

V – Values & Objectives (The Values in Science and the Science of Values)

Dear: I wonder if you remember: walking back down the access road, parallel to the irrigation ditch, in the direction of the water's flow, about a third of the way back from the dam, there's a fork in the road. At that juncture, you can either continue alongside the irrigation ditch or go up the hill and then down the other side. But it doesn't matter which road you take, because you end up at the same place (closer to the truck). Well, similarly here with this chapter on "values": I've arrived at this same point, closer to the end, via two separate roads.

On one road, taken in this book's Part 1 (in chapters emphasizing personal goals and emotions) and especially in Part 3 (emphasizing interpersonal relationships), when trying to understand people, their goals, and their interactions, I was led to considerations about evaluating values (e.g., moral values). Such considerations, which can be difficult, can be seen to be attempts to develop a "Science of Values". Incidentally, such an enterprise is commonly opposed by religious people, who claim that values are dictated by their gods (although no evidence supports such claims) and, therefore, that values are to be evaluated not by scientists but by clerics. As a result, developing a science of values can be not only difficult but also contentious.

And on the other road, taken in Part 2 (dealing with ideas) and in this Part 4 (emphasizing science), there's need to evaluate values in science, in part because whenever we try to create a scientific model of any thing or process, we need to identify causes, but as I tried to show you in the previous chapter, what we mean by "causes" is model dependent. Therefore, we need to know the goal of the model – and choosing some goal requires consideration of values. Moreover, such value considerations permeate science, not only in the values that each scientist (worthy of the name) must adopt to conduct science but also in choosing data to collect, information to store, knowledge to seek, understanding to try to develop, and then, in attempting to transform understanding into wisdom. Thereby, the topic of "the values in science" is important because it permeates all activities in science.

In any event, on whichever road this chapter was reached, in it I want to continue on down the access road after the two roads rejoin, to consider the important and contentious topics of both "the values in science" and "the

science of values.” But rather than start immediately on either the importance or the contentiousness of the topics, what I’d like to do is begin the considerations more slowly (grandfathers have a tendency to want to move slowly ☺) and to focus the emphasis on you and your grandmother (another common trick of grandfathers ☺). If, for a change, you’ll be patient (☺), eventually I’ll get to the promised topics. And believe it or not, associated with my apparent wanderings, I have a devious plan.

“Oh, I can believe that.”

Child: behave!

Anyway, continuing on down the road, perhaps you recall from earlier chapters (starting way back in Chapter **B**) that I tried to show you that all people choose essentially all their values either without thought (e.g., by doing what their parents, their clerics, or some other “authority figures” demand) or by relating their values to their dual survival goals (of themselves and their extended families). In addition, most people also try to pursue and adhere to other (perhaps instinctive) values, e.g., for what are commonly called “truth” and “beauty”. In your case, questions to which I hope you’ll give serious thought include:

What values have I adopted? Why? What are their origins? Are these values what I want? Should I revise some of them? On what should my values be based? Are they?

The reason why I hope you’ll address such questions, Dear, is that, if you do and if the result of your examinations and evaluations provides you with a set of values to which you want to commit yourself, then I’m quite confident that you’ll be more pleased with how you live your life. Addressing such questions is, however, a very challenging undertaking. It’s similar to trying to put together a very complicated jigsaw puzzle.

As you know, in the case of assembling a jigsaw puzzle almost always it’s useful, first, to turn all pieces of the puzzle “picture-side up”, next to identify all the “edge pieces”, and then to start to build the picture from the edges. Similarly, for the case of examining and evaluation values, I’ll start by listing ideas that I’ve tried to convey in earlier chapters (turning all the pieces picture-side up!) and by suggesting which of these ideas seem to be “edge pieces”.

- Given that values have meaning only relative to objectives and that we all pursue a huge number of objectives, we simultaneously adopt a huge number of values (related to our many objectives); correspondingly, there's a huge number of pieces of the "values jigsaw-puzzle".
- Given that we all pursue a huge number of objectives, it seems appropriate to attempt to focus, first, on our primary (or highest priority) objectives – because all other (then, lower-priority) objectives should at least be consistent with (if not in direct support of) our primary objectives; correspondingly, values associated with our primary objectives can then be identified as edge pieces of the jigsaw puzzle.
- Two primary objectives of all humans (and for that matter, all animals as well) is the survival (or welfare or even "thrival") of themselves and their "families" (with the recognized extent of "family" to be addressed later in this chapter).
- In this jigsaw-puzzle analogy for values, let values associated with the objective of promoting an individual's welfare be arbitrarily recognized as left-hand-side edge pieces and let values associated with the objective of promoting the welfare of an individual's family be recognized as right-hand-side edge pieces.
- A third primary objective (of the trio of survival goals pursued by all humans) is the "survival" (or preservation and promotion) of our values. But it appears to be a logic trap to seek "values" associated with this primary goal of the promotion of our values (against what values do we measure the value of our values?!); therefore, it appears necessary to dig deeper to identify other sources of our values (besides our dual survival goals, of ourselves and our families).

Now, Dear, if this were a mystery novel (or a "mystery chapter"!), I'd delay identifying the top and bottom "edge pieces" of the "values jigsaw-puzzle" until near the end, after I had built up some suspense. But "believe it or not", I don't intend any of this to be a mystery. Therefore, let me identify "the culprits" now – and then in the rest of this chapter, I'll try to "justify" the identification.

What I want to show you in this chapter is that the other two primary sources of everyone's values are those that I identified way back in Chapter **B**: 1) one's "universe of experiences" (from which one "learns lessons", especially when young, and from the experiences of one's "culture"), and 2) from one's "worldview" (i.e., from one's opinion about the nature of this universe and one's place within it). Later in this chapter, when I return to the jigsaw-puzzle analogy, I'll (arbitrarily) identify values derived from our (commonly, "down to Earth, practical") universe of experiences as "bottom-edge pieces" and identify values derived from our "worldview" (or "outlook on life") as "top-edge pieces", but until I return to the jigsaw puzzle, I plan to leave the pieces of the puzzle just scattered about on the kitchen table – which then brings to mind another analogy, which I'll introduce by relaying a story about your grandmother.

The other day (or at least it was "the other day" when I began writing this chapter, many years ago!) your grandmother transferred an ashtray from a small table in the dining room to a coffee table in the living room. It's quite a large ashtray; the transfer took her most of the day!

The reason that the task took so long was, however, not because the ashtray is so large and not necessarily because your grandmother is slowing down, but because so many other tasks were backed up, requiring completion before she could move the ashtray.

Actually, her prime goal wasn't to move the ashtray; it was to move a small, struggling plant from its location against a wall in the dining room to a new location, under the dining-room window – where it would get more sunlight. The large ashtray (more like a bowl) was underneath the pot of the plant that she wanted to move; its purpose was to collect any spilled or excess water.

Upon lifting the plant, she decided to repot it, and did so – on newspapers unfolded on the dining-room table. After repotting the plant, she then cleaned up the mess on the table and washed it. Next, she put the soiled ashtray in the sink to soak before washing it, and washed the small table it had been sitting on. Then, she moved another table (of lower profile) from near the old stereo to underneath the window, which required removing records and binders from this "stereo table", dusting them and the table, and finding a new location for the books and records, and of course, transferring them to a new location.

That done, she washed the third table, waxed all three tables, put additional plants on the table under the window (which then required shifting the dining room table, because some of the plants were quite large), vacuumed the dining-room floor (by this time it was quite dirty with leaves that had dropped from the plants), and finally, put the large ashtray on the coffee table in the living room – all to give a struggling plant more light!

Similarly, Dear, to provide more light on the origin of our values, although some people might think that trying to make sense of our values is as simple as moving an ashtray, my view is that, to provide you with sufficient light (so that you might better see how to choose your own values), I'll need to repot some plants, clean, move some books and records, shift some furniture, clean more, wax and polish, rearrange other stuff, and then do some vacuuming! Consequently, Dear, if you're in a hurry to do something else, it would probably be better if you'd stop reading and do whatever else it is that you want to do. This chapter will be here, patiently waiting for you, until you have time to read it at a leisurely pace. After all, we all set and try to conform to our own sense of priorities – and values.

Let me start by repotting the plant; who knows what elements and compounds are depleted in the old soil and what fungi and parasites are flourishing. Thus, perhaps you recall (from near the beginning of this book) that I began by inquiring about priorities. For that inquiry, I relied on the obvious “first principle of systems analysis”: *priorities for any system can't be defined until the system's objectives are known*. For example, in addition to your grandmother's many other objectives, she set herself the new objective of helping a particular plant survive. Priorities then followed (such as first repotting the plant and then moving it under the window) – but not without complications (for she obviously had many other objectives, such as trying to keep the house clean, furniture protected, and so on).

Also near the beginning of this book I introduced (and in subsequent chapters have frequently used) another “principle” that I hope is also totally obvious to you: *values have meaning only relative to objectives*. For example, some people might question your grandmother's “sense of values” (in her expending so much effort to move a single plant), but obviously her objectives led to her placing a high value on helping that plant survive – and certainly I wouldn't be so foolish as to question her objectives and their associated values! Yet, later in this chapter I will try to analyze the values that she seemed to have adopted – and they appear to be quite complicated.

In fact, in most cases with most humans, major complications are obvious (and are typical for all complicated systems): each of us has a huge number of objectives (or goals or needs, wants, desires, hopes, etc.), some of which may be conflicting and in pursuit of which, certain “things” (or actions) have different values. For example, certainly one of your grandmother’s goals was to help that plant prosper, but in pursuit of that goal, she didn’t abandon her goals to protect the furniture and to keep the house clean.

To try to “get a handle” on the resulting complications, the standard technique of systems analysis is to focus on the system’s “prime objective” (assuming, for the moment, that there’s only one). The obvious meaning of “prime objective” is that: it’s the one objective for which all other objectives would be sacrificed. For example, from my long experience with your grandmother, I’ve learned that her prime objective is the health and welfare of her family; therefore, if she found that the plant she was moving was struggling not because of inadequate light but because of some fungus, I know that it would be “out of here”, into the trash, fast!

But notice, Dear, that we humans are “complicated critters”, quite willing to change our priorities under changing circumstances. Thus, so long as the plant seemed healthy (albeit struggling because of inadequate light), your grandmother seemed to adopt as top priority the goal of helping the plant survive, without abandoning her other goals (such as protecting the furniture and keeping the house clean). But if the plant seemed to be a hazard to her family’s health, then quickly she would revert to what she consistently considered to be of higher value, namely, her family’s health.

