

Biological Transmutation

C. Louis Kervran

**Translation and Interpretation
by George Ohsawa**

Second Edition

Revised, Expanded, and Updated

George Ohsawa Macrobiotic Foundation
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George Ohsawa Macrobiotic Foundation

PO Box 3998, Chico, California 95927-3998

530-566-9765; fax 530-566-9768; gomf@earthlink.net

www.ohsawamacrobiotics.com

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Foreword

A few decades have passed since George Ohsawa predicted that “we are now approaching a new age, a revolution in physics and chemistry that will dethrone present atomic theory,” and an enthusiastic letter from Japan Centre Ignoramus announced that “Now George Ohsawa and his disciples will apply this method in the fabrication of gold, diamonds, silicon, iron, petrole, etc. True alchemy is born.” It sounded as though a revolution of gigantic proportions was in the making. What happened? Mainstream scientists still consider the “present atomic theory,” as Ohsawa called it, to be excellently confirmed beyond a reasonable doubt. Biological transmutation, on the other hand, has failed to gain wide acceptance, despite Kervran’s claim that “the evidence for biological transmutation is so overwhelming that it cannot be rejected. Facts can be checked by anyone and reproduced at will while results can be measured and weighed with ordinary laboratory scales.”

If the evidence is indeed as overwhelming as Kervran suggested, why has biological transmutation not yet become a widely accepted fact? One can think of two possibilities. First, the findings of Kervran and Ohsawa are entirely valid, but closed-minded scientists have failed to recognize their validity and are still fooled by current scientific “fallacies.” The other possibility is that the evidence provided by Kervran and Ohsawa does not hold up under closer scrutiny. Their results are based either on measurement errors or misinterpreted observations. Indeed, transmutation of chemical elements may have nothing to do with their findings. In any case, the evidence Kervran and Ohsawa brought forward in favor of biological transmutation must be considered inconclusive because

there is insufficient proof that the phenomenon actually exists.

Seeing that biological transmutation is in strong contradiction to what is considered well-established science, the supporting evidence for it would have to be absolutely solid in order to convince the scientific community of its validity. While Kervran claimed that his evidence was overwhelming, his experimental methods have been criticized by no less than David Cuthbert, who was formerly generally supportive of research in the field of biological transmutation. Cuthbert stated in a 1999 report, "Kervran's practical experiments have in my opinion...been rightly criticized for their generally unscientific nature; evidence given was often circumstantial or anecdotal; controls were generally absent or inadequate; raw data and its statistical handling, if any, were not published; the studied organisms were not always kept in any sort of closed system." (<http://www.davidc.f9.co.uk/stichting/holleman/s4.htm#4.3>). Attempts to reproduce Kervran's experiments have had mixed results. While some researchers claim to have replicated some of Kervran's findings, others have seen no evidence of transmutation when trying to work under the most strictly controlled experimental conditions. These kinds of experiments are prone to systematic error, meaning that some of the incoming or outgoing substances are missed by the way the measurements are performed. This, therefore, warrants a critical examination of any experiments that claim to support biological transmutation. If one wants to show that the phenomenon of biological transmutation exists and firmly establish it as commonly accepted fact, more research is needed.

Reading Kervran's work, it appears he was very quick to conclude that transmutation had occurred whenever he could not readily find a conventional explanation for a particular observation. However, his inability to find a conventional explanation at the time he and Ohsawa worked, does not necessarily mean, based on current knowledge, that a conventional explanation could not be found today. For example, in one instance, Kervran posits that carbon monoxide poisoning suffered by welders must have originated from nitrogen that was changed by transmutation. Today, modern understanding

of the chemistry involved in welding can easily explain how carbon monoxide can result from normal chemical reactions. Another example: Kervran discusses the discrepancy between nitrogen intake and excretion and, again, concludes that transmutation was happening. However, he did not take into account the fact that the body uses nitrogen in the process of building protein, and, in so doing, absorbs more nitrogen than it excretes. The opposite happens when protein is broken down -- nitrogen from the protein in the body is freed and subsequently excreted. This explains excess excretion of nitrogen under starvation conditions without the occurrence of nuclear transmutation. No doubt, Kervran raised a lot of interesting questions, but his conclusions have to be weighed against more recent understanding.

Also in this light, a careful reading of the text uncovers various examples where Kervran's understanding needs to be revised. For example, his statement that "Free nitrogen does not exist in atomic form—it can only be found as the molecule N_2 " is clearly incorrect. Also, scientists nowadays would certainly not agree with the assertion that "Specialists in nuclear physics recognize that accepted theories are not irrevocably applicable to the behavior of elements with an atomic number under thirty." In fact, those theories do apply to the lighter elements as well.

In later years, Kervran himself moved away from his earlier theoretical explanation of transmutation. He had suggested a model that he called "frittage," the French word for sintering. Simply speaking, the idea is that nuclei can enter a special kind of binding that is tighter than a chemical binding, but not as tight as the binding involved in nuclear reactions. Kervran does not explicitly introduce this model in the text presented here, but he hints at it in a few places, particularly in the section about nitrogen. Frittage is a very creative idea to explain why biological transmutations would not need to involve the huge energies deemed essential to nuclear reactions by conventional physics. But, if that were going on, physicists would be able to distinguish such unusual bound states from fully fused nuclei, and their existence would not have escaped notice. No such

evidence has ever been found. Ultimately, Kervran offered a different explanation, involving weak interactions (another known force that is weaker than both the electromagnetic and the nuclear force). The technical term for this specific weak interaction is “neutral currents,” and it involves neutrino particles. Kervran and a physicist named Costa de Beauregard tried to work out the details, but they were not able to explain biological transmutation by using only the known laws of physics. It has been suggested that these laws have to be modified when living organisms are involved. While that is an interesting idea, it remains in the realm of speculation. Also, it does not explain other suspected low energy nuclear reactions where no living beings are directly involved, like the hot stoves in Kervran’s school, and it would not explain Ohsawa’s experiments, supposedly turning sodium and oxygen into potassium in a test tube or turning carbon into iron.

Ohsawa’s experiment of making carbon magnetic when exposed to electricity provides a most striking example of a premature claim that transmutation had been achieved. Ohsawa concluded that the observed magnetism was an indication that carbon had turned into iron. This experiment was successfully repeated by Fred Pulver, as described in this book, and later by Edward Esko. But, what was not known at the time that George Ohsawa and Fred Pulver conducted that experiment was the fact that carbon itself can exist in some magnetic forms. The appearance of magnetism is, therefore, no proof of transmutation. Finding magnetic forms of carbon could have been an important discovery based on these experiments, had the observations been so interpreted at the time.

Where does that leave us today? While there are good reasons to judge the evidence presented by Ohsawa and Kervran as inconclusive, currently accepted science still tells us that transmutation reactions of that type should be impossible. Most scientists would conclude that the findings of Kervran and Ohsawa must have been due to experimental errors.

But the last word has not been written. Inspired by Ohsawa’s experiments, a small group, led by the macrobiotic teachers and

thinkers Edward Esko and Alex Jack in collaboration with Woody Johnson, has started conducting experiments similar to those of Ohsawa, but in a more rigorous manner. Their findings are noteworthy, but still not enough to establish compelling proof of low energy transmutations. Certified pure materials were used in the experiments, and the substances involved were then sent to a laboratory for analysis. Small traces of elements were found that were not supposed to be present at the beginning of the experiment. That can be interpreted as a suggestion that they were produced by transmutation, but Edward Esko himself will admit that contamination cannot be ruled out completely. The anomalous substances may have entered from the environment, thus contaminating the evidence. An effort is now being made to convince other researchers with better-equipped laboratories to repeat those experiments under better-controlled conditions. Other additional refinements are also being considered. Experiments could be designed in a way that they attempt to produce extremely rare chemical elements. That would rule out contamination from the environment. Another idea would be to look at the isotopic composition of the end products, a kind of fingerprinting of chemical elements, that would show a vastly different signature for elements produced by transmutation. It will be interesting to see the outcome.

In summary, while this book is interesting from a historical point of view, one has to be wary of accepting the presented information as is, without finding out about more recent developments and progress in understanding in various areas. The case for biological transmutation, therefore, stands no more convincing than it was in Ohsawa and Kervran's time. If reliable experimental confirmation that it exists were to emerge, that would, no doubt, spark the revolution that they hoped for, making biological transmutation part of a new, radically revised science. Until then, we will just have to watch and wait.

*Matthias Grabiak, PhD (in Physics)
Practicing Macrobiotics since 1998
March 2011*

Publisher's Note

In this book, we will use the following conventions. We will use lower right indices to denote multiplicity of elements in chemical molecules; for example, N_2 refers to a nitrogen molecule consisting of two nitrogen atoms. With an upper left index, we denote the isotope number indicating the atomic weight, given by the sum of protons and neutrons in the atomic nucleus. Thus, ^{40}Ca refers to the calcium isotope with a total of 40 protons and neutrons. Because calcium is element 20, it means that it has 20 protons; therefore, ^{40}Ca is the isotope of calcium with 20 protons and 20 neutrons. Finally, with a lower left index we indicate the number of the chemical element, given by the number of protons in its atomic nucleus. Thus, $_{20}\text{Ca}$ explicitly denotes calcium as element 20.

Publisher's Preface

One of George Ohsawa's main teachings is that everything changes in the relative world in which we live. Thus, he was very excited by Louis Kervran's theory of biological transmutation. This idea fit perfectly into Ohsawa's logarithmic spiral and conceptual understanding that he called "the order of the universe."

Ohsawa taught that there is more to Life than what can be seen in the physical world or even in a test tube. He understood that the visible, measurable world of science is created and nourished by the invisible, non-dual infinite world. He saw the potential for biological transmutation to be a link that would allow science to see beyond what is measurable.

Today, Kervran's predicted revolution hasn't occurred, and his findings are questioned. As we evolve and science advances, perhaps another avenue will be found to bridge science and faith. In the meantime, Kervran's and Ohsawa's works are still important as a first attempt to explain some of the phenomenal changes (i.e., *miracles*) that occur in the biological body but are not yet fully understood by science.

*Carl Ferré, President
George Ohsawa Macrobiotic
Foundation
March 2011*

Preface

Here I introduce to you a new scientific report made by Mr. Louis Kervran. This report will show you that we are now approaching a new age, a revolution in physics and chemistry that will dethrone present atomic theory. This new finding has been subjected to repeated tests and experiments. Atomic physics is beginning the swing to chemistry.

In a word, this great discovery is the transmutation of elements in a biological body. After thirteen years of experiment and observation, Kervran and Professor Baranger (the latter of the Polytechnique School in Paris) reached the wonderful conclusion that elements transmute to other elements in the biological body.

