

# Re: How to Become a Christian, Version 1.01

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**From:** Br Dan Izzo ([revdanielizzo\\_at\\_yahoo.com](mailto:revdanielizzo_at_yahoo.com))

**Date:** 09/06/04

Date: 6 Sep 2004 07:21:27 -0700

nospam6@heartmdphd.com (Dr. Andrew B. Chung, MD/PhD) wrote in message news:<815c94d6.0409051339.4a3c7278@posting.google.com>...

> *"Mano Govender"* <[manospam@thelani.co.za](mailto:manospam@thelani.co.za)> wrote in message news:<4136ab9a.0@news1.mweb.co.za>...

>

> <snipped --> <http://makeashorterlink.com/?S18312639>>

>

>> 20. Explain why original sin exists. Why should I be  
>> eternally tortured for something that distant ancestors did over six  
>> thousand years ago? If you believe that children are born stained because  
>> they were conceived sexually, explain why I would be punished for something  
>> my parents did. If this does not apply to your sect, explain why.

>

> <snipped --> <http://makeashorterlink.com/?A38621439>>

>

> *The original sin exists because our common ancestor (Adam and Eve, who  
> are \*not\* the first man and woman, but the first who were endowed with  
> the ability of speech so that "whatever the man called each living  
> creature, that was its name" in the Garden of Eden) chose to willfully  
> disobey God.*

>

> *From Genesis 2:*

>

> *19 Now the LORD God had formed out of the ground all the beasts of the  
> field and all the birds of the air. He brought them to the man to see  
> what he would name them; and whatever the man called each living  
> creature, that was its name. 20 So the man gave names to all the  
> livestock, the birds of the air and all the beasts of the field.*

>

> *From Genesis 3:*

>

> *10 He answered, "I heard you in the garden, and I was afraid because I  
> was naked; so I hid." 11 And he said, "Who told you that you were  
> naked? Have you eaten from the tree that I commanded you not to eat  
> from?" 12 The man said, "The woman you put here with me—she gave me  
> some fruit from the tree, and I ate it." 13 Then the LORD God said to  
> the woman, "What is this you have done?" The woman said, "The serpent  
> deceived me, and I ate."*

>  
>  
> *It seems that their tendency for willful disobedience is now our*  
> *inheritance (along with God's gift of speech). All who are parents*  
> *know that I write truthfully for they have seen this tendency for*  
> *willful disobedience of righteous authority in their own children.*  
>  
> *It is God's gift of speech (and God Himself) that allowed the*  
> *descendants of Adam and Eve to prevail over the descendants of the*  
> *other men and women that God had made in this world. Being conceived*  
> *sexually ties us genetically with Adam and Eve so that along with*  
> *God's gift of speech, we also inherit the tendency to willfully*  
> *disobey righteous authority. We need Christ to save us from*  
> *ourselves.*  
>  
> *Christ teaches from John 3:*  
>  
> *16"For God so loved the world that he gave his one and only Son, that*  
> *whoever believes in him shall not perish but have eternal life. 17For*  
> *God did not send his Son into the world to condemn the world, but to*  
> *save the world through him. 18Whoever believes in him is not*  
> *condemned, but whoever does not believe stands condemned already*  
> *because he has not believed in the name of God's one and only Son.*  
> *19This is the verdict: Light has come into the world, but men loved*  
> *darkness instead of light because their deeds were evil. 20Everyone*  
> *who does evil hates the light, and will not come into the light for*  
> *fear that his deeds will be exposed. 21But whoever lives by the truth*  
> *comes into the light, so that it may be seen plainly that what he has*  
> *done has been done through God."*  
>  
> *May God add His blessings to the writing of His Word here on Usenet,*  
> *in Christ's holy name.*  
>  
> *Amen.*  
>  
> *You remain in my prayers, dear Mano whom I love.*  
>  
> *Please consider the following to save yourself:*  
>  
> <http://makeashorterlink.com/?I22222129>  
>  
>  
> *Servant to the humblest person in the universe,*  
>  
> *Andrew*  
>  
> --  
> *Dr. Andrew B. Chung, MD/PhD*  
> *Board-Certified Cardiologist*  
> <http://www.heartmdphd.com/>  
>

- > \*\*
- > *Who is the humblest person in the universe?*
- > <http://makeashorterlink.com/?L26062048>
- >
- > *What is all this about?*
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Adept Alchemy

by

Robert A. Nelson

Part II ~ Chapter 1

Transmutations of Silver

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Gold can be manufactured from other elements by several methods. The penultimate means of transmutation is the Philosophers' Stone of any degree, but that is another matter altogether.