Pursuing this line of thought, by considering the many goals, wants, needs, desires, hopes, etc. of humans (e.g., by evaluating what “happiness” means, by using Maslow’s “hierarchy of needs”, etc.), I proposed (and still maintain) that we all seem to pursue, as our prime objective(s), what I call “our trio of survival goals” (survival of ourselves, our families, and our values). But because “value” has meaning only relative to some objective, this analysis reveals the major complication already mentioned: if one of our prime objectives is to promote and preserve our values, how can our values be measured against the objective of promoting and preserving our values?! Again, it seems to be a logic trap.

For example, although your grandmother obviously placed considerable value on keeping that plant alive, how did she measure that value? As another example, you might “justify” the value that you place in, say, the scientific method by referencing this value to your objective of learning “the truth”, but against what value do you measure the value of “truth”? More generally, if value has meaning only relative to some objectives and if one of your prime objectives is the “survival” (or protection and promotion – or “thrival”) of your values, then again, against what objective or objectives do you measure the value of your values?

In reality, however, it’s not a logic trap. As I’ll try to show you, the source of the problem is (once again!) not taking adequate care with words. But to show you what I mean, then just as your grandmother found it necessary to find a new table to host her plant under the window, let me prepare a new table, to try to show you how people have extricated themselves from this apparent logic trap.

Immediately, though, I should add that “evaluating our values against the objective of promoting our values” is an apparent logic trap only for some people. Without worrying much about logic, many people (if not most) accept the values as dictated by people “in authority”, such as their bosses, the police, political leaders, clerics, and so on. This is especially the case for most children – before they begin to develop “the powers of discrimination”. In this case, “authorities” include parents, teachers, and even older siblings, bigger kids, school bullies, entertainment “stars”, and so on. What I therefore will be emphasizing in what follows is the case for you, as you reach “the age of discrimination” and seek to define your values for yourself.

If you agree, Dear, that one of our trio of survival goals is promoting and preserving our values, then some obvious questions are: where do we get our values, against what do we measure them, and in what priority should we arrange them? As I trust you’ll see, Dear, how you choose to answer such questions, will very much define the person you’ll become.

First, however, notice that you have no other option than to choose. As the novelist, “existential philosopher”, and Nobel Laureate Jean Paul Sartre wrote, even if you decide to base your values on what some angel, sitting on your shoulder, whispers in your ear, still it’s you who must decide whether it is or is not an angel:

If I hear voices, who can prove that they proceed from heaven and not from hell, or from my own subconsciousness or some pathological condition?

Because we have no option but to choose, Sartre stated we are “condemned to be free... or, if you prefer... we aren’t free to cease being free.”¹

But beyond seeing that you (and only you) must choose your values, Dear, maybe you can see that humans are one of those complicated nonlinear systems (outlined in the previous chapter) held away from equilibrium, in a balance between energy inflow and dissipation, capable of defining their own evolution: through your choice of values, for example, you define yourself. This is what Sartre and all existentialists mean by saying that, for humans, “existence precedes essence.” In contrast, for most things that we choose to do or to create (such as putting together a jigsaw puzzle, moving a plant, or writing a book), their essence precedes their existence; that is, whatever it is that we plan to do or create, we first formulate a plan (its essence) and then proceed to do it or to bring it into existence.

To try to help you understand those ideas better, I’ll quote more from Sartre’s essay (available on the internet) *Existentialism is a Humanism*:

What do we mean by saying that existence precedes essence? We mean that man first of all exists, encounters himself, surges up in the world – and defines himself afterwards. If man as the existentialist sees him is not definable, it is because to begin with he is nothing. He will not be anything until later, and then he will be what he makes of himself. Thus, there is no human nature, because there is no God to have a conception of it. Man simply is. Not that he is simply what he conceives himself to be, but he is what he wills, and as he conceives himself after already existing... Man is nothing else but that which he makes of himself.

¹ Dear, I would encourage you to investigate some of Sartre’s ideas, e.g., by exploring on the internet, where you’ll find at least his 1946 essay *Existentialism is a Humanism*. Incidentally, Sartre (1905-1980) was one of the few who refused to accept the Nobel Prize, which was offered to him for his literary accomplishments. He also refused to accept the French Legion of Honor, he is generally recognized as the chief architect of the much criticized (and in some ways maligned) philosophy called “existential humanism”, and because of this, all of his books were put on the Catholic Church’s “Index of Prohibited Books” (i.e., “good Catholics” are not to read his books). Thereby, Sartre earned a place of high honor among the ~4,000 authors whose works were censored by the Catholic Church (in the ~350+ years since the first “Index” appeared in 1557), including Descartes, Bacon, Montaigne, Spinoza, Milton, Locke, Hume, Rousseau, Gibbon, Pascal, Kant, and many others, all of whose ideas, Dear, I hope you’ll investigate. If you do, you’ll find that, much earlier, one of those authors, the philosopher Immanuel Kant (1724–1804), wrote something similar to the statement quoted above from Sartre. Kant wrote: “...in whatever way the Deity should be made known to you, and even... if He should reveal Himself to you... it is you... who must judge whether you are permitted to believe Him, and to worship Him.”

That's quite a bold claim – but I doubt that sufficient data are available to support it – and I'm fairly confident that you don't want me to explain what I just wrote!

That is, Dear, in my opinion there are multiple problems with trying to clean up the mess on Sartre's table, but I don't want to take the time, now, to try to clean it up properly. Later in this chapter I'll return to some of it; for now, I'll just mention some of its problems.

- First, Sartre's claim that "there is no human nature, because there is no God to have a conception of it" is a red herring. Certainly I agree with him that no god has any conception of "human nature" (or anything else), since no data support the speculation that any god exists, but vast quantities of data support the proposition that a "human nature" exists (data not only from the Human Genome Project, for example, but also from such obvious facts that we all seem to like to breathe, eat, sleep,...).
- Second, Sartre seems not only to totally ignore the old question of how much of anyone's "character" is defined by "nature vs. nurture" but he also adds the claim that neither nature nor nurture is so important as what might be called "self definition". But I challenge anyone to try to determine (even for a single person) how much there is of each! For example, how much of a certain grandchild's character has been defined by what a certain generous grandfather has arranged via "genetic programming" (maybe with a little help from others!), how much is defined via "socialization" (similar to the socialization of dolphins!), and how much has been defined by the grandchild (I mean, obviously it's not my fault that...!).
- Third, with his claim that "[man] is what he wills", Sartre totally ignores another very old (and misleading) question about "free will". You can find thousands of arguments about "free will" on the internet, Dear (and probably thousands of books that have been written on the subject); the two extremes of the arguments are, on the one side, that we do have "free will" (i.e., that we are "independent agents", able to make choices) and, on the other side, that "free will" doesn't exist (i.e., every choice that we make is dictated by our past experiences – and even that, every choice we make was "pre-ordained" as soon as the universe started).

I'll return to some of these topics (e.g., the topic of "free will") in later chapters. Here, I'll list just three summary statements: 1) Data support the concept that everyone is an extremely complicated mixture of nature, nurture, and self definition, 2) It's important to realize that there's never a single cause of anything: as I tried to show you in the previous chapter, what "cause" we choose to focus on depends on what model we choose to organize and interpret the data, and 3) I think that the entire question about the existence of "free will" (however it's defined!) is another red herring. Thus, as far as I'm concerned, the important question is not about the "existence" of "free will" (an ontological question) but about how we make decisions and more importantly, how we can make better decisions (both of which are phenomenological questions).

But setting those complications aside for a while, Dear, I hope you notice something else on this table that's so obvious it's easy to overlook: it's not just our choices of values that define who we are – although such choices are, of course, important. That is, although some people have made and will make what you may consider to be poor choices of values, surely you agree that their "essences" are more than is revealed by such "value choices". Consequently, Dear, when you interact with people who've made value-choices with which you disagree [e.g., 1) those people who 'believe' that some giant Jabberwock in the sky rules the universe or, on the other hand, those who've concluded that such ideas are silly, or 2) those people who think that their race is superior or, on the other hand, those who think that there is only one human race, and so on], then I would encourage you to recognize that their value-choices don't totally define "the essence" of such people: even a religious racist, for example, might be a great chess player, entertainer, or even a great scientist (although the latter is rather unlikely – because such a religious or racist person thereby reveals a propensity to rely on speculations rather than data).

Further, Dear, what I hope you notice is that Sartre's two insights (that we must choose our values and that our choices help define who we are) depend on the assumption that people think – that is, that people make conscious rather than subconscious choices of their values. Thereby, Sartre's assumption inverts Descartes' idea from "I think; therefore, I am" into the form chosen (earlier than Sartre) by the novelist and "objectivist philosopher" Ayn Rand: "I am; therefore, I'll think."

Yet, in contrast to such hopeful desires (viz., that people think), most children and probably (and unfortunately) most adults apparently choose their values subconsciously, frequently out of fear. Thus, before “the age of discrimination” most children do what their parents desire, many times (unfortunately) out of fear – of reprimands, punishment, losing parental love and protection, etc. Similarly, most teenagers are at least strongly motivated to succumb to peer pressure for fear of being “left out”. And many if not most adults do what their cultures desire for fear of repercussions if they don’t. In this regard, Dear, consider again the most damning assessment of the founders of the religions with which you’re most familiar [including Moses, the clerics’ Jesus (or more appropriately, “Saint” Paul), Muhammad, and Joseph Smith (or Sidney Rigdon)], namely, they chose to lead by instilling fear. Also, consider again the wisdom in Bertrand Russell’s assessment: “To conquer fear is the beginning of wisdom.”

Of course, some of our subconscious choices of values depend on emotions other than fear, such as love. Thus, similar to a dolphin helping a wounded cousin, you may choose to help, for example, a wounded bird, a puzzled brother, or a redwood forest. Further, no doubt you can think of many examples for which your subconscious choices of values are defined by emotions of hate, revenge (a “wild kind of justice”), pity (a sad sort of love), disgust, and so on. In fact, Dear, if you’ll think about the matter for a while, I expect you’ll agree with the observation (for which you can find much support on the internet) that most if not all of our emotions are actually “built-in monitors” (or gauges) of our “true” values.