However, because both are loyal classicists, they were confronted with the problem of explaining the contradictory facts set below. Their discovery of transmutation could not be presented in a classically scientific manner, i.e., according to all the rules; it was not explorable like the atomic and hydrogen bombs.

Sodium becomes potassium. Potassium changes to calcium. Sodium changes to magnesium. Sodium becomes carbon monoxide, etc. All these phenomenal changes occur in the biological body.

Because Messrs. Kervran and Baranger do not know our macrobiotic principle and the logarithmic spiral, they do not understand the mechanism or cause of such transmutations. Their report was published in several papers and magazines in France but was not understood and, thus, did not revolutionize science, as did earlier reports by Einstein and Planck.

If this fact, their discovery of the biological transmutation of elements, was accepted and understood in Europe, not only the world of

physics but also Western thought, conception, and the confrontation of East and West (U.S.A. vs. U.S.S.R.)—that is to say, the problems of world peace, righteousness, happiness, and freedom—would all change their appearance.

This is the first page of a new human history. If we can answer correctly this question, we can save people from the tragic crisis of our modern civilization—conflict, insanity, crime, and sickness—bequeathed to us by Western science beginning in the eighteenth century.

Our macrobiotic friends can explain these facts easily with the logarithmic spiral. He who desires to master the macrobiotic principle must try to solve these problems. “Except your righteousness shall exceed the righteousness of the scribes and Pharisees, ye shall in no case enter in the kingdom of heaven.” (Matthew 5: 20) Please evidence your frontier spirit!

The basic conception of Western science, the atom, is dead; that is to say, the atom has been divided. For 2,000 years the atom was considered the basic fundamental unit of stable elements, but it is no more. The atom also changes. There is no constant even in the atomic world.

Science should recognize now that eternity cannot be found in this relative world. If science fails to recognize this all-important fact, it will continue its tragic way. How can we rescue the world from its present crisis (termed by Bertrand Russell, “Age of Insanity”)? Nothing more is required than the light. Let Western science open its eyes to Eastern light, or Oriental philosophy.

I want to learn which of you in the West can revive Oriental thought, Tao, and spirit, using Western technique, wealth, and organization. Please let me have your opinion right away!

– *George Ohsawa*

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Introduction

After many observations, some of which go back to my childhood, I have come to the conclusion that a major property of matter has until now remained unrecognized, namely that in nature the phenomenon of transmutation occurs. One natural element can change into another.

Such transmutation, once the derided dream of the old alchemist, is common practice today through the application of atomic energy. Atomic transmutation, however, requires enormous energy (about ten million times stronger than chemical energy) and is incompatible with biological energy.

Yet the evidence for biological transmutation is so overwhelming that it cannot be rejected. Facts can be checked by anyone and reproduced at will while results can be measured and weighed with ordinary laboratory scales.

This would imply that biological reactions, as such, are ruled by different laws than those applied *in vitro* in nuclear physics laboratories.

As a result, I have been forced to reconsider existing theories that pertain to the structure of the atom and to offer a hypothesis that is confirmed by these biological reactions. It is expressed by reactions of a new kind in which there is always a modification (in the nucleus of the atom) equal to the displacement of a hydrogen nucleus or an oxygen nucleus. This last fact gives a new insight into the role of both of these vital elements.

The results obtained have nothing to do with the reactions of nuclear physics because what we are faced with involves neither fission nor fusion.

It would appear that we are dealing with a new science, different from chemistry. (Chemistry deals only with displacements of the peripheral electrons of the atom.)

Further, it appears that biology cannot be understood entirely in the terminology of chemistry for another phenomenon seems to exist at the core of the nucleus that precedes chemistry. (Chemistry can be defined as the arrangement into molecules of already-made atoms, activated by enzymes, if necessary.)

In this introductory book, it will not be possible for me to give many details of the structure of the atomic nucleus as I see it. Yet, I would, at the very least, like to summarize the observations that brought me to admit of the existence of transmutation.

Aberrant Metabolism of Nitrogen

If 15, 30, and 45 grams of nitrogen are given successively to a dog (calculated according to the weight of ingested flesh), he rejects comparatively 0.30, 0.55, and 0.67 grams per day by way of the intestines.

Thus, the more the ingestion is increased, the more the rejected percentage is decreased. It would be the opposite if it was an alimentary loss. Nitrogen rejected by the intestine, therefore, does not depend solely upon the given diet.

Checking by Nitrogenic Inanition

In order to check, confirm, and specify this, a series of experiments were performed:

- A. A previously well-cleaned bow of the intestine is ligatured (tied off). After a certain time, this bow, which could not receive anything from the intestine, contains a plug of nitrogen-rich substances; there has also been an endogenic production of nitrogen on the inner surface of the intestine.
- B. The nitrogenic diet is lowered below the level of normal excretion by the intestine. The excreted quantity remains higher than the total ingested quantity. Because nutrition could not possibly supply this nitrogen, endogenic production must be responsible. A few examples:

1. A man fed 0.3 grams nitrogen rejects an average of 0.5 grams by way of the intestine.
 2. A pig fed 0.3 grams nitrogen rejects 0.3 grams through the intestines alone.
 3. A dog fed 2 grams nitrogen rejects 3.7 grams.
- C. An even more revealing experiment can be done by submitting the subject to complete fasting. At the tenth day, a man still rejects 0.3 grams nitrogen by way of the intestine.

Disappearance of Ingested Nitrogen

In normal nutrition, the endogenic production of nitrogen does not show up on a balance sheet: There is always more nitrogen that is ingested than is excreted.

Because classical science has been unable to find where this nitrogen goes, the whole concept of a balance-sheet is suspect. In spite of numerous attempts to check, the loss of nitrogen has always remained unexplained. For example:

- A. By means of comparisons with known figures (the results of numerous analyses), it has been established that in a group of rats each animal contains an average of 5.96 grams of nitrogen. This group is kept on a complete fast for a relatively long period of time. Urine and feces are collected every day in order to determine their nitrogen content. (Because rats do not sweat, there is no elimination by way of the skin.)

The animals are killed and the total amount of nitrogen in their bodies is measured. To this is added the quantity excreted. The resultant total is 0.55 grams less per animal than at the outset of the experiment: about ten percent of the nitrogen has disappeared! (In one rat, the percentage of loss was 55 percent!)

We now know what has happened; there has been a deni-

trification, the transmutation of nitrogen into carbon and oxygen. The animal, until put to death, remained alive by changing its nitrogen into carbohydrates.

- B. Among oil-workers in the Sahara desert who were observed and tested over a period of six months, there is a positive nitrogen balance of 9 grams per day. (It should be noted that in July the figure was 13.7 grains, which indicates that during periods of great heat elimination decreases.) Where does the surplus go? It becomes carbohydrates. In periods of great heat, eating is reduced (less food is needed) but not merely because the organism has to furnish itself with less heat through its basal metabolism.

Production of Endogenic Nitrogen

In spite of the fact that endogenic production of nitrogen is obscured by the figures that indicate a normally positive balance of nitrogen ingestion over excretion, we nonetheless see that nitrogen appears in the intestine. This phenomenon has been demonstrated by conclusive evidence.

Endogenic production is almost constant and independent of the nitrogen fed! We have seen that the greater the nitrogen ingestion, the smaller is the proportion excreted by the intestine. This would seem to be a defense reaction by the body when it needs carbohydrates. Without a change to carbohydrates, there would be a drastic weight loss plus an excessive loss of nitrogen through excretion.

Let us examine what happens when nitrogen intake is reduced to zero while carbohydrates, completely free of nitrogen, are given in the form of sugar.

- A. A dog, given no food at all, excretes 2 grams of nitrogen daily. When given 85 grams of sugar a day, the animal excretes only 1 gram of nitrogen a day: If the sugar intake is increased to 120 grams per day, the nitrogen excretion lessens to 0.5 grams.

- B. A man, completely starved, eliminates a total of 12 grams of nitrogen a day (of which 1/5 to 1/10 is eliminated fecally). When sugar is fed, nitrogen excretion is reduced to not more than 6.3 grams per day. The body does not have to set apart carbohydrates from the reserves of the tissues. Nitrogen is made from the matter in the intestines. Because there is no longer a nitrogen hunger, less is made. In fact, only the amount required locally in the intestine is produced—without calling for carbohydrate reserves from a great distance.

It is clear that the only explanation for this phenomenon is the mutation of carbohydrates to nitrogen and vice versa.

- C. If this reasoning is true, the animal that receives only a little nitrogen must make much of it. Carnivorous animals, ingesting much nitrogen, create and excrete very little of it. What they assimilate disappears in the form of added weight, that is, in carbohydrate functions. There is no reversal back to nitrogen, and the balances are highly positive. On the other hand, herbivorous animals, whose diet contains few nitrogenous substances, are great producers of nitrogen. For the same body weight, a two-year old steer excretes thirteen times more nitrogen than an omnivorous human being.
- D. We must remember that experience has shown that in cases of nitrogenous inanition the amount of nitrogen in tissues does not decrease, yet there are no body reserves of nitrogen that can be mobilized! Because nitrogen is excreted, it can only be of endogenic origin.
- E. In plants similar phenomena can be observed. The glucosides present are what enables nature to be economical in her use of proteins, the latter being used continuously in the composition and rebuilding of plants in amounts that vary according to light, season, age, and other conditions.

For example:

Full-leaved limbs are removed from a plant and placed in a dark, controlled atmosphere. Nitrogen measured at the outset of the experiment is 13.64 milligrams of organic nitrogen (oxygenic protein compounds). After ten days, the leaves are completely dead, and the organic nitrogen is transformed into inorganic nitrogen (NH_3) in the amount of 22.8 milligrams. Where has it come from?

The answer, although heretofore ignored, is clear: there has been a decrease, coincidentally, of 82 milligrams of the carbon present. It would seem that the carbon has transmuted to nitrogen! (Incidentally, this appears to explain how the carbohydrates of straw in manure change to ammonia.)

It would take too long to count up all the behavioral anomalies of nitrogen in animal and plant experiments. There, nevertheless, has been a perturbing mystery surrounding it. Researchers have looked for errors in analysis or in sampling; they have hidden their ignorance in expressions like nitrification, denitrification, nitrifying, and denitrifying agents. Yet, when all the different observations are brought together we can see for ourselves that:

1. Nitrogen can be born but then carbon disappears.
2. Nitrogen can disappear, but then carbohydrates arise.

Thus, we can safely conclude that there is a link that exists between carbon, oxygen, and nitrogen.

