

An alternative interpretation of Gurdjieff's chemical factory diagram

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Preface

This discussion of the food diagram is based on an alternative interpretation of the way the diagram is traditionally understood. The interpretation here is based on my own study.

At the very least, the following discussion on the evolution of hydrogens within octaves is generally, and probably even specifically, consistent with everything Gurdjieff said.

My own study suggests that my interpretation of the chemical factory diagram is also consistent with what he said. It pays to take a look at the difference between the traditional interpretation of this diagram and my own to understand why I have chosen the approach taken here. There is one very major difference that deserves some explanation.

Traditionally, the diagram is understood to show the intellectual center as the top part of the diagram, the emotional center as the middle, and the moving center as the bottom part. This is how Nicholl presents it in his Commentaries.

However, in studying what Gurdjieff said to Ouspensky in "In Search of the Miraculous," it is indisputably clear that Gurdjieff said that intellectual center works with hydrogens 48, moving center with hydrogens 24, and emotional center with hydrogens 12.¹

Given that this is an established fact which is completely consistent with his teaching on the speed of centers, it seems totally illogical that the food diagram would locate hydrogens 12 in moving center at the bottom of the diagram. It is equally incorrect to locate hydrogens 24 in the center of the diagram, with the concurrent presumption that they reside in and provide energy for emotional center. So only two possibilities exist here: either the hydrogens in a to lower stories are all located in the wrong place in the diagram -- a rather staggering possibility which I find difficult to believe -- or Nicholl, who otherwise had a formidable grasp of the work, fundamentally misunderstood it.

To the best of my recollection, Gurdjieff never actually said that the bottom story represented moving center. Not only that, even if he did, he may have deliberately misled people in order to force them to work harder on these questions. That would not have been atypical of him. It may also be that he did this in order to deliberately hide certain facts about the chemical factory, or at

¹ "In Search of the Miraculous, P.D. Ouspensky, Harcourt Brace & Co, 1977, pp. 193-94

least make them much less accessible. According to anecdotes, that was quite typical of him.

Whatever the truth may be, on the strength of the evidence, it seems reasonable to suggest an alternative interpretation of the chemical factory diagram. (fig. 1) This particular alternative is based logic consistent with what Gurdjieff said about the relationship between speed of hydrogens and centers.

Based on the study that follows, you will see that new understandings may be attained by looking at this diagram with the idea that the bottom story represents emotional center. It creates a consistent picture that both follows and reinforces the logic of Gurdjieff's system. For example, moving from top to bottom, there is a constant increase in the rate of vibration. It allows the logical addition of a second table showing the higher centers beneath the emotional center. It also reassigns the work of each food octave to a center that corresponds more correctly with its nature and action.

This switch between the moving center and emotional center stories in the food diagram has several special implications.

If we take the head as affirming, body as denying, and emotions as reconciling forces, we will see that impressions belong to the affirming octave, entering at the intellectual center. The head is understood as the place where the nerve centers of this brain are located.

The air octave mediates the denying force. This octave relates to moving center whose action is assigned to the spine and the center of the body. Logically this would occupy the central place in the diagram.

The ordinary food octave occupies the lowest place in the diagram. Digestion and absorption of food take place in the lower part of the abdomen, which is where the nerve and those of the solar plexus are located. These nerve nodes are generally understood as being the central place regulating the reconciling forces. So the understanding of the food octave as belonging to moving center may be a mistaken one. According to this interpretation, the food octave belongs to emotional center.

If we examine our own reaction to the breathing of air and eating of food, I think that our instincts alone will tell us that food is a very emotional experience. An enormous artistic culture has grown up around food. Art is generally understood as relating to our emotional nature. There is no such culture surrounding breathing and air. Furthermore, I think most readers will agree that the experience of breathing air relates more to moving center than to anything emotional. Generally speaking, the only emotional experience most of us ever have in relationship to breathing is the panic that results when we can do it.

Since the intake of the air octave begins in the middle of the diagram, this is one more indicator that that is where moving center is depicted.

This idea has consequences in regard to the understanding of development of the food octave and its ultimate resolution in si 12, which is the only hydrogen 12 produced without any conscious shock in the organism. The idea that si 12 belongs to the work of emotional center is well-established. It makes more sense to assign the creation of this hydrogen to the octave belonging to emotional center.

You will notice that this study focuses only on the key hydrogens in the chemical factory, that is, what I call the "core hydrogens" at rates of vibration 48, 24, and 12. Intermediate hydrogens which are very important to the development of the octave are not discussed in detail here. They have been left out in order to focus the discussion on the overall evolution of core hydrogens between centers.

A more intensive study would have to include all the intermediate hydrogens. It may not, however, be absolutely necessary to understand the nature and action in every intermediate hydrogen in order to acquire what is necessary for development.

According to my own study, if man can open himself to the forces necessary for the development and evolution of the core hydrogens, much of the remaining process takes place automatically, without the absolute need for conscious participation. The chemical factory, like the universe, is designed to automatically function properly within certain parts of its production line if the necessary substances and work are present.

This may well be part of the reason that Gurdjieff said, in the chapter on War, that if men simply "served Nature honestly" by transmuting the two sacred substances *abrustdonis* and *helkdonis*, thereby doing the sacred work of separating *askokin* from them, "...their being-self-perfecting might then proceeded automatically, even without the participation of their consciousness..."²

In light of all the information given in the chemical factory diagram, it is a reasonable certainty that *abrustdonis* and *helkdonis* must be mi 12 and si 12.

² "Beelzebub's Tales to His Grandson, Viking Arkana, the 1992, p. 1011.

1. The food diagram

I have found in my years in the Gurdjieff Work that study of the food factory diagram is avoided by many people because it seems dauntingly complicated. Not only that, it appears to be terribly theoretical. Glazed over eyes usually meet attempts at a discussion of these matters

However, a careful examination of this chapter can reveal many very important and strictly practical things which it is not only desirable but even necessary to know if one wishes to Work to acquire what is needed for development. This is an important kind of intellectual work that should not be avoided. Not only is an important for the exercise of the intellect, it provides specific information which is very important for one's practical work with the body. Failure to understand this diagram properly, or at least make an effort to, will deprive a person of a great deal of what Gurdjieff brought to us. A great deal more effort ought, in my opinion, to be expended on this diagram by everyone in the Work.

According to this study, only one center is primarily responsible for the development of each food octave. The center responsible for the development is the center in which the food enters. Not only that, the corresponding hydrogens which evolve from that particular food octave are specific to that center. All three centers have corresponding foods within their octaves that carry the same overall rate of vibration, but the foods are specific to those octaves. One center cannot rightly borrow the food from the octave of another center, even though in a system starved for the right kind of food this kind of wrong work is routine.