For example, consider again the feeling (or emotion) we call ‘happiness’. As I tried to show you in an earlier chapter (**H1**, dealing with “Happiness”), we feel the emotion called ‘happiness’ when we think that we’re making progress toward some goal. But that conclusion can be stated differently: *happiness* (or *pleasure*) is an emotion we feel when some value we’ve chosen is affirmed or supported, in particular, the value we’ve associated with making progress toward some goal. Similarly for essentially all (if not all) our emotions: we’re *content* if our values seem to be secure, *sad* if some value we’ve chosen is undermined, *fearful* if some value is threatened, *resentful* if some value has been damaged, *angry* if some value is thwarted, *devastated* if some value is destroyed, and so on.

As an example, if ever you wonder, Dear, why so many young Muslims seem to be so angry, then you might want to ask yourself: which of their

values do they feel are being threatened (or thwarted or damaged or destroyed): their desire for sex, their desire to marry, their desire to find “good” employment, their desire to “accomplish something”, their desire for recognition, their desire to promote their “honor”, or what? Further, you might want to consider consequences of the obvious “fact” that people’s values not only govern most of their emotions but also that many emotions stimulate people to act. And if the strongly held values of people are thwarted, their strongly felt emotions can propel them to engage in dramatic acts – out to an including blowing themselves up in some Jihad.

But rather than dwell further on such subconscious “choices” (or better, built-in “summaries”) of values, let me turn to cases in which people discriminate, i.e., when they choose their values consciously. For some people, such “discriminating power” primarily begins to occur when they are teenagers. For other people, unfortunately, it seems never to occur, e.g., associated with some strongly held religious values. And thus, before committing their crimes (e.g., crashing hijacked airplanes into the World Trade Center), Islamists commonly scream “Allahu Akbar” (“God is great”) – I suspect to suppress thought, i.e., to suppress conscious choice.

But at some time in most people’s lives, a conscious choice among values is unavoidable. For example, out of fear of losing peer approval you may be inclined to try some illegal drugs, but other fears may encourage you to decline the drugs. The stronger fear may eventually propel your act, but even if it’s just for an instant, I expect that you’ll consciously compare your fears – and I hope that, for longer than an instant, you’ll consciously consider the consequences of your actions. As another example, your love for someone may encourage you to help that person, but love for another person may encourage you to resist. Again, the stronger emotion may propel your act, but even if it’s just for an instant, I expect that you’ll consciously compare your emotions – and again I hope that, for longer than an instant, you’ll consciously consider the consequences of your actions.

That is, Dear, the defining characteristic of value choices of discriminating adults is that, presumably different from all other animals, they “look ahead” to consider consequences. When you have time to ponder your choices (as a discriminating adult who must make a decision), you may seek advice from others, but you know that, in the end, the decision will be yours, alone. The result will be a mental state that Sartre, and before him the first “existential philosopher” Kierkegaard (1818-1855), described with words such as

“anxiety, dread, and despair” – which, as your grandmother pointed out to me today, is rather surprising.

She wasn't surprised when I told her that all the existential philosophers (Kierkegaard, Nietzsche, Heidegger, Sartre,...) started from a similar depressing model of “the human condition”. I quoted to her Kierkegaard's assessment:

I stick my finger into existence – it smells of nothing. Where am I? What is this thing called the world? Who is it who has lured me into the thing, and now leaves me here? Who am I? How did I come into the world? Why was I not consulted.

She also wasn't surprised at the assessment (also “common knowledge”) that most people dread taking responsibility for their decisions. Instead, what surprised her – and now that she pointed it out, it also surprises me – is that people change so dramatically.

As she pointed out, what's “terrible” about the “terrible twos” (at least for mothers!) is that two-year olds typically demand to be able to make their own decisions on essentially everything: what they'll wear, what they'll eat, where they'll go, when they'll go to bed, as so on. That is, contrary to the assessment of existential philosophers, two-year olds don't “dread” making decisions – they demand it! Simultaneously, two-year olds seem to have no qualms about their sense of values: they know exactly what they want and when they want it.

But both your grandmother and I will leave it to you, Dear, to explain the process by which most humans pass through their “terrible-twos”:

- Do we learn that what we wanted more than having our own way is having our mother's love?
- Do we learn that what we wanted wasn't so good as we expected?
- Do we learn that if we get what we want, we need to live with the result?
- Thereby, before we reach the age of discrimination, do we pass through an age of compromise?

Whatever the process, somehow or other, most of us pass through the phase of knowing with certainty what we want and how to get it. Then, most of us must face the “existential anxiety” (or “angst”) of making decisions. And it’s here, faced with the need to make decisions, that our objectives enter – because unless we make our decisions by flipping coins (or some other randomization process), our decisions are always in pursuit of some goal.

Now, as I’ve repeatedly written, it’s my opinion that we all pursue a trio of prime objectives: the survival (or welfare or “thrival”) of ourselves, our extended families, and our values – and the question now being addressed (believe it or not!) is: where do we get (or how do we choose) our values? In searching for answers, we can quickly see that for many of our decisions (typically, our simpler decisions), the bases of our “value choices” are obviously our dual survival goals (of ourselves and our extended families). For example, if a baseball is heading toward my head, then I’ll decide either to try to catch it or to duck, or if it’s coming at you, Dear, I will again try to catch it or in some way try to protect you. But in other (typically, more complicated) cases, my decision will involve my sense of values. Therefore, if I am to make a conscious decision, I need to be conscious of not only my values but also the source(s) of my values.

And just as your grandmother had to find another location to put the books and records that were on the table that she decided should be moved to under the window, I’m sorry to report that it will now take me quite a while to move “books and records” before I can show you not only that the bases of most values of all sane people is just their dual survival goals (of themselves and their extended families) but also that differences among resulting values held by different people depend on their “conceptual models” of the extent of their extended families – and thereby on their “worldviews” (i.e., their models of this universe and their place within it).

For most of us, most of our values are derived from our “universe of experiences”, from experiences of consequences of our actions and from our observations of successes and failures of other people (parents, friends, acquaintances, leaders, “celebrities”, and so on). Although that statement was probably obvious to you, Dear, please take a moment to consider the different influences on their daughter’s values if one mother asks her daughter to read the life story of Marie Curie, another asks her daughter to read about Mother Teresa, and another, Madonna.

Similarly, think about the influences if fathers ask their sons to read about Einstein, or Pope John Paul II, or Elvis. And for still greater contrast, think of all the parents who never suggest that their children read anything, and instead tell them to watch TV or “go out and play.” Then, think of the values that kids adopt, when they learn on the playground that “might makes right” and when they learn from “going out” or watching TV that “money is power”, that they can shoplift without getting caught, that illegal drugs can give them an emotional “high”, and so on.

In fact, Dear, if you have more than a moment to think about such matters (if you have even months or years that you can dedicate to such thoughts!), then you may want to investigate the consequences to others of the influences of parents on their children – and how values are derived from different “worldviews”. A contrasting case in point is the influence of their parents on two contemporaneous little boys, Jean-Francois Champollion and Joseph Smith, Jr. – and the consequences to you.

Jean-Francois’ father owned a bookstore. By the age of seven, Jean-Francois decided he wanted to learn all that he could about Ancient Egypt, so he devoured all the books that his father procured for him on the subject. By age 24, he published his first results on deciphering the hieroglyphics on the Rosetta Stone. He died when he was 34 of a stroke, possibly caused by studying too hard and not getting enough exercise (hint, hint).

In contrast, the ignorant parents of young Joseph Smith, Jr. steeped him in magic, miracles, and other aspects of “the occult”. After a childhood full of such indoctrination, at the age of 21, Joseph Jr. was arrested and convicted of being “a glass looker” (for swindling others by using his “magical peep stone” to find buried treasures). Later, by similar means and colluding with the preacher Sidney Rigdon, Joseph Jr. claimed discovery of the “golden bible” (which he claimed he could “translate” by use of his magical “peep stone” – with his claim possibly stimulated by newspaper reports about Jean-Francois’ deciphering of the Rosetta stone). Thereby, Smith colluded with Rigdon to instigate Mormonism, he was subsequently charged with treason by the State of Missouri and (separately) by the State of Illinois (for ordering the destruction of the business of a publisher who began to expose the polygamy that Smith was practicing and advocating), and finally Smith was murdered in prison (while seeking help by uttering the Mason’s distress call and with a “magical Jupiter Talisman” around his neck).

Thus, as a case in contrasts, courtesy the values inculcated in Jean-Francois by his parents, humanity can now read Egyptian hieroglyphics, whereas courtesy the values inculcated in young Joseph Smith by his parents, my grandchildren were indoctrinated with a stupid model of the universe and their place within it that's not much more advanced than the worldview adopted by the Neanderthals.

That being the case, Dear (i.e., given the potentially enormous influences of our "environment"), it would be challenging to defend Sartre's proposition that we define ourselves. Yet, other data show that people can have a large influence on defining themselves. As examples, consider the environments experienced by Martin Luther King, Jr., Clayton Powell, and Condolezza Rice, and then realize how all three of them became leaders of this country. And for contrast, consider the privileges and apparent advantages of being a member of the "Kennedy clan" – and then realize that one member was caught cheating on a university exam and left a girl to die in Chappaquekack Bay, another was convicted of murder, and still others of the Kennedy clan are now charged with still other crimes. And although I haven't seen relevant data, I suspect that the majority of famous scientists have emerged from relatively poor circumstances, including a lack of early scientific awareness. That is, although nature and nurture are undoubtedly important to one's development, including choice of values, yet self definition (or "will power" or "volition") can obviously be even more important – from which the question again emerges: where do we get our values?

I trust you agree, Dear, that given the huge variety of experiences and the great number of value choices, it's a daunting task to try to determine all the sources (or "causes") of people's values. I suspect that your grandmother encountered a similar "daunting task" when she wondered where to put all the books and records, which were on the table that she wanted to relocate. In fact, that's when she asked me to become involved in her undertaking – ostensibly because most of the books and records were mine, which then led to her assessment: "You should move them where you want them." Similarly, Dear, for different people, the origins of their values differ. For what follows, consequently, let me first mention some of my own choices, and from those examples, I'll try to generalize.