Endogenic Oxycarbonism

Poisoning that Results from Air Contamination by a Red Hot Stove

During my childhood, rudimentary cast iron stoves (without fireproof brick linings) were commonly used to provide heat in classrooms. When the stoves became red-hot because of a fast draft, some individuals suffered from headaches. One opinion was that this was caused by carbon monoxide emitted by the stoves at the red hot point. At school, however, the belief was that slow combustion gives off carbon monoxide (CO) while fast combustion produces carbon dioxide (CO₂). We were advised to avoid sleeping in a room containing a stove with a slow draft. When I questioned this contradiction, I received the following scientific answer:

“Red-hot cast iron becomes porous and allows the CO within the stove to seep out.”

But when a stove becomes red, it is the result of fast, complete combustion, and there is no CO present.

“Yes, but CO₂ in contact with red-hot cast iron splits into CO + O.”

If this is true, the CO will burn again because combustion is rapid and produces CO₂ once more. For the sake of discussion, however, let us pretend it does not burn. When the stove draws well, it is in a depressurized state. Granted that the cast iron is porous, gases under the above conditions will move toward the center of the stove not outward into the room. The movement is centripetal, not centrifugal.

The people who answered me concluded that I did not under-

stand; while I know that, at the very least, their pseudoscientific explanations were inadequate. We had only one point of agreement: when the stove was red-hot oxycarbonic poisoning occurred.

Industrial Oxy-carbonaemia

From 1935 to 1939, I had noted many instances where workers doing blowtorch welding were poisoned, some fatally. Though oxycarbonism was the acknowledged cause, all analyses revealed the absence of CO in the air inhaled by the victims.

Reviews in the literature of industrial medicine indicated growing alarm over a serious but puzzling situation. In France, more than ten investigators were busy with this enigma while there was comparable activity in other countries.

Looper, in 1936, published a study of Endogenic Oxycarbonism; in 1938, he collaborated with others on Carbon Monoxide Poisoning in Certain Professions; in 1939, *Oxy-carbonaemia Ignored* appeared.

There was no doubt, according to numerous publications, that in some professions there was CO poisoning of endogenic origin. The mechanism went unexplained although all samplings agreed with complete certainty that no CO was present in the inhaled air.

In 1939, Kienitz in Germany did systemic research in a confined atmosphere using a strong blowtorch for welding in a room ten meters square. There was no CO present. The German chemical industry, demanding a solution, financed further research by Rimarski and Konschal. A room one hundred meters square with built-in measuring devices was constructed in a shipyard. Work that generally caused oxy-carbonaemia was done there including blowtorch welding, blowtorch heating of plates to be drilled, and oxy-cutting; yet, CO was never present in the air!

In 1946, research was conducted in England by Adley, who examined conditions during the heating of plates in the hangar of an aircraft carrier. Again no CO. In 1959, CECA (Carbon Steel Corporation of Europe) ordered tests on ovens used for heat treatment in the steel industry. When the same negative results occurred, medical doctors urged a program of blood analysis claiming that the methods

used by chemists were inadequate for CO detection!

In France, Belgium, the Netherlands, and elsewhere, reports of similar cases continued to appear with disquieting regularity. Studies from a single district done in Paris were recorded from 1955 to 1959.

Although accumulated evidence indicated that all researchers were dealing with a contradictory situation, in actuality, there were the following consistencies:

1. When a worker breathed air that had been in contact with an incandescent metallic surface, an endogenic production of carbon monoxide resulted.
2. If the worker stood a few yards away from the metal working area, oxy-carbonaemia was absent.
3. Although innumerable samplings were made immediately under the noses of workmen, CO was never found in the air that they inhaled.

Air is nitrogen and oxygen. Carbon monoxide is carbon and oxygen. It is a new combination produced within the hemoglobin at the lung level where the nitrogen from the air changes to carbon. It became clear that nitrogen activated by incandescent metal changed to carbon.

This is substantiated by comparing the metabolism of nitrogen in animals and plants. Free nitrogen does not exist in atomic form—it can only be found as the molecule N₂. In this case, two-nitrogen nuclei no longer retain their separate identities. They each contribute the seven electrons they possess and are then surrounded, as one unit, by the total—fourteen. The atoms are not merely alongside of one another—they have fused.

Atomic arithmetic permits us to write:



(A nitrogen molecule N₂ with both atoms being the isotope ¹⁴N turns into the isotope ¹²C of carbon and an isotope ¹⁶O of oxygen). This is why we see the element carbon appear.

I cannot go into the many considerations that brought me to the above identity. I mention only that nitrogen presents many anomalies at the atomic level:

1. There are few stable elements with an uneven number of protons and neutrons (nitrogen has seven of each). This is why nitrogen is found in the form N_2 only.
2. The linking energy between nucleons of nitrogen is less than that of its surrounding elements C and O.
3. It is exactly at half distance between C and O.

It must also be mentioned that chemically speaking both N_2 and CO have the same atomic mass and density. Differences of mass show only at the fourth decimal (solely used, originally, to express the exact masses of isotopes).

Glimpse of the Structure of the Nitrogen Nucleus

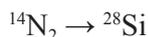
The above caused me to conceive of the nitrogen nucleus (N_2) as the agglomeration of a carbon and an oxygen nucleus feebly positioned side by side. Schematically, it can be said that the carbon nucleus is composed of four helions. (The helion or alpha particle is the smallest natural bit of matter emitted during radioactivity). This union can only be separated into two unequal parts, the one of three helions and the other of four helions: ^{12}C and ^{16}O . The difficulty in finding atomic nitrogen then may be traced to the difficulty (or near impossibility) of separating C + O nuclei into equal parts.

Although I cannot insist on my configuration of these nuclei, results do count, and, so far, it has been impossible to prove this representation false. Furthermore, when $^{12}C + ^{16}O$ is considered as $^{14}N_2$ rule of atomic physics, there is a gain (when figured to the sixth decimal). For reasons too extensive to be elaborated in this summary, the laws of modification of masses as formulated by nuclear physics do not apply here. These laws are based on an average in a nucleus mistakenly supposed to be homogenous and are too simplistic for biology. (Specialists in nuclear physics recognize that accepted theories

are not irrevocably applicable to the behavior of elements with an atomic number under thirty.)

Nitrogen and Silicon as Isomers

It is not simply a trick of writing that has brought me to the conclusion that nitrogen and silicon are merely two different volumes of a single nuclear arrangement:



In biology, there are numerous reasons to believe that nature can form silicon from nitrogen. For instance:

1. Silica in the stalks of cereals
2. Banks of silica expelled by diatomea that clog rivers and lakes

These deposits cannot be the result, solely, of the concentration of a few elements but require the withdrawal of N_2 from the air to make Si.

Silicosis

All this brought me to ask myself whether or not silicosis could possibly be due to a pathological difficulty in the output of nitrogen. When free silica is breathed, it does not appear in X-rays. Traces of silica do not appear in conjunctive tissue until five, ten, or even fifteen years after exposure to free silica has ceased. By then, however, the whole lung is dotted with millet-like grains at the alveole level. Because silica does not appear earlier, where does it come from at this point?

Certainly the free silica is a contributing factor (in the manner that the red-hot stove contributes to oxy-carbonaemia) in the breakdown of the mechanism that ordinarily rejects nitrogen in gaseous form but now condenses it into the degenerated solid form—silica. But is it the sole cause? How many cases of silicosis have occurred without there having been an actual exposure to free silica?

The nitrogen molecule and the silicon atom are isomers, the mass of Si being somewhat less than the mass of N₂. The implied difference in their internal energy indicates an exothermal reaction in the change from N₂ to Si.

This enables us to consider anew one of the original problems of cosmogenesis and to offer the following solution:

The earth's early atmosphere, probably rich in ammonia, gave rise to the first solid stratum of silicious mineral rock (primary era). We can show that $^{28}\text{Si} \rightarrow ^1\text{H} \rightarrow ^{27}\text{Al}$, which would explain the origin of silicates and metals.

This highly interesting line of thought, the object of much cross-checking, cannot be developed further here but has been confirmed by geologists.

Let me mention in passing that a verification of the functional identity N₂ = Si, which I proposed in 1959, has been completed in Canada with the aid of a particle accelerator. N particles projected onto an N target did not break up as anticipated but combined to form Si, to the astonishment of physicists who witnessed the experiment.

The identity between C + O and Si is the reason why silicon, among all the other elements in the periodic table, can yield organic compounds in the manner of carbon. In order to understand, it is sufficient to substitute C + O for Si.

Conclusion With Regard to Nitrogen

The preceding observations are only the barest summary necessary to reveal the nature of my approach. This view of several aspects of nitrogen functioning is more than a simple personal explanation born of a vivid imagination. The hypotheses are solidly based and have been checked again and again. No evidence to the contrary has yet appeared.

The results of my research bring with them the necessity for re-examining the problems of toxicology and industrial diseases. Applications of this concept are endless. For example:

In 1961, a rat was confined to a sealed tube for two months (along with chlorella and oxygen). The animal survived the experiment. When the sealed tube was opened, it was found that the percentage of nitrogen in the air inside the tube had decreased by two-thirds while the oxygen was simultaneously increased. The animal had gained weight by means of carbohydrates produced through the reaction $N \rightarrow C + O$

On this basis, it appears quite likely that the nitrogen in an atmosphere like that of Jupiter or Saturn will make life on these planets a distinct possibility for future cosmonauts.

We can conclude that there are strong reasons to believe that the fields of biology and geology will have to be restudied from a more profound base than the one now in existence.

Transmutation of Potassium

Aberrant Metabolism of Potassium

1. The ratio (in milligrams) of potassium (K) to sodium (Na) in animal blood and animal cells has been known a long time.

The ratio of K/Na is in the same order in the sea and in plasma, which is the blood.

For example: $K/Na = 1/25$ to $1/27$ in sea water.

$K/Na = 1/17$ to $1/18$ in plasma. This ratio varies from $1/15$ to $1/22$ according to the individual.

On the other hand, in the body cell it is the contrary. Potassium dominated over sodium.

For example: $K/Na = 2/1$ in a liver cell.

Moreover because a blood cell (red globule) is rich in oxygen, the oxygen combines with sodium and transmutes to potassium. The result is high potassium ($K/Na = 180/1$ or more).

2. The relationship between potassium and hyper-thermy is also well known: if the K/Na ratio rises, the heart tissue of a snail in culture can tolerate a higher temperature. The same is true for the hearts of frogs, crickets, fish, and rabbits.

