
The Biology of Wisdom

Brains on the Bell Curve

“Once the validity of this mode of thought has been recognized, the final results appear almost simple; any intelligent undergraduate can understand them without much trouble. But the years of searching in the dark for a truth that one feels and cannot express, and the alternations of confidence and misgivings until one breaks through to clarity and understanding, are only known to him who has himself experienced them”

- Albert Einstein

Einstein’s greatest challenge was finding a way to communicate an entirely new way of understanding physics. His problems lay not in his intuitive perceptions but in how he was going to explain it to anyone else. It wasn’t easy. By the time he worked out the explanations and analogies required he was starting to sound like Sir Edmund Hillary returning from Mount Everest. According to Newton, genius is based on analogy, the ability to see the connections between things. So why are there so few geniuses? Why, indeed, are some people more mentally able than others? It doesn’t seem to inherit very well. There are gifted families, but only one Rembrandt, one Margaret Mead, one Jimi Hendrix. This in turn suggests some part of the system, some natural capacity of the brain is more developed or better focused in some than others. According to our current paradigm, the entire experience of life is a vast virtual reality limited only by the system doing the perceiving. From this

perspective we are equally bright within the context of our own minds. Still, when judging human accomplishment across the board there are those able to surpass normal limits, standing out as great scientists, artists, philosophers, saints, and statesmen of their times. Why do some people seem eager and able to grasp subtle concepts and not others? For that matter, why do a lot of people act so dumb a lot of the time?

Politically correct thinking insists everyone, if properly educated, can be equally smart. We know that just isn't so. Nature versus nurture arguments aside, there's simply no question about it. Some people are born brighter and grow wise with age. Others mature from barely trainable to barely sustainable. Investigations into genetic or neurological explanations usually buckle under accusations of cultural bias, but this begs the question. There are smart Asians and dull Asians, brilliant Blacks and not so brilliant Blacks; there is no master mind race. All of us agree there are plenty of idiots in our own societies, wherever we live, too many crazies and never enough wisdom to go around. Regaining the philosophical high ground, it appears we may have another species-wide aspect of consciousness here, something that is characteristic of all human societies. This usually means that there is something causing it either in the brain itself, or in the manner the brain juggles perception and recall into the virtual reality we deal with on a daily basis.

Ruling Out the Obvious

Brain activity is electrochemical in nature. Previous chapters described how biochemical changes are responsible for everything from brain speed to neural nets. However, brain chemistry itself isn't a useful line to follow this time. Great minds have been sober and drunk, passionate and reflective. There

are plenty of histories of artists, philosophers, musicians and others with unusual abilities who indulged in alcohol or drugs but nothing to suggest adding spices to the mental soup was ever able to sustain improvement or output. There are also plenty of stories of temporary intemperance leading to the occasional breakthrough. Even John Vincent Atanasoff, the gentle scholar who invented the digital computer, cheerfully admitted he was driving around the back roads of Amass, Iowa after a few beers in a bar. Relaxed and free-associating, he came upon the solution to a major problem and launched the computer age. William Taylor Coleridge drew some images from opium dreams and Bob Dylan's *Tambourine Man* is one long pot rap inspired by a New Orleans Mardi Gras. Still, prolonged tampering with the brain chemistry set leads invariably to lessened and inferior work. There are no molecular mind stimulants that work across the board in any regular or dependable manner.

If the answer isn't found in brain chemistry, we shift to brain structure. Here the prospects are more promising. Could any aspect of brain structure, in its final form, be the basis of the basic mental differences between dull, normal, and brilliant? Brain size by itself, we already know, has less to do with consciousness than brain structure. It's not the number of neurons, that's for certain. Janis Joplin's brain weighed more than Howard Hughes' and the largest brain on record was from an executed murderer. The next suspect would be the density of the neural wiring itself, a variable based on the amount of neural branching.