One "value choice" that I clearly remember making was my commitment to "study hard". No doubt the expectations of my mother and the examples of my older brothers and sister influenced my choice (the influence of

“nurture”), but I remember that in Grade 8, I did relatively poorly in school – because I just “fooled around”, in turn because I really disliked my “home-room teacher”. (His name was Stone; we called him “boulder head”.) Anyway, just before starting Grade 9 (as I can clearly recall), I was sitting at my little desk thinking about the school year to come and the future beyond.

That summer, I had worked at the local newspaper, “taking down the type” (in those days, the headings were set by hand, with the text set in lead using the Linotype machine), folding the papers by hand when they came off the presses, and generally serving as a “gofer” (“go for” this, that, and the other thing). What I knew was that I didn’t like all that physical labor in that dirty, ink- and lead-infested printing room among not-very-friendly people. I therefore made a “value choice”: I decided that if I were ever to get out of that environment, I’d need to work, hard, at my studies. So, I went outside and found myself an old piece of plywood, built myself a large (shaky!) desk on which I could spread out my books and papers, and committed myself to studying hard. Subsequently, in Grades 9 through 12, I got straight A’s (which maybe wasn’t so easy in those days as it seems to be now!), which then led to my being awarded a major (General Motors) scholarship that paid for the majority of my college expenses. And of course it wasn’t because I was (or am) “smart” (whatever that means); instead, the “cause” was that I decided to work – hard. And probably I should add that, when I was in college, I stumbled again: with the many distractions at college, it’s very easy just to “goof off”. But then I came under your grandmother’s influence, and with her help, I re-dedicated myself to “the work ethic”.

In earlier chapters I sketched other examples of other “critical points” in my life, leading to changes in goals and associated values: my choice (following the advice of a wonderful Dean at the university I was attending) to finish what I started (to get my bachelor’s degree in engineering physics before going into teaching), and my choice to get my master’s degree in nuclear physics (because of the fun I had with a lab-demonstration in nuclear physics!), to switch from nuclear physics to space physics (in part because the “space race” was underway), and then to switch from astrophysics to get my Ph.D. in aerospace engineering (in part because I could get a “Ford Foundation Loan” in Engineering but not in Physics). Then there was my decision (or better, your grandmother’s and my decision) for me to stop teaching aerospace engineering and find another job, a decision based partly on the value I placed on finishing my Ph.D. thesis and partly on the value we

placed on rearing “the kids” in a small town rather than a city (a “value” that we had both derived from our own experiences as kids).

About 10 years after getting that job in a small town, our decision to move again was based partly on the high value that your grandmother placed on getting her own university degree (in turn derived from the high value she placed on helping “the kids” with their college costs) and partly on my desire to keep our family together. In addition, I already described how I reached my decision to reject praying to God (when some priest inquired if I wanted to pray to God for the survival of my oldest son), by deciding that I placed a higher “value” on being “true” to my “convictions”, i.e., I placed a high value on my own values! Still another choice that I remember well is what I hinted about in an earlier chapter and still won’t provide you with details. It dealt with one of my reactions to the troubles that your father caused his mother and me. All that I’ll relay to you is that, first, I made a decision (based on “instinct” or “body talk” or “l’autre moi”) and then, after experiencing some painful consequences of that decision, I decided: “No! I’m wrong. Everyone has an equal right to claim one’s own existence.” I’ll not let that value escape from me again.

But the reason for reviewing all that, Dear, was not to tell you more about me (“some people do love to talk about themselves”) but to have you consider some general features of major decisions that you’ll need to make in your own life. I’ll list some of these features.

- In your life, there’ll probably be relatively few major decisions. Of course it depends on what’s defined as “major”, but I suspect that when you’re as old as I am, you’ll look back and be able to identify a dozen-or-so such “critical decisions”.
- The goals and associated values that you choose at these dozen-or-so “critical points” in your life will very much define who you are (i.e., using Sartre’s term, your choices will define your “essence”).
- You may seek advice to help you make your critical decisions and you may be strongly influenced by decisions of those close to you (such as your spouse, if you marry), but in the end, the choice will be yours, alone.

- Whatever the source of the values that you choose at these “critical points” in your life, your choice will be firm – at least for a number of years, if not for the remainder of your life.

As an illustration of this last point, notice that your father made a choice to be a “good Mormon” when he was about 20, and he didn’t “change his mind” until he was about 40. Then, he abandoned Mormonism not just because he saw that it was based on fraud (in particular, what apparently “really got to him” was that the Book of Abraham was such an obvious hoax) but also because he had never abandoned the high value he placed on his own “intellectual honesty” (i.e., allegiance to his perception of “the truth”). In turn, I’ll suggest that your father knew (as most people do) that being honest with oneself and in aligning one’s thoughts with “the truth” (assuming that “the truth” can be identified) has substantial survival value.

The above provides evidence to suggest some general principles.

- The first is that your critical choices are critical – which I trust doesn’t shock you unduly! That is, at such “critical points” or “branching points” (or what, in the previous chapter, I called “furcation points” for complicated, dissipative, nonlinear systems), our value-choices usually lead to dramatic changes in our lives.
- A second principle has to do with “free will” – or better, with the importance of “will power” [regardless of how “free” or “unfree” (or encumbered) one’s “will” happens to be]. From a long lifetime’s worth of experiences, my conclusion is that we don’t live in a “clock-work universe”; we aren’t slaves of “determinism”; our destiny wasn’t determined the instant the universe started; we can and do make choices that strongly influence our future.
- A third principle, which is really rather amazing, is that a miniscule impulse can be the final (“last straw”) “cause” of a particular outcome. For example, just before you were going to try some illegal, mind-warping drug, you might hear a bird sing, you might stop to think how great it is to be both alive and alert, be concerned that such drugs might damage your brain, say “No!” to the drugs, and then, never be tempted again for the rest of your life – all apparently “caused” by a little birdie (but in reality, the dominant cause was...).

In case you're interested, Dear, then if you investigate the matter in depth, you'll find that the behavior mentioned in that third "general principle" is entirely consistent with the known behavior of all, nonlinear dissipative-systems – such as humans! For such systems, it's not even theoretically possible to predict the future: it's impossible to predict which butterfly will "cause" a hurricane and it's impossible to predict anyone's future.

And I don't mean just "difficult", Dear: it's even theoretically impossible to predict the future of such nonlinear systems. You won't understand details until you study them, but if you do, you'll find that even a god couldn't overcome the consequences of what are known as positive Lyapunov coefficients. What that means, practically, is that for nonlinear systems (such as people), any initial uncertainty, no matter how small (even if only the uncertainties inherent in quantum mechanics and contained in Heisenberg's Uncertainty Principle) will grow, without bounds, until information contained in the initial conditions is obliterated.

Consequently, any god's "omniscient" knowledge of the future is impossible, even theoretically: in any relevant data set, there's insufficient information for even a god (let alone any so-called "prophet") to predict the future of nonlinear systems (such as people). Thereby, the only useful "prophecies" that anyone (or even any god!) can make about such systems are those that, basically, just restate the systems constraints: total energy and momentum will be conserved, total entropy (or randomness) will increase, and people will continue to try to pilot their own courses, pursuing their own goals, subject to their own constraints, and attempting to preserve their own set of values – such as trying to placate their god(s)!

And the huge amount of data that supports the assessment that many people place substantial value on "placating" their god(s) demonstrates that I need to do more digging to uncover sources of people's values. In contrast, in most cases (and appropriately so), we don't think much about the sources of our values: if, while driving your car you approach a traffic light that's red, then without thinking about the sources of your values, you prepare to stop your car. That is, in any community or culture, there is a huge set of "community standards" or "cultural values" that members routinely accept and apply, without giving them much if any thought. These are part of our "universe of experiences". In complex cultures such as ours, a huge number of these values are contained in our laws, and we compact them into the single value: "obey the law."

* Go to other chapters *via*

Not all of our cultural values, however, are encoded in laws; many are contained in customs. As I've rambled on (and on and on!) in earlier chapters, the essence of most customs is incorporated in any of many "moral codes" (such as those given by Aesop, Confucius, Buddha, Zoroaster, the clerics who wrote the Old Testament, Plato, Aristotle, the clerics who wrote the New Testament, the Quran, and so on). All such "moral codes" are some version of what I'd call the dolphin's doctrine, "be kind to others, with keenness", or as the philosopher Immanuel Kant (1724–1804) put it, "Always recognize that human individuals are ends, and do not use them as mere means to your ends", which humanists have adopted as a central tenet, for example in the form: "Without their conscious approval, people (especially children) should never be used as means to any end."

If we need to stop to think about values inculcated by our culture (and their application in any particular case), usually we needn't do more than evaluate the type of community that we want to live in – and then act accordingly, realizing that "what goes around, comes around." In some cases, however, we may encounter laws or even customs with which we disagree. For example, we may disagree with laws that discriminate against people based on their color or race or whatever, and we may disagree with customs such as what we should do on Sundays, what we should wear, when we should have sex, etc. In such cases, to decide how to act, we need to dig to determine the sources of our values.

For most people, apparently, they rarely question either their values or the sources of these values. Such people live "superficial lives", never using their minds to dig beneath their superficial thoughts. Such superficial people accept values such as "obey the law", "conform to custom", "follow the Golden Rule", etc. – and that's the extent of their digging. In the views of political leaders, such people are "good citizens", and in the views of the clerics, such people are "good sheep" – with the politicians' and clerics' dominant meaning of "good" being that such people will do what they're told, providing the politicians and clerics with more power.

Nonetheless, even superficial people do pursue their trio of survival goals: of themselves, their extended families (which usually extends out to include members of the same political party or the same religious group), and their values (e.g., as dictated by their leaders). In general, such people (and, thereby, their powerful leaders) can be very dangerous for the rest of us.

* Go to other chapters *via*

Thus, if political or religious leaders tell such people to, for example, “kill all the _____” [fill in the blank], then the people obey. The result has been a river of blood flowing through at least the past 5,000 years of history, a river whose direction was dictated by murderous leaders from Moses to Muhammad to Milosevic, as well as many murdering Popes and other dictators, from Hitler to Stalin to Pol Pot, all of whose primary “moral command” to the people has been “Obey!” Meanwhile, the primary moral code of such leaders has been “the end justifies the means” – even if “the means” includes using other people (including children) as tools to further the leaders’ ends.