3. An excess of potassium stops a heart cultivated in physiological solution. If there is also an increase in temperature, however, the potassium-induced inhibition ceases.
4. A living animal resists heat better if given more potassium. This seems to be a general biological phenomenon given higher vegetables, too, show a correlation between resistance to heat and richness in potassium.
5. It has been further demonstrated that the accumulation of potassium in plant roots rises with a moderate addition of oxygen. Young tissues growing rapidly need much oxygen, and wherever there is a large supply of oxygen, there is more potassium. (This is also true for cancerous tissue.)
6. Invertebrates: First, the consumption of oxygen increases in the tissues of invertebrates as the K/Na ratio rises. This is true even in mechanically inert tissues, so that consumption cannot be ascribed to muscular effort. The excess of K causes an increase in the consumption of oxygen, stimulates respiration, and accelerates vaso-motor reactions.

In addition, the elimination of potassium by way of perspiration increases with a rise in temperature. Further, in experiments of a few days duration, when the ingestion of K is suppressed, the elimination remains at a high level — about 200 milligrams per day. If the experiment continues, the excreted quantity of K decreases but never reaches zero. This phenomenon has been called the paradox of potassium. Where does the K come from?

7. Animals: In animals there is certainly a link between
 - a. sodium and potassium;
 - b. potassium and oxygen;
 - c. hyper-thermy and the increase of the ratio K/Na;
 - d. the ability of the body to excrete potassium without any intake.

8. Humans: In the United States (1953), Bass showed that human beings whose temperature increased had a parallel increase of K in the perspiration. The excrement, furthermore, contained a much larger amount of potassium than was ingested through diet.
9. Plants: Parallel anomalies exist in plants. For example, each year in France plants take approximately 1,500,000 tons of K_2O from the soil; only 450,000 tons are added as chemical fertilizer and 300,000 tons as farmyard manure. Thus, every year twice as much potassium is taken from the ground as is added to it. (It is only in the last few decades that potassium nitrate fertilizers have been used.) No one can explain where the unaccounted 750,000 tons of potassium comes from!

The relationship between K and H and between K and Ca has also been established. In terrestrial animals, the ratio between K and Ca is almost constant and averages 1 (in mole equivalents). We can explain this by reversability apparent in the following equation:



This is the reversability that permits the maintenance of biological equilibrium.

In animals, a higher ratio of K/Na appears to result in a more active, more oxygenated life given K and O increase together while Na decreases. It would be too long a task to review all of the opposed effects of K and Na upon cells and nerves; so here are but a few examples:

- a. A high K level decreases the response time of a muscle.
- b. The secretion of adrenalin parallels K-level variations.
- c. The stimulation of the surrenal gland causes both the

secretion of adrenalin and a 5-7% increase of plas-matic K.

- d. Injected desoxycorticosterone causes an important secretion of K for two or three hours and can result in a subsequent K deficiency.
- e. Potassium and certain hormones are mutually dependent.

Our Observations

1. Saltpeter:

For centuries saltpeter was obtained only by extracting it from the mortar lime of bricked walls or from the walls of subterranean limestone quarries. Saltpeter is a mixture of the nitrates of Ca, K and magnesium (Mg) from which potassium nitrate has to be extracted. What we have is not only a nitrifying action but also the production of potassium and magnesium from calcium. Yet no one until now has considered the origin of that potassium!

2. Dolomite:

Let us remember that dolomite (limestone or marble rich in magnesium carbonate) is formed inside calcareous beaches where magnesium carbonate appears from calcium carbonate. What is the origin of the magnesium? It should be mentioned that while coral reefs are calcareous on the surface they are dolomitic inside. This can be understood on the basis of what precedes, namely, that in the upper, more oxygenated layers of water, the following reaction prevails:



3. Egg-laying chickens:

In my youth, I had observed that, in granitic country, hens are attracted to and eat mica flakes that glitter on the sur-

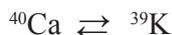
face of the soil following a rain. Years later, it occurred to me that possibly the mica might offer a key to the process whereby the same hens can regularly produce eggs with calcareous shells weighing about seven grams in such a barren environment.

Mica is a double silicate of aluminum and potassium. On a washed-out clay soil without mica, a hen cannot produce a hard shell. The aluminum silicate of clay cannot become limestone so the egg has a soft covering. Mica, however, contains potassium in addition to silicon and aluminum. Could it be the potassium that enables chickens to produce calcium?

To check this, chickens feeding on a clay soil were left without limestone. When the soft shell appeared, mica was given. The very next day hard shells reappeared! (Keep in mind that while the interior of the egg reflects the food taken weeks before, its shell does not show a trace of an element taken more than forty-eight hours before.) When presented with this evidence, other researchers answered that perhaps the potassium mobilized the bone calcium of the chicken. If one follows this line of thought, the problem is merely displaced: How can a hen existing on non-calcareous soil take in enough calcium to both maintain its skeleton and also produce a hard shell weighing seven grams every day?

Similar experiments were conducted with guinea hens that had been laying eggs with hard shells every other day. Mica was fed and the shells produced were hard every day. The experiment continued for forty-three days during which time the supply of mica was interrupted on several occasions. The day after the mica was withheld, a soft-shelled egg appeared. Mica was restored to the diet, a hard-shelled egg reappeared the day afterward.

This experiment re-emphasizes what can be verified in numerous works in physiology: The organism maintains no reserves of potassium. Thus, a chicken produces the inverse reaction of the salt-peter bacteria:



4. Miscellaneous:

On farms that lie close to the ocean, which is so naturally rich in sodium, seaweed is used as a fertilizer; yet, the soil does not become saturated with sodium. On the contrary, when plants grown on this soil are burned, they produce an ash that is rich in potassium! What has happened to the sodium (Na)?

Fertilizers consisting of both sodium or potassium nitrates are used on plants. Sometimes natural mixtures of both nitrates are given. (The fact that Na and K are found together in nature, as in Alsace, has been overlooked.) Healthy plants accept Na as well as K, yet their ashes are made up of mostly K. What has happened to the Na?

In Sahara meadows that lie near the sea, sheep subsist on halophile plants (those that thrive in a salty climate). From their wool, however, much potassium carbonate is extracted. Again, what has happened to the sodium?

Studies of Men Working While Exposed to Intense Heat

During the year 1959, I was commissioned by the French government to re-examine the results of a six-month study made the previous year of workers in the Sahara oil fields. Records had been scrupulously kept by a team of military doctors yet the collected data did no more than confirm already known facts:

1. Sweat became richer in potassium with an increase in temperature;
2. From May to July, the proportion of chlorine (Cl) to so-

dium (Na) increased by 80% while the proportion of K to Na increased to 100%. The amount of Na + K/Cl (in mole equivalents) decreased from 1.7 in May to 1.2 in July.

3. The body received and generated heat by radiation, convection, by body metabolism—both basal and that due to the work involved in food consumption.

Under such conditions, the body sweat released the absorbed or generated heat (in calories) at the rate of 2380 Kelvin calories per day.

One startling occurrence, however, was blithely overlooked. While each of the workers averaged a heat surplus of 1860 Kelvin calories per day for a period of six months, not one of them suffered from heat prostration! According to accepted theories, this is impossible; a thermal imbalance of so violent a nature should end in physical breakdown. The paradox, thus left unexplained, is worthy of restatement:

Men on a metal platform completely unprotected from the sun do work of a strenuous nature in a climate where the temperature in the shade exceeds that of the human body. Yet, no one suffers from heat prostration. How can this be?

The thermal imbalance was accompanied by not only a proportionate increase in potassium excretion but by an increase in sodium intake: the workers received salted food and often expressed the need for sucking salted candies.

Although space does not permit a presentation of my chemical and thermal observation, I can say that the workers transmuted about 0.45 grams Na per day into 0.76 grams K (0.76 gm K = 0.45 gm Na + 0.31 gm oxygen). This, then, was the means by which they maintained their thermal equilibrium, classical theories notwithstanding.

The Carbon Steel Corporation of Europe conducted a study (1959) of the behavior of workers who operated ovens used for the heat treatment of steel. (See Chapter II, p. 9, paragraph 1). The mea-

sured values obtained in that investigation coincide with those noted in the Sahara. In both cases, however, the doctors who collected the data and the professors who attempted to interpret it were unsuccessful. This is further proof that over-specialization often becomes indoctrination—it blinds people to the obvious.

One result of my experience in the desert is that I have been able to determine the energy needed for the reaction $\text{Na} + \text{O} \rightarrow \text{K}$. It is about four electron volts (4eV) for one oxygen nucleus linked to an Na nucleus (about 3500 times as much as the chemical reaction of physical atomic fusion). This energy (4eV) may be furnished by short ultra-violet radiation (wave length 3000 Angstroms or 0.3 microns).

Further checking shows that the endothermic transmutation $\text{Na} + \text{O} \rightarrow \text{K}$ (the defense reaction of a body threatened by hyperthermy) is due to the imbalance of Na/K. The hormone cortisol tends to maintain that balance as long as it remains in the vicinity of 1.5 (in mole equivalents). In July in the Sahara, however, the level fell to 1.1 whereupon the surrenal gland induced the synthesis of aldersterone (one hundred times stronger than cortisol) in order to do the job.

It is not possible to go into the details of many other observations made on the isotopes of potassium. I mention only that these enabled me to understand why some tables of atomic mass cannot be used in biology; the isotopic composition of organic potassium is different from that of the mineral potassium dealt with in the tables with a divergence bearing on the first decimal. On this basis, it is even less useful to use tables of five decimals or more.

The whole question of biology is so complex that on the biological scale, nuclear physics is too simple.

Further, the data available on an isotope nucleus is not useful because this nucleus is known to us, in physics, only as an entity unto itself and values given are merely resultant averages. We must recognize that a nucleus is a heterogeneous entity of masses and energies: the median values of atomic physics are thus of no help.

Magnesium, Phosphorus, and Calcium

I will say even less about magnesium (Mg) although the observations here are also numerous and varied.

We have seen the birth of magnesium from calcium (dolomites, saltpeter): $^{40}\text{Ca} - ^{16}\text{O} \rightarrow ^{24}\text{Mg}$. (Coral would appear to result from the inverse: $^{24}\text{Mg} + ^{16}\text{O} \rightarrow ^{40}\text{Ca}$.)

In agronomy, it has been recorded that when the dosage of limestone is increased, plants show increased Mg. The reason, nevertheless, has not been understood. Plants take about 20-50 kg Mg-metal per hectare each year yet no magnesium fertilizer is given. Where does the Mg come from?

The magnesium level in a rat completely deprived of Mg remains constant! In 1937, it was recorded by Bruell that man excretes some 3.4 mg. per day per kilogram of his weight — always more than he consumes. Yet the amount of Mg in blood remains constant whether Mg is consumed or not. The only exception is in cases of severe trauma. Then Mg increases enough so that salt water must be given to permit the body to restore its equilibrium.

Data recorded in the Sahara allowed me to make similar observations: the average excretion per day for a period of six months exceeded intake by 117 mg (Mg-metal) with the maximum during the first week of September when the figure reached 222 mg. per day. (Because we are dealing with minute weights, room must be allowed within these values for slight but inevitable errors in measurement.)