The transmutation of silver to gold is perhaps the easiest — or least difficult — of such experiments. If nothing else, the attempt may serve to enlighten aspiring souffleurs ("Puffers", an old French alchemical label for deluded fools who pump their bellows in vain) to wise up, get a life, and do something more worthwhile, profitable, and less dangerous. Employing the methods developed by Francois Jollivet–Castelot, however, there is every chance of success, albeit at great risk due to the use of arsenic.

It has been argued by some purists that transmutations such as these are not alchemy at all, but rather "hyper–chemistry" or "archymy". Mayhap so, but I choose to include these factoids in this collection.

Most of the 19th and 20th century experimenters in this genre used a variety of "wet" techniques (refluxing with nitric acid, etc.), or "dry" transmutations with alloys in the furnace. Dr. Stephen Emmens used high–pressure hammering (500 tons/sq. in.) of silver at low temperature, followed by fluxing, granulation, more hammering, treatment with "modified nitric acid", and refining.

(1) T. Tiffereau

(2) R. Hunter

- (3) A. Waite
  - (4) Fulcanelli
  - (5) F. Jollivet–Castelot
  - (6) S. Emmens
  - (7) C. Lea
  - (8) References
- 

(1) Theodore Tiffereau ~

Between 1854–55, Theodore Tiffereau submitted six memoirs to the French Academie des Sciences concerning transmutations of silver to gold. He published a compilation of the papers ( Les Metaux sont des Corps Composes ) in 1855.(25–27)

Tiffereau conducted his experiments at considerable expense while supporting himself making daguerotypes in Mexico. Tiffereau claimed that Mexican silver possesses peculiar qualities that lend to its augmentation as gold (Dr. Emmens also used Mexican silver in his work). While he claimed success in principle, he made no capital gains. Tiffereau demonstrated his process at the French Mint in Paris before the assayer M. Levol, but the results were unsatisfactory.

Tiffereau attempted many modifications of his techniques, and claimed that certain experimental conditions influence the transmutation of silver to gold:

- 1) Pure silver filings were used, sometimes mixed with pure copper filings (Ag 9:1 Cu) and traces of zinc, iron, alumina and silica;
- 2) Trace amounts of gold catalyze the reaction;
- 3) The silver was refluxed with concentrated nitric acid, hyponitrous acid, and nitrogen protozide or deuterioxide;
- 4) Concentrated sulfuric acid was used at times;
- 5) The acids were exposed to sunlight to "solarize" them. Tiffereau complained that the French sun was not so effective as the Mexican;
- 6) Halides and sulfur in the presence of oxides of nitrogen improved the reaction, and so did ozone;
- 7) Prolonged reaction time increased yields.

Tiffereau attributed the production of gold in the earth to the action of the "microbe of gold". This was confirmed in the 1980s by the discovery that placer gold nuggets form around a nucleus of bacillus cereus.

The following experiment is typical of Tiffereau's general methods:

"After having exposed, over two days, pure nitric acid to the action of solar rays, I added pure silver filings with pure copper filings in the proportions of the alloy of money (9:1). A lively reaction manifested, accompanied with a very abundant deposit of intact filings agglomerated in a mass.

"The disengagement of nitrous gas continued without interruption, and I left the liquid as is over twelve days. I noted that the aggregate deposit was augmented sensibly in volume. I then added a little water to the dissolution in which the product had precipitated, and again abandoned the liquid to rest five days. During this time, new vapors unceasingly disengaged.

