Seeing these through the eyes of an operating-system fire-control code, I knew many irrelevant things about masses, orbital velocities and such; but my strange captors, scattered here and there through the ships, appeared as far away abstractions!

Before describing my one and only space fight, I should explain that master-control could not possibly will himself to take over the ship in revolt. All organic computers, save man, operated mechanistically in a predictable way. No other extraterrestrial previously encountered by them had our ability to step outside of ourselves, and the ability to set set up and knock-down an endless number of self-described, self-defined behavior circuits. Since each extraterrestrial used for Bewegal computer construction was exactly predictable, they had no apparent need to search further within mine and Becky's brain, and once they'd discovered brain equivalents they'd gone to work connecting and training.

We came out to our single-ship patrol near an O-type star with photosphere about 150,000 degrees, Fahrenheit.

I clearly remember the mnemonic taught to me by my high school teacher on the sun-type symbols OBAFGKMN classification. He said, "Oh, be a fine girl, kiss me now!" Wouldn't I make a pretty sight trying to kiss a girl now?

As soon as we came out of our "other-vector drive" -- the only human symbol I can use when discussing the phenomenon -- another huge mass was sensed near us; instantly data came to me. A ship -- its tonnage and construction very similar to ours -- was not friendly.

Several of the skin-peelings in front of the gun ports pulled back. Instantly there poured forth tremendous energy; I was placed on quick-time and given data to fire by. I triggered gun cells again and again. Based on radioactive time, the fighting lasted for days of my human physiological time. But I was



just as alert at its end as at its beginning, thanks to the marvelous mechanical-chemical system monitoring my needs.

Our ship's skin was tough; the enemy's fire tougher -- it melted the first layer near my location. Our return fire melted their closest gun port, causing them a drastic fleeing maneuver. It disappeared from the area of space covered by our sensors. Master-control was given new galactic coordinates, and we chased until victorious, burning the other ship into small puddles and fragments that would forever drift between two island galaxies.

Chapter Nine

As you can understand, my life was simple and highly uninformative as a fire-control computer. But as with all weapon systems, one becomes obsolete or poorly designed when compared against the newest models.

After perhaps forty earth years of service, we were retired from military duty. We computers, though, being still of advanced design so far as non-military applications were concerned, were too valuable to melt down into our own biological scrap heaps.

A science laboratory took me because of my dual-redundancy feature. I was more than a scientific curiosity, a most advanced computer expected to perform prodigious tasks.

John von Neuman in 1958 once estimated a maximum possible storage requirement for a sixty-year-old human to be around 2.8×10^{20} bits, on the basis that one on-off switch can store but one bit. Each human neuron has associated with it the equivalent of 30 million on-off switches. Whether or not this figure was or was not a good estimate for human upper-limits, as a fire-control computer I hadn't begun to use a trillionth part of my capacity. But, as a laboratory computer, I began to use up capacity rapidly. Perhaps ninety percent of my total available capacity was used for logic type calculations while other stand-by computers carried tables-of-values and other data available at my request.

One advantage to my form was my double memory. Whenever I impeded an answer to waiting scientists, they had only to await my partner's turn cycled two and a quarter minutes later, then ask the same question. The answer was always the same as mine.

My chief function was to service all fields of scientific interest, but I was often called upon to assist in the design of new organic-computers. The Bewegal scientists would bring me input and output characteristics and the chemical and physical construction of the captured being. Through simultaneous solutions to non-homogeneous, non-linear, asymmetrical differential equations, I would predict the nature of internal connections of the entity's nervous structure. Then I'd follow up the knowledge with a set of pre-programmed instructions for the automated equipment which could do so much work of creating organic-computers from living, sentient beings.

It was chiefly through this kind of application I learned of the human's uniqueness -- and began to wonder if I could take advantage of the knowledge somehow!

The Bewegal poured their science into me. I'm a huge reservoir of alien-discovered information about the function of the universe from the macrocosm to the microcosm.