As each food on the develops within the center, it creates the substances at correspondingly higher rates of vibration which are necessary for the faster parts of that center. For example, intellectual center takes in impressions at a vibration rate of do 48 for its intellectual part, which is the slowest part of intellectual center. If the evolution of this octave proceeds correctly, that is to say, with the application of the first conscious shock, it creates re 24 which is at a higher rate of vibration consistent with the moving part of intellectual center. The first three stages of this octave complete themselves with mi 12, which corresponds to the fastest part of intellectual center, its emotional part. Based on Gurdjieff's teaching, the logic behind this should be self-evident.

The attached diagram of the development of the three octaves—impressions, air, food (fig. 1)—accordingly assigns each one of them to the corresponding center responsible for its intake and evolution.

The diagram shows a hitherto unapparent relationship between the three octaves. Read from top to bottom, left to right, they create a single octave of notes which shows an interestingly intertwined relationship between the work of

all three centers. This may or may not have further implications. More study on this specific question would be needed to determine that.

The Importance of Emotional Center

G. tells us that the highest substance produced through mechanical shocks in the body is si 12. This energy is produced by the evolution of the “ordinary” food octave (food we eat.)

One way of understanding this hydrogen is as sex energy, which is, once again, referred to by Gurdjieff as the highest ordinary substance produced by the body. It makes sense that this is produced naturally and without further assistance because it is what provides sex drive, which is necessary for the continuation of the species.

According to this interpretation of the chemical factory diagram, si 12 is also the energy used by the emotional part of emotional center.

Now, you may recall that Gurdjieff told Ouspensky that all of the possibilities man had for development lay through a path that led through the emotions. This is because *all of the highest substances that are produced by further evolution of the food octaves after the first conscious shock reside in and are used by emotional center.*

This may seem like a leap to you, but if you study the food diagram you will find that in this new interpretation, the lowest part of the diagram (back and lower part of the body) represents emotional center. This center works primarily with core hydrogens at a vibration rate of 12.

The middle part of the diagram (chest) represents moving center, which works with slower hydrogens 24.

The top part is the intellect, which usually works with hydrogens 48. (I say usually because there is an important—nay, vital—exception to this rule which will be explained later.) Of course other substances come into play in all of these centers but the speed and level of their work is related to their core group of hydrogens.

So, to state it directly, for man to evolve further he must above all *create the higher hydrogens needed for emotional center.* All of this is done through what G. calls conscious labor. The second conscious shock, which assists in the transmutation of 12 hydrogens into hydrogens 6, only proceeds after the right substances for complete, or harmonious, work of emotional center have been created.

Si 12

Man creates si 12 automatically. This particular substance is biologically necessary for the continuation of the species, because it drives sex energy. It may be presumed it is related to or consists of the substances testosterone and estrogen. This, of course, is conjecture. What we can say for certain is that the body absolutely has to create this particular hydrogen. It is the most powerful hydrogen in the lower centers, simply because it has the most essential mission of the organism assigned to it -- that is, reproduction. Nature did not leave this task to chance. It put all the muscle possible behind it, and ensured the body would make this substance by causing the process to be automatic. There was no need to do the same thing in the case of sol 12 and mi 12.

Because the creation of sol and mi 12 do not proceed automatically, in ordinary life there is no balance of the higher hydrogens needed by emotional center. As a consequence, man is dominated above all by sex energy³. The intellectual and emotional part of emotional center live most of their lives deprived of the higher food they need.

The idea that si 12, sex energy, is actually energy developed by and taken from the emotional part of emotional center helps explain why wrong use of sex energy generates an excessive use of force. When a higher hydrogen going to the wrong places and doing the wrong things has the speed of emotional force behind it, it carries tremendous power.

From this single instance, we can furthermore understand that this general rule of higher speed hydrogens being appropriated by parts of centers designed to use less powerful substances is almost certainly responsible for everything Gurdjieff called the wrong work of centers. (Fig. 2,3.) As a result of the way the factory is constructed, mankind is trapped in a situation where wrong work of centers will always and inevitably proceed until he begins to provide himself with the right food.

Si 12 energy, as the highest energy the body produces under ordinary circumstances, is inherently unstable (and almost unstoppable) without the grounding force of its corresponding force 12 hydrogens. Understanding it as the "horse" that drives the sex carriage explains why humanity spends so much irrationally directed and even damaging energy on sex.

It also makes some sense of the strangely esoteric mysteries of tantric sex, which focuses on using a moving center/intellect oriented approach to and understanding of sex for spiritual development. By bringing this intellectual/moving center balance to the work of sex center, much more may become possible in the way of transformation of sex energy.

³ "In Search of the Miraculous," P.D. Ouspensky, Harcourt Brace & Co. 1977, pp 154-55.

Transformation of Si 12 (by implication, into do 6 of higher emotional center) is cited by G. as being the target of many esoteric traditions.⁴ Obviously this is a tempting target because it is a relatively direct path to higher emotional center, and the substance necessary for it already exists without the need for the first conscious shock. But it leaves out the requisite intelligence needed in the form of fa 6, which feeds the intellectual part of higher emotional center. This means that only the emotional part of higher emotional center is receiving the right food.

In addition, although a pathway is thus created from higher emotional to lower emotional center, they are at different rates of vibration, and cannot speak to each other effectively. A bridge is needed.

Sol 12 and la 6

We can further understand from the chemical factory diagram that sol 12, the hydrogen that develops from the air octave, is the energy needed for the moving part of emotional center. This hydrogen is only created by conscious labor.

Hydrogen sol 12 of moving center finds its companion in mi 12, the hydrogen related to the intellectual part of emotional center.

The relationship between hydrogens si 12 and mi 12—that is, as belonging to the work of the emotional and intellectual parts of emotional center, respectively—reveal that intentional suffering is related to a conscious shock applied to the intellectual and emotional part of the emotional center. Sol 12 does not need this shock for development to la 6, for reasons that will become apparent.

Sol 12 is created by work beginning in the air octave, which belongs to moving center. The first conscious shock not only makes it possible for sol 12 to develop. It by default also creates the possibility of la 6, a higher hydrogen that can evolve without a further conscious shock. This is the highest substance that can be created in the body without the application of the second conscious shock. Its place and work belong to intellectual center, for the simple reason that there is no higher moving center. As we shall see, mi 12 and si 12, which due to their place in the octave require a second shock for development, create fa 6 and do 6, which belong to higher emotional center.⁵

Because moving center has no higher center to connect to, the hydrogen la 6 which evolves from its octave (the air octave) must by default work elsewhere.

⁴ “In Search of the Miraculous,” P.D. Ouspensky, Harcourt Brace & Co. 1977, p 193

⁵ This appears to contradict Gurdjieff’s statement in “Miraculous” that the work of hydrogens 12 belong to higher emotional center, and hydrogens 6 to higher intellectual center.(p. 194.) However, the logic of the chemical factory diagram, when extended, indicates that the work of the centers with hydrogens 12 and 6 consist of transmuting them to hydrogens 6 and 3 respectively. This is discussed later in this text.

The implication of this is that intellectual center, which ordinarily works with hydrogens 48, *has the possibility of working with a very much higher hydrogen* which is generated by the ingestion of air, and mediated through moving center.