Using Our Connections

We know that early stimulation leaves permanent effects on the brain's later capabilities. In one dramatic study, scientists blindfolded one eye of a newborn kitten for three months. This so retarded the normal growth of neurons in the kitten's visual cortex that visual pathways were never created and the cat, although otherwise normal, remained blind in that eye for the rest of its life. Later studies by William

Greenough and others were so convincing the US Government inaugurated the Head Start program. The long term results of this and other early childhood enrichment programs have proven beyond any doubt that stimulating environments can create dramatic improvement in a child's learning ability and later social performance. If increased neural branching is a basic variable associated with a more aggressive intellect, it suggests an insight into why some people are more intellectually acute than others. Is this the simple variable in basic brain wiring that makes the difference between a Newton and a noodnick?

Animal studies and newer non-invasive procedures are beginning to provide the necessary details to support this line of thought. Human arborative density, the tangle of neural branching in the brain, has rarely been studied. As a genetic variable it must have an upper and a lower limit with a "normal" range between the two. Still, we don't have a lot of numbers. The reason is simple. We don't have brain samples taken unless something is wrong enough to require one to identify a tumor or inspect brain damage. As a result, samples with enough brain mass to study come only from dead people, many of whom died from diseases or conditions affecting the brain.

Still, though we lack samples for a true normal baseline, when it comes to the upper and lower limits evidence may be available. Twenty years ago, a series of post-mortem examinations were done on infants who died shortly after birth from gross mental retardation. The purpose of the study was to learn how maternal health affected fetal development. In the case of extreme malnourishment, the effects were fatal. Initial inspection of the infants' brains revealed surprisingly low levels of the basic neurotransmitter *acetylcholine*. Was there something terribly wrong with their brain chemistry? Careful microscopic examination solved the mystery. The neural synapses using acetylcholine were normal. There just weren't enough of them. Denied proper nutrition during a crucial period of brain building the neurons simply hadn't arborated enough. Like starved trees with too few branches, there weren't enough leaves for the breezes of perception to make more than a flutter. In this instance, the stunted arboration led to such a low

interconnective density the neural system wasn't able to support conscious perception at all and failed completely.

When it comes to the high end of the scale the evidence is more ambiguous. Still, it supports the general concept that there are limits at both ends. One source that can be studied are the brains of those who died as wards of the state in large mental institutions. One study concentrated on the *corpus callosum*, a thick band of neural tissue connecting the right and left hemispheres of the brain. In this instance, only the brains of schizophrenics were examined. There are two basic forms of schizophrenia. Early onset appears during childhood, while late onset usually strikes during the early or mid twenties. In the brains of early onset victims there was an abnormally high density of neural connections in the corpus callosum. This condition was rare among those suffering from the late onset variety. Abnormal connections, this time too many, between the brain hemispheres is apparently typical in at least one form of genetically inherited madness.

It would be convenient if we could associate branching density with all levels of perception and capacity. Unfortunately nobody is going to take brain core samples from the living and we haven't a lot of reliable information from the dead. Still, we have one sample which might represent the upper limit of conceptual intelligence, one able to manipulate very complex internal images and associations without tipping over into very complex fantasies. After his death, Albert Einstein's family was concerned he not be autopsied or sensationalized. No studies were done on his brain, nor examination permitted of his body. In fact, numerous brain tissue samples were secretly removed by one of the attending pathologists. Encased in small blocks of gel, they were preserved in formalin.

In 1985, a number of these samples were examined with the hope of discovering any aspect which might have a bearing on his extraordinary intellect. Einstein had a slightly larger than normal brain, but this has already been ruled out as a variable. His neural interconnective density was, however, was nearly

twenty percent higher than average. In 1991, further studies were done on the sugar-cube sized samples by Arnold B. Scheibel, Director of the Brain Research Institute at UCLA. Together with his wife, neuroanatomist Marion Diamond, he found that compared with eleven normal brains Einstein had an excess of glial cells. These cells provide the insulation and packing for the branching dendrites. It appears again that Einstein didn't have any special structures or even special neurons. He just had more connections between them. His brains arborative density was much higher than the average.