Upon encountering laws or customs with which they disagree, other people, however, choose a higher moral code than “obey”, namely, “evaluate” – and then begin to dig to uncover the sources of their values. Differences among people can then be identified by seeing the depths to which they dig – as I’ll now try to illustrate, with the following list of groups of people who dig progressively deeper.

- The most shallow diggers find the source of their values to be some “authority figure” in their pasts. You can identify such people, Dear, when you hear their comments such as “my mother always told me...”, or “my father warned me about...”, or “my grandmother used to say...”, or similar. This group of shallow thinkers also includes all those who dig to find the source of their values in the authority of their religions; these are the people who never seem to tire of quoting their holy books (“The Bible teaches us...”, “According to the Holy Quran...”, “The Book of Mormon says...”).
- Digging deeper, some people identify the source of their values to be some commitment that they’ve made: “I promised myself that I’d never...”, “I swore an oath that I’d always...”, “My word is my bond...”, and so on. At least such people have the courage to claim the authority to make their own choices, but their thinking is shallow if they do not dig deeper to uncover reasons for their commitments.
- Those who dig deeper find that it’s not their “word”, it’s not the “letter of the law” (as given, for example, in their “holy books”), and it’s not even “the spirit of the law” that’s important, but it’s the objective (or objectives) they pursue. “Yes,” they may say to themselves, “I did promise my mother that I’d... (or “I did swear before God that I’d...”, or

similar), but for this case...” The result of additional digging leads in several different directions, as I’ll now try to illustrate.

Actually, Dear, deeper digging leads to a complicated labyrinth of underground tunnels, and to identify which tunnel or which combination of tunnels particular groups of people have chosen is quite a daunting task. Furthermore, there is admittedly some arbitrariness in how to classify the resulting choices, just as (at least as far as your grandmother was concerned) it seemed rather arbitrary where my books and records were relocated – not realizing that of course the Beethoven records had to go between those of Bach and Brahms and that of course the books by Prigogine belong in the group of books on nonequilibrium thermodynamics! Consequently, Dear, please realize that the classification that follows is an attempt to bring some order into what is otherwise almost complete chaos, and that my choice of the ordering reflects mostly my own peculiar “mind set”.

What does seem common to all people who dig deeper is that all realize that their values “make sense” only when referenced to their objectives. Thereby, differences among the choices of values of different people reflect differences in their perceptions of their objectives. In turn, these differences in their perception of their objectives depend on difference in their models of the universe and their places within it (i.e., on their “worldview”) – as I’ll now try to show you, by listing various options. But, Dear, before I start on the list, please realize that different groups of people chose different combinations of values, objectives, and models, so that in reality, a particular group of people can “mix and match” books and records so much that (to mix the analogies!) it’s not easy to see the exact tunnel they took to arrive where they are.

And now, with all those caveats out of the way, I’ll begin my list.

- When religious people dig to uncover why they should accept the values described in their “holy books” or prescribed by their clerics, first they must get through the authoritarian rubble that basically says: “Do this, because it’s what our god wants you to do.” This leaves the digger with the unanswered question: “Yah, but, why should I do what God wants?”

As I’ve described in earlier chapters, details of the answer to that question depends on the identity of the chief spokesman or “prophet” of the particular religion, but in general, the theme is similar in all religions:

you're headed for trouble (pain, suffering, sickness, calamity, death, family extinction, eternal torture, or whatever) if you don't do what God wants (or the gods want), whereas you'll have good times (pleasure, good fortune, prosperous family, "a land of milk and honey", happiness, eternal happiness, or whatever) if you do what God (or the gods) want.

That is, Dear, the bases of all values for all religious people are their dual survival goals, especially of themselves (in some religions, out to and including the data-void speculation of eternal survival) and usually also for the believers' closely-linked family and those who similarly "believe" in the "truth" of the religion.

For some religions (such as Christianity, Islam, and Mormonism), the blatant greed of the believer for eternal survival in heaven (and/or their pathetic fear of being tortured for eternity in hell) can be embarrassing, and therefore, this greed and fear are commonly hidden behind veils of devotion and duty (i.e., people are to do what they're told out of "love" for the prophet or the god). But if the digger seeks reasons for the devotion and duty and love, the carrot and stick or heaven and hell are again uncovered. For other religions (such as Judaism, Mormonism, and some Shinto sects) racist themes are currently an embarrassment, and therefore, are now camouflaged with comments that say (basically) that whereas anyone can join us and become a racist, we're not racists.

But such details aside, Dear, what I hope you notice is that religious people who dig to uncover the source of their values (and, as I'll be showing you, all thinking people) find that their values are measured against their dual survival goals (i.e., of themselves and their extended families), as interpreted within their particular worldviews.

- Next in my list are the people who, to varying degrees and for various reasons, reject any religious models of the universe and who therefore dig in different directions to determine the sources of their values. The variety in this class of people is staggering: individual criminals, members of the Sicilian Mafia, fanatic followers of some ideology (e.g., fascism or communism), philosophers, and scientists. In all cases of which I'm aware, however (except for those listed after the next bullet), all subgroups within this class of diggers uncover the same bases of their values, namely, again, their dual survival goals (of themselves and their

extended families) – with differences depending only on different concepts (or models) of their “extended families”.

For example, in the dominant model adopted by members of the Mafia (namely, “it’s us against them”), the bases of their values (i.e., the bases of their “blood vows” of loyalty to the family) is that, whereas “the family” helps them survive, they agree to help “the family” survive – where “the family” extends out only to include all who have taken the same “blood vow”. You can see similar limited-extents of extended families in all “racist groups” (from the Ancient Jews and Persians, to the Hatfields and McCoys and the tribal groups in most Islamic nations, and to the Nazis) whose dominant model of their place within the universe (whatever their model of the universe may be) is that their “family” should dominate all “the barbarians” or “the impure” or “the infidels” or “the capitalists”. There was similar racism in Mormonism until Mormon leaders realized (during the Civil Rights Movement in the U.S. during the 1960s) that they would lose their tax-free status if they didn’t recant the “revelation” (fraudulently and stupidly perpetrated by Sidney Rigdon and Joseph Smith) that black people were “marked” with the sin of Cain.

- A limiting case of those people who reject values dictated by some religion (but who may or may not reject some religious model of the universe) are those pathological people who recognize no “family” (i.e., the “extent” of their “extended family” is zero) and who therefore use their own survival as the only basis for their values. When caught, such people are usually classified as criminals – most of whom in this country (data show) DO claim that they believe God! Personally, I’ve never met such a person (even the most despicable people I’ve met have someone whom they consider family or friend), but accepting some of the reports of hideous activities of some people, it appears that such people do exist. Perhaps, however, it’s inappropriate to classify them as “people”: they are the brutes (I don’t want to insult animals by describing such people as “animals”) who recognize the rights of other people to seek their own survival only if the other people claim that right by force.
- Finally in my list are secular and scientific humanists. They are subgroups within the group who reject the religious model of the universe and their place within it and who find that their values have meaning only with respect to their dual survival goals (of themselves and

their extended family) but who recognize that their family extends out to include all humanity, if not all life.

So what am I trying to say?

“I dunno,” responded the smart-aleck grandchild, “I thought you were gonna work on a jigsaw puzzle, but it seems that you got distracted by Gramma moving her plant, next you started putting your books and records away, then for some reason or other you started digging a bunch of tunnels, and now you’ve apparently made such a mess of things that even you seem to be confused.”

Child! Try to be nicer! It was a rhetorical question! But now that you’ve interrupted me, let me finish putting my books and records away, try to clean up some of the mess, do some vacuuming, and then get back to the jigsaw puzzle.

For now, I don’t want to dig much deeper into details of differences in values adopted by people with different worldviews, in part because the details soon overwhelm, in part because I’ve already tried to dig out some of the differences in earlier “**P**-chapters” (recall: *The priorities are: first premisses, then purposes – and then principles, priorities, and policies – and finally, plans, procedures, and practices (with perseverance)*), and in part because I plan to dig still deeper in chapters **W**, **X** and **Y**. Nonetheless, let me at least try to show you what I consider to be critical, namely, that our worldview provides us with our purposes – and therefore our values.

To show you what I mean, let me list some examples from history.

- With their worldview that they were “God’s chosen people” and that their god’s goal was to promote them while demoting those who didn’t recognize their god as the chief god, then according to the Old Testament, the Ancient Hebrews led by Moses proceeded to adopt a set of values that included slaughtering innocent women and children who were peacefully living in what is now a part of Israel. Would that Moses had been a humanist rather than a murderer, preached that all human belong to the same human family, and promoted the idea that everyone has an equal right to claim one’s own existence!

- With their worldview that Jesus was the son of God, that the world was amuck in evil spirits directed by Satan and was about to end, and that the Bible was “God’s holy truth” (including the commandment that “Thou shall not suffer a witch to live” and the claim that the Jews were responsible for the death of Jesus), then for almost two thousand years, “God-fearing Christians” led by various murdering Catholic popes and Protestant mercenaries (such as Luther and Calvin) proceeded to persecute “witches, Jews, heathens” (and similar), with the “persecution” out to an including the high value they placed on torturing and murdering the victims of their stupidity.
- With their worldview that Muhammad was God’s (or Allah’s) “final prophet” and that the Quran was the “final word” on how to live one’s life, the “holy warriors” of Islam went on a rampage, trying to conquer the world – and almost succeeded because in their craziness, Muslim clerics had developed the most lethal weapon the world had ever seen: warriors who “thought” that their death in battle insured quick entry to a (fictitious) paradise, where finally their childhood traumas would be placated and their sexual frustrations would be relieved.
- With their worldview that the head of their church is in direct communication with some giant Jabberwock in the sky who rules the universe, “believing Mormons” led by maniacs such as Joseph Smith, Brigham Young, and subsequent “profits” placed a high value in promoting and participating in some absolutely horrible and bizarre practices, including polygamy and racism, joining the infamous, murdering Danites, and murdering a train load of settlers (just a few miles from where all four of your grandparents now live).
- With their worldview that theirs was a “superior race” and that the Jews were an “inferior race” (as well as responsible for the death of the fabled Jesus and for the economic woes of post WW-I Germany), the Nazis placed a high value on murdering as many Jews as possible.
- With their worldview of “dialectic materialism” (which included communism and atheism), bureaucrats proceeded to enslave almost half the world’s population in their system, in which an especially high value was placed on “to each according to his need; from each according to his ability” – thereby providing the bureaucrats with all their “needs”.