A study of the balances of metallic ions enabled me to reach the

conclusion that the origin of Mg is Na:



Further consideration indicated that phosphorus (P) and calcium (Ca) are produced together from Mg and that this is the reason they are linked in nature as calcium phosphate in bones and ore deposits.

Where more of a substance is excreted than is ingested, the proportion can be considered to be negative. With this in mind, we have noted that every negative balance of Mg is accompanied by a negative proportion of P and Ca.

Over a span of six months, five workers displaying a positive balance of Mg simultaneously showed a positive balance of P and Ca. This can be represented by the following equation forms:



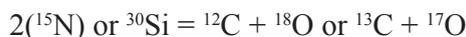
I have already mentioned that $2 \text{ }^{12}\text{C} \rightarrow ^{24}\text{Mg}$. This was verified in a particle accelerator (1961) and would seem to call for a complete reconsideration of the origin of hydrocarbons.

Conclusion

A purely technical study of the foregoing reactions cannot be made in a few pages because it cannot be supported by any existing methods. New justifications are necessary. Here are some examples concerning nitrogen (N), carbon monoxide (CO) and silicon (Si):

Let us assume that our understanding of the nucleus is valid. When we say that N_2 will give Si or (C + O), we should thereupon be able to derive all the combinations of stable isotopes that are possible and only these. Let us see if this is true.

We have two stable isotopes of nitrogen (^{14}N and ^{15}N), two of carbon (^{12}C and ^{13}C), three of oxygen (^{16}O , ^{17}O , and ^{18}O) and three of silicon (^{28}Si , ^{29}Si , and ^{30}Si). Because N_2 is the origin, we can have only the following combinations:



The only apparent exception is that there is no $^{13}\text{C} + ^{18}\text{O}$, the sum of which would give a mass number of 31. This is an impossibility and does not appear because the maximum is $2(^{15}\text{N})$ with a mass number (A) of 30. Further, there are no nucleons that permit us to derive ^{13}C and ^{18}O from nitrogen.

It can also be seen that if $2\text{C} \rightarrow \text{Mg}$, the above mentioned stable isotopes— ^{12}C and ^{13}C —can be combined to give ^{24}Mg , ^{25}Mg , and ^{26}Mg . This is valid.

In the case of sodium (^{23}Na), which has no isotope, its combina-

tion with ^{16}O , ^{17}O , and ^{18}O gives ^{39}K , K_{40} , and K_{41} again valid.

It must be remembered, however, that certain elements may have different origins in which case the rule has to be shaded somewhat.

Differences of Mass:

Let us work with the exact masses of isotopes:

$$\begin{aligned} &^{28}\text{Si} = 27.985775; \quad ^{12}\text{C} = 12.003803; \quad ^{16}\text{O} = 16; \quad ^{14}\text{N} = 14.007520; \\ &^{12}\text{C} + ^{16}\text{O} = 28.003803; \quad \text{and } 2^{14}\text{N} = 28.015040 \end{aligned}$$

We may write after the fashion of physics that which in the qualitative sense is in agreement with our observations.

$$^{28}\text{Si} = 27.985775 < ^{12}\text{C} + ^{16}\text{O} = 28.003803 < 2^{14}\text{N} = 28.015040$$

In nuclear physics, the loss of mass would be calculated as corresponding to an emission of energy. In biology, however, the situation is not the same. We adjust by writing:

$$^{28}\text{Si} < \text{N}_2 < (\text{C} + \text{O}) < 2^{14}\text{N}$$

N_2 is the stable molecule of nitrogen. $(\text{C} + \text{O})$ is the activated, metastable molecule, having taken up energy: $\text{N}_2 + \text{energy (or mass)} = (\text{C} + \text{O})$. It would be a mistake, however, to take for the mass of $(\text{C} + \text{O})$, the sum of the masses of ^{12}C and ^{16}O . This is a meaningless arithmetical manipulation and is not the case at all.

Similarly, 2^{14}N is an arithmetical operation without value, because two atoms of nitrogen form a linked unit which includes energy that does not exist in ^{14}N .

This shows why calculations from the data of nuclear physics are not transposable for biological use, the exact masses of both N_2 and $(\text{C} + \text{O})$ being unknown. It is likely, in addition, that organic atoms are different from mineral ones, making their masses different also.

There is another important reason. A precisely known mass, like that of ^{28}Si , cannot be compared, in biology, with the sums of the masses of ^{12}C and ^{16}O , because the difference in masses points up the energy liberated by the fusion of these two nuclides. Suppose that this energy is equally divided among the 28 nucleons that are

together. In this case, the energy-total given by the classical calculation in nuclear physics has a statistical value only; for the total linking-energy is not a product of 28 equal elementary energies, but of three energetical values:

1. a strong value from the oxygen
2. a less strong value from the carbon

(The sum of these above two energies is about equal to that of the whole.)

3. The third energy value is a feeble linking-energy between the O and C groups and is only approximately one-millionth the value of the other two.

The actual macro-physics of the atom is on a scale that does not permit the exploration of the inner constitution of the nucleus in a manner that is precise enough. It is interesting to note, however, that while the internal linking-energy of oxygen with 16 nucleons totals a little more than 127 million electron volts, only 4 electron volts are sufficient by contrast for a sodium nucleus to couple with an oxygen nucleus.

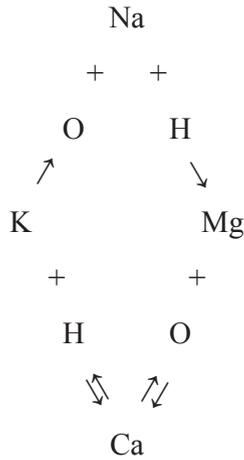
There is no common measure: in biology the situation is different from that found in atomic physics.

Similarly, if these transmutations are not observed in chemistry, it is because the energies used are too feeble. In order for a carbon atom and an oxygen atom to combine into a molecule of CO, 26 Kelvin calories are given off. For the carbon nucleus, this is an energy of 0.00113 electron volts. This phenomenon gives up an energy about 3500 times feebler than resulting from the nuclido-biological reaction that joins an oxygen atom to a sodium atom!

Conclusion

The evidence that I have presented (graphically represented in the diagram below) shows clearly that we are in the presence of a hitherto unknown property of matter: biological transmutation, a

phenomenon that is completely different from the atomic fusions or fissions of physics.



As a result, all sciences will face a thorough-going re-examination. I sincerely hope that this paper will be sufficient to stimulate the reconsideration of much that is dogmatically adhered to in those sciences today.

Appendix

Transmutation

by Herman Aihara

Biological Transmutation

Biologically speaking, sunlight, water, air, and elements transform into organic matter in the form of carbohydrates, protein, and fat. This is the plant world.

Man eats vegetables, digested to the simpler form of molecules such as glucose, amino acids, and lactic acid. Man combines these molecules to form cells. Cells form various tissues and organs. These tissues and organs form a unit called man. Man is, therefore, a result of transmutation of the vegetal world.

soil (yang) → vegetable (yin) → man (yang)

Physiological Transmutation

According to modern Western physiology, oxygen combines with hemoglobin in the red cells. This theory does not explain why O₂ combines with hemoglobin in the red cells instead of the plasma that surrounds it. Because plasma contains more sodium (Na) than red cells, plasma is more yang than red cells. For O₂ to combine with hemoglobin, which is inside the red cells, instead of combining with the plasma, the yin-yang difference between plasma and O₂ must be smaller than that between O₂ and red cells.

plasma (yang) — O₂ — red cells (yin)

To satisfy this condition, (1) O₂ must be more yang than plasma or (2) O₂ must be more yin than plasma but more yang than red cells.

In either case, however, the fact that O₂ is more yin than plasma and red cells is contradicted. Therefore, there must be another reason by which O₂ combines with hemoglobin.

Here is my explanation: O₂ does not combine with hemoglobin in the red cells, but combines with the plasma, because plasma is more yang than red cells and hemoglobin. (The K/Na ratio of plasma is about 1/7.) Then, this combination transmutes plasma to red cells while holding the hemoglobin inside. In other words, the red cell is another form of plasma after O₂ and hemoglobin (which is produced in the liver) have been added to it.

	grain/ vegetable	plasma	red cell	white cell	body cell
K/Na ratio	> 7	< 7	> 7	< 7	> 7
	$^{39}\text{K} - ^{16}\text{O} \longrightarrow ^{23}\text{Na}$		$^{23}\text{Na} + ^{16}\text{O} \longrightarrow ^{39}\text{K}$		

(see *Biological Transmutations* by C. Louis Kervran)

Plasma (yang) is produced in the intestines from the foods (yin) we eat after the food has digested and combines with bile (yang). Bile (yang) also adds hemoglobin to the plasma. This plasma enters the blood vessels through the intestinal villi and starts circulating throughout the whole body. Reaching the lung, the amount of O₂ increases. Because O₂ is yin and plasma is yang, they are attracted and combine strongly.

This combination transforms plasma into premature cells having no nucleus. They are called red cells because of their red pigmentation. Most of the red cell production, therefore, occurs around the lung capillaries.

As the O₂ is taken out of the red cells through tissue activity, the red cells eventually become yang. The center of the red cell becomes so yang, a nucleus begins to form. This is the beginning of the white cell. The white cell must be very yang so it can breathe, move, and change form. These white cells then pass through the walls of the blood vessels and are attracted to yin protein. When this attraction

has taken place, body cells are born.

Food (generally speaking yin) + bile (yang) → plasma (yang)

Plasma (yang) + O₂ (yin) → red cell (yin)

Red cells (yin) – O₂ (yin) → white cells (yang)

White cells (yang) + protein (yin) + O₂ (yin) → body cells (yin)

(Here, yin means K /Na > 7; yang means K/Na < 7.)

This change or transmutation of yin to yang—yang to yin is life itself; the order of the universe; TAO. When we stop this physiological change or transmutation, our bodies expire. Oxygen is a most important factor of this transmutation. In Japanese, “to live” means breathing. Breathing is one of the most important arts in the Eastern Art of Longevity.

Biological Transmutations

by Hubert Descamps
(after professor Kervran)

The following questions and answers occurred at a conference held on June 20, 1970 conducted by M. Hubert Descamps at the Centre Ignoramus of Belgium, recorded and transcribed by J. Bagno, published in Spirale (no. 75, April 1974), edited by the Centre Ignoramus of Belgium staff, and translated by Fred Pulver.

Questions And Answers After The Conference

Q.—Which cereal gives the most calcium?

