"The phenomena classed as "occult", clairvoyance, apparition at a distance, the moving of ponderable object by unseen means, etc., can be explained, on their mechanical side, on the theory of fourth dimension;but as the dispute as to the reality of those phenomena is still going on, the reality of the fourth dimension may be said to be an open question."

-THE FOURTH DIMENSION (Manning 1960:99)

"All men by nature desire to know. An indication of this is the delight we take in our senses; for even apart from their usefulness, they are loved for themselves."

-METAPHYSICS, Book 1.1 (Aristotle)

26. ELECTROMAGNETIC SPECTRUM, 3-DIMENSIONS AND SENSES

CHAPTER CONTENTS

INTRODUCTION:

One of the more common explanations of the location of heaven{[1]} is that it is in a different dimensioned reality than the one we live in, a reality which possesses four or more dimensions. In truth, there isn't any evidence to prove that there are any realities other than the three-dimensioned reality we live in{[2]}. But theoretically such entities exist, so perhaps they really do exist. One of the beauties of the 3+ ^{n} dimensions theory is the manner in which a higher-dimensioned entity can see everything in the lower dimensioned world.{[3]} We are not qualified to venture into the morass of implications and characteristics of multidimensioned worlds, so will just work from the notion that it is a plausible alternate hypothesis.

A stray scrap of possibly relevant information about the location of post-mortality is the comment in Ritchie's book about spirits of those who had died. While he was in his state of suspended death{[4]}, he moved around the United States. He saw other spirits in various settings, as in bars trying to grasp glasses of liquor, or in other situations that they must have been involved in during their lives. He believed that they were somehow bound to those same locations though their actions during mortal life. Ritchie saw those types of existences as futile and punishing. They were still chained to, and by, their mortal appetites without being able to satisfy them.

This bit of his story suggests something about dimensions. Those spirits who were invisible to the mortals -though not to Ritchie who was in a disembodied spirit state- even though they were in specific mortal locations, were perhaps in a 3+^{n} reality so they could see the lower-dimensioned world, and even be in it

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[1] We keep coming back to the old question: Which "heaven" are we speaking of? That depends on one's current interest. But as noted earlier, this term refers to three locations that we claim are unique, based on the fact that each represents a unique experience for our spirits.
For this chapter, we will wander between them, trying to specify which we are referring to at each point. In a subsequent draft, perhaps we will be able to divide this chapter into three sections, according to the different heavens. [Do not confuse Paul's three heavens with these three heavens.]

[2] Given the nature of dimensional boundaries, if they exist, it is not surprising that there is no evidence of 3+n dimensioned worlds, but don't lose heart. This is the best guess we've heard to 'explain' where heaven is.

[3] For those of you who aren't familiar with the properties of different-dimensioned worlds, an intriguing introduction is Abbott's classic Flatland which was written in 1882. He describes the properties of single and double dimensioned world, comparing them to our knowledge of three-dimensions. Then he extends the analogy to help the reader comprehend something of the properties of a fourth dimensioned world. [Note how old it is. It is still a sort of standard primer to start with.] There is a wide number of books which also deal with this concept, but Abbott is the best-known of the early expositors of the concept.

[4] or whatever you term the condition when the mortal body has apparently died and its spirit is in a transitional, or limbo state.

without being seen by inhabitants of it{[5]}. Does that support the idea that the next life is a higher dimensioned world? Not necessarily. But possibly.

ELECTROMAGNETIC SPECTRUM [EMS]:

When spirits come into mortality, a lower-dimensioned reality than their 'ground' state{[6]}, there must be an interface device attached to them to enable them to perceive and interact with that reality. In this particular world{[7]}, the interface device is our carbon and water body. This interface device is provided with a variety of peripherals that enable the spirit to perceive its environment, and to interact with it. A list of the body's five senses, alluded to above in the quote from Aristotle, describes the basic peripherals that provide the spirits access to information of various types while in this world.{[8]} The information -encoded in various media including molecules, energy, etc.- collected by the peripherals is transmitted via a built-in network of a wide variety of flexible, organic wires, the nervous system, which transmit the information to the central nervous system, the brain, for

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[5] This idea, that post-mortals can "see" mortals is distressing. We all find ourselves in situations that we would not wish to be seen in. So we hope all post-mortals do not really see all of us all of the time. Depressing thought.