It seems the subtlety of normal human consciousness thrives in a narrow band extending about twenty percent on each side of the average, or the norm. Too few connections and we cannot deal with the outer world at all. Slightly beyond genius is where true madness lies where the inner virtual world simply takes over. From underconnected to overconnected it could account for everyone from the hard to train to the hard to restrain, from retardation to full blown psychosis. The way this one structural difference could have such far reaching effects hinges on the way normal human consciousness operates. If the arborative network were less dense, it would at all times be adding less detail to memory. The brain would therefore need more of these less detailed patterns before generalities and analogies could emerge as abstracts and ideas. Predictions, made with less information, would be less accurate and learning would take more repetition before it became automatic. As the brain's arborative density increases, memory and prediction improve. This allows some to feel quite certain about a likely future without an obvious reason; the basis of many so-called intuitive abilities. Some really do have the knack because they pick up a little more and predict a little better. With greater detail available, recall would be better than average and they would remember more complex details. There would always be a few more associations and analogies. The world would be seen as having more subtleties and complexities, more challenges, more opportunities, and more dangers as well.

Aside from better prediction, recall and analogy, anyone with increased neural density would also think a little faster. This is for two reasons. First, the greater number of connections would result in a greater number of incidental short cuts, allowing a network to grow faster. Second, with more neurons attached to more neurons, the speed of the parallel processing performed by the brain would increase slightly. This results in some people literally thinking faster, if not better, than others. It is no illusion and it helps explain why to others they often seem speeded up, curious and intense about life. Bertrand Russell said that the only truly brilliant man he knew was his friend and colleague, philosopher Alfred North Whitehead. Whitehead's daughter Jessie, still alive in the 1980's, was fond of her dad. "Father never knew what it was to be "grown up," she would say. "He was always asking questions, right up to the end. I guess you'd say he died a rather wise child." This line of thought is remarkably close to Einstein's own assessment of his mind "Most adults don't spend their time thinking about questions of time and space. That is what children do. My problem is that I have never grown up, so I asked those questions and looked for simple answers. I still do." Albert Einstein was notorious for his habit of treating everyone from professors to cleaning women with the same off-handed familiarity. As one biographer wrote "His absentmindedness, his playful wit, his willingness to expound upon politics, religion, and philosophy in addition to science, his violin playing - all sparked an intense curiosity on the part of the public."

Another consistency found among many with extraordinary minds is an ability to combine mental images with scientific thought so thoroughly they actually experience their ideas like vivid virtual scenarios. Neurologist Charles Scott Sherrington was fascinated by how Nobel laureate Ramon y Cajal personalized his work. "He treated the microscopic scene as if it were alive, and were inhabited by beings which felt, and did, and hoped and tried, even as we do. He saw sperm cells as activated by a sort of passionate urge in their rivalry for penetration into the ovum." Cyril Stanley Smith, director of the metallurgical aspects of the atomic bomb project, described in a letter "a feeling of how I would behave if I were a certain alloy,

a sense of hardness, and softness, and deformability, and brittleness - all in a curiously internal and quite literally physical way.” Swedish physicist and Nobel laureate Hannes Alven said that rather than running equations back and forth in his mind he preferred “to sit and ride on each electron and ion and try to imagine what the world is like from its point of view and what forces push to the left, or to the right.” The late geneticist Barbara McClintock won her Nobel for discovering high protein corn hybrids for a hungry world. For her, daily work with chromosomes was a social experience. “When I was really working with them, I wasn’t outside, I was down there, I was part of the system...these were my friends...they become part of you. And you forget yourself. The main thing about it is you forget yourself.” The ability to lose the sense of self during intense focus on inner images is also the basis of some powerful Buddhist meditation techniques. Students choose an image, memorize it, and sit motionless with their eyes half open examining their memorized image in their “minds eye”. Not only does the self-generated image gain a dimension of emotional meaning as described in the previous chapter, if the meditator is naturally sensitive the image can eventually acquire a reality equal to the “outside” world. Explorer and author Alexandra David-Neel, traveling through Tibet disguised as a Tibetan pilgrim at the turn of the century, wanted to try the technique. She shut herself off in a cell to meditate alone for several months, using an image of a Capuchin monk. She was delighted with the peace of mind the experience provided. She was also amused and surprised when, resuming her travels, she would occasionally see the monk here and there like a real person. Eventually, without the steady concentration, the image faded and the monk no longer appeared. Exercises like these demonstrate that mental images can become as real as physical ones. All we have to do is concentrate on them.