"The five days having passed, I raised the liquid just to ebullition, which I maintained until the nitrous vapors ceased disengagement, after which I evaporated it to dryness.

"The matter obtained from the dessication is dry, dull, blackish-green; it did not offer an appearance of crystallization...

"Placing the matter again in pure nitric acid and boiling six hours, I saw the matter become clear green without ceasing to aggregate in small masses. I added a new quantity of pure concentrated nitric acid and boiled it anew; it is then that I finally saw the disaggregated matter take the brilliance of natural gold...

[The third test in this series] "presented an extraordinary phenomenon to be noted: the quantity of the alloy that I used experienced a transformation entirely to pure gold."

Carey Lea suggested that Tiffereau and other experimenters had merely prepared a gold-colored form of allotropic silver.

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(2) R. M. Hunter ~

In 1908, Sir Henry Baskerville made mention of a contemporary claim to the production of artificial gold:

"Among the many communications reaching the writer, one is of more than passing interest. Mr. R.M. Hunter, of Philadelphia, has written concerning 'synthetic gold' as follows:

"I have so perfected the process that in my judgment, based on my actual experience, gold may be manufactured at enormous profit, and to this end I have designed a plant to be erected in Philadelphia and am at this moment negotiating for \$500,000 capital for its erection. I realize that the public and most scientific men are adverse to the

belief in the possibility of such an enterprise, but I know what I am doing and can afford to allow public sentiment to follow its own course.

"Enclosed with the letter was an affirmative affidavit. On request, Mr. Hunter promptly forwarded me samples of silver in which the gold is 'growing' and some 'grown-up' gold, said to have been produced by his secret process. I have not made analyses of the samples." (5)

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(3) Arthur E. Waite ~

The eminent occultist Arthur E. Waite wrote A Collection of Alchymical Processes which includes a segment entitled "Silver Transmuted Into Gold By The Action Of Light":

"In the focus of a Burning-Glass, 12 inches in diameter, place a glass Flask, 2 inches in diameter, containing Nitric Acid, diluted with its own volume of water:

"Pour into the Nitric Acid, alternately, small quantities of a Solution of Nitrate of Silver and of Muriatic acid, the object being to cause the Chloride of Silver to form a minutely divided state, so as to produce a milky fluid, into the interior of which the brilliant convergent cone may pass, and the currents generated in the Flask by the Heat may so drift all the Chloride through the Light.

"The Chloride, if otherwise exposed to the Sun, merely blackens on the surface, the interior parts undergoing no change: This difficulty, therefore, has to be avoided. The Burning-Glass promptly brings on a decomposition of the salt, evolving, on the one hand, Chlorine, and disengaging a metal on the other. Supposing the experiment to last two or three entire hours, the effect will then be equal to a continuous midday sun of some 72 hours. The Metal becomes disengaged very well. But what is it? It cannot be silver, since Nitric acid has no action on it. It burnishes in an Agate Mortar, but its reflection is not like that of silver, for it is yellowish, like that of Gold.

"The Light must therefore have so transmuted the original silver as to enable it to exist in the presence of Nitric Acid." ( 28)

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(4) Fulcanelli ~

The renowned master Fulcanelli published this transmutation of silver in Les Demeures Philosophales:

"The simplest alchemic procedure consists in utilizing the effect of violent reactions ——— those of acids on the bases ——— to provoke in

the midst of the effervesence the reunion of pure parts, their new arrangement being irreducible. In this manner, starting from a metal close to gold ——— preferably silver ——— it is possible to produce a small quantity of the precious metal. Here is, in this order of research, an elementary operation whose success we guarantee, providing the instructions are carefully followed.

"Empty into a glass retort, tall and tubular, one-third of its capacity in pure nitric acid. Adapt to the receiver an escape tube and arrange the apparatus in a sand bath.