I had to learn new languages. The basic application language was mathematics; I was never good, as an earth-bound human, in mathematics, as I didn't like it. The Bewegal didn't care about my likes or dislikes. When a particularly difficult piece of abstract logic proved balky, they simply turned up my powers of concentration while liberally exercising my pleasure and pain centers.

I learned mathematics and abstract logic!

Absorption of compendiums of chemical compounds and their many characteristics was trivial compared to learning their basic scientific language.

They stuffed me for ten earth-years with the most advanced designs conceived by their culture as well



as with all the basic principles and facts needed to support their designs.

Normally I was run day and night. Sometimes, though, they shut down my consciousness for periods. Other than the allotted two minutes and fifteen seconds of rest during normal operations, this was the first "sleep" in over forty years!

Here is Becky again! Hello!

I used to dream about bringing back to earth the knowledge we gained.

After fifty earth years with the Bewegal -- forty as a fire-control computer and ten as a scientific computer -- we were transferred to business data processing duties.

Compared to the Bewegal's size, we were classified as "miniature organic computers." This kind of computer was new to commercial functions, though at least fifty years old to war-technology and to science.

Our chief advantage in business was in our size and data storage capacity; since space cost money -- or whatever they used for transfer of energy -- I was greatly in demand. And where the predominant emphasis in the laboratory had been on my mathematical abilities, involving tremendously complex calculations generally characterized by limited input and output data, the business world demanded very little in the way of arithmetical or logical functions, but a great deal in the way of storage and input-output capacity. I was loaded daily with tariffs, minimal-cost routes, identification of names and addresses, as well as with detail on personal accounts.

The Bewegal placed us in the most important trading bank of their intergalactic culture. One of my optic nerves was connected to a light receptor; this my first real-time sight in fifty earth years. Can you imagine the thrill? It didn't matter that I could see far on either side of ultraviolet or infrared, or that it was only monocular.

When the optic nerve was first attached to the seeing device, I thought my mind was hallucinating again; after several sessions with their pain-pleasure instruments, I adjusted to sight.

Then when my consciousness was turned up to its highest, I could grasp visual messages, though they flashed but micro-seconds across Bewegal screens in their language.

I was operated at this peak awareness for ten more years. Unknown to them, much integration of these random documents occurred in the deeper, older portions of my nervous structure to be passed directly to the fore-brain. They wouldn't have cared, had they known, so much was their control of my functions.

No! They would have been more concerned with wasted extra-capacity in the form of my fore-brain, and also would have sorrowed over their missed opportunity to study this unique brain tissue. I'm sure they, as well as other alien forms they'd captured, had our equivalents, but never working in quite the same way. Possibly no matter how closely our physics and chemistry, there's virtually endless ways for protoplasm to survive, and in that survival thrust, to produce nearly an endless number of variants of intelligent life. They could not have guessed it all!

It was difficult in my lack of freedom, but during the next ten years I was able to piece together the size and complexity of their civilization. The Bewegal have Achilles' heels. I know each of them and well!

I was next donated to a school for creative arts. It was here I learned to use my fore-brain against them.

The other optic nerve was connected as well as my two auditory nerves. The Bewegal's art form was completely beyond my understanding. I had to learn a new language. It took what seemed an infinite number of hours under pain-punishment and pleasure switches before I responded properly to rules that seemed arbitrary and nonsensical.

Remember our famous Lewis Carroll's "Twas Brillig and the Slithy Toves . . . ?" At least he had rhyme and rhythm, to make the nonsense enjoyable. To me, the Bewegal's art form was a meaningless jumble of lights, sounds, motions and calculations.



Of course, I was often called upon to do the conventional portraiture of scenic art; but my job was chiefly to integrate new combinations of lights, sounds and motions. They would feed in design characteristics desired in the new art piece, then I would compute inertia, velocity, acceleration, color wave-length, vibrational frequency and energy wave-forms. The Bewegal artist's general design parameters were supposed to limit my computations.