- With their worldview of unconstrained capitalism (without accounting for costs of their activities either to the environment or to the welfare of workers), capitalists throughout the world set a high value on making huge fortunes and living in astounding luxury at the expense of the environment and of those who “merely” work for a living.
- With their worldview that American is the “Great Satan”, that all “kafirs” should be killed, and that if they kill the “unbelievers”, then they’ll proceed directly to paradise, Muslim terrorist set a high value on flying hijacked jets into the World Trade Center.

Thus, Dear, a person’s choice of a particular worldview has associated with it a certain set of objectives and therefore a corresponding set of values – at least that’s usually true. To explain what I mean (and simultaneously to do a little vacuuming), let me go back to Sartre and his existentialism.

You might wonder why, earlier in this chapter, I stopped referring to Sartre’s essay *Existentialism is a Humanism*. To understand why I abandoned his “abandonment” – to understand why I feel the need to vacuum his mess – you’d need to read his essay (which, again, you can find on the internet). If you do, you may first agree with me that he struggles very hard to show that “existentialism is a humanism”. He states:

I... am obliged at every instant to perform actions which are examples. Everything happens to every man as though the whole human race had its eyes fixed upon what he is doing and regulated its conduct accordingly.

But my immediate reaction to that claim is: “Say what? Why are you so obliged? What forces such an obligation?”

He then goes on, in an attempt to explain:

And when we speak of ‘abandonment’ – a favorite word of Heidegger – we only mean to say that God does not exist, and that it is necessary to draw the consequences of his absence right to the end. The existentialist is strongly opposed to a certain type of secular moralism which seeks to suppress God at the least possible expense.

Towards 1880, when the French professors endeavored to formulate a secular morality, they said something like this:

God is a useless and costly hypothesis, so we will do without it. However, if we are to have morality, a society, and a law-abiding world, it is essential that certain

values should be taken seriously; they must have an *a priori* existence ascribed to them. [Which then, Dear, sounds more like the Prussian philosopher Kant than any “French professor”.] It must be considered obligatory *a priori* to be honest, not to lie, not to beat one’s wife, to bring up children and so forth; so, we are going to do a little work on this subject, which will enable us to show that these values exist all the same, inscribed in an intelligible heaven although, of course, there is no God. In other word – and this is, I believe, the purport of all that we in France call radicalism – nothing will be changed if God does not exist; we shall rediscover the same norms of honesty, progress, and humanity, and we shall have disposed of God as an out-of-date hypothesis which will die away quietly of itself.

The existentialist, on the contrary, finds it extremely embarrassing that God does not exist, for there disappears with Him all possibility of finding values in an intelligible heaven. There can no longer be any good *a priori*, since there is no infinite and perfect consciousness to think it. It is nowhere written that *the good* exists, that one must be honest or must not lie, since we are now upon the plane where there are only men. Dostoevsky once wrote “if God did not exist, everything would be permitted”; and that, for existentialism, is the starting point. Everything is indeed permitted if God does not exist, and man is in consequence forlorn, for he cannot find anything to depend upon either within or outside himself. He discovers forthwith, that he is without excuse. For if indeed existence precedes essence, one will never be able to explain one’s action by reference to a given and specific human nature; in other words, there is no determinism – man is free, man is freedom. Nor, on the other hand, if God does not exist, are we provided with any values or commands that could legitimize our behavior. Thus we have neither behind us, nor before us in a luminous realm of values, any means of justification or excuse.

I’m sorry, Dear, but as far as I’m concerned the above stuff by Sartre is utter nonsense – not of course that there is no god, but that, thereby, “there disappears with Him [God] all possibility of finding values...” Couldn’t Sartre at least have seen that “values” have meaning only with respect to objectives?! Furthermore, his statement that “we have neither behind us, nor before us... any means of justification or excuse” is pure balderdash – but before showing you what I consider to be Sartre’s error, let me quote the “finale” of his “demonstration” that “existentialism is a humanism”:

But there is another sense of the word [humanism], of which the fundamental meaning is this: Man is all the time outside of himself: it is in projecting and losing himself beyond himself that he makes man to exist; and, on the other hand, it is by pursuing transcendent aims that he himself is able to exist. Since man is thus self-surpassing, and can grasp objects only in relation to his self-surpassing, he is himself the heart and center of his transcendence. There is no other universe except the human universe, the universe of human subjectivity.

This relation of transcendence as constitutive of man (not in the sense that God is transcendent, but in the sense of self-surpassing) with subjectivity (in such a sense that man is not shut up in himself but forever present in a human universe) – it is this that we call existential humanism. This is humanism, because we remind man that there is no legislator but himself; that he himself, thus abandoned, must decide for himself; also because we show that it is not by turning back upon himself, but always by seeking, beyond himself, an aim which is one of liberation or of some particular realization, that man can realize himself as truly human.

Finally, then, the vacuuming: in my opinion, Sartre had some very good ideas but he also produced a tremendous amount of trash. In particular, I consider it to be pure, unadulterated balderdash to write: “man is in consequence forlorn, for he cannot find anything to depend upon either within or outside himself” and “there disappears with [God] all possibility of finding values.” Sartre’s error (and the error of the existentialists) is the failure to identify “the purpose” (of humans), which then leads them to all their nonsense about “anguish, abandonment, and despair.” Existentialists fail to identify “the purpose”, even though it’s staring them in the face – as I’ve tried to explain before and I’ll now try to explain again.

First, as I’ve written before (in the **P**-chapters), notice that “purpose” is a human term. While walking in the desert, I’ve asked many rocks what their purpose is, and never once has even one given me an answer (!) – and similarly with the rest of the “dead” universe, including the Moon, Sun, and all the stars. In contrast, everything alive will (if necessary) scream its purpose, namely, to continue living! Even the crazy Christian philosopher Augustine (344 – 430) saw it: “What! Do not even all irrational animals... shun death?” Some humans scream such a purpose so loud that they’ve convinced themselves that they’ll live forever!

But after the first molecule learned how to reproduce itself, a billion-or-so years ago, it soon “learned” (by trial and error!) of advantages (to its survival!) both to modify its hosts to accommodate changes in the environment and, when appropriate, to discard outdated hosts. Thereby, the “purpose” of life (i.e., the purpose of the purpose!) became not for individuals to live forever (as described in the worldview of most organized religions of our culture) but “simply” for life to continue.

Consequently, Dear, not only your purpose but also the purpose of all humans (as recognized by all scientific humanists) – and all life – is obviously: to continue. To that end, experience has taught humans effective

means: increase knowledge and understanding, and apply the scientific method with wisdom to try to solve practical problems. In contrast is the “existential anguish” that should be vacuumed and discarded: its source was the failure to recognize that we do have a purpose; this purpose is not to serve some god (as the existentialists recognized), but to try to help life continue (which they apparently failed to see). This purpose, in the humanists’ worldview, then provides a sound basis for a set of values – and can provide you with sound guidance for all your choices.

For example, Dear, should you find a way to contribute to stopping some stray asteroid from crashing into the Earth, or stopping some killer virus from devastating humanity, or stopping some humans from engaging in activities that would lead to additional environmental disasters (such as those from DDT and chlorofluorocarbons), then I and many other humans (including those not yet conceived) will be very grateful. And if you think that such tasks could be done better by someone else, then please consider doing what you can to defuse the population bomb (for example, as a minimum, see if you get the stupid Pope to change his proclamations about birth control) or doing what you can to eliminate the ignorance of all the Muslims – and, for that matter, the ignorance of all religious people. Or if you’d like to help humanity even more, then how about expanding your view: realize that in a few billion years, the Sun will gobble up the Earth (so humanity will need to find another planetary system if we are to continue) and in a few billion years after that, our nearest-neighbor galaxy will be crashing into the Milky Way galaxy (so humanity may need to find even a new galaxy on which to live) – and to accomplish such feats, almost certainly people such as you will need to develop dramatically better energy-conversion systems (if not entirely new ways to travel through space-time). And if all of that seems “just too much” to think about, Dear, then think just about what the Roman Emperor, philosopher, and humanist Marcus Aurelius wrote in his *Meditations*, almost 2,000 years ago:

Have I done something for the general interest? Well then I have had my reward. Let this always be present to thy mind, and never stop doing such good.

In horrible contrast to the prime goal of all humanists (to help life continue, by increasing knowledge and understanding and wisely apply the scientific method to try to solve practical problems) is the prime goal of all religious people, who’ve adopted a worldview concocted by savages.

With their premiss that some supernatural Jabberwock in the sky controls the universe, the prime goal of all religious people is to placate this giant Jabberwock – in whatever way a bunch of ignorant self-proclaimed spokesmen of the unknown dictate. These ways have included everything from murdering women and children peacefully living on their own land to murdering six million Jews, and from murdering all those who refuse to accept such a stupid worldview to flying hijacked passenger planes into the Twin Towers. That is, the effective goal of all religious people – and especially all clerics and all “missionaries” – is to expand not knowledge but ignorance. Remember, Dear, Mangasarian’s summary: “Religion is the science of children; science is the religion of adults.”

For contrast to the values that follow from all religious (“supernatural”) worldviews, think of the values that follow from the humanists’ worldview (that the universe is entirely natural and that everyone of us is the universe “I’ing”). Of course uncertainties remain about the nature of this universe (though progress is being made removing such uncertainties), but at least there’s little doubt about our place within this natural universe: in some manner (details of which have yet to be fully defined), life has evolved from the molecule that first learned how to reproduce itself. From this model, clear, simple, and unequivocal values follow, all related to trying to help life continue.

Therefore, Dear, please do your part – which means, first, taking care of yourself (you can’t help much if you’re dead!), and then second, Dear, try to help humanity. And one of the resulting beauties of this “value system”, Dear, is that you’ll find that the values are exactly those for which evolution has already “programmed you”. That is, you’ll find that pursuing these values will provide a life-long series of “pleasure signals”, telling you that you’re pursuing the correct values.

And with that vacuuming done, I can finally return to the kitchen and to the jigsaw puzzle, with all its pieces still spread out on the kitchen table. What I hope you now see, Dear, is that we all have four primary sources of our values – and in the jigsaw-puzzle analogy, these four sources can be used to identify all “edge pieces”, as I’ll now list.