This ability to focus on vivid mental images and ideas allows some of these people to endure privations and isolation which would be difficult for others. Charles Darwin spent years on a sea voyage and Newton compiled his **Principia** while waiting out the London plague alone at his parent’s country

home. Thoreau's solitary cabin at Walden Pond is well known to the world. If they are not isolated, they can do well at jobs so boring they do them without thinking. Einstein was a patent clerk as he worked out the special theory of relativity in his spare time. Franz Kafka was a minor civil servant. Spinoza didn't run a coffee house for renaissance minds, he ground optical lenses. Some use cards or crystal balls, others become gifted teachers, scientists, or stockbrokers. Some are beloved healers, others become national leaders. These are the individuals who stand out in the ways we call perceptive, sensitive, learned, and wise.

However, there are plenty of drawbacks as well. The over-arborated consciousness, burdened with intense memories and vivid predictions, can become over emotional, oversensitive, and childish. Since these people perceive more complexities in life, reacting to valid perceptions they cannot share, it's often hard for them to make sense to people around them. This acute frustration can ultimately lead to the extraordinary efforts at communication we call the arts, all created by individuals so moved at what they experienced they felt compelled to share it. It requires maturity and patience to gain the complex skills required for mastery in any medium. Without this sort of self discipline, the overly complex mind can easily disable itself in exciting internal dramas that serve little purpose. Those unable to adapt to the "normal" values and realities of their cultures can easily become trapped in isolating personal scenarios. Easy distraction, hyperactivity when young, and indecisiveness can result. For the unfocussed mind, the wide variety of opportunities available can prove distracting to the concentration which allows talent to develop into accomplishment. As Leonardo DaVinci once complained, "Like a kingdom divided, which rushes to its doom, the mind that engages in subjects of too great variety becomes confused and weakened." The greatest mind of the Italian renaissance died with his frescos deteriorating, his great bronze horse uncast, and his elegant machinery unbuilt. Galileo stuck to astronomy and Einstein left no symphonettes for violin and string quartet. They stuck to their skills and let their mental art change the world.

Our limits are reached, it seems, when the combination of neurotic repetition and interconnective density give the inner virtual world the ability to overpower the world that exists around us. If this tendency can be controlled and directed, it leads to disciplined minds able to follow inner images and visions to discovery, wisdom, and art in any area they choose to follow. Impressionist Claude Monet knew very well that a haystack is made of brown and yellow hay. To catch the subtle and momentary blue and pink hues of a French sunrise he relied on a visual memory as color-fast as a printed picture, painting from his inner eye as all great painters eventually do. But he knew the difference, which is the most important difference. Art is talent manipulated by skill, but the general audience must be the final arbiter. This is why artists need audiences, to keep their visions grounded in the general reality of their own cultures. Without this constant reality check, reality can eventually check right out.