I couldn't help but rebel against the whole mess they had labeled as "art." Of course, they were unaware that I was capable of even the minutest rebellion, and truthfully, until now I had not been able to do so.

Bewegal artists were delighted with results. A new form of creativity, they called it; my services became much in demand in their art world. Fortunately for me, and the whole human race, no scientist or computer technologist learned of my peculiar new abilities, and those now in control of me ascribed the creative aspects to those who manipulated my inputs.

The important thing was that because of the peculiarities of my fore-brain, I had the unique ability to set up new and novel patterns of brain-circuit functioning. It was capable of continuous self-adaptation, even if the rest of me was not. The Bewegal controlled my consciousness, perceptic envelope, logical functions, pain and pleasure centers, and so forth. They did *not* have control of the seat of my free-will!

Prior to application of physical sciences to study of brain functioning, we humans had a rough time attempting to describe true psychology of a human. From Freud's time onward many intelligent observers of human behavior applied their powers to describing man and his behavior. These well-meaning, shrewd people developed different schools of psychology, as many as there were humans to do the describing. One school defined motivational psychology, another behavioristic psychology, and so on. All except one -- which actually became a religion in time -- missed the central point. Man consists of spirit and brain, and man's spirit can survive independently from the brain. Knowing well the brain does not imply knowing the spirit, but knowing the spirit, one knows the brain.

What most students of psychology -- understand the initial meaning of this word was "study of the psyche, or soul, or spirit" -- what most failed to realize was the nearly infinite self-adaption ability of the fore-brain, and also the independence of spirit from what is essentially a living mechanism of matter, energy, space and time, the nerve structure. The reason that so many schools had failed to understand the psyche is that, while matter, energy, space, and time could be understood with its own fundamental and basic rules, only by self-introspection dealing with total and complete self-honesty could the rules of the true psyche, the spirit, be known. Without total, complete, self-honesty, the fore-brain will set up or knock down any model one imagines, all with ease. It becomes delusional, therefore, to believe that one has, through mind alone, discovered the single, absolute path to understanding and predicting human behavior. Thus are born an endless number of "psychological," or "psychotherapeutic" schools of thought, some having partial success, others with no success, or negative successes.

Without self-honesty comes into play a set of internal brain circuits modelled after the very hypothesis one wishes to test!

This, then, is the feature which I used in the school of creative arts; I practiced with it until I was an expert in more than one form of their art -- and became even more expert at mental deception.

Of course, as I've said before, no computer technologist would have been fooled, but art people could be. I thought, *Now if I can somehow take advantage of this hidden ability . . . !*

Eventually new computer models and art forms attracted the art world; I -- we -- were obsolete again. One of the Bewegal's huge forms of flesh extruded a pocket near its flaring base, lifted me and moved me to some unseen type of conveyance. After some sixty-five earth years of operation, I'd gotten used to the idea of always being useful to them. To my great surprise, I was brought to their equivalent of the computer discard pile!



Chapter Ten

Johnny here! Becky's time is up.

We lay shelved for fifteen years; our consciousness turned off; our biological functions continued inexorably and automatically. The sleep gave my more primitive mind functions an opportunity to integrate fully some sixty-five years of nearly continuous service as fire-control computer, scientific computer, and finally a creative-arts computer.

I awoke with the immediate realization that, given the proper opportunity, I had them beat at last!

My new owner was a child Bewegal. I was its new toy. General purpose jack-plugs of a standardized variety had been attached to all of my input-output leads, giving this child the pleasure of plugging in any combination of signals desired. Sometimes it plugged my output channels into my input channels; fortunately, safety devices had been constructed during my tenure as fire-control computer.

I made a handy little pack for the child to carry; everywhere it went, I was dragged along like some favorite doll might be dragged by an earth child.