- 1) *Those values (which earlier in this chapter I identified as “edge pieces” along the left-hand-side of the jigsaw puzzle) associated with the primary goal of our own survival.* For example, Dear, if you haven’t had any

liquid for four days, then you'll place substantial value on finding water – some stupid proclamation by some religious fool that “thou shalt not covet” notwithstanding.

- 2) *Those values (which earlier I identified as right-hand-side “edge pieces”) associated with our primary goal of the survival (or welfare or “thrival”) of our families, whatever we decide is the extent of our “extended family”.* For example, Dear, think of all the values that your mother has adopted, trying to help you.
- 3) *Those values (which I'll identify as “edge pieces” along the bottom of the jigsaw puzzle) associated with our “universe [or world] of experiences”, including the norms of our culture and especially including the values we derive from our experiences as children and the values from which we “learned a lesson”.* For example, Dear, think of the value that you've learned to place on being honest with yourself and on seeking “the truth”.
- 4) *Those values (which I'll identify as “edge pieces” along the top of the jigsaw puzzle) derived from whatever goal or goals are associated with our “worldview” (i.e., our conceptual model of this universe and our place within it).* For example, those who are convinced that this universe is controlled by some giant Jabberwock in the sky adopt values invariably dictated by those who claim to be the Jabberwock's “spokesmen” (who claim to know the Jabberwock's “purpose”, even though it's illogical to assume that an “omnipotent being” has any purpose), whereas those of us who are convinced that this universe is natural adopt various values related to whatever we perceive our purpose to be (e.g., to expand knowledge and understanding, and to use it by wisely applying the scientific method to try to solve our problems).

The first two items in the above list, the left and right edges (values directly related to survival of ourselves and our “families”) can be said to be derived from “nature”; the second two, the bottom and top edges (values derived from our world of experiences and our worldviews) can be said to be derived from “nurture” – if in ‘nurture’ is included both indoctrination (in the case of religious people) and the ability to evaluate evidence for ourselves (in the case of humanists).

As an alternative summary of the above, let me show you what I review for “V” when I'm walking, namely, something close to:

* Go to other chapters *via*

V – Values. Values have meaning only relative to objectives, but the values we adopt depend not only on our dual survival goals but also (usually subconsciously) on our universe of experiences and (usually consciously) on our worldview – because our objectives depend on our model of the universe and our place within it.

Pity the poor religious people, whose primitive worldview enslaves them in ignorance. In the worldview of scientific humanists, the universe is natural and all life belongs to single family. Socrates said it well, “There is only one good, knowledge, and one evil, ignorance” (although perhaps better is: There is only one good, willingness to learn, and one evil, refusal) – from which a prime value can be seen: to help intelligence expand, both in depth and breadth.

From all of which, Dear, maybe you can agree with (or at least understand!) some summary statements:

- Values have meaning only with respect to objectives;
- Each of us has a huge number of objectives; therefore, we each adopt a huge range of values;
- Our prime objectives dictate a prime set of values;
- Two of our prime objectives (the survival of ourselves and our families) dictate a set of prime values; many of these values are instinctive, learned when humans were similar to other animals (e.g., the herd instinct); more were learned when we grouped into primitive tribes (e.g., tribe loyalty, altruism); still more are learned from our own experiences (e.g., from the consequences of putting our hands on hot stoves), from which we learn that knowledge is almost always good and ignorance isn't.
- For most people, differences in their prime objectives derived from the prime goals of their own and their families' survival are primarily derived from their different conceptions of the extent of their “extended families” (defined via customs, via oaths or “blood bonds”, nationally, or whatever); their “family values” then follow – whether it's their close family, members of the same “race”, fellow “countrymen”, fellow members of the Mafia, or whatever.

- Other prime values that each of us adopts depend on our own experiences and our “worldview” (both of this universe and our place within it);
- For strongly religious people (whose view is that this universe is controlled by something “supernatural), one of their prime objectives is to placate (although they usually chose a word different from ‘placate’!) the “supernatural power” controlling the universe; methods are dictated by the clerics of each religion (who claim to be in communication with their version of some giant Jabberwock in the sky); religious values then follow (dictated by the clerics) – which invariably include keeping the clerics’ collection plates filled and almost always include deriding the values adopted by other groups of clerics;
- For scientific humanists (whose view is that the universe is natural and that all humans – if not all life – belong to the same family), the prime objective is to use expanding knowledge to try to solve human problems; humanist values then follow (including a high value placed on expanding knowledge, both in scientific depth and human breadth).

But, Dear, by identifying the above four “edges” to the jigsaw puzzle [viz., 1) values associated with our own survival, 2) values associated with our family’s survival, 3) values derived from our world of experiences, and 4) values derived from our worldview], I don’t mean to suggest that any specific value that someone adopts is connected solely to one edge. That is, as with any jigsaw puzzle, any internal piece is connected to all four sides.

Let me try to amplify that point with some illustrations. For example, you might wonder why your grandmother seemed to place such a high value on the survival of a particular plant – with your judgment of “high value” based on all the effort she expended moving it to its new location, under the window. Now, of course I don’t know the “correct” answer to that question (you should ask her, not me – cause I ain’t foolish enough to question her values!), but I expect that the value she placed on helping that plant was connected in part to the original purchase price of the plant (in turn connected to her perception of the value of money to her own and her family’s survival), in part connected to how much effort she had already expended keeping the plant alive for many years (in turn connected to the value of all her efforts expended on behalf of her own and her family’s survival), in part connected to values she apparently picked up as a child

(not only to “look after” her belongings but also to try to help those who are struggling and are worthy to survive), and in part from her worldview, which includes not only that the universe is entirely natural but also that this universe contains both beauty and ugliness – and that beauty is better and should be promoted. But, Dear, even if I’ve inadequately located where this particular “plant piece” fits within your grandmother’s “values puzzle”, I’m quite confident of one thing: this one little piece of the puzzle is necessarily connected to all four edges.

As another example, you might wonder why a certain silly old grandfather seems to place such a high value on writing this stupid book – and surely he must do so (you might add), for otherwise he probably should be committed to asylum for the mentally deranged, for spending more than a decade writing the damn thing. In response (besides suggesting that maybe more work was needed defining your childhood values so that you’d phrase your questions a little more sensitively!), I would suggest that this particular piece of the puzzle is also (necessarily!) connected to all four edges:

- 1) This particular piece of the jigsaw puzzle is rather remotely connected to the left-hand side of the puzzle (my own survival), because I’ve pretty much given up on the idea of being able to make any money from selling this book [and it would be easy to argue that I’ve damaged my own survival by being hunched over this keyboard for more than a decade – but on the other hand, a certain insensitive grandchild might argue that the entire enterprise has been a vain and silly attempt to see that my ideas (the real me?!) continue, even after the rest of me doesn’t!],
- 2) It’s more closely connected to the right-hand side of the puzzle (my desire to help my family survive), since the book is specifically written to certain grandchildren,
- 3) It’s obviously connected to the bottom-edge of the puzzle (derived from my world of experiences), not only in the topics included but also in that I still seem to be committed to working hard, and
- 4) I would maintain that this piece of this “values puzzle” (why I seem to have set such a high value on writing this book) is most closely connected to the top-edge of the puzzle (derived from my worldview): I’m doing what I can to try to expand knowledge and understanding (especially in breadth, to reach as many young people as possible, i.e., to

all young members of the “human family”), to try to help intelligence go on and to help the only known intelligence in this universe continue to evolve.

Thereby, I would suggest that this piece of this jigsaw puzzle (why I seem to value writing this book) fits somewhere near the top right-hand corner of my values puzzle.

As still another example, one of substantially more significance to you, consider your mother’s decision to try to keep her family together, in spite of the friction that has developed between her and your father, ever since he quit Mormonism. As in the case of your grandmother moving the plant, I’m not sure if my analysis of your mother’s choice is correct (again: you ask her – I ain’t that stupid!), but nonetheless, let me at least mention some possibilities.

I heard that, when your father finally saw that Mormonism was a fraudulent fabrication, your other grandmother urged your mother to return to Utah, of course with all you children. And of course I was extremely pleased that your mother decided not to break up her family, but I admit that I was rather amazed at her “value choice” – and still wonder where exactly this piece fits in her “values puzzle”.

Surely the value to the survival of both herself and her children was not seriously in question (that is, surely any divorce court would have seen that she and you kids would be adequately protected). And from the worldview apparently avidly adopted both by your mother and her mother, you can see that what your other grandmother suggested was entirely consistent: in their worldview, marriage is for eternity, but your father’s abandonment of Mormonism would mean that he would no longer get into heaven, so that when she died, he’d no longer be able to “whisper her secret name” to her, ensuring her entry into “eternal bliss”. That would mean (in this silly worldview) that after death, divorce to different locations was inevitable – so, or so it would seem, it would be “logical” (based on such preposterous premisses!) to get the divorce over with, now, to get on with the business of finding another “eternal partner”! Why, then, didn’t she proceed with the divorce?

Again, I don’t know, but I expect that this piece of her “values puzzle” fits closer to the “bottom edge”, closely related to her “universe (or world) of

experiences”. My reason for making that suggestion is solely a single comment that she made to me, before you were born. In relation to something else, she said something close to: “I can’t think of anything worse than separating children from their father.” Thereby, I wouldn’t be surprised if she chose to stay with her “wayward husband” both because of her loving experiences with her own father and her desire to provide the same experiences for her own children. That is, I wouldn’t be surprised if this piece of her “values puzzle” fits somewhere down near the right-hand corner – thereby only remotely connected to both her own survival and her worldview.

But, maybe that’s wrong. Maybe of more value to her is your father’s love. Maybe she really isn’t that committed to the crazy worldview promoted in Mormonism (and participates more to placate her mother and to try to instill Mormon values in her kids – mistakenly thinking that it’s a good experience for you). Or maybe she plans to reconvert her husband (anyone who accomplished so much as she did in her ballet career must have developed enormous tenacity). Or maybe when she was thinking about divorcing her husband she heard the sound of a little birdie and...! To find out the real “cause”, Dear, you’ll need to ask her – and to assume 1) that she’ll tell you and 2) that she knows.²

Another example that I will get to in a later chapter deals with the values that your father relied on, first to become involved in Mormonism and then to disengage from it. But I want to delay this example until a later chapter (Y, dealing more explicitly with You – including your own values), because what in a superficial analysis may seem to be his “values flip-flop” actually seems to have been derived from a mistake that he made in applying the scientific method in his own life, namely, his failure to test his “god hypothesis”. From which I trust you see, Dear: although it’s important to know the sources of our values, it’s also important to recognize our mistakes.