H.D. — Your question does not mean anything. You should pose the following question: which cereal best permits calcification? Because the cereal that provokes the most lime, that is the one that recalcifies the least, but that will give calcium under the form of roughage. Thus, when one must recalcify an individual, it is necessary to give him magnesium or silicon. Wheat especially is a product that contains silicon abundantly (65 to 68% in the ashes). Consequently, I insist one more time on the necessity of eating whole wheat bread, and true whole wheat bread. For us, bread is a primordial food. Buckwheat is very rich in magnesium and millet in silicon. A Macrobiotic knows that to eat cereals is the best system for staying in equilibrium, and you will find in them the scientific proof furnished by Prof. Kervran. Rice is a little less rich in minerals, but it also contains all the minerals and less waste than the other products. Asia shows us it is a cereal that allows life. But rice is above all a curative cereal, given it contains very little purines. One should always make a difference between a food intended for a curative period and a food

designed for a normal period. In this last case, the rice goes into our metabolism, but it is not, I believe, a cereal absolutely necessary for us because we live in a region that produces cereals in which we can find the elements absolutely necessary. However, when one eats too much wheat, one risks having a little more waste than with rice. It is, therefore, absolutely necessary, in a curative period, to utilize the cereal that gives the least purines possible, and which is the most balanced, which is the case with rice. Moreover, one has the proof of it. When one wants to cure a sickness rapidly and does 10 days of number 7 diet with rice, the results are guaranteed, if one practices seriously.

Q.—What is the difference between atomic weight and atomic number?

H.D.—The “weight” corresponds to a weight — it is a mathematical calculation; the atomic number indicates the number of protons, nucleons, and neutrons. The characteristic of an atom is its nucleus, and it is the transformation of the nucleus that will produce the new nucleus, consequently a new elementary body. Transmutations are a property of matter that was ignored until ten years ago, although our organism has been carrying them out for millions of years.

Q.—When they spoke of monuments, they said that there are often micro-organisms that have permitted surface transformations in the calcareous rocks. Can one speak here of catalysis?

H.D.—Yes, because the micro-organisms have the enzymes as catalyzers. These are, in reality, catalytic elements; the others are biological catalyzers, under the same heading as those that one uses in the fabrication of margarine, as hydrogenation (a thing normally one does not want to do but which is done as the current fashion in industry). They hydrogenate the oils to increase their point of fusion. One, therefore, lengthens the molecule. To do this, one needs the presence of platinum, which is a catalyzing mineral. By the same token, in all biological phenomena, there are biological catalyzers that are nota-

bly the enzymes. To give you an example, alpha-amylase and beta-amylase that one utilizes in the mouth to break down starches are also enzymes. These enzymes are also catalyzers in certain cases.

Q.—Can calcium, therefore, be transformed into potassium by reduction?

H.D.—If one wants to use a chemical term, one would say that: $^{23}\text{Na} + ^{16}\text{O} \text{ :=: } ^{39}\text{K}$ is an oxydation reaction and that: $^{40}\text{Ca} - ^1\text{H} \text{ :=: } ^{39}\text{K}$ is action of reduction. But these terms are not exact for, in reality, it is not a question of chemical equation. The sign :=: shows equivalence.

Q.—Can the term reduction be applied to something other than oxygen?

H.D.—No. By definition, oxygen is an oxidant in chemistry and hydrogen is a reducer. Thus, the phenomena of respiration are the phenomena of oxydo-reduction. In reality, our blood passes from red to black by the oxydation of iron. Ferrous iron becomes ferric iron and vice-versa. When the blood loses its oxygen, it turns black; when it oxygenates, it turns red. It is simply by the intermediary of iron, which is only one of the elements of the blood, that one produces the phenomena on which are fixed the phenomena of oxydo-reduction.

Q.—Must there be production of hydrogen in order to have reduction?

H.D.—Not necessarily; one can have a reductive reaction solely by privation of oxygen. But notice, in this case here, one cannot speak of oxydation or of reduction. $\text{Na} + \text{O}$ is not an oxydation.

Q.—It seems that, in Japan, they are speaking at present of extracting sodium from the sea in order to make potassium and, thus, fertilizers.

H.D.—Yes, there exist some applications with microbes. For example, the thiobacillia are bacillia that can manufacture sulfur;

therefore, if one gives oxygen to some thiobacillia, they make sulfur. In the laboratory, one makes sulfur by the intermediary of bacteria, and industrial applications can be made very easily.

Q.—It would appear that with carbon and oxygen one could obtain pure silica, although, in the natural state, this is impossible.

H.D.—Yes. There are still many developments to make by the intermediary of bacteria. They are making right now yeasts starting with petroleum. This is the proof that by simple micro-organisms, one can apply on the cellular level all these different processes of biological transmutations. When they start with petroleum, it is a direct application of biological transmutations. But, in reality, the problem is a little different, for one makes yeasts that nourish themselves with mineral elements, and these are the same yeast cells they are going to try and sell and make animals eat and then man. Yeast itself contains enormous amounts of protein, and they think they can save humanity in this way, because they believe so much in protein.

Q.—A remark from the point of view of the Unique Principle: tonight one has seen that yin becomes yang in the end and the inverse. For example, Na, yang, with heat, yang, gives K yin. It is the dialectic Yin-Yang.

H.D.—Yes, and one can understand, thus, that the action of salt, in certain cases, has the effect yin. Mastication is a primordial necessity for thoroughly breaking down the elements, and it permits the organism to work economically. When one has nothing much to eat, he must masticate still more so that all is well broken down in the mouth, and so that the organism does not lose its energy transforming what has not been on this level (the mouth).

Biological Transmutations and Yin-Yang

by Louis Kervran

Introduction

At the Congress of Wangenbourg, so masterfully organized by master ALT in March 1971, I showed how most known biological transmutations can be expressed in terms of Yin and Yang. I should recall first of all that aspect that struck Mr. Ohsawa when he came to see me 10 years ago. He remarked that an excess of yang can create yin, which is a theorem of Far-Eastern philosophy. Thus, I could show that sodium (Na), which is yang, can become Potassium (K), which is yin, in workers exposed to dry heat; they eat very salty food and excrete much potassium.

This is what made Mr. Ohsawa become interested in my efforts and translate my works into Japanese, the first in 1962. This is what brought me into closest contact with Yin-Yang, whose existence I had certainly known through some lectures on the Far-East, but which had not particularly held my attention, and I know practically nothing of this philosophy.

As a natural consequence, I perceived that this example of correspondence between two elements was not just a chance case, but applied to many cases, so well that one could predict if a reaction involving biological transmutation would create yin or yang, at least in most cases involving the reactions with H^+ or O^+ , though I have not been able to set aside the time to reflect on all cases. Here is a condensation of guiding principles that I have been able to present as evidence.

Guiding Principles

The combination reactions of most biological transmutations studied led to classifications that can be inserted under the yin-yang optic (in a simplified, schematic form, because the practical unifying conditions necessary to perform a given transmutation are complex, as is everything that lives). Here are the principle combinations made, while not wanting only to emphasize the transmutations that occur between H and O, they are, at first glance, the most frequent.

1) The transmutation involving H does not change the character of the element obtained by transmutation: it remains yin or yang, depending on whether the starting element was yin or yang.

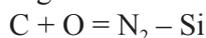
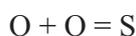
Examples



2) O is dominant: a reaction with O, which is yin, leads to an element that will be yin.

In other words, if the beginning element is yin, the final product will be yin; if the beginning substance is yang, the final product will be yin as well. In short, a transmutation involving O would always yield a yin element.

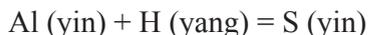
Examples

***Conclusion or Counter-proof***

All transmutations involving H should not be possible; they are biological impossibilities; this explains why they don't observe it (at least until now):



And, it does not appear that yin + H can give yang. On the other hand, one should be able to have:



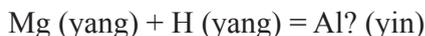
One would not directly be able to have:



(Wouldn't the change from C to N have to be made only with O to give N₂)? The change from Cu to Zn would be impossible, for one would have:



Likewise, one would not have:



There are many question marks, for it requires some practice research on all these cases. But, on the whole and in a nutshell, one can write:



It remains for the specialists of yin/yang to see if that can be generalized, if that corresponds to the principles already established, or if it only concerns a series of convergences.

Let us point out also an uncertainty concerning the inverse reactions, since Yang – O has two solutions. Meanwhile, the discussion is open, for it is possible to predict certain reactions that have not yet been studied experimentally. Likewise, no research has been done on the change from O to F; it is not contrary to the rules presented above related to H and O because: O + H = F

There is a convergence: some analyses of lunar rocks have shown a certain composition that on the earth involves the radical oxyhydrile OH discovered on the moon, with the replacement of OH by F; consequently, there would be some conditions where the molecule OH can give the atom F. (The biological transmutations

are only a particular case, the most studied, among weak energy transmutations, because one can more easily demonstrate them in the laboratory on living matter).

Conclusion

The lecturer would like to thoroughly excuse this arid exposé, but I thought it would not be useless to show these relationships that were made for all adepts of yin/yang who are interested in biological transmutations. I have, however, been able to present this subject only in a cursory way, but there are numerous reflections that could be made on these practical cases. The purpose of the brief outline presented above is summed up in what Mr. Ohsawa said and wrote: that a bridge has now been stretched between the philosophy of the Far-East and Western science. From time to time, I will give, as a sequel, a few notes of a more concrete nature.

Generalization of Transmutation

by Louis Kervran

translated by Fred Pulver

The principle of yin/yang is not valuable only for diet or the physiological quality of man. The Spiral, applied to all the elements of nature, figures as a universal law.

Until now, I have especially been concerned with changing one element into another in biology. But since my first publication, in 1960, I stated that one could consider the existence of such transmutations in geology. Only, at this time, there exists no direct way of verifying these low-energy transmutations that respect the laws of yin/yang. From this, development was given to research and to the applications of biological research.

A phenomenon appeared there that has absolutely nothing to do with the interplay of great energies as those one finds in the atomic bomb. It is a property of matter that one cannot see in the classical-science because it does not use a method; the bombardment by more and more powerful projectiles in order to pulverize the nucleus of atoms and try to see how it is constituted.

I have no reason to think that what is acquired by this method is false, but it is not true for the experience of the same genre. It is no longer true in biology, nor the other totally different operating conditions. In other words, I don't put forth as the cause the classical nuclear physics, but to give proof to an anti-scientific spirit that believes that what has been found so far is valuable everywhere and the great scientists don't commit this error. There is only one aspect

of the study of the atomic nucleus, and there are other aspects impossible to discover from the same fact by the methods used by classical physics.