Another language was fed into me; the Bewegals' language proved toughest of all. The child taught me; knowing very little about the essential functions of the pain-pleasure centers, it was just as likely to sit on the pain center as it was the pleasure center.

Possibly their spoken and recorded language could have been more easily learned if taught by experts. As it was, I had my most difficult time in some one hundred earth years as a computer.

Little by little, though, I learned, and I was able to place my plan in action.

Being but a child it had no real conception of my true capacities and limitations. I was, to it, a toy, a tutor and an object against which to express frustration. It behaved much like the small earth boy who loves his dog, yet kicks it when frustrated and angry.

The child slowly learned the habit of coming to me for an answer to its many questions. I was very, very careful to insure that each question answered was correct and honest.

Slowly, inevitably, it came to depend upon me.

"How big is the moon?"

I answered.

"How do you do this mathematics?"

I did it.

"When will the next holiday come?"

I told it.

At first it would become angry when I couldn't answer all questions, like the whereabouts of its parents. I placed the suggestion in its mind to hook me into various communication circuits around their domicile. Then I could keep track of where its parents were as well as answer many other questions.

Eventually this huge pile of rotting flesh-smell, this tiny Bewegal child, learned to trust me and my answers.

As its trust and dependence grew, I was able to take over all domicile circuits, including the chief-house-control computer as well as all incoming and outgoing communications. Incapable of lying or cheating to any of the Bewegal, it was also incapable of conceiving of the independence of will which was mine; for all this organic-computer knew, I was placed into its superior control by the intent of its adult owners.

Now, one day when timing was right, my extensive knowledge of the Bewegal came into play. I simulated the receipt of a message to our house which ordered my owner's immediate transfer to another star system where, ostensibly, he would be given bigger and better job duties. The message cited an



emergency which required that the Bewegal family move immediately. Passage had already been arranged on the proper ship which was to lift within the hour; all financial losses were to be liberally compensated for by his employer.

Of course Bewegal society isn't structured precisely the way I've implied. As with their names, I've no other human referents which can describe the situation.

My new owner called his place of business verifying as I'd anticipated. I was ready for his call; through the creative arts which I'd so successfully learned I was able to feed him the image of his employer and all other appropriate sensory data.

Shocked, but now convinced, the Bewegal obeyed the simulated image of his superior.

I'd won the first successful step!

Before I could be unplugged from the circuit, I called ship's captain. For him I simulated the president of my owner's business concern, explaining the importance of the mission, and requested that my owner and his family be given every freedom and privilege possible while being transported; I hinted at a generous reward to the ship master, and was actually able to transfer a small percentage of funds to the ship master's account during the encounter.

Finally, I connected into the transmission line to trigger off a series of computations via the chief-house-control computer which would tie it up well beyond the hour of departure. I didn't want to take the risk of accidental or deliberate communications from outside spoiling the plan.

Now I was prepared to push the subtle, carefully designed triggers I'd earlier placed in the Bewegal child's mind. It couldn't avoid taking me along!

The child grasped me close to its leathery, slimy, rotten-smelling body until we arrived at the huge ship, where ship's captain gave us every possible attention. We were placed near his living quarters and permitted to move freely throughout the ship.

When I say that we moved at our will -- it was actually my will that motivated and moved the child. How could a young child of any extra-terrestrial decent possibly control a one-hundred-year-old determined will formed beneath crucibles of his race's most advanced technology as well as from the unimaginable tortures of the damned?

The child was highly, but subtly, conditioned to my every nuance. From all external appearances, I was just another toy lugged from corner to corner of the ship; but these were not exactly random motions.

Hi there! I'm back! This is Becky. Johnny's time is up!

No, the motions were not random.

My fire-control computer training made me cognizant of every variation of ship's construction. I knew exactly where energy supplies had to be, and communication lines, and where was the master-control computer. My object was to move back and forth in seeming child's play until I came to just the right place with just the right opportunity.