"Gently heat the apparatus short of reaching the boiling point for the acid (83o C). Turn off the fire, open the tube, and introduce a small portion of virgin silver, or of cupel, free from gold traces. When the emission of peroxide of azote has stopped and when the effervesence has quieted, let drop into the liquor a second portion of pure silver. Repeat introducing metal, with no hurry, until the boiling and issuing of red vapors manifest little energy, which is indicative of the property of saturation. Add nothing more. Let it rest for half an hour, then cautiously decant your clear solution into a beaker while it is still warm. You will find a thin deposit in the form of black sand. Wash this with lukewarm water, and let it fall into a small porcelain capsule. You will recognize by making the assays that the precipitate is insoluble in hydrochloric acid, just as it also is in nitric acid. Aqua regia will dissolve it and yields a magnificent yellow solution, exactly like gold trichloride. Use distilled water to dilute this liquor; precipitate from a zinc blade. An amorphous powder will be obtained, very fine, matte, of reddish brown coloration, identical to that given by natural gold reduced in the same manner. Wash well and dessicate this pulvurent precipitate. By compression on a sheet of glass or marble, it will give you a brilliant, coherent lamina with a beautiful yellow sheen by reflection, green by transparence, having the look and superficial characteristics of the purest gold.

"To increase with a new quantity this miniscule deposit, you may repeat the operation as many times as you please. In this case, take up again the clear solution of silver nitrate diluted from the first washing water; reduce the metal with zinc or copper. Decant this silver into a powder and use it for your second dissolution." (14)

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(5) Francois Jollivet–Castelot ~

Francois Jollivet–Castelot was the Secretary General (and later President) of the Alchemical Society of France (founded in 1896). He also edited the Society's journal L'Hyperchemie, and served as a special delegate of the Supreme Council of Martinists. He authored several books and articles on alchemy and "hyperchemistry", a system of non–occult chemical methods of transmutation. (17–20)

Jollivet–Castelot began experimenting with transmutations of silver in 1908. In 1920, he published *La Fabrication Chimique de L'Or* to report his successes using both "wet" and "dry" methods of transmutation:

"By means of catalytic action I have succeeded in manufacturing gold chemically by acting on silver with arsenic and antimony sulfides, tellurium, and tin.

"This process gives a very high yield which has already been confirmed by several chemists, in particular by Mr. Ballandras, Chemical Engineer of Lyons, and Mr. Outon, Chemical Engineer of Buenos Aires...

"The object of the present leaflet is to enable chemists to repeat and check my experiments in their turn...

"I made a mixture composed of 3 gr of chemically pure silver and 1 gr of chemically pure orpiment and placed it in 360 nitric acid for several months cold and then brought it to ebullition. The liquid was kept at the boiling point for several days. A small quantity of the material became detached at this moment and formed a pulvurent black deposit. When no further action took place, I decanted off the solution and collected the insoluble residue. This residue was attacked by aqua regia at the boiling point until it was almost completely dissolved; the liquor when decanted and filtered was analyzed and gave all the characteristic reactions for gold....  
[December 1925]

"I acted on 22 gr of chemically pure silver ... and on 3.5 gr of chemically pure orpiment... The mixture was heated to about 1600o C In a metal smelting furnace for about three quarters of an hour. The residue obtained was again melted with the addition of orpiment. After having hammered for half an hour and remelted with the addition of small quantities of orpiment every ten minutes, it was withdrawn.

"After cooling and the addition of chemically pure antimony sulfide, it was again put back into the furnace, small quantities of orpiment being thrown in every five minutes. The residue obtained had a dark metallic tint. After hammering it became slightly golden.

"The residue dissolved in chemically pure 360 nitric acid first cold and then hot, gave an abundant pulvurent deposit. This deposit after being washed and treated with ammonia to dissolve the arsenic and antimony salts was completely dissolved in aqua regia. The liquor then being chlorinated and filtered was subjected to the reagents of platinum and gold. Mr. Andre Vandenberghe who was acting as preparator for this experiment, had thought that in accordance with the law of the evolution of matter, the transmutation of bodies into gold should be preceded or accompanied by their transmutation into platinum...

"The reactions of gold were quite characteristic; the reactions of platinum also seemed to reveal its presence.

"The quantity of gold obtained in this experiment was about one gramme.