Man is gregarious. He throws himself as a herd of sheep in the direction taken by the head of the flock. But, in 1919, Rutherford stated that, in bombarding a stable element with particles of a radioactive element, he obtained a new body; it was the first artificial transmutation. Since then, a way of disintegration of matter has appeared, and everyone is traveling this way with apparatus capable of accelerating particles, and everyone follows immediately.

It is not for that that one explores the green forest, the unknown constitution of matter. One should travel the border of the forest and see if there is not somewhere a way of penetrating easily, perhaps more direct, going otherwise, but permitting one to see another very interesting region of the forest also.

Classical nuclear physics searches in some way to perfect a sledge hammer that, by more and more energetic shocks, will pulverize a block of slate in order to obtain finer and finer particles to study, it is thought, to better understand the ultimate constitution of slate. But, continuing this method, they will never believe it is possible, with a very low energy, to crumble a piece of slate by hand, with a knife by separating the leaves. They will not have the grains fine enough to examine with a lens or a microscope, but they will have another aspect of the constitution of this matter. It is the other way with low energy that I found 30 years ago. It shows another constitution of the structure of the atomic nucleus. It does not permit making my transmutation. The most commonly demonstrated are with the addition or subtraction of a proton, or oxygen nucleus, compact block, which passed from one nucleus to the other without being dislocated by enzymes. There is a general rule that demands precision, but I wouldn't know how to enter it here in detail; but, for reasons too lengthy to expose, all the reactions with H1 or CL are not possible.

A short time ago, they showed ways of verifying that the same type of reaction is produced in rocks, with energies much higher

than in biology, where the enzymes are disposed to very fine ways of action at the level of the atom and can be assimilated by catalyzers. However, the energies operating are without common measure with those of classical atomic energy. One doubts this briefly and confirmation has been apportioned to it by the synthetic fabrication in the laboratory. It is known that granite forms itself on the surface of the earth and one sees nothing of the mass in fusion going on underneath, that the formation is produced under the effect of very great pressures, following a rise in temperature until the fluidation of schist, this molten mass, where the pressure was maximal, upon cooling creates granite. But the qualitative and quantitative composition of granite was not that of schist where the mystery and the supposed hypotheses that they teach us in class, hypotheses formulated more than 150 years ago.

Now they make granite by submitting some rocks of a composition comparable to schist to temperatures of 2,000 bars (the bar is nearly equivalent to that which one expressed otherwise in kilograms per square centimeter). This operation is made in the presence of water vapor, thus carried to a critical temperature. But, for a very short time, they have succeeded in modifying a great number of rocks, called metamorphics, dry, with a temperature of 1,200° C and pressures of 2,000 to 50,000 bars, and they assert a decrease of magnesium, an increase of calcium; it is the reaction I have written as ${}_{12}\text{Mg} + {}_8\text{O} = {}_{20}\text{Ca}$ [note that here the lower index denotes the number of the chemical element, not the isotope number].

I have made there a short allusion in a chapter on geology in the re-edition of 1972, of *Transmutation at Low Energy*, by a little addition on the correction of proofs, for these given are very recent and I did not have them when the composition of the book was begun.

There are even aspects that I have not been able to evoke in this book for I have had knowledge of it after this edition. To an international congress of geo-chemists in last July, in Moscow, there was presented the results of analyses made on the preconditions (pre-elements) of rocks effectuated in some granite, in the proximity of an underground atomic explosion. Near the detonating room, they

did not observe the transmutation; there was an action too violent, pressure and temperature too raised. The rock was vaporized partly, and part vitrified, but farther on, there where the rock had only been hardened and recrystallized while cooling, even there where the granite without melting had been finely pulverized, there had been observed an increase in silicon and a decrease in aluminum. It is the reaction that I write as ${}_{13}\text{Al} + {}_1\text{H} = {}_{14}\text{Si}$.

Other interesting conclusions of the same kind have been exposed and discussed in Moscow, and I heard of it the end of December, 1971 by an English translation which had just been made in Russia; to my knowledge, there is no text in French diffused at this time.

This shows well that the transmutations in accord with yin/yang are universal; they apply as well to the constitution of the earth as to that which lives.

Biological Transmutations in Review

by Tom Goldwasser

The Henry Doubleday Research Association has conducted a series of experiments attempting to prove the validity of Professor Louis Kervran's theories of biological transmutation. The experiments, conducted by D.B. Long, M.A., Ph.D., were done under the most carefully controlled conditions. They attempted to show the possible transmutation from magnesium to calcium in the germination of rye and barley plants, the production of nitrogen in dwarf bean seedlings, and the transmutation of magnesium into calcium and manganese into iron in green lentils.

There may be differences in the experimental methods used by Drs. Long and Kervran; we are not qualified to evaluate the situation. However, Dr. Long's experiments showed no evidence of transmutation whatsoever.

Copies of the report may be obtained for \$1.00 from:

Henry Doubleday Research Association
20 Convent Lane, Bocking
Braintree, Essex
England

Following is some correspondence we received from the Director-Secretary of the Association, Mr. Lawrence D. Hills:

Dear Mr. Goldwasser,

I have pleasure in enclosing a copy of our report on our attempt

to repeat one of Professor Kervran's experiments. I also enclose a copy of an extract from a letter from my brother relating to the experiment on pages 17/23 of the British edition of *Biological Transmutation*, Professor Kervran's work. What I suggest you do is repeat the experiment as he directs. At the moment, there seems to be a particularly unscientific approach to Professor Kervran; and, if you read my brother's experiment carefully, if Professor Kervran is right, then the power situation in the United States could be solved by making unlimited producer gas. We tried to repeat Professor Kervran's plant experiments in the hope that it would be possible to transmute to potassium. I hope you have someone with a knowledge of biology, chemistry, statistical analysis, and physics to repeat some of Professor Kervran's work. The problems of translation do not arise with the many other scientific men in France.

'Acres' treated our report very badly, and their approach appears to be entirely unscientific. I do not care what anyone's qualifications are; if the experiments cannot be repeated by others under controlled conditions, I regard him as a charlatan.

On the other hand, if Professor Kervran is right, he has the answer to most of the problems of energy and the exhausted resources in the world today. The problem is he writes like a charlatan, no one repeats him. We were prepared to spend £500 on the chance he was right. He was wrong on the part we tested. If he expects that he must be allowed to add an unmeasured portion of calcium to the water by using spring water instead of de-ironized, then this is where his transmutation comes in. Our experiments were done, as you will see, in a closed propagating frame with a filtered air supply. Professor Kervran does not appear to be aware of the existence of aerosole (that is the small particles that blow in the air). If he had lived in the United States and had taken samples of foliage from plants growing beside your interstate highways, he would have insisted that they were transmuting minerals into lead, when in practice this is merely from the petrol in your cars. A great Frenchman, Louis Pasteur, once said that any man could spontaneously generate life provided he did not sterilize his apparatus.

I very much hope that the many very serious publications in your country in the organic movement will not damage their reputations by taking on Kervran as a craze. He needs to be investigated scientifically.

I enclose a copy of our leaflet and enrollment form in case you care to join us.

Yours sincerely,
Lawrence D. Hills

Extract

I have not seen Kervran reviewed in any serious publication. His chemistry seems to be treated by the orthodox like that in the speeches of a fair ground patent medicine man. I would suggest to Dr. Long that some of the defects in reported French work are due to a lack of adequate statistical analysis as well as obsolete methods. There seems to be very little serious statistical study published in French. The wider 'philosophical' implications of Kervran transmutations seem to have had little publicity, although they may have served to make some people sceptical. For example, if any Kervran transmutation works, the Second Law of Thermodynamics cannot be true, although many philosophers and cosmologists, including Einstein, have considered it to be the only ultimate truth that we know. The nitrogen-carbon monoxide transform is a clear illustration of this. The energy necessary for the transformation is not more than that required to replace the heat losses so as to maintain the iron in an 'activated' state. The carbon monoxide could be oxidised to carbon dioxide giving considerable available energy. Before the days of bulk electricity distribution, carbon monoxide, either from the waste gases of blast furnaces or special producers, was often used as a power source. Remember the old enamel plates on Southern Railway Stations, 'Cheap Power by Suction Gas.' This was a mixture of carbon monoxide, hydrogen, and nitrogen made by drawing air and low pressure steam through redhot coal slack. The steam was raised by using the waste heat in the exhaust of a gas engine that ran on the mixture. The advertisements were put up by an enterprising maker

of gas engines, whose make would run on it as well as on mains gas. An orthodox petrol engine also runs well on carbon monoxide, if you replace the carburetor with a simple gas mixing chamber. In the 1930s, the Wansworth and District Gas Co. ran its fleet of service vans on cylinders of compressed carbon monoxide from their coal gas. The vans were a standard 'Fordson' type with a mixer in place of the carburetor. They had a very clean exhaust.

Large supplies of pure nitrogen are available, much of it is blown to waste, from distillers or liquid air for industrial gases. It is sold in cylinders as a purge or blanket gas for many industrial processes and as a liquid in giant vacuum flasks as a cheap source of intense cold on a large scale.

If we were to put this nitrogen through a Kervran transmutation, the carbon monoxide could be used in two ways, (a) as a mobile power source in a non-polluting internal combustion engine, (b) to reduce metals from their ores. It has been estimated that (b) is the largest single 'sink' of energy in industrial civilization.

Hence, if Kervran is right on this one, there is no energy crisis and most pollution by vehicle exhausts could be abolished. The only obstacle is orthodox science, which refuses to admit the existence of anything that contravenes the Second Law of Thermo Dynamics or to allow any experiments that might disprove this.

I have dealt with this one at some length because it seems to be the only Kervranian Transmutation that can be tested without the sort of very sophisticated analysis used by Dr. Long. The amount of carbon monoxide produced in this way is said to be enough to make the atmosphere of large rooms poisonous, so the experiment should not depend on very accurate weighings.

A simple experiment would be to pass nitrogen from a cylinder through a tube packed with iron filings and let it bubble through a flask of cuprous chloride solution. Glass stop cocks must be provided so that this flask can be taken off and weighed without letting air in. First, pass the nitrogen in cold until all the air has been swept out. Then, weigh the flask and put it back. Now, heat the tube redhot, with the nitrogen flowing again. Use a water bath to keep the flask

cool. Cuprous chloride absorbs carbon monoxide, and the increase in the weight of the flask measures how much has passed.

Repeat the experiment with air and with carbon dioxide. Precautions: Gases supplied in cylinders are under a high pressure. The reducing valve must be carefully set and the flask should only have a loose closure, which would be blown away by the rush of gas if the valve went wrong. Cuprous chloride is not soluble in water; it should be dissolved in hydrochloric acid. The solution is available commercially; it is used as a gas analysis reagent. One of the standard methods of determining the percentage of CO in samples of air depends on it.