This gives us another clue to the importance of air in the higher work of the organism. Note that G. devotes several paragraphs to the discussion of air and the higher substances that can be obtained from it. The implication is that conscious labor in the intake and exhalation of air might be very productive, as long as it is not manipulative, but rather participatory. The existence of la 6 points at the reason so many Yoga schools using breathing exercises to try and artificially increase the intake of higher substances. These efforts are a direct attempt to build the bridge to higher emotional center.

Although la 6 is found in intellectual center, it works at the same speed as do 6 of higher emotional center and fa 6 of higher intellectual center. We can infer from this that la 6 represents the logical place for connection between the higher and lower centers. That is, it is a bridge for the higher to meet the lower. So the proper evolution of the moving center, or air, octave, is absolutely essential if a right connection with the higher centers is to be achieved. Maybe this helps in part to explain the central place of movements in G's work.

Let's phrase it this way: Work on moving center, when combined with conscious labor, may create the direct possibility of making la 6, which can open us to a certain higher kind of intelligence. In theory this could happen even before the successful application of the second conscious shock, and might even provide the intelligence to see what was necessary for it.

G. made it clear that there is a definite order to the work of transmutation of substances in the second conscious shock. The transmutation of mi 12 has to take place first—that is, the transformation of food belonging to the intellectual octave. Perhaps this can be made sense of in the idea that moving and intellectual center seem, in the Work, to need to connect first in order for emotion to enter as third force. So the creation of fa 6 for higher emotional center, which must take place in the intellectual food octave, would need to precede the creation of do 6 in the emotional octave.

Do 6 in the higher emotional center marks the logical end of the development of the emotional food octave. The octave related to intellectual center can, however, develop much further- in fact, the implication is that it can develop into what has to be marked as completely unknown territory from the point of view of the rate of vibration, because the octave reaches 3 at sol. The territory of la and si belonging to higher intellectual center remain uncharted.

There is more to be said about this, especially about the idea that it is possible to begin to understand what hydrogens are available and at work in the body and to

thus understand what kind of Work is needed at a given moment as the presence and availability of a higher hydrogen manifests itself. Man can assume far more responsibility for his Work once these things are better understood. And this makes his development much less a matter of chance.

Conscious labor and intentional suffering

From the food diagram, conscious labor can be understood to act first on what is received by the intellectual and moving parts of intellectual center. As such, we might approach it as the idea of thought in motion- *active thinking*. And indeed, the idea of it as the application of attention addresses this concept.

Intentional suffering can be understood to act on the intellectual and emotional parts of emotional center. As such we can approach the idea as *intelligent emotion*.

The difference between ordinary intelligence and emotions, and active thinking and intelligent emotion, is that active thinking and intelligent emotion *know their place*. And as Gurdjieff continually stresses, in order to go anywhere at all it is first necessary to know one's place. This is why the system of the Fourth Way is founded on self-knowledge.

There is a lot more to these ideas than meets the eye, however, because what is needed for the action of *conscious labor and intentional suffering is not the property of man*. Conscious labor and intentional suffering enter, so to speak, from outside the system. The energy needed for them isn't actually produced within the confines of what we see in the food diagram. This is the first intimation that they are actually a certain kind of help from a higher level. When Gurdjieff said that man cannot "do," in one esoteric sense this is what he meant. Man needs help from another level in order to evolve.

The Nature of Hydrogens

Study of the chemical factory diagram can reveal a great deal. In fact, it is not going too far to say that in some ways the essence of Gurdjieff's entire system is contained within this diagram. This is logical enough, because above all Gurdjieff was trying to teach people how to feed themselves in a right way. This was his primary aim simply because without feeding one's self in the right way, any further development is impossible.

According to Gurdjieff, for right work it is necessary to understand and identify each hydrogen in the chemical factory not just intellectually, but by the sensations it produces.⁶ That is to say, he taught that this identification can take

⁶ "In Search of the Miraculous," P.D. Ouspensky, Harcourt Brace & Co. 1977, pp 192.

place not only through the intellectual understanding we are pursuing here, but also through organic sensation.

Practical understanding of work of centers has a good deal to do with knowing which hydrogens are active. Once one identifies hydrogen by the particular sensation it produces, one may know precisely where one is in the food octave. It is then possible to begin to directly understand what kind of work is needed at a given moment. Once a man understands this, he can begin to call on efforts of a specific kind at a specific time to increase the productive capacity of his chemical factory.

Real teachers with an understanding of the chemical factory can also see what is active within another person at a given moment. For those who wish to learn, they can give direction as to what effort might be necessary.

Parts of Centers

By studying Fig. 1, we can see that each center has corresponding hydrogen for each of its three parts -- intellectual, moving, and emotional.

These hydrogens are not all exactly equal. Even though they are at roughly equivalent rates of vibration -- for example, all the hydrogens 48 are in the class of hydrogen 48 -- there are subtle differences in the speed of their vibration. The hydrogens 48 that work with the intellectual part of intellectual center vibrate at a lower rate than the hydrogens 48 to work with the moving part, which vibrate at a lower rate than those that work with the emotional part. This is not only entirely consistent with an understanding of Gurdjieff's system; it is clear from the fact that they are different notes. We all know that different notes do not vibrate at exactly the same rate. Gurdjieff intimated in these differences in his reference to semitones⁷. In any event, this idea is certainly not a new one. Nicholl discussed the same concept in slightly different terms.

In working within a center, all right work must proceed from the slowest to the fastest hydrogen. That is to say, work in emotional center must begin with mi 12. It is the slowest hydrogen 12 in emotional center. It needs to be developed before sol 12 and mi 12 for everything to be properly balanced. Only when the intellectual part of emotional center has enough mi 12 for its own work can it work without being tempted to take hydrogens 12 from the moving or emotional part of emotional center, which have the wrong rate of vibration, to do the work it has to do. See Figs. 2 & 3 for a graphic representation of areas where wrong work routinely takes place.

Understanding this explains wrong work of centers as taking place more within centers than between centers. That is to say, wrong work proceeds within a

⁷ "In Search of the Miraculous," P.D. Ouspensky, Harcourt Brace & Co. 1977, p. 184..

given center first, which inevitably results in wrong work for that center in relationship to other centers.

Once we see the relative strength of hydrogens within centers, other aspects of how the organism feeds itself are revealed.

Ingesting impressions

Let us examine do 48, which is the level at which impressions enter the body.

We can see from this diagram that the entry of impressions into the body has its gateway in the intellectual part of intellectual center. This is the weakest point of the organism, because it is where the lowest of the core hydrogens (hydrogens 48, 24, and 12) available to man is located. That is to say, although it belongs to the impressions octave, which is the most rarefied food, do 48 is the very weakest of the core hydrogens we can work with. This is why man has so little being in his ordinary state. Impressions come into him at the lowest possible core hydrogen level, and they stop there. Do 48 is also referred to as the formatory apparatus.