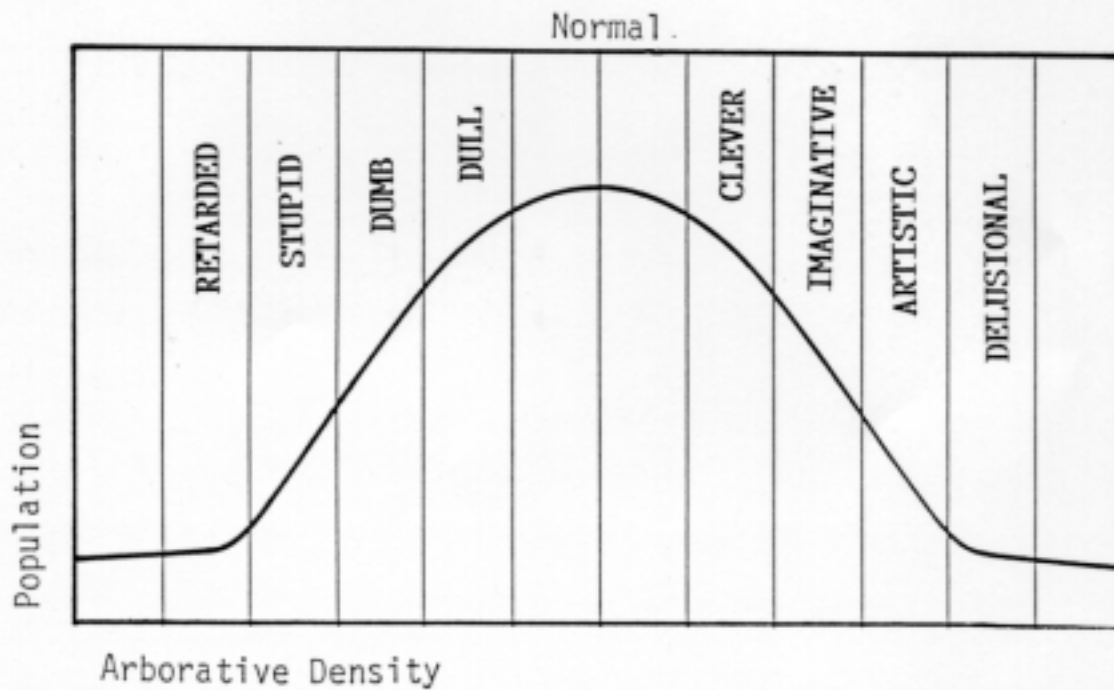
Some turn inward. Creative minds can become withdrawn, paranoid, and obsessive, gradually losing contact with the world in isolation as real as the brain damaged or retarded. In the emotionally damaged it can lead to neurotic fantasy, avoidance, escapism, and even psychosis. The electrical genius Nikola Tesla was able to design and even test complex circuits in his head. In Tesla's case it eventually got completely out of hand. He died penniless after a sad decline into obsessive neurosis, requiring his table settings to be each wrapped in exactly six layers of paper napkins. Howard Hughes, also, was a crack inventor. He personally designed many aspects of his own planes from racers to the first TWA Constellation. Neither man was able to halt the inevitable buildup of compulsive repetitive thought patterns, eventually causing them both to live in worlds full of complexities and strange rules that nobody else could fathom. As their lives became habit ridden, their minds became so self-involved and self-limited that the outer world was no more than a vestigial aspect of life, a life which had already become a never-ending feedback loop. Hughes died a billionaire, Tesla a pauper, both utterly miserable victims of their own hag-ridden minds. If either

had available to them the tools of modern psychiatric medicine, who knows how fulfilling their lives might have been.

Balanced brilliance, on the other hand, always knows when to take a break and let it slide. Norbert Wiener and Albert Einstein met only once, by complete chance, as passengers on a train in Switzerland. In a poignant letter reproduced in a hallway at MIT, Wiener describes the delightful time they had chatting about the beauties of lake Geneva and colored patterns in the clouds. Neither mathematics nor physics, the skills they had so brilliantly mastered, interrupted a mutual understanding that they were having a wonderful time. As long as the complex individual maintains a balance between perception and personal interpretation, life can be improved by a more rapid perception of underlying rule structures and their practical applications. While less complex minds often find their reassurance in steady careers or social structures, the complex individual can find comfort in tight philosophical schemes and elegant strategies. They succeed or fail completely between their own ears, and most of us never hear about it. The medieval scholar Erasmus wrote in the fifteenth century that if pure learning weren't a pleasure, he would not have spent a life at it. Referring to his beloved books as his "friends" he celebrated his quiet and solitary existence. "What could be more agreeable!"

Adventures in the Tall Graphs

An easy way to visualize the progression from one end of the mental spectrum to the other is to use the familiar bell curve, the standard representation of a random distribution. With neural branching density increasing from left to right, the left side of the diagram indicates too little neural branching to survive, while the right would represent too much density to stay in touch with the world. The vertical dimension represents the population of the earth in billions.