A tangential scrap of evidence about this matter involves mortals and pre-mortals. Mortals have allegedly been able to see into the post-mortal world, but we haven't heard of mortals being able to "see" premortals. So, by analogy, we suggest that post-mortals will be similarly restricted. We fail to see why the post-mortal state should be somehow more different from mortality than mortality is from premortality. Sort of like 1-dimensioned worlds compared to 2-dimensioned worlds compared to 3-dimensioned worlds, etc. Certain conditions are the same.

We acknowledge that there are instances where mortals have seen into the next phase, but we believe that is exceedingly rare.

[6] This notion of a ground state for spirits, in tandem with the possibility of there being $n+^{n}$ dimensioned realities, suggests an interesting possibility: are there spirits whose ground state is different than the one that our own spirits will ultimately rest in? Seems possible. At least hypothetically it is possible. Does this mean, then, that there is also a variety of intelligence substances whose ground state is different than the ground state of the intelligence from which we were fashioned?

Or is it possible that there are not different types of intelligence in different dimensioned realities, and that during the metamorphosis, as spirits alter their molecular structure, they might actually be determining what their final ground state will be? Is that how there are different heavens, heavens that are different dimensioned? In this case after the judgement and resurrection, we would move in response to a gradient -of energy, concentration of something else, etc.- to the ground state our spirits were fashioned to tolerate and exist in.

[7] Since spirits are apparently able to 'see' into and communicate with mortals, at least post-mortals are, it seems likely that spirits could be placed into this world without bodies, and still be able to perceive and interact, at some level, with the world. But the decision to clothe spirits with mortal bodies was not an arbitrary one, nor one that represented the only option open to the Creator. He chose a body, and set it up with the particular properties it has, because of the things He wished us to experience and do here.

But the question remains open as to whether bodies of quite different sorts might not be used on other worlds to still enable spirits to interact with their worlds. Someday you will discover the answer.

[8] Note that we probably perceive these senses as operating independently of each other, i.e. our ears hear music while our eyes don't see it, nor does our nose smell it. For most of us that is true most of the time. However, there are rare individuals who

"possess the rare ability to experience senses simultaneously, so they smell colors or taste music..."
(Dr. Richard Cytowic in Manning 1994.)

How does this occur? It must be a defect in the neurological network that allows this to occur. But it must be a fascinating experience.

processing.{[9]} The specific senses we choose to discuss here {[10]} involve the electromagnetic spectrum (EMS).

The EMS is one of the universal characteristics of our world, and apparently our universe{[11]}. It is comprised of a wide range of entities called waves which are expressions of energy. These waves are generally characterized by reference to two attributes: frequency and length. There is an inverse relationship between the two. That is, as the frequency increases, the wavelength decreases, and conversely, as frequency decreases, wavelength increases. In addition to the properties of length and frequency, these waves can also be defined by a third property: energy. High energy audible wave are perceived as 'loud', while high energy visual waves are 'bright'.

EMS AND SENSES:

The spectrum is continuous from ultra low frequencies of large wavelength to ultra high frequencies of minuscule length. The point we wish to make here is this: two segments of that spectrum are sampled by two of our peripheral sensors. One segment with a frequency range of approximately 10^{16}, and a wavelength spectrum of approximately 10^{-4}, is the visible portion that we 'see' with our eyes. The other segment of the EMS that mortals can also tune in to has a lower frequency of -10^{2} to approximately 10^{4}, and a longer wavelength into meters.{[12]} This segment is detected by our tympanic membranes rather than retinas.{[13]}

In addition to having two sets of dedicated input devices, each assigned a small segment of the spectrum, we can also incidentally sense portions of other segments of the spectrum with some of the nerves embedded in our integument. Ultraviolet and

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[9] See Chapter 24 BRAIN ANATOMY AND PHYSIOLOGY for details about our perception of the seat of the spirit in this world.