"I submit the hypothesis that the arsenic acts as a catalyst and the sulfur as a ferment in this transmutation." (December 1925; Douai, France)...

"As a sequel to my previous work on the artificial synthesis of gold, I have introduced tin into these new tests as it is also often associated with gold in Nature. The following is a description of this new process, thanks to which the percentage of gold obtained destroys all the objections that are raised with regard to impurities.

"I made an intimate mixture of 6 gr of chemically pure silver... 2 gr of antimony sulfide, 1 gr of orpiment, and one gr of tin... I then added the usual fluxes and then heated the whole in a crucible in the furnace to about 1100o C for about one hour, twice adding a small quantity of SbS.

"The residue obtained was treated for a long time in 36o nitric acid, first cold and then at the boiling point; the insoluble residue was next washed with distilled water, treated with ammonia, washed again and finally treated for a long time with boiling aqua regia.

"The liquor when filtered and subjected to the reagents of gold showed the presence of this metal in the form of abundant deposits which may be estimated at 0.05 gr in all, which is very high considering the 6 gr of silver employed. The deposits when collected and dried had a yellow green metallic color and possessed all the characteristics of gold...

"The addition of tin to the other bodies has certainly facilitated the reactions of the gold and increased the yield of this metal which can be manufactured artificially by my process, i.e., by synthesis and in measurable quantities.

"It would be very easy to show that, given the respective prices of gold and of the other substances that are used in my process to produce it, a profit could be obtained if the process were worked industrially, all the more so as the greater part of the silver employed can be recovered at each test..

"I believe I now hold the key to the regular and even industrial manufacture of gold.

"But the industrial question is voluntarily put aside from my thoughts, for my only object is the search for pure scientific truth."

In a correspondence to Jollivet–Castelot, Mr. Ballandras reported on "How I Succeeded In Making Gold According To The Process of Mr. Jollivet–Castelot: Dosage of gold obtained by the second method":

"From a mixture of 10 gr silver, 3 gr of tin, 3 gr of arsenic sulfide, and 3 gr of antimony sulfide, the residue which had been obtained was crushed as much as possible and subjected to a treatment of pure chloric acid like in the first method. However, in order to completely eliminate the silver and the tin employed, I scrupled to begin again the indicated treatments, that is as much to say that the powder which was obtained having been subdued first to the action of azotic acid, then washed with distilled water, then subdued to the action of chloric acid, then washed with distilled water, then once more washed with distilled water, and these different operations were begun once again with another portion of pure chloric acid... The insoluble residue was subdued to the prolonged action of aqua regia...

"It must be noted that this thing happened during the ebullition. The washed residue contained the slighter part of gold; this thing would be found dissolved in the last liquor which I obtained.

"After 18 hours of digestion at about 25o, I subdued the mixture to ebullition during 3 hours. After refrigeration, I filtered on glass wool and I looked if parts were not drawn along in suspense. I found nothing. Then, I decided to proceed to a circumstantial analysis of the liquor which I obtained...

"The quantity of gold which was obtained was 0.476 gr for 10 gr of silver employed, or 0.0476 gr of gold per gram of silver."

Jollivet–Castelot read this memorandum to the Academie Royal des Sciences (Belgium) on June 6, 1926:

"A Recent Experiment In Transmutation ---- All my research work on transmutation since 1908 has started from the fact that gold is found in nature associated with antimony and arsenic sulfides as well as with tellurium, which is considered as a mineralizer of gold. I therefore considered that it was logical to introduce tellurium into the artificial combination of silver and arsenic and antimony sulfides that I make...

"I prepared a mixture composed of 6 gr of silver, 1 gr of native orpiment free of gold, 1 gr of antimony sulfide and 2 gr of tellurium... I added pure silica to the usual fluxes. This mixture was heated in the furnace in the usual way for one hour at about 1100o C. The residue obtained was of a blackish–grey color with violet reflections. It weighed 6.42 grams.