By itself, it is not much more than a filing system. Because it is so weak, working with the slowest possible hydrogens, it is easily co-opted by anything stronger which forms in man. False personality can begin to dominate it almost at once. This is the most superficial part of the organism, and when impressions stop here, nothing permanent can form.

If the impressions octave continues to evolve, impressions can fall much more deeply into the organism. The first conscious shock allows the organism to take in impressions more directly, and more deeply. They fall into moving center and then naturally into emotional center. There is an enormous power in this ability once it is acquired. By acquired, is meant to acquire it organically, not with intellectual apparatus.

This means that it is possible to take in impressions in a radically different manner. If we want to take a look at the rate of vibration, we can presume that it is possible to take in impressions four times more efficiently than we do now. After the first conscious shock, they begin to be received directly by the intellectual part of moving center. This part is already much more intelligent than where things began. Transmutation from do 48 to re 24 is a very big step. This alone changes being a great deal.

They then fall into the intellectual part of the emotional center, which is a much more sophisticated and sensitive device than the intellectual part of our intellectual center. In fact the sensitivity of the body to receive impressions on this level is nearly overwhelming. In other writing I have referred to this as the

idea of taking in the world directly. It is a remarkable sensation that can change a man's life forever if it is experienced even once.

This has to be approached slowly over a long period of time. A broad foundation of subsidiary hydrogens must be formed before it can begin. Opening up wide to this kind of input can be terrifying if one is not prepared for it. Drugs such as LSD make this possible without the right preparation by providing a mi 12 analog to the body in the absence of all its supportive companion substances. This is why the drug can produce both intense religious states and rank insanity.

Gurdjieff's movements are designed to assist in developing the ability to receive impressions rightly. By creating a demand for conscious labor -- that is, active intelligence -- in the context of actual movement and thinking tasks, they can help open up a pathway for impressions to flow directly into the body. This assists in both the evolution of do 48 to re 24 and mi 48 to fa 24.

This is already a much more powerful kind of work than anything we usually do in ordinary life. These two substances -- re 24 and fa 24 -- are critical pathways to the hydrogens 12 that cannot, at first, be created in quantity under ordinary conditions. Everything in the organism has to change a great deal before significant amounts of re 24 and fa 24 can begin to be created from the conditions of ordinary life.

So we infer from this interpretation of the chemical factory diagram that all three centers have the ability to receive impressions directly. I believe it's fair to say that Nicholl's traditional interpretation of the chemical factory diagram implies more or less the same thing. When the body and the mind cooperate in conscious labor, that is, active intelligence, incoming impressions can be received directly by the intellectual part of emotional center. This produces powerful and quite unforgettable sensations. One begins to directly understand all of one's life as food.

This is the beginning of the formation of mi 12. The sensations accompanying the creation of mi 12 are widely misunderstood by esoteric schools which do not understand the food diagram. Many novel and outlandish explanations for them arise, especially among new age movements. Only by understanding the chemical factory diagram can one correctly associate the unusual physical and, in some cases, psychic experiences which accompany the creation of higher substances.

The three food octaves

Each story of man -- that is each center -- has a corresponding octave of food it is responsible for.

Let us take emotional center. The slowest hydrogen that man ingests-- do 768 of the food octave -- is handled by the fastest center. This is because ordinary food has the furthest distance to go and needs the greatest amount of acceleration in order to reach the full extent of its evolution into si 12. As was pointed out before, the most capable center we have is given this absolutely vital task, because it is biologically necessary for both the preservation of the organism and sexual reproduction.

We can contrast this with intellectual center, which is the slowest center handling the highest rate of vibration that begins an octave -- that is, do 48 of the impressions octave. Do 48 has much less distance to travel in its evolution to me 12, so locating it within the octave belonging to intellectual center does not limit it. In addition, because this food is so much more powerful, the body is designed so that it generally enters through a much narrower pathway. This allows a great deal more control over its arrival. Buffers erected around intellectual center further slow its arrival to keep it down to a trickle under ordinary circumstances. This food is so much higher than ordinary food that there are dangers if it arrives too fast or into great an amount before supporting hydrogens are in place.

Moving center's octave, which in this interpretation is the air octave, meets the arriving food with a substance four times faster than do 768 -- do 192.

The moving center octave is where Gurdjieff concentrated a great deal of his work. There are good reasons for this. The moving/air octave is responsible for the creation of la 6, which is the only hydrogen of speed 6 found in a lower center. The other two hydrogens of speed 6, which are created by the second conscious shock from mi 12 and sol 12, belonging to higher emotional center.

Perhaps I should note here that Gurdjieff says higher emotional center works with mi 12 and si 12, as noted in footnote 5. I think that what he means is that only higher emotional center can provide the energy for intentional suffering, which transmutes mi 12 and si 12 -- which belong to lower emotional center in the chemical factory diagram -- into fa 6 and do 6, which are at a higher rate of vibration that would more correctly correspond to higher emotional center.

In my opinion, this understanding supports the idea that the energy needed for the two conscious shocks is provided from a higher level. This energy belongs to the law of three, as can be clearly seen in Gurdjieff's enneagram. It interacts with, but is quite distinct from, the law of 7 energy that evolves within any given octave.

Not only does la 6 provide the energy for much higher work-- four times faster-- in intellectual center, which is where it resides once created, it also provides the linking hydrogen that connects hydrogens 6 in higher emotional center to our lower intellectual center. When higher emotional center speaks to us, it does so because sufficient la 6 is present to mediate it.

Gurdjieff spoke of the idea that man is created to be a bridge between the lower and the higher. According to this interpretation of the chemical factory, La 6, which is not talked about much in the Work, is the functional bridge. Understanding its development and place would explain a great deal about the connection between higher levels and our own life.

Take note that the only octave that absolutely has to be completed in order for humanity to exist is that of the ordinary food active, which is handled by emotional center. It makes perfect sense for this vital task the handled by the most powerful center. The potential behind the intellectual and moving center relates to man's higher evolutionary possibilities, which are not necessities for biological life. Their octaves are thus handled by the two less powerful and slower centers.

It may seem as though there is little practical connection between these ideas and your ordinary life. Do not make this error of understanding. At this very moment every human being who is still alive is engaged in most lower all of the activities depicted in the evolution of the food octaves.

Hydrogen 24 & 12 Identities

There are some places where it may be possible to specifically identify the creation and action of higher hydrogens through a direct experience of sensation. For example, when the air octave is functioning properly, that is to say, mi 48 receives the first conscious shock, breathing in and breathing out produces a strong sensation throughout the body. This sensation turns a air into a very rich brew, almost as heady as a fine wine. The sensation of what is inhaled spreading through the body, sometimes all the way, it would seem, to every individual cell, is both extraordinary and pleasurable. When breathing is experienced this way, it delivers an unusual energy to the body and the mind. We can reasonably infer that this remarkable sensation is fa 24. With enough work, a man can draw his attention to his breathing and almost immediately sense the increase in the production of this substance throughout his whole body.