[10] The fifth sense, touch, will not be addressed in this work other than this foot note. It is handled by our integument embedded with elaborate nets of fine organic wires. These nets processes complexes of stimuli, pain, pressure, tension, heat, movement, texture, etc. Touch really is as much a sense as the others, but it is so massive and handles so many more types of information that in comparison to the others, it hardly even seems like a discrete sense.

[11] One can't help wondering" are there universes that don't have EMS like this. What the medium of information transfer would be, we can't guess. Would it be based on energy of some sort, or would there be some totally different mechanism for moving information around?

[12] The long wave lengths inherently have more energy that do the short visual waves so travel greater distances with ease. We all experience this when a teenager's car drives past our house while we sit inside and hear the bass notes as if the speakers were in the front room. There are wave of such extraordinary length that their energy is sufficient to carry them around the world in certain layers of the ocean, a characteristic that led the US Navy to develop an emergency broadcast system for submarines anywhere in the oceans of the world. The antenna for this project is located in the upper part of Michigan and is on the order of 6 miles in length.

[13] though, fascinatingly, infants can hear up to 28,000 hz, the upper range for dogs, and then for unknown reasons lose that ability as they develop. Is this loss simply an artifact of the neurological development sequence that couldn't -or didn't need to be- avoided?

infrared radiation can be sensed as heat by certain specialized nerves embedded in saran-wrap coating of epidermis that generally protects us from pathogens, etc.

So our body was specifically designed to sample segments of the EMS during mortality. Three of our five senses are specifically designed to collect data that way. This is obviously not accidental, but neither should this relationship be given too mystical a meaning without more information. It seems to have been a practical matter that led to the design of this 5-power transducer to focus on the EMS. Since the EMS is a universal thing in our world, and is capable of encoding and transferring inordinate quantities of information, it was reasonable to design our mortal body to tap into that data source with a set of input devices.

HOMING PIGEONS, BEES AND CRABS:

Obviously, there are many questions relevant to the sampling limitation imposed on our bodies, limitation that prevent us from collecting a broader range of information than we are. The general question we want to touch on briefly is: why were *homo sapiens* not allowed to sample the same range of EMS phenomena detected by various other members of other phyla? Why were these specifically defined and strictly limited segments chosen? For example, why are dogs granted a broader range of hearing than we are? It could be life-saving in various ways to hear more.

Why weren't humans given any of the magnetic-field sensing capabilities of homing pigeons? They possess bits of magnetite, or magnetite-like mineral in their skull, attached to sensitive networks of nerves, which allow them to orient themselves in reference to the lines of flux of the magnetic field of the earth. We wouldn't need compasses, and again, it could be a life-saving attribute.

Why weren't humans given abilities to detect more ultraviolet than we are, which could allow us to better orient ourselves, as in the apis group? Even on cloudy days, various insects can locate the sun through cloud layers by detecting UV radiation. In addition to these limitations in range, why are our senses so severely limited in terms of the range of energy that we can tolerate in the spectra that we can sample? Acoustic waves of more than 130 decibels actually destroy various elements of the inner ear, leading to inability to sense data in the future, i.e. deafness. Visible waves of excessive energy will destroy segments of our retinas, also rendering them incapable of detecting data, i.e. blindness.**{[14]}** Do note that energy itself can be the harmful

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[14] Here's are a few more than usually irrelevant comments. But they are interesting in reference to this discussion.

Grof notes that during his experiments with various hallucinogens in terminal cancer patients with intractable pain, that

"The most salient aspect of these phenomena is the involvement of the optical system:

aspect of the EMS waves, not the wavelength or frequency. It seems likely that these limitations could have been modified during the design of the mortal body because the data ranges of other species are significantly different in many instances.