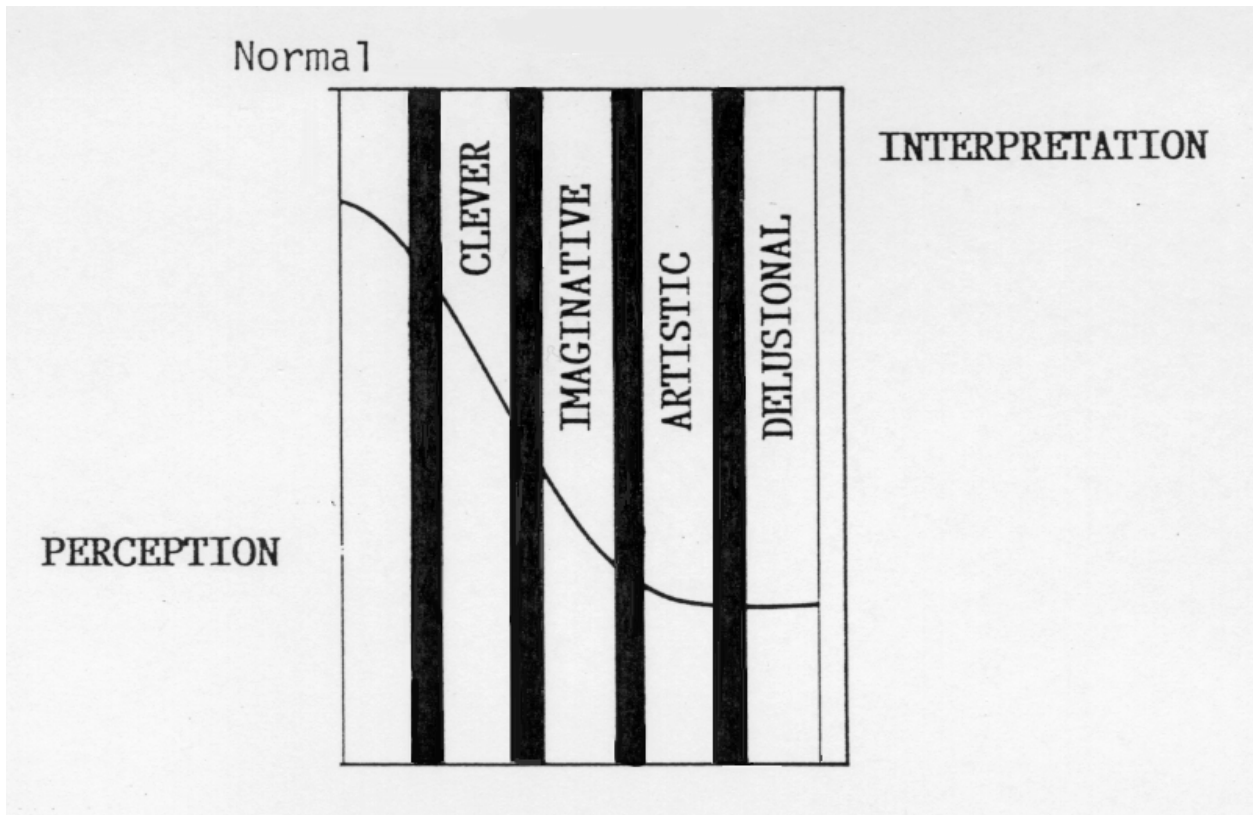


In this representation, the “normal” majority is assumed to exist mainly between the dull and the clever. There are not that many very stupid or retarded humans. Likewise, world populations of real lunatics are thankfully relatively low. Since the same mental strata yields genius, art, and neurosis, the problems our society suffers from the disturbed are usually being made up for by breakthroughs in medicine and science by the well directed over-connected who better tolerate the imbalances and alienations which drive others to such extremes. One thing seems certain. There is no better or worse, no right or wrong. Most of us think and act as if there were a “consensus consciousness”. There isn’t and there can’t be. We are each unique and dealing with our own special variety of life challenges. The clever blunder into clever problems and the dull get as depressed as any existentialist in *weltangst*. It’s the way we deal with our own world that counts. A desire to use our brains to our very best, at whatever level, seems to be the motivational basis of a fine mind at every level of neurological complexity.

Getting back to the graph, a natural problems we face when classifying our neighbors as smart or dull is the unavoidable bias of the classifier. Most people see themselves as internally consistent and to that degree as normal as anyone else. How can any of us know if we are unusually dull or specially clever excepting that others tell us so? This understandable tendency to ground in our own personalities leads to an interesting illusion when we size up the people around us. Since most of us assume we are normal, we place ourselves at the top of the curve. The person two to the right is imaginative and two to the left is dull. However, so-called “normal” people rarely read books about consciousness at all, so nearly all of you are probably at least at “clever” level. This means that those who appears artistically gifted to this audience, already smart-shifted one level to the right, could be far enough into subtlety to be regarded as “delusional” to the “normal” mind. In a like manner, an imaginative person will regard a normal person, two to the left, as slow. This is not entirely an illusion, since greater density seems to increase mental speed. However, if the inner imagination gets out of control, one eventually becomes unreachable and once again we’ve lost our reading audience. True neurotics have no time for theories such as these. They have plenty enough of their own.