This sensation must be related to the action and transmutation of higher hydrogens. It was recognized by yoga schools many thousands of years ago. There is consequently a great deal of work designed to increase the production of fa 24. The production of this substance became a target of esoteric schools early on because it assists directly in the production of la 6, providing an essential contact with higher emotional center. It was hoped that even in the absence of mi 12, la 6 would open up a man to enough information and energy to compensate for the lacking hydrogen.

Sol 12 belongs to the air/moving center octave and to the moving part of emotional center. According to my understanding based on personal study and

some reasonably logical guesswork, the chemical substance of Sol is probably endorphins. Fa 24 is a precursor to this class of substances, or closely related to it. Based on the sensation it produces, it binds to a different group of receptors than Sol 12. Logically enough, the physiology of each hydrogen would make it specific to a certain set of receptors in nerve cells on the body, accounting for the differences in both level and sensation.

The action of Sol 12 creates what is referred to in Christianity as the "Peace of God that passes all understanding." Its characteristic effect upon man is an enormous feeling of inner peace. The action of Sol 12 usually begins with an extraordinary wave of deep relaxation that passes over the whole body beginning with the head and moving downwards. This wave of sensation is so strong that it reduces the body to a state of complete receptivity. It also has a role in extraordinary sensations of pleasure located in the spine, commonly in the lower portion, but spreading upwards. This particular sensation is no doubt the source of religious ecstasy. Because it acts on the moving part of emotional center, it produces extraordinary emotional states of both grief and utter bliss. Anyone who has had experience with drugs to contrast and compare with the experience of sol 12 would tell you that there can be no comparison. Drugs are totally worthless in comparison.

Mi 12, which may perhaps be understood as serotonin, produces different effects. When it acts, it creates a greatly heightened state of awareness. Intelligence penetrates the point of contact, that is, the moment of NOW. This moment is sometimes experienced as a sword cleaving reality down to the root. In any event, it was so described by the Zen masters. It can also be likened to a lightning bolt that enters the body, penetrating from head to toe and radically altering perception.

Of course, all of these words are completely worthless, because there are no words for this sensation. It is so powerful that to imagine living this way all the time seems impossible. Nevertheless, in a sense this is the first aim of all work with the 12 class hydrogens.

Because the evolution of the octave from do 48 through re 24 to mi 12 involves impressions, which are a very high kind of food, it can proceed nearly instantaneously under the right conditions. This involves a certain active will then cannot be undertaken without receiving a great deal of help as preparation. The preparation is necessary because the sensation is so strong that it could easily produce panic if it arrives without proper foundation. The evolution of this substance is not something to be forced or artificially induced. It gives a strong and unforgettable shock to the organism which could produce a form of insanity under the wrong conditions.

Drugs such as LSD and other serotonin analogues mimic the action of mi 12, but all of them fundamentally distort the experience. They produce incorrect visions,

sensations, and emotions which are all entirely subjective, unlike the action of mi 12, which opens a man to the entry of absolute truth. Because these drugs allow the kind of shock I have described above, insanity can and does result from their action. Drugs of this kind should never be taken under any circumstances. Even in the hands of experienced shamans, their results can be unpredictable and are in any event always temporary.

Schools and systems

Unfortunately, no one we know of in recent history has fully understood the science of the evolution of inner octaves besides Gurdjieff. I say unfortunately, because while many esoteric schools have mastered one portion or another of the creation of higher substances, most of them do not have a clear understanding of what they are about. Different schools may even contradict each other in explaining what the energies they work with do and are for, which can never be the case if real understanding is present.

Failure to understand the process properly results in incomplete systems with incomplete results. Only the chemical factory diagram, which is comprehensive in its explanation of the material nature of esoteric work, pulls everything together into a single whole which can make practical sense.

The inevitable consequence of failure by schools to fully understand the food octave and development of higher substances is unbalanced development. Schools typically work to transform either si 12 of the food octave, which is naturally present, or mi 48 of the air octave, which leads to la 6. They work to the exclusion of the other necessary substances because they are unaware of the implications. They do obtain real results, but the results are self-limiting.

As Gurdjieff said, work with higher hydrogens has to begin with mi 12. The food diagram shows why this is lawful. Mi 12 is the hydrogen at the lowest rate of vibration in the emotional center. As noted earlier, in order for right development, it has to be present in sufficient quantities first to prevent wrong work. In addition, the right development of sol 12 needs to proceed. Conscious labor -- the shock created by creating a point of contact between the moving and intellectual parts of intellectual center -- makes both of these transmutations possible. This is why a connection between intellect and moving center -- the mind and body -- is so strongly emphasized in the Gurdjieff system. Work in this area is both specific to and primary for creating all the other possibilities for man's development.

We are in a Work that teaches us that we need to learn how to feed ourselves rightly. It is not going too far to say that everything depends on how we feed ourselves. If we do not have a clear understanding of this, all of our other work will be in vain. And to have a clear understanding means to have an

understanding that is based in all three centers. The Work offers ideas, movements, and music as a path to this understanding.

Until the understanding of feeding becomes organic, Work does not begin. To say that it becomes organic means that the body itself awakens and understands what is necessary.

Magnetic center

This alternative chemical factory diagram gives us a clue as to where magnetic center may be located. Magnetic center may lie at the center of the diagram, in the moving part of moving center. This center works with do 192, re 96, and fa 24, the higher hydrogen created in the air octave from mi 48 after the first conscious shock.

Some may argue that magnetic center forms around re 96. However, because magnetic center is designed to attract people to something higher, it makes sense to suggest that it has something of a higher level than ordinary life in it. So I am proposing that fa 24 may be the ultimate location of magnetic center in man. This suggestion is to some extent instinctive, based on the idea that it lies in the center of the chart and that everything else, so to speak, revolves around it.

In fact, this is a logical place to locate the action of magnetic center for another reason. Gurdjieff speaks of A, B, and C influences in man.⁸ A influences in are influences created in life, that is, the first kind of influences. B influences are influences created outside life, but that are still strongly mixed with it. C influences are conscious influences, belonging to a higher level. We can correlate the action of A influences with the action of do 196. That is to say, breathing ordinary air exposes a man to them. He is always going to have a influences of one kind or another in life. These influences are quite ordinary and nothing can come from them because they are associated with and attracted by the lowest possible hydrogen. B influences are associated with re 96. They are one step up, and have the potential to attract something real, but they are weak and easily misled. Only when magnetic center has formed around the C influences attracted by fa 24 can it becomes strong enough for a man to really find his way. Actually this is quite a big thing. Men can spend a lifetime of sincere inner Work at the level of B influences.

It may be that the creation of fa 24 takes place in small amounts even in ordinary life, and determines a man's ability to attract enough auxiliary higher substances to him to find a real school. The fact that so few men seem to have a magnetic center at all might well be explained by this hypotheses. The overall paucity of fa 24 under the ordinary conditions of quite accidental formation would furthermore explain why magnetic center in the men who do have it is generally very weak or wrongly formed. It rarely has enough of what it needs to work correctly. Even if

⁸ ⁸ "In Search of the Miraculous," P.D. Ouspensky, Harcourt Brace & Co. 1977, p. 204.

there is any, its energy may well be stolen by the moving part of intellectual center. Then again, rather than relying on its own energy, it may take its energy from la 24 of the emotional/food octave.