The obvious conjecture here about why these particular limitations are imposed on us is related to the capacities of our spirits that are relevant to this experience and the manner in which they were to be exercised. Spirits have undreamed of abilities. It is possible that the veiling that is done to spirits when they are implanted into mortal bodies, is actually nothing more than a truncation of the input stream of data available to the spirit. This truncation might be accomplished by the restrictions, imposed on this mortal transducer, to a few narrow windows of the EMS.**{[15]}**

EMOTIONS, NOSES AND OLFACTORY PAPILLAE:

The two remaining senses which do not sample the EMS -smell and taste- deserve comment. They are actually versions of the same thing as most of us realize when we eat while we have a bad head cold. Food has no taste because the olfactory nerves are obtunded by inflammation and secretions. The same phenomenon can be mimicked by holding one's nose while eating to prevent the passage of air from the mouth up through the nose over the olfactory nerves. In this case, there is essentially no taste, although things sensed by nerve endings on the tongue itself -like bitter or sweet, which are not particularly characteristic of what we usually

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(1977:41)

Anyone familiar with the effects of LSD on the user already knows the optical system is massively involved in the response. But it is curious that vision should be the most highly affected sense, so one asks what it is about vision -or about the effects of LSD on vision- that result in these bizarre experiences of heightened colors, colors endowed with sound, colors that overwhelm and engulf the user? Why isn't hearing or smell so affected? Granted, they are also affected, but to a much lesser degree, so there is something particular about LSD and its relationship to vision that produces the results it induces.

The other irrelevant comment from Grof to add here is:

> "The term 'perinatal' reflects the fact that the phenomena belonging to this category seem to be closely related to the events immediately preceding, accompanying and following biological birth." (1977:41 fn.)

By "phenomena", he refers here to the constellation of experiences reported by patients injected with LSD or DPT. These controlled experiments yielded much evidence that the adult mortal can in fact revisit his/her childhood, even returning to the womb. The experience of being ejected through the birthcanal, after being tended so carefully for nine months, is an ego-destroying experience that forces the individual to realize that s/he is in fact an individual, and not simply a part of the adult person. And we never recover from the shock during mortality. That is intentional by the Lord.

We note these things because the POS must somehow encompass them, and because they will lead to other insights about the experiment -the rat maze- we are required to attempt to master during mortality.

[15] None other than the father of modern Psychiatry, Sigmund Freud, made an insightful comment about the wealth of sensory stimuli that washes over us continuously:

> "Freud, in BEYOND THE PLEASURE PRINCIPLE, expressed the idea that the living organism would be annihilated by the energy-charged external world were it not equipped with a special protective apparatus that functions as a stimulus barrier." (Grof 1977:143)

The limitations enumerated here are probably aspects of this 'barrier' that protects our nervous system from overload. So in addition to any theological reasons for limiting our sensory input, there may well be physiologically necessary limitations as well.

perceive as spice- are still available.{[16]}

The interesting thing about the olfactory nerves is that they are like no other nerves in the body, including the visual, tactile and auditory nerves. The olfactory nerves are actually little more than extensions of the brain itself - NOT nerves extending outward from the brain, but actually extensions of the brain matter itself. These extend down into the nasal mucosa where they lie in wait for the complex molecules they are designed to collect and analyze. This means that the brain itself -not peripheral nerves- is actually sampling the air directly, a remarkable thing since essentially all other data in the input stream to the brain is collected and processed through one or more of the elements of the peripheral and central nervous system.

So the only "senses" that are designed to not sample segments of the EMS are extensions of brain matter that perform the task of identifying taste and scent. Now the inevitable, why? Why were we designed this way? There were probably a large number of alternative peripherals available when the body was designed, but these were chosen, and with a purpose. What these other types of sampling devices might be, is impossible to guess at because our perspective about what is possible is severely limited by our experience, environment and empirical data. But even though it is difficult to imagine alternative "senses", we nonetheless believe they exist as possibilities that may in fact be built into the bodies of mortals of other worlds or dimensions.

The Designer isn't arbitrary and capricious, so there is a reason for this choice of senses. A lovely idea comes to mind when casting about for possible reasons for taste and smell being included in our set of senses. One fact that must be taken into account in selecting a possible reason is the difference in the 'value' of the sampled data to the organism. We don't perceive that these two senses really provide "hard" data like the other three senses. We can survive quite well, and function effectively, in virtually any environment without either taste or smell.{[17]} In marked contrast, losing even minor degrees of sight or hearing imposes major impediments to normal functioning.{[18]}

So: if the data streams from olfactory nerves are not critical to our daily functioning during mortality, and if there nonetheless is a purpose for them, we can be more creative, than practical, while searching for explanations for smell and taste. The idea

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[16] It is curious how difficult it is to explain or describe smells and tastes. Sweet or salty are terms that are not amenable to further definition. Experience teaches us what they mean, but outside of empirical data, there is no way to formulate an explanation from other concepts or words. That is quite different than defining words or concepts which may be abstruse, hence difficult to apprehend.