And my third example finally brings me to what I promised in part of the subtitle for this chapter, namely, “the values in science and the science of values.” Actually, though, I don’t feel the need to spend much more space

² Well, Dear, as you unfortunately know all too well, whatever her reasons were when I wrote those paragraphs, she subsequently changed her mind and divorced your father.

addressing “the science of values”, because believe it or not, that’s what all the above has been about!

That is, Dear, in the above, I’ve been trying to show you an (admittedly, crude) scientific model of values, namely, the above “jigsaw-puzzle model”. I admit that it’s a crude model (comparable in crudeness to the “flat-earth model” for the world!), but it’s a start. Further, much better scientific models of values are now being developed, some ingredients of which I sketched in earlier chapters (e.g., in **M4**, entitled “Morality without Gods”) and more ingredients of which I’ll sketch in the “excursion” **Z_{0x}** (when dealing with scientific principles).

As for the topic of “values in science”, to be honest, I’m not very interested in digging very deeply into this topic, because it seems to me to be boringly obvious. If you want to dig some on your own, then you might want to start by using the search term “values in science” in Google, which will yield more than 35,000 hits! In fact, so much has been (needlessly?) written on the subject of values in science, that you might want to organize any notes you make on the subject in the following five categories, to which I’ve added a few notes.³

1. *Personal Values (required of any “good” scientist)*. To be a “good” scientist, probably the most important personal value that anyone must practice is honesty: if some “scientist” is found to be dishonest in dealing with nature (e.g., fabricating data) or with other scientists (e.g., plagiarizing their work), then that “scientist” is immediately excommunicated (i.e., ignored) by other scientists. If an analogy is developed between science and a wagon being pushed and pulled up a hill (of data), then at the hub of each wheel, what greases the axles of the entire operation, is honesty. Continuing with that analogy, to move the wagon up the hill, requires enormous personal efforts: dedication, intelligence, insight, perseverance, resilience, and many more such adjectives than my meager command of the language is capable of adding, but with the help of a thesaurus I can find: tenacity, patience, indefatigability, endurance, diligence, dedication, commitment,...

³ I’ve used the specific articles by Douglas Allchin (at <http://www1.umn.edu/ships/ethics/values.htm>) to assist me with some of these notes.

2. *Professional Values (or ethics)*. Here again, honesty is key (e.g., the prohibition against plagiarism), but there is a host of other professional values that are essential for science to progress, including teaching and mentoring newcomers to science, serving to the best of one's ability in various professional activities, such as participating in the peer-review system (reviewing both papers submitted for publication and proposals submitted for funding) and participating in attempts to guide professional societies, sharing scientific information with others (of course including the public), and doing one's best to help maintain personal standards required of all scientists.
3. *Epistemic Values* (i.e., values required for the validation of 'knowledge', which in Greek is the word *epistēmē*, and therefore, 'epistemology' is the study of how 'knowledge' is obtained). In essence, this is the scientific method – which I don't want to go into again. The point, here, is that a method has been found by which testable and tested knowledge can be generated, and anyone who "thinks" that they can short-circuit the scientific method is either a fraud or the world's foremost genius – and the latter possibility seems extremely unlikely.
4. *Cultural Values*. A host of cultural values are incorporated into decisions about what research should be prohibited and what should be pursued, its relative importance (both in science and in society) and so on, but I'll skip those topics. Instead, let me just mention an astounding feature of science. It incorporates what humanists consider to be the best of cultural values: a cooperative endeavor of the world's most intelligent and diligent people and in which anyone who practices the least bias derived from racism, sexism, nationalism, and similar, simultaneously shoots himself or herself in the foot. Let me put it this way: the peak of my scientific career was to have a half-hour "private audience" with the Indian scientist Subramanyan Chandrasekhar (co-winner of the 1983 Nobel Prize in Physics). If he were soaking wet, he might have weighed 110 pounds, shaking his hand was like shaking a child's hand, and yet to me, he was a giant – in his accomplishments, brilliance, capabilities, dedication... And after I showed him how I was able (in my Ph.D. thesis) to extend a method he proposed in one of his earlier paper, after he made the penetrating remark ("Well, I published that a long time ago, almost a quarter century ago; it's as if it were done by someone else"), he then showed me a different way to interpret my results; that is, ten minutes of his insight were equivalent to two years of my hard work!

5. *The Value of Challenging Values.* This value is probably seldom mentioned, but it's important – and it's so dramatically different from religion. In summary, it's that science can't be dogmatic; scientists must always be skeptics; nothing in science is "true"! Let me put it as a challenge to you. Dear: your job is to show not only that Einstein was all wet but that the scientific method, itself, is fatally flawed. Oh, and good luck to you!

Actually, there's substantially more to difference in values in science *versus* in religion than is suggested above. In particular, a "turf war" between values in science *versus* in religion (or more generally, in "humanities) has been foolishly raging for centuries. The foolish claim of innumerable religious leaders and proponents of "the humanities" has been that the subject of "values" is their turf, with a standard slogan being: "science deals with the world of facts; the humanities deal with the world of values." What nonsense!

On the one hand, all of science would not only quickly, but actually, instantaneously collapse without its supporting values (both in what science is to be done and how to do it). For example, as mentioned above, the *sine qua non* of science is honesty: a dishonest scientist (and there have been some) is the proverbial "monkey wrench in the machine" – and until the monkey wrench is extricated, scientific progress is impossible.

And on the other hand, without facts, the humanities would be essentially useless. For example, literature (as an example of the humanities) has "value" insofar as some author (e.g., Shin-eqi-unninni, Homer, Shakespeare) has been able to identify and effectively communicate some generalization from particulars. For example, from ~3600 years ago, consider Shin-eqi-unninni's description of a friend, "my other self", or from ~2700 years ago, consider Homer's "moderation is best in all things", or from 400 years ago, consider Shakespeare's, "O, beware, my lord of jealousy; it is the green-ey'd monster which doth mock the meat it feeds on" – which, with Yahweh's self-proclaimed jealousy, can be interpreted to mean, also, that such was as near as Shakespeare thought he could come to calling God a "green-ey'd monster"! Thus, a good author is a good scientist, finding and conveying to the public a "fact" of life.

Further, though, there's much more nonsense in statements such as "science deals with facts; religion deals with values." I don't want to go into details, but I'd have you consider, on your own, the following points.

- As I already sketched, science is loaded with values!
- It's somewhat satisfying that, with their claim that "religion deals with values", religious leaders are admitting there are no facts in religion!
- But that certainly hasn't been true in the past: all religions have always claimed that they were in possession of scientific "facts" (e.g., about how the universe and humans were created). Richard Dawkins made the point well:⁴

More generally it is completely unrealistic to claim... that religion keeps itself away from science's turf, restricting itself to morals and values. A universe with a supernatural presence would be a fundamentally and qualitatively different kind of universe from one without. The difference is, inescapably, a scientific difference. Religions make existence claims, and this means scientific claims. [Further,] there is something dishonestly self-serving in the tactic of claiming that all religious beliefs are outside the domain of science. On the one hand, miracle stories and the promise of life after death are used to impress simple people, win converts, and swell congregations. It is precisely their scientific power that gives these stories their popular appeal. But at the same time it is considered below the belt to subject the same stories to the ordinary rigors of scientific criticism: these are religious matters and therefore outside the domain of science. But you cannot have it both ways. At least, religious theorists and apologists should not be allowed to get away with having it both ways. Unfortunately all too many of us, including nonreligious people, are unaccountably ready to let them.

- The silliness of the claim that "values" are from some god! In earlier chapters (e.g., the **M**-chapters), I've already addressed the silliness in claim that "values" are from God, but let me try to prod your memory with some questions. Dolphins and other "social animals" got their "values" from God? If human "values" are from God, then why are there so many differences – and more significantly, why such hideousness? God approved Abraham's raping his wife's slave girl? God conveyed the value of how to beat your slaves to death and how to sell your daughters into slavery? God approved Jesus' threatening little kids with eternal torture in Hell, Muhammad's chopping off some unbeliever's head and

⁴ From his article "When Religion Steps on Science's Turf," *Free Inquiry* 18 no. 2 (1998), pp. 18-19.

then raping his wife, and Joseph Smith's sending some guy off on a "mission" so he could bed the guy's wife? Somebody's gotta be kidding – or is seriously sick.

All of which brings to mind a comment from your mother. She conveyed that she wanted to "indoctrinate" (not her word) her children in Mormonism by asking the rhetorical question: "How else can I teach them values?" And no, Dear, I didn't respond: even grandfathers must sometimes just bite their tongues (while contemplating the consequences of saying anything). But now that she's divorced your father, I would have you consider the "value" of teaching kids to "believe" when no evidence supports such a belief and of teaching kids to have "faith" in something (anything!) because it "feels good". You were taught that if you engaged in such behavior, you were "good"; in contrast, Dear, in this book I've been trying (and will continue to try) to show you that such behavior is "bad".

In fact, that example reveals an astounding contrast in values demanded in all religions *versus* adopted in every branch of science. If people didn't 'believe' (without evidence), if they didn't have 'faith' (without justification), then Jewish clerics demanded that such "miscreants" be stoned to death, Christian clerics demanded that such "heathens" be burned to death at the stake, Muslim clerics demanded that such "unbelievers" have their heads chopped off, and Mormon clerics demanded that such "apostates" have their throats cut. In science, in contrast, if someone 'believes' without evidence, has 'faith' without justification, then such people are soon recognized for what they are: either kooks or quacks. Certainly such people have no future in science, and there's a fairly high probability that they'll end up in prison for trying to perpetrate some confidence scheme.

In summary, Dear, as nearly as I can guarantee you anything, I guarantee you that two unequivocal values in science are: 1) Never "believe" anything that has no evidence to support it, and 2) Never place "faith" in anything that hasn't been tested experimentally. Ingersoll saw more:

Fear believes – courage doubts. Fear falls upon the earth and prays – courage stands erect and thinks. Fear is barbarism – courage is civilization. Fear believes in witchcraft, in devils, and in ghosts. Fear is religion – courage is science...

Oh, and there's still another value in science about which there's little doubt: the need to stay healthy; therefore, the need to exercise; therefore...