It is easy to see, using the graph, why many dull people call nearly any imaginative ideas crazy, and why the delusional rant about the stupidity of nearly everyone around them. Once again the physical limitations of the brain itself imprint themselves on our very personal experience of life. The slow or retarded have to work harder to retain knowledge, determine causalities, and make future plans for action. The artistic or imaginative must gear down to deal with what seem to be the mundanities of life. They have to be especially observant of prevailing social norms, no matter how limiting, so as not to seem either eccentric or unpleasant. Should either mental deficiency or mental complexity pull us too far from average thought and behavior, we become mentally alienated until we are so out of touch we must be institutionalized and cared for by a world we can no longer adequately comprehend. In terms of social

isolation, the brilliant individual is just as left out as the slow thinker. The genius can be just as incomprehensible as the retarded. Based on this interpretation, the children of those with great minds are just as likely to be cursed as blessed. There is clearly no advantage to freezing the seed of those with a genetic tendency toward higher neural density. Any offspring could blossom into a full blown set of neurotic behaviors as easily as winning a science prize. She would certainly know more than her share of the anguish of the overly intelligent who must live, after all, in a vivid virtual reality often at odds with



what the consensus selects for its art, its media, and its social mores.

Another use of the bell curve is the following illustration. The only difference is the groups on the right are now separated so that the line on the graph cuts across long rectangles at various heights. If we call these rectangles "reality", the portion below the line is the portion of reality taken from direct perception, while the proportion above the line is the part taken from our internal interpretations. Once

again the diagram seems to match what we see around us when we think about how these people seem to behave. The normal person deals more directly with the daily challenges and responsibilities of day to day life. The clever person might have a greater emotional investment in life plans based on long term strategies with deferred rewards based on more elaborate plans for a future. By the time we reach the level of “artistic” temperament, the very personal way in which an artist interprets perception can mean more, at least to the artist, than the event itself. The delusional live in complex personal worlds that often seem to have little, if anything, to do with the world we see around them.

Clearly there needs to be a balance between our perception and our imaginative use of that information. Those deficient in making associations will seem inappropriately slow. They have to make mental connections with a little less recall, prediction, and speed. The over connected brain often misfires, reacting to simple problems with inappropriately complex responses and strategies. If the rectangles that make up the middle of the bell curve are the norm, for most people perception holds more promise than imagination. What we see is, in fact, usually what we get. Still, for the artist and the philosopher, interpretation will always outweigh information or they would have nothing to get so excited about. To each his own, within the limits of a fulfilling and comfortable life.

A Desk for All Seasons

As an illustration of the nature of life as seen from differing levels of complexity, we will set up an imaginary situation to demonstrate how complexity begets complexity. In this instance we have placed a large wooden desk in the center of an otherwise featureless room. Into this room, we will take one individual from each category, normal to delusional, and ask the question “What is it?”

Normal: “It’s a desk.” Opens drawers. “An old wooden office desk.”

Clever: “Looks like a desk.” Checks drawers. “It’s big enough for a lot of things. I could use it as a table, I suppose, or maybe some storage.”

Imaginative: “Offhand, I’d say it was an old wooden office desk, but there’s no telling what you might ask me to do with it, so let’s see. It’s a desk, a work table, a support, and a platform. I could even use it for a dresser. It’s a lot of wood bolted and glued together so it could weigh something down, or I could take it apart and build something different from the pieces. Do I get tools? In an emergency it could be burnt for heat, or as a signal beacon. Did I miss anything?”