[17] You have ALL experienced these losses. There are situations in which we have all wished we couldn't smell whatever the offensive odors we are beset by. Huxley's BRAVE NEW WORLD breeding out of the ability to smell seems like an eminently practical way to design specific organisms to perform certain odoriferous tasks.

[18] The question here is: what is the ultimate effect of blindness or deafness on our mortal experience? Do they impose limitations or barriers on us? Or do they improve our chances of success? Or don't they make any difference, simply being something that such people cope with, which coping will be the item evaluated in the end?

that we advance is that these senses are the only actual senses that can directly collect emotional data. We claim that the reason for these senses is that the Lord wished to give us children a lovely gift during mortality, one that would provide us great happiness.{19} We obviously have a wide spectrum of other emotions, but they are derivative. That is, they are deduced by the brain when it performs a summation of input streams from the three hard senses with historical information about identities, locations, sounds, sights, etc. Smell, however, is sampled directly from the atmosphere, and that by the brain itself. The emotions associated with smells are not derived by the brain. They are associated directly with settings, sights, and individuals.{20}

LOVELY LIMES AND MUSKY MANGOES:

To support this contention, which may seem frivolous at first reading, we will provide a detailed explanation. First, recall from your own experience the role of smell in your life, particularly in regards to memory. Smells are incredibly powerful stimuli that evoke ancient memories otherwise permanently forgotten. A whiff of a tac room, or the delicate scent of a long forgotten perfume or the odor of a special food will call up overwhelming recollections. Vivid images of people, places and things that have seemingly been permanently forgotten will crowd unbidden into the foreground with impossibly clear detail and over-powering reality.

The scent of a fresh cut lime calls up for me a haunting memory of times in the southern highlands of the Amazon basin when I stood late in the evening in unkempt groves of citrus trees with paisanos, (actually 'roceiros') enjoying quiet talk and the limes and oranges. I had ridden a bicycle 10 kilometers out in the bush specifically to sample the ripe citrus fruit. As evening fell, the moon was full. Smelling a lime today, I can see the rough hand-spun clothing made by the strong women and the craggy, unshaven faces of men who wrested their living from the earth. Children scream at each other and throw the fruit peels at each other. Hand-woven hammocks with long heavy hand-made lace fringes stretch between massive mango trees and hold half a family crowded tightly and tipped together by the shape of the hammock. Home grown and cured tobacco cigarettes rolled in scraps of corn husk add their own piquant quality to the remembered scent of the limes. All this flits across memory in response to the smell of the lime. The amount of detail is surprising, but that is the lesser half of the effect. The other half is the visceral realism of the images.

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[19] Granted, this statement is an over simplification, because much of what we smell is bad or is indifferent. However, as will become evident in the next paragraphs, we personally find smell to be the most compelling of the senses.

[20] We claim that this is why smells and tastes really cannot be defined. They are directly sampled, rather than being derived from other data streams that are summed with history.

They could have been experienced yesterday night rather than 20 years ago.**{[21]}**

No other sensory data, at least for us, is capable of such profound impact, of jarring loose so much detail, calling up such old memories, with such freshness and realism. That the olfactory nerves are actually extensions of the brain seems entirely appropriate**{[22]}**. The real puzzles then are these:

1) **how do smells become linked with specific transactions of our life?**

2) **what is the mechanism that recovers the emotions and projects the memory so vividly today? And**

3) **if, as proposed above, <u>old</u> memories are stored basically in the spirit brain, rather than the mortal brain, how could olfactory data be stored there, even if it is read directly by the mortal brain, and how is it able to release such jarring, instantaneous memories?**

We would add to our house of cards the suggestion that it is because there was a special linkage built in to allow this sort of experience for us as a gift to heighten our enjoyment.