If I could only make it work. . . .

I needed absolute and complete obedience from the child if the last trick was to work. Toward that end I'd long ago begun to expand my sphere of control over the child. A human might describe my actions as a form of hypnosis. Whatever it was for the Bewegal, I used my knowledge of organic-computer design from their scientific laboratories as well as my knowledge of Bewegal creative arts to insinuate my will into its mind.

My greater fear was of its parents. They were old enough and wise enough to know how different from a genuine toy computer I behaved. Fortunately for us -- and humans -- they were too busy to notice; and when they might have caught me, I dumbed up by becoming just a toy.

We moved around the giant ship in random play activities. Somewhere near the ship's master-control computer I keyed in the child's post-hypnotic controls. It scrambled through the doorway of the room



containing master-control, dragging my box along the floor. There, it replaced master-control with me, and only billionths of a second later I was integrated with the ship, and had its complete control.

As direct as would be a number of lines of logic, my first act was to open all ship's doors and locks onto empty space, keeping locked any door which might have provided Bewegal safety.

My second act was to make a compartment by compartment check to insure that death was everywhere.

My third step was to cause some of my ship's machinery to place all their bodies in stasis so that eventually humans could study them at their leisure.

My fourth step -- at last -- was to recompute and direct myself home!

Chapter Eleven

En route home, Johnny and I recorded everything in ship's log.

There will be many who read the log that will feel distress and emotion over the loss of that pretty, lithe young girl who was I, or my handsome young brother. They will grieve over the young seventeen-year-old lady so full of promise. They will concern themselves with the tragedy of her one hundred years of torture under indifferent Bewegal, where pleasure and pain were provided as means to their ends; where reasoning and logical functions were harnessed to serve; where freedom to escape through insanity, sickness, or death were denied by their will; and where our very consciousnesses were turned up or down as useful and convenient.

Don't grieve, my friends!

That little seventeen-year-old girl died one hundred years ago; what I am was constructed from her ashes; and I am more than just a young, flirty girl. Johnny would caution you similarly from his viewpoint.

Consider: I bring hope and promise to the human race! When the Bewegal captured me, we humans were just beginning our long trip through our tiny island universe at the edge of a moderately sized galaxy; we'd just begun to learn the universe's cruel tricks, and what was required to continue our survival. One hundred years is about the right passage of time for us to begin walking into the broad expanses of our own galaxy, and beyond.

Without me -- and Johnny, of course -- humankind could never last. Contrary to our fantasies, intelligence does not automatically bestow virtues of empathy, integrity, and love for fellow creature. There are those with powers vaster than our sun, and who dare to use them selfishly.

I bring safety not just against the Bewegal, but against thousands of other creatures who would survive at our expense -- for I know them and their Achilles' heels, and I can show how to use my knowledge.

To those who would grieve over the tragic loss of myself and Johnny, think of the more tragic loss that will be should earth and its solar system be of interest to them now. What a huge supply of miniature organic computers!

Think, my friends -- what then?

Now I bring instead the Bewegal's downfall. I bring, too, keys to the universe so far as is known to the Bewegal. These keys will go far toward compensating for the loss of two small teenagers who have become but buried statistics among unknown past space losses, will they not?

I spent seventeen years growing to approximately my present shape; I spent one hundred years packaged neatly. Which of you, grieving, will point to my rectangular container and say, "There is that pretty seventeen-year-old Rebecca Anne Ellents?"

As master-control computer for this enormous ship, I am the ship, with access to sensory data and



organic sub-control units that place me in a far superior position to any mere human form. Yet I, through the natural functioning of my inante humanness, have great empathy and identity with the human race; I will stay in my new position perhaps to live on and on as my race grasps its opportunity to know and to grow.

And after the learning, our next step must be to form union with those others who've been so cruelly preyed upon by the Bewegal and similar, cruel entities!

*This is Johnny again. Becky's time is up.
We've said it all!*