Artistic: “That thing? That thing? You know what that is? It’s the mighty altarpiece of the twentieth century incarnate. It’s the age of the office, the age of the cubicle and half the minds of the world are shackled to those things, like cubist balls and chains, and then they put the chains on the rest of us. Look at it. Still in wood. Y’know most of them are metal now. That’s it. This is a nostalgia piece, right? You know, it’s sort of memorial in a way. See how the light hits it? Polish it up a little, maybe add a little neon. Everybody ought have one of these. How about I make a bunch of little reproductions, wood on a little black marble slab. Sell ‘em to retired executives. I’ll call it the “Altarpiece Series” or something. I’ll sign ‘em. You can sell ‘em. Whaddaya think?”

Delusional: “Just what do you mean, ‘What is it?’ You already know what it is, so what do you want me to say? You could ask me anything. But what

would it mean anyway, "What is it, where is it, who is it?" I don't know who it is or why it is but I know what you're up to, Doc. You're hoping to confuse me so I give the wrong answer and then you can tell them I'm neurotic, or stupid, or crazy. But this time you went too far with your little hidden agendas because I'm on to your little schemes and plots with my entire family to keep me here. I know it all by heart. They probably taught you how to do it. Ask the crazy questions until you drive them crazy, that's it, right? Right? You may be a psychiatrist but you're dumber than I thought to try that one on me. I've figured out your little game and you're not going to get a word out of me. Not one single word!"

We can't suggest that any of the individuals portrayed in this gallery of words is being untrue to him or herself. Each answered in a way consistent with a world view which by degrees became more intricate, personal, and intense. It is reassuring to know that reality is usually closer to what it appears to be than what we might imagine. It was a desk, of course, an old wooden office desk. "Why are some people smarter than others?" was not one of those questions posed by Bertrand Russell. He was probably too polite to ask and he was smarter than most. It is comforting again to reflect on the openness and good humor found so often among those whose intelligence, if misdirected, could have such terrible consequences. They are not shut off in their own little worlds and so they share, influence and improve our worlds with their discoveries, their wisdom, their music and their art. They usually speak gratefully of their own inspiration and support from others. "If I see farther than others," Newton once remarked, "It is because I have stood on the shoulders of giants." The very intelligent are smart enough to know better than

the rest of us that we rarely do it alone. They may well bootstrap the human race, but they are also the ones who thoroughly understand this aspect of the human condition. We do it together.

The concept of interconnective density as the dominant factor with regard to basic mental capabilities is a good start in the right direction and a good enough excuse for anyone. It's not anyone's fault that we're not enlightened yet. Blame it on the DNA. Still, even as insights gained from understanding a little more about how the brain is built help provide some new explanations, we are still faced with the same old facts. If the world we know is complex to the degree that we ourselves are complex, it reminds us that we bear the greatest responsibility ourselves to make that world as pleasant as possible for ourselves and others. It also underscores the extraordinary variety of human experience, each as real as it can be.

We are not of one consciousness but a jumble of unique minds, each a bit different. To that extent, an emerging world consciousness is closer to possibility now than at any time in the past. As each of us is a separate entity, like a neuron, the number of possible interconnections has suddenly shot up. The increase in world population, in terms of the future of the human race, may not be as important or as dramatic as this rapidly growing interconnective density. In a century we have gone from Morse code to color fax and the Internet now beckons us to a shared existence we would never have imagined even twenty five years ago. Who can say when the density of communications between us will increase to the point that we realize that all cultures and societies embody certain basic rules for life and how to live? That's universal wisdom, a generality that emerges as we compare our own life visions with people all over the world. Soon, we may finally waken to the truth that we are all the same, sharing the same world and wake up to a shared future. A consciousness like that could save our very planet.

Still, we each must live within that very personal world we perceive and believe in. Here we all know the truth. It does not make a bit of difference to us how bright or slow we are, so much as finding our place and our acceptance among those we respect and love. The complexity of it all is secondary, in all

of us, to the fundamental simple search for fulfillment and belonging. It may well be happenstance and genetic coding that make our worlds simple or make them complex. Considering the complexity of our mental biomechanics, it's a miracle that most of us fall within the normal range. That's the luck of a resilient and forgiving system. If we can accept the fact there's bound to be a lot of variation around the norm, it can help us accept both the dull and the creative, the plodding and the poetic. Most of all we can take heart in our own unique mental personality and better accept ourselves.