"When subjected to the action of nitric acid, the residue was attacked with difficulty and greenish metallic particles become detached. The solution was then decanted and a greenish–yellow residue remained which was kept at the boiling point of nitric acid for several hours. After decanting off the liquor once again, the residue, which had not changed, was washed, treated with ammonia and then subjected to the action of boiling aqua regia in which it was entirely dissolved after

boiling for several hours.

"[The solution was chlorinated and subjected to the reagents of gold with positive results, although] a certain amount of gold was certainly lost in this test just as in all my previous tests, for it is known that arsenic, antimony, and tellurium entrain gold in their fusion and their volatilization.

"In order to obviate this disadvantage, I had thought of making the vapors of arsenic acid and antimony sulfides and of tellurium act on the silver in fusion in a closed vessel by means of a special device...

"I consider it certain that if the vapors were allowed to bubble through the melted silver, a much higher yield of gold would be obtained than that I have obtained hitherto by an imperfect and too rapid contact of the bodies in presence, while it is undoubtedly necessary to make them react on one another in the vapor state in a closed vessel."

Mr. Louis Outon, a pharmaceutical chemist in Buenos Aires, reported to Jollivet–Castelot in a letter (July 26, 1927):

"Dear Sir... I have repeated the experiments... in my laboratory and am amazed at the results. For the moment, it is only the scientific side which interests me, since the cost of the gold obtained is often greater than the value of the metal..."

Mr. A. Ballandras also replicated the experiments and reported the results:

"I will not conceal the fact that I have often heard ironical remarks about processes by which he succeeded in manufacturing gold. I determined to check his tests with the greatest possible accuracy..."

"In a new quartz crucible, I placed 15 gr silver, 6 gr arsenic sulfide, 6 gr antimony sulfide. The crucible was heated at a temperature of 500° C and then for one hour and a half at 1100° C. At this moment the mass was fairly liquid... The crucible was then allowed to cool down. The reddish–brown residue obtained weighed exactly 23.742 gr, or a loss of 3.258 grams.

"I allowed this residue to cool in pure nitric acid in which the greater part was dissolved fairly easily. After prolonged boiling the liquor was filtered on a new glass wool. The resultant liquor was very clear and absolutely free of any particles.

"The glass wool was then macerated in aqua regia rich in hydrochloric; after 18 hours maceration, the whole was boiled for 3 hours. I again filtered on glass wool in order to separate any traces of the filter from the liquor... Any gold that might have been obtained would

necessarily be found in the last liquor... It was of importance to prove its existence qualitatively at least.

"For this purpose, I tried the various standard reagents, the results being the following: 1) Oxalic acid: flakey precipitate; 2) Iron sulfate: glossy metallic black; 3) Tin chloride: peach pink precipitate; 4) Formol: rather light bluish coloration; 5) Sodium carbonate, potassium carbonate: light coloration after boiling; 6) Sodium hydroxide, potassium hydroxide: yellowish coloration, cloudy.

"These reactions are sufficiently characteristic and clearly prove the existence in the last liquor of a metal which, even if it is not gold, must nevertheless be placed very close to the latter... the metal obtained and gold must be perfectly isotopic.

"I have repeated this test several times and I have observed: 1) That the production of gold is a function of the rapidity with which the necessary heat is obtained; 2) That it is also a function of the degree of tightness of the crucible. A crucible that is closed as tightly as possible gives better results; 3) That the amount of gold obtained was not always uniform; some of the tests were absolutely sterile and I inferred that this was due to some defect in the mounting.

"I think there must be a certain temperature that should not be exceeded and that the external conditions of pressure and electricity must be of considerable importance."

In another experiment, Ballandras used silver (10 gr), tin (3 gr), orpiment (3 gr), and antimony sulfide (3 gr):

"After having operated as previously, I obtained a quantity of gold corresponding to 0.05 gr per gram of silver employed... This I consider to be a highly interesting result."