In any of these cases, magnetic center will do the wrong thing. If its energy comes from intellectual center, a man may end up trapped in the intellectual examination of philosophies that end up confusing him rather than resulting in any real work. If its energy comes from emotional center, a man will enthusiastically commit himself to what ever seems attractive without knowing for certain what is real and what is not. The emotional center energy of la 24, if used by magnetic center, may also cause a man to impatiently jump from one discipline to another.

Only when magnetic center is strongly grounded in fa 24 -- that is, a higher hydrogen found in moving part of moving center-- will it attract a man to the right work and keep him there. This is because the work of magnetic center never really ends. Throughout a man's lifetime, magnetic center continues to need to be fed with sufficient and perhaps even greater quantities of the right food in order to keep a man on his path and his way. If magnetic center weakens, a man may stray. As work progresses, this becomes less likely, but the possibility is always there. The many fairy tales of seekers whose lose their way on a quest speak to this danger.

Right and Wrong Work of Centers

This version of the food diagram shows how very interrelated the work of centers is. Each center has a responsibility for creating substances for other centers to use. They all depend on each other. This is, in fact, group work. It is inner group work rather than group work based in outside life. In one sense, all the actual group work on man engages in in his lifetime takes place within him. All the external work with other people is only preparatory. The real group he is working with it is his inner group of selves. This is his flock of sheep, and he needs to learn to become the shepherd.

We can perhaps understand the right work of centers by seeing that they are all different people who have to learn to co-operate to provide each other with what is necessary. Once again, we learn through movements of the need for this cooperation. The centers depend on one another in the same way that people in a movement depend on one another. What one person knows everyone knows. When one person makes a mistake, everyone suffers for it. The right work of centers depends on all of the parts of the organism doing their work properly.

Because every center and every part of every center has some corresponding substances that are at a correct rate of vibration for other centers, it is in a sense much too easy for centers to look next door to their neighbor and steal what they need if they don't have it themselves. If the octaves are not developing properly and producing a balanced amount of substances for each center, this activity is

almost inevitable. Looking at the food diagram in this context, it should become obvious as to why man's inner life is so disordered.

For example, the intellectual part of moving center and the moving part of moving center need re and fa 24 to do their respective work. Well, they don't have much of that. But right next door the emotional part of moving center has a relative abundance of la 24 derived from the food octave. Why not just borrow some? This seems like a great idea until we see that la 24 is at a higher rate of vibration in re 24 and fa 24. It is the highest semitone in the octave. Borrowing energy from it for other parts of moving center is like running 220 current through a 110 circuit. There is much more energy there than is needed. The inevitable result is that it creates a great deal of tension. In a search for a specific place in the food octave where unnecessary physical tension arises, this might be a good place to look.

According to this understanding, the same phenomenon takes place in the intellectual and moving part of emotional center, which are inevitably tempted to borrow their energy from si 12, the same energy that sex center uses. So here we have a graphic picture of the wrong use of sex energy: precisely where it arises, and why it happens. Borrowing of this kind goes on all the time. It creates another much more serious kind of tension which drives all kind of misunderstanding and interpersonal disaster, because it is driven by much more power and can do much more damage.

The tension that results from the overload created by borrowing si 12 may have something significant to do with negative emotions.

Negative emotion

One of the greatest obstacles to the right ingestion of food is negative emotion. As we can see from the food diagram, negative emotion has no real center. It is totally parasitic and feeds off everything that comes into the organism. Until we understand that our negativity is a parasite that is stealing our food, we cannot begin to understand why we need to be rid of it. As Nicholl once pointed out, the ultimate aim of all esoteric work is to free man of negativity. The reason for this is that negativity takes away the food we need for our development. This subject is little more difficult to approach, because I have just begun to ponder its relationship to the food diagram. However, it seems possible to make some suggestions here.

Everything that comes into us -- every single lasting impression and every moment of our lives -- feeds us in one way or another. It either goes to our development or feeds our negativity. Nothing remains neutral.

Do 48 and mi 48, belonging to the impressions and air octave respectively, are acted upon by the first conscious shock. Both of them reside in intellectual center, in the intellectual and moving parts.

Negative emotions, having an emotional nature, preferred to feed on the highest food available to them at any given moment. Because of this, they effectively blocked development of any octave they are feeding on. In particular they prey on do and mi 48. In doing so, negative emotions directly steal the energy from the impressions that enter us, burning it almost at once by turning the energy outward again. In addition, they consume the highest ordinary results of the air octave, damaging the work of the moving center.

When they are active, the negative emotions formed around false personality do their best to meet everything that comes into the organism at the moment it arrives. This is what I have referred to as the rejecting part. It is a strong buffer mechanism attached to the formatory apparatus -- that is, intellectual part of intellectual center -- that spits out our lives reflexively instead of allowing them to enter. Openness consists of circumventing negative emotions, allowing impressions to fall deeply within us.

The rejecting part is very strong. Gurdjieff referred to it as false personality, which forms around chief feature.

It is sometimes confused with ego, but ego and false personality should be considered as distinct. Ego is an affirming motivating force that we need for our development. False personality is a parasite that prevents development. We can feed on our ego and use it for our work. False personality is useless in this regard.

When negative emotions are present -- which is more often the case than not -- they categorically prevent the further evolution of the impressions and air octave. They not only block the development of the octaves, they use up any of the energies that may have been created.