We also believe that in the post-resurrection eternities we will sort and examine and continue to learn from our memories of each of the metamorphic phases. When we review our favorite memories from the collection created during mortality, the most powerful ones, those with the most compelling emotions, will include those that include this extra track of olfactory data. The ones based only EMS data may be vivid in an analytical manner, and we will cherish them. But they will lack the emotional power of this type.**{[23]}**

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[21] This type of thing is described beautifully by Sacks:

> "Somewhat similar states --a strange emotionalism; sometimes nostalgia, 'reminiscence' and a *deja vu* associated with intense olfactory hallucinations, are characteristic of 'unciate seizures', a form of temporal-lobe epilepsy first described by Hughlings Jackson about a century ago. Usually the experience is rather specific, by sometimes there is a generalized intensification of smell, a hyperosmia. The uncus, phylogentically part of the ancient 'smell-brain' (rhinencephalon), is functionally associated with the whole limbic system, which is increasingly recognized to be crucial in determining and regulating the entire emotional 'tone'. Excitation of this, by whatever means, produces heightened emotionalism and an intensification of the senses. The entire subject, with its intriguing ramifications, has been explored in great detail by David Bear (1979)" (1991:156)

Perhaps I am actually a victim of unciate seizures and just don't know it!

[22] Though I can't really elucidate why I feel that way. It just seems poetically proper for the brain itself to sample those lovely molecules directly.

[23] Parenthetically, the only other sense that seems capable of conjuring up memories of somewhat comparable power is hearing. Forgotten music heard years later, is capable of producing emotional responses. Of course, this assumes that there was significant emotion being experienced when the memory track was being laid down. But for us, the power of these memories is not as great as that of the type generated by olfactory type memories. However, the emotions recovered with aurally stimulated memories are more powerful that the emotions stimulated by visual data, i.e. by photos.

In the case of aural data, we surmise that it is not the EMS data itself that produces the powerful responses because the visual data, also EMS information, doesn't produce emotional responses. Rather, we speculate that there must be a parallel track of emotions associated with aurally generated memories. This

LASERS AND SPIRITS:

To return to the spirit and its abilities vis-a-vis the EMS during three-dimensional mortality, one is intrigued by the role of pillars of light which have occasionally been associated with spirit messengers. When Christ and the Father appeared to Joseph Smith, and when Moroni appeared, it was in a pillar of light that they came. The obvious interpretation of the pillar of light -not of the brightness of the beings therein- is that it is a beam or conduit of energy that can be opened between dimensions or spheres.

This beam, which today we are tempted to compare to a laser beam, is apparently capable of being directed or aimed in a desired direction and it apparently is capable of being focussed or expanded. A laser is a coherent or organized collection of photons and just may be a primitive approximation of these pillars of light in which celestial travel is possible. I say celestial because it doesn't seem likely that lower-kingdom individuals have any reason, or authority, to jump on a beam of light to travel. Star Trek's device for beaming bodies around is probably an accurate concept that describes essentially instantaneous transfer of beings within a few million light years of each other or whatever 'distance' the beam can operate over.

Is the spirit itself capable of generating such a beam? Is it affected itself by any portion of the EMS? Is the spirit laser capable of crossing the dimensional boundary between mortality and immortality? Is a portion of the EMS actually the carrier wave for inter-spirit, inter-dimensional communications, but a point in the spectrum beyond our ability in mortality to sense? etc. etc.

CONCLUSION:

These and other questions arise when thinking about this topic. In any event, there is a specific relationship between the EMS and our senses, which relationship was defined by God when selecting the conditions for our testing and then creating a body with the necessary input devices. The experience we have in this three dimensioned world generates special memories that we will cherish as being unique among all of our eternal memories, and which we will therefore replay repeatedly just to savor the flavor again.

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track would contain encoded cues about the physiological response that were originally experienced. These cues would be stored and recovered when the memory is harvested again, thereby re-creating the emotional context in which they were laid down. The question is: why can aural data be associated with permanent tracks of data about emotional responses, while visual data cannot?