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(6) Dr. Stephen Emmens ~

Early in 1897, the British chemist Stephen H. Emmens, then residing in New York, announced the discovery of a new element which fills the "vacant space existing in the sub-group of Group I", and which he thought to be the intermediate matter from which silver and gold are formed. Dr. Emmens said:

"Our claim is that the element in question is therefore neither silver nor gold, but which may, by our new physical methods, be converted into gold." (14)

In 1897, Dr. Emmens' Argentaurem Laboratory on Staten Island produced over 660 ounces of gold from silver and sold it to the U.S. Assay

Office. He revealed a few historical and technical details of his transmutation process in his book, *Argentaurum Papers #1: Some Remarks Concerning Gravitation*:

"Our work, which converts silver into gold, had its origin in the course of certain investigations which I undertook for the purpose of preparing chemically pure nickel... in 1892. In attempting to prepare these pure metals [nickel and iron], a certain product was obtained which seemed to differ from anything recorded in the textbooks. The same product was subsequently found when the investigation was extended to the case of metallic cobalt... The phenomena observed afforded indications of the existence of some substance common to the whole of the elements in what is known as Series 4 of Group 8 of the classification of Chemical Elements... It appeared to us almost self-evident that if we were right in supposing a common substance to be present in any single series of elements, the same would hold good for each group.

"And as Group I of the classification contains the precious metals --- gold and silver ~ it was obvious that our time and attention should be directed to these metals rather than to any other...

"Our starting point, so far as silver and gold were concerned, was afforded by the remarkable discoveries of Mr. Carey Lea with regard to [colloidal silver]... It was found that... this subdivision of metallic silver was attended by very considerable changes in the physical properties of the substance...By certain physical methods and by the aid of a certain apparatus, we succeeded in bringing about a further subdivision of the silver. We were not surprised to find that the substance obtained differed so far from ordinary silver that it could no longer be regarded as the same elementary substance. It seemed to require a new name and a new chemical symbol. Inasmuch, therefore, as our theory was that this substance was common to both gold and silver, and in reality was the raw material out of which both gold and silver were constructed by the hand of nature, we named the substance *Argentaurum*...

"The next step was to ascertain whether this substance could be so treated as to be grouped into molecules of greater density than those of silver... We found that... *Argentaurum* can be aggregated into molecules having a density considerably superior to that of ordinary gold molecules. Whether we are right as to this or not, the condensed *Argentaurum* presents the appearance and is endowed with the properties of ordinary metallic gold...

"We do not consume any chemicals and other costly materials in our process; what we use is mainly energy in some of its various forms, such as heat, electricity, magnetism, gravity, cohesion, chemical affinity, x-rays and the like... Our chief source of expense is the time required for bringing about the desired molecular changes... One ounce of silver will produce three-quarters of an ounce of gold..."

(6)

Herbert Fyfe reported that Dr. Emmens' process comprised five stages: 1) mechanical treatment; 2) fluxing and granulation; 3) mechanical treatment; 4) treatment with a "modified nitric acid", and 5) refining. Dr. Emmens said:

"I regard the mechanical treatment as the *causa causans*. The fluxing and granulation serve, I think, merely to render the molecular aggregate susceptible of displacement and rearrangement." (15)

The mechanical treatment was accomplished by means of Dr. Emmens' "Force Engine", which exerted pressures in excess of 500 tons/in<sup>2</sup> at very low temperatures. Step 4, using "modified nitric acid", contradicts the statement made elsewhere, that "we do not consume any chemicals... in our process." (4, 7-12, 15, 16, 23)

Dr. Emmens included a sample of Argentaaurum and these instructions in a letter (21 May 1897) to Sir William Crookes:

"Take a Mexican dollar and dispose it in an apparatus which will prevent expansion or flow. Then subject it to heavy, rapid, and continuous beating under conditions of cold such as to prevent even a temporary rise of temperature when the blows are struck. Test the material from hour to hour, and at length you will find more than the trace (less than one part in 10,000) of gold which the dollar originally contained."

Sir Crookes was unable to replicate the experiment to his satisfaction. He reported:

"A specimen of Argentaaurum sent me by Dr. Emmens has been examined with the spectrograph. It consists of gold with a fair proportion of silver and a little copper. No lines belonging to any other known elements, and no unknown lines, were detected."

This analysis resembles that of ordinary bullion gold, which contains silver and copper to make it harder and more fusible than pure gold.