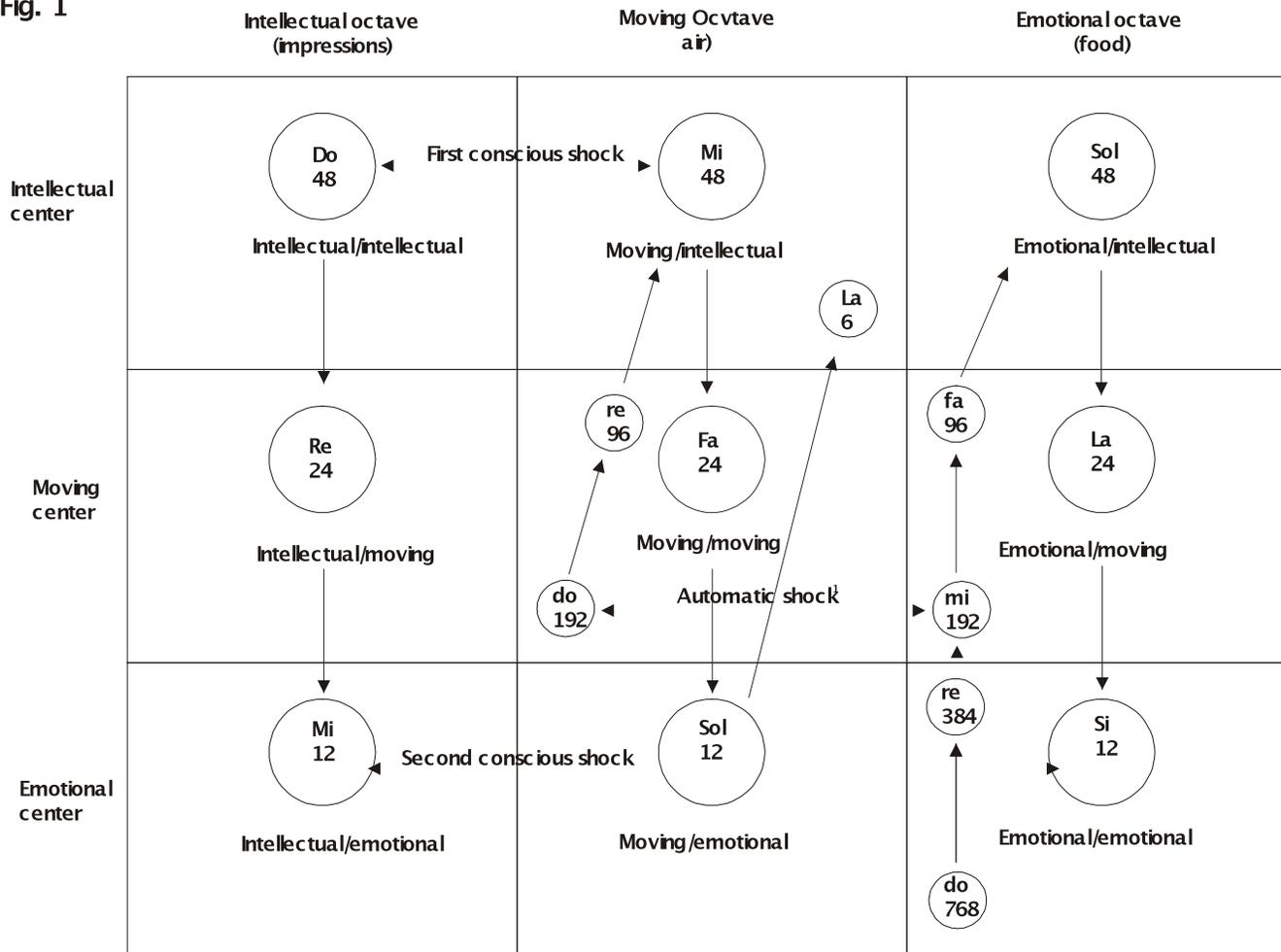
Negative emotions cannot make an habit of doing this with the energy from the food octave. If they were to routinely interfere with the food octave and squander all of our si 12 in the same manner, too much sex energy would be destroyed, and the species would ultimately become extinct. In the same manner that diseases evolve so that they preserve the organism while allowing themselves to multiply, negative emotions are clever enough to feed on what is necessary for their own life but leave enough for the body to keep going so that they will have a place to continue to live.

One of the reasons negative emotions can be so powerful is because they are sometimes able to work with the small quantities of higher hydrogens emotional center automatically produces. This gives them astonishing speed and force. It

allows them to destroy much faster than anything can be created. All of our possibilities go up in smoke along with them. Hence the great emphasis on not expressing them. Every time a negative emotion is acknowledged and turned inward, it ensures that our higher food is preserved.

Unfortunately, it is certainly possible for negative emotions to feed on si 12 if they become powerful enough. If this happens, psychosis develops. Negative emotion which feeds on si 12 generates the most disastrous pathologies we see in humanity, such as murder and war. Fortunately under ordinary circumstances there is enough natural protection in the organism to prevent this from happening.

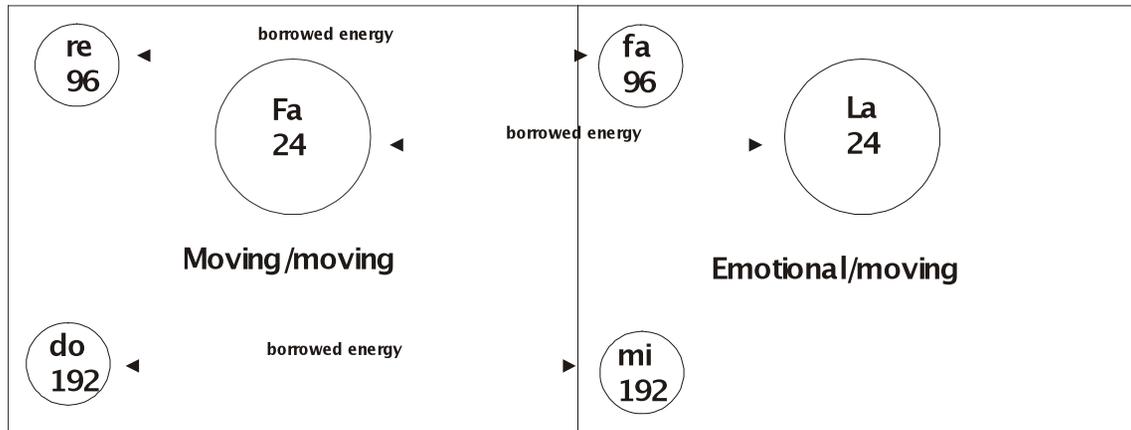
Fig. 1



Evolution of the three food octaves

1. Note: We may surmise that because do 192 of the air octave represents the initial introduction of a higher food than mi 192 the emotional octave, it can provide mi 192 with enough energy to move on in its development, even though mi 192 is at a higher rate of semitone vibration due to its location in the emotional food octave.

Fig. 2



Wrong work of centers: emotional and moving center

According to this interpretation, wrong work of moving center results when moving center borrows hydrogens the correct level but wrong rate of vibration from emotional center. This can occur on any of the three paths shown above. When this happens, moving center is using a hydrogen of too much force for its work. An overflow of energy in moving center results, causing physical tension.

Wrong work of emotional center can proceed along the same pathways, but in this case it is working with hydrogens too slow for it. This dulls its sensitivity. If it is starved by energy bleeding over to moving center, emotional exhaustion will result, because it is deprived of right food.

Borrowing energy from neighboring hydrogens always disrupts further development of the octave within the center by giving it too much or too little force.

The emotional part of moving center, which needs an energy level of 12 which is correctly provided by sol 12, may also try to borrow si 12 (sex energy) from the emotional part of emotional center.