As a refinement of the experiment, the tube and iron filings can be weighed before and after; so can the gas cylinder. If the iron gets too hot in the test on nitrogen, its weight will increase because of the formation of iron nitride, but it is unlikely to reach a temperature high enough for this to happen. There should be no increase in the weight of the iron with nitrogen, Kervran right or wrong. The weight of the flask would increase if Kervran is right. It will probably be reduced if the flask has gotten warm because hydrochloric acid gas will be evolved and swept away by the excess nitrogen. This error might mask the effect of CO formed in a Kervran transmutation; hence, the flask must be kept cool, although the gases bubbling through it will be warm.

A further refinement would be to provide a gas cooler between the tube and the flask. A common laboratory Liebig condenser would do.

If 100 cubic feet of nitrogen were blown through the system and 1% of it was transmuted to CO, the weight of the flask would increase by about thirty grams. The weight of the gas cylinder would be reduced by about seven pounds, regardless of what happened to the nitrogen that left it.

Fabrication of a Special Steel by Transmutation at Low Energy

by George Ohsawa, August 28, 1964
translated from *Principle Unique* by
Fred Pulver

Principle

The fabrication of steel is obtained by transmutation at low energy, at low temperature, and under weak pressure, which is the opposite of the classical transmutations of nuclear physics, which are obtained with considerable energies.

Steel is obtained starting with carbon and oxygen following the reaction:



Description of One of the Techniques:

An electric arc is arranged in the interior of a discharge chamber opened on its inferior part.

The electric arc is created by electrodes of extra pure carbon; one introduces into the chamber interior pure oxygen.

One uses an alternating current generator giving voltage of 50 to 80 volts with an intensity of 15 Amperes.

One collects the product of the transmutation reaction in a vessel containing water twice-distilled in which the extreme lower end of the chamber is plunged.

It is possible to make this transmutation more economically by starting with impure carbon; that is, ordinary carbon and starting with the oxygen in the air, the energy utilized being always as weak.

Transmutation of Carbon to Iron—An Experiment

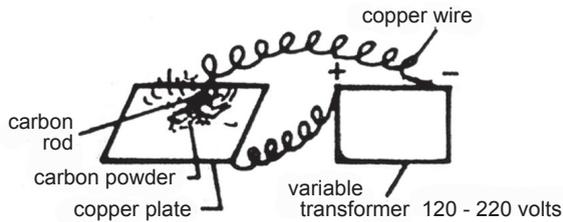
by Fred Pulver—with thanks to Don Honorof and Michio Kushi

After hearing Michio Kushi's description and explanation of the *Transmutation of Carbon to Iron Experiment* first done by George Ohsawa and friends in the early 60s, I became very eager to duplicate it on my own, being very excited by the possibilities of atomic transmutation, but at the same time a little skeptical of their validity "until I had seen it done myself." So when I heard that a friend from Los Angeles, Ron Honorof, had gathered the equipment and materials necessary for the experiment, in Michio's house in Brookline, Mass., I requested permission to use the material to duplicate the experiment.

The equipment was a 110-230 volt variable transformer, a laboratory-pure vial of carbon powder, a highly purified rod of carbon, a copper plate of almost chemically pure copper (sorry I can't give the actual degrees of purity in each case), and a permanent alnico magnet about 1" x 1" (quite strong for its size).

The experiment was very easy to perform. First, I tested the purity of the carbon powder by placing a small amount on a sheet of clean white paper. Then, I ran the magnet back and forth under the paper, and no particles followed the magnet around. I then placed the carbon powder on the copper plate, attached a wire to the copper plate and one of the terminals, and attached the other wire to the other terminal and the carbon rod. Turning on the electrical power switch, I began at 130 volts touching the carbon rod to the carbon

powder, whereupon there was much light, a little smoke, and then an increased voltage to around 220v. This made the light much brighter (like a welder's torch), and I continued "plasmizing" the carbon until I felt it had all been raised to high incandescence and had come in contact with atmospheric Oxygen (perhaps 10-15 minutes). Then, after waiting a minute for the carbon sample to cool, I once again put it on the clean white paper and ran the magnet around underneath the paper to see if there would be any noticeable movement of the carbon particles. This time there were small (sand grain size) particles that were definitely magnetic, which followed the magnet around. The attraction was weak, the particles were small and not very numerous, but some magnetically-attractive substance had been created, with a simple apparatus that everyone has access to if they wish to duplicate this for themselves. The equation is $2\ ^{16}\text{C} + 2\ ^{12}\text{O} \rightarrow \text{Fe}_{56}$.



If the conditions of voltage, oxygen availability, and time could be more scientifically worked out, balancing Yin O_2 with Yang C, the large scale production of iron could become a technological reality. There is reportedly a high-carbon steel pole standing in the earth near Delhi, India, which has stood without rusting for thousands of years.

My idea for the design of an iron-creating apparatus would be to have a sort of long trough with electrical terminals at either end in which carbon powder or particles were placed and perhaps covered with a canopy which could regulate the available oxygen. Then, perhaps, the contents of the trough could be changed into iron to a much greater extent. The resultant iron would contain a large degree of carbon, making it a naturally rust-resistant high-carbon steel.

Carbon is abundant everywhere, as is oxygen. This process requires no ore, no mining for the ore, no fuel for the trucks needed to haul the ore, no enormous smelters, coke, vast amounts of electricity, all of which make steel so expensive today. This way could create a better world, with steel available to everyone without high cost and no environmental pollution.

Transmutation of Sodium to Potassium

letter from George Ohsawa (Sakurazawa)
7 July 1964; Tokyo

Dear Friend Mr. Djenazian,

I am very happy to inform you that I have succeeded in realizing the transmutation of sodium to potassium! Yang after Yin! For five years, I have been asking for the industrial realization of the Sakurazawa-Kervran theory for everybody, especially Japan where I explained the biological transmutations according to Kervran very enthusiastically for a hundred scientists specialized in nuclear physics and for a dozen chiefs of the large new industrial companies such as Sony, Toshiba, Honda, National, Canon, etc. No one understood!

Nevan Henaf was chosen by me for this research. He worked on it for two years. He is gone without finding anything. Lost time!

Finally, I was obliged to occupy myself with it, alone. I began the first of April. The 21st of June, at 1700 hours exactly, the tube where the characteristic yellow spectrum of sodium was burning brightly had been manipulated by my faithful disciple Prof. T. The spectrum disappeared. In the following second, the spectrum characteristic of potassium (λ 7699) glowed with a beautiful color, supernaturally clear-red violet!

Behold, the third fire of man is lit!

The third industrial revolution begins!

A few days after, I discovered theoretically how to fabricate gold, mercury, iron, platinum, etc. all at once according to the theory Sakurazawa-Kervran.

(Ed. note: During the recrystallization of any element which has been plasmized, traces of every element are created. In a sense, it refreezes at every level of the element spectrum on the continuous spiral of materialization. To create a predominance of one specific element, it is necessary to refreeze plasmic ions at a specific temperature, regulating the reagent (O_2 in this case) quantity and availability.)

Letter from Japan Centre Ignoramus

by staff writers

For the first time in the history of humanity, the transmutation sodium to potassium has been realized at a low temperature and without great pressure: June 21, 1964 in Tokyo, by George Ohsawa; specialist of Far-Eastern philosophy that is 5,000 years old; author of around 300 books on the philosophy in Japanese and 20 books in German, French, English, Flemish, Portuguese, Spanish; 72 years old; and who studied, 45 years ago, the Western Sciences at the Sorbonne and at the Pasteur Institute. George Ohsawa is the leader of the Zen Macrobiotic movement for nearly 50 years in this country, 12 years in India, in Africa, in the European countries, and in the United States. His recent publications are: *The Atomic Era and the Philosophy of the Far-East*; (*Cancer: Enemy or Benefactor of Humanity*) Edition: La Librairie Ohsawa, Paris.

June 21, 1964, at 1700 hours, Professor Torii was observing attentively the characteristic spectrum of sodium in a vacuum tube designed by Mr. Ohsawa. He introduced a small quantity of oxygen in the tube. The spectrum of sodium disappeared immediately. In a second, a red-purple appeared. This was the spectral color characteristic of potassium $\lambda 7699$! (Specific catalyzer: Y).

The first public demonstration will be held July 6, 1964 in the Giin—Kaikan (Chamber of Deputies) before a group of 50 selected V.I.P.s with Professor M. Odagiri as commentator.

In comparison with the discovery of Madame Curie, one cannot imagine how many thousands of times more important this discov-

ery of Mr. Ohsawa's is than that of Curie. The usefulness of Radium is very limited in its application, while this of Ohsawa is very productive; for example, Japan will cease importing 12,500 million Yen of potassium each year, and will export 100 trillion Yen of very low-priced potassium, for there is no lack of sodium in the sea.

Now George Ohsawa and his disciples will apply this method in the fabrication of gold, diamonds, silicon, iron, petrole, etc. True alchemy is born.

Other Books from the George Ohsawa Macrobiotic Foundation

- Acid Alkaline Companion* - Carl Ferré; 2009; 121 pp; \$15.00
Acid and Alkaline - Herman Aihara; 1986; 121 pp; \$9.95
As Easy As 1, 2, 3 - Pamela Henkel and Lee Koch; 1990; 176 pp; \$6.95
Basic Macrobiotic Cooking, 20th Anniversary Edition - Julia Ferré; 2007; 275 pp; \$17.95
Basic Macrobiotics - Herman Aihara; 1998; 198 pp; \$17.95
Book of Judo - George Ohsawa; 1990; 150 pp; \$14.95
Calendar Cookbook - Cornelia Aihara; 1979; 160 pp; \$24.95
Cancer and the Philosophy of the Far East - George Ohsawa; 1981; 165 pp; \$14.95
Cooking with Rachel - Rachel Albert; 1989; 328 pp; \$12.95
Essential Ohsawa - George Ohsawa, edited by Carl Ferré; 1994; 238 pp; \$12.95
French Meadows Cookbook - Julia Ferré; 2008; 275 pp; \$17.00
Macrobiotics: An Invitation to Health and Happiness - George Ohsawa; 1971; 128 pp; \$11.95
Naturally Healthy Gourmet - Margaret Lawson with Tom Monte; 1994; 232 pp; \$14.95
Philosophy of Oriental Medicine - George Ohsawa; 1991; 153 pp; \$14.95
Pocket Guide to Macrobiotics - Carl Ferré; 1997; 128 pp; \$6.95
Zen Cookery - G.O.M.F.; 1985; 140 pp; \$17.00
Zen Macrobiotics, Unabridged Edition - George Ohsawa, edited by Carl Ferré; 1995; 206 pp; \$9.95
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