In a rejoinder, Dr. Emmens noted:

"I have received a letter from a very eminent Fellow of the Royal Society informing me that he has performed the crucial experiment suggested in my letter of May 21, 1897, to Sir William Crookes. The gold contained in the Mexican dollar after 40 hours of intense cold and continuous hammering was found to be 20.9% more than the quantity of gold contained in the same dollar before the test."

In 1898, Emmens floated the Argentaaurum Company, a syndicate which promised that for one ounce of silver (then worth about 50 cents) entrusted with payment of \$4.50 per ounce for conversion costs, the

investor would be repaid with 3/5 ounce of gold (then worth about \$11). Dr. Emmens' application for a patent on his process was refused, however, so production never began, since he would not have been able to protect his methods from unscrupulous competitors. (24, 29, 30)

Dr. Emmens was issued several U.S. Patents for inventions; at least two of them may be related to his process: #501,996 (25 July 1893), Electrolytic bath; and #501,997 (25 July 1893), Apparatus for Electrolytic Extraction of Metals. Dr. Emmens' Force Engine produced hammering pressures in excess of 500 tons/in<sup>2</sup> at very low temperatures. These effects can be achieved by a variety of modern methods.

Semantic ambiguities in Dr. Emmens' writings confuse the understanding of the process. At times, Argentaurum refers to a new element, or to the gold produced from it, or to Lea's intermediate allotropic silver.

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#### (7) Carey Lea ~

Carey Lea discovered the preparation of so-called "allotropic" and "intermediate" silver in 1889 while he was studying reductions of silver nitrate. "Allotropic" is a misnomer, however. In 1925, Dr. Richard Zsigmondy, Professor of Chemistry at the University of Göttingen, received the Nobel Prize in Chemistry for his study of Lea's "allotropic" silver under the ultramicroscope. Dr. Zsigmondy found that such silver actually was a monoatomic colloid of ordinary silver, not another isotope.

Lea determined that silver occurs in "allotropic", "intermediate", and ordinary forms. Ordinary silver is protean in nature. The aqueous solutions are colloidal monoatoms, and give perfectly clear solutions. The several forms of "allotropic" silver (a-Ag) dry with their particles in optical contact with each other, thus forming continuous films that are beautifully colored, perfect mirrors. Strong acids and pressure will convert a-Ag to the normal form. There are three forms of a-Ag, and all are unstable. (21, 22)

There is also a very stable "intermediate form" of silver (i-Ag) which is easy to prepare. It occurs as bright gold-yellow or green crystals with a metallic luster. Treatment with a very dilute solution of ferric chloride will enhance the appearance of its foliar structure, interpenetrating with plant-like ramifications, or fine acicular crystals up to 1 inch long.

Intermediate silver is hard, tough, and unaffected by pressure. It is nearly as indifferent to oxidizing and chlorizing agents as is normal silver. Intermediate silver can be formed from the allotropic varieties by light, heat, or chemical action. The simplest preparation is as follows:

"It has long been known that golden–yellow specks would occasionally show themselves in silver solutions, but could not be obtained at will and the quantity thus appearing was infinitesimal. Probably this phenomenon has often led to a supposition that silver might be transmuted into gold. This yellow product, however, is only an allotropic form of silver, but it has all the color and brilliancy of gold, a fact which was apparent even in the minute specks hitherto obtained...

"It is a little curious that its permanency seems to depend entirely on details in the mode of preparation. I have found many ways of obtaining it, but in a few months the specimens preserved changed spontaneously, to normal silver... The normal silver produced in this way is exquisitely beautiful. It has a pure and perfect white color like the finest frosted jewelers' silver, almost in fact exceeding the jeweler's best products. I found, however, one process by which a quite permanent result could be obtained... the following proportions give good results:

"Two mixtures are required: No. 1 containing 200 cc of a 10% solution of silver nitrate, 200 cc of 20% solution of Rochelle Salt [Sodium potassium tartrate] and 800 cc of distilled water. No. 2, containing 107 cc of a 30% solution of ferrous sulfate, 200 