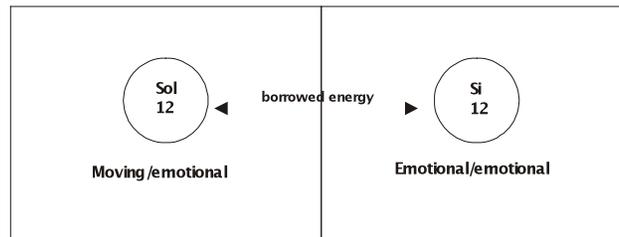
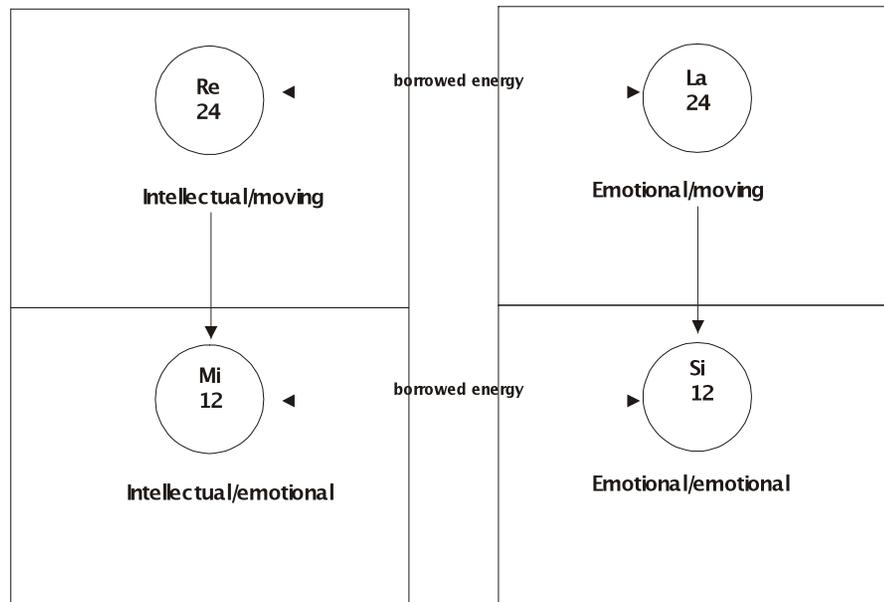


Fig. 3



Wrong work of centers: intellectual and emotional center

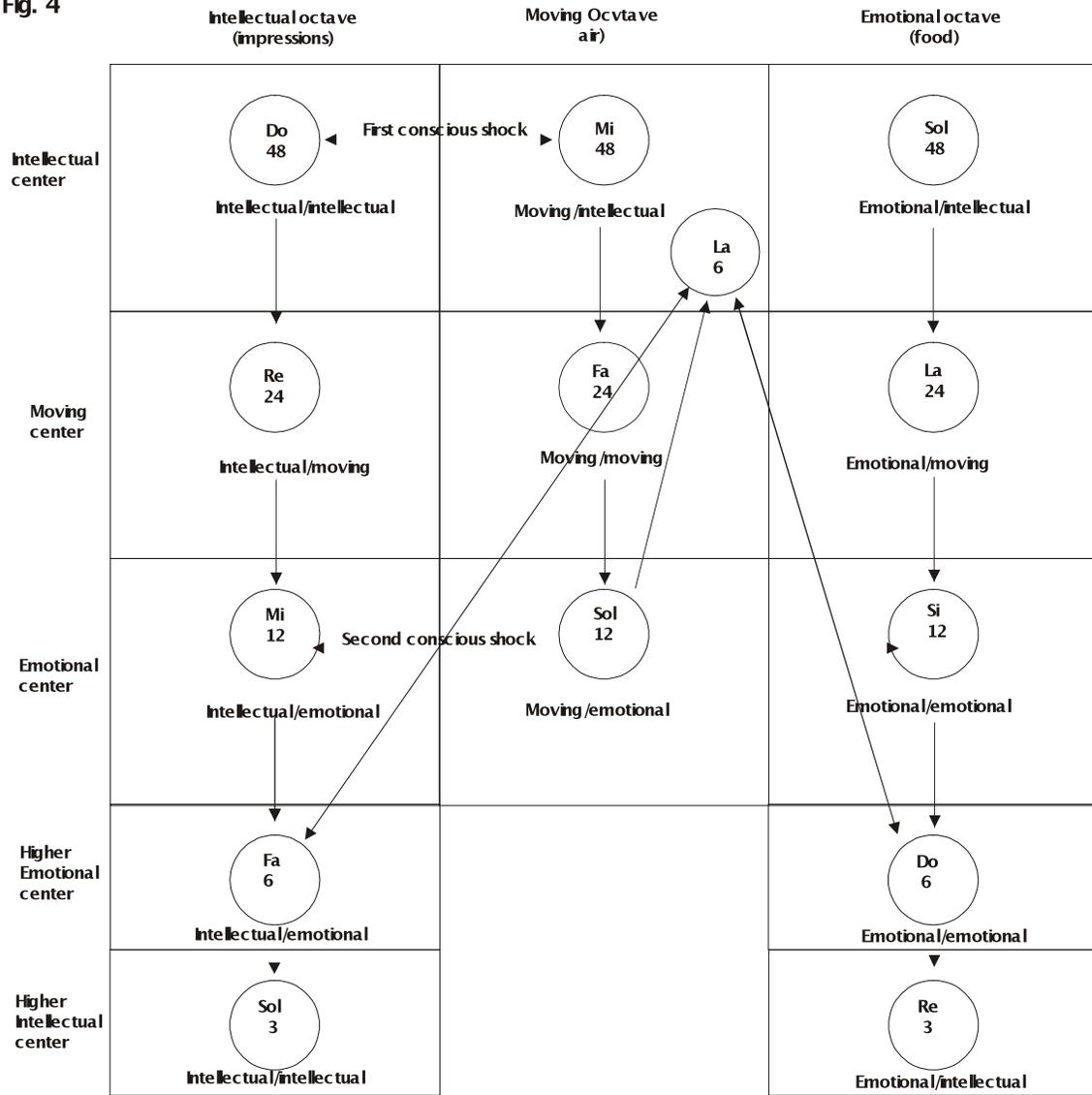
In wrong work, both intellectual and moving center borrow most of their energy from emotional center, because there that the completed energy corresponding to their need evolves naturally, without the need for conscious shocks.

The parts of intellectual and moving center that require the first conscious shock in order to be fed properly are routinely starved of the energy they need. As a result, they turn to the corresponding energy which is already available in the emotional center octave (ordinary food.) This not only feeds intellectual and moving center with energy that is too rich for it, it also starves the emotional center food octave of the substances it needs for full development. This explains why so little si12 is produced under ordinary conditions, even though it can be produced automatically, that is, without the application of any conscious shocks.

Above we can see the consequences of intellectual center borrowing its energy from emotional center. It gives the moving and emotional parts of intellectual center too much force. As with the moving center, this creates tension within the organism due to the excess energy applied.

The Relationship of Higher to Lower Centers

Fig. 4



There is no higher moving center, because the higher centers represent energy levels on the astral plane, that levels of being which do not require a body for their existence.

La 6, which belongs to the moving center octave, thus works in the moving part of intellectual center. Because its corresponding rate of vibration, it acts as a bridge for fa 6 and do 6 to communicate through.

We might infer La 6 represents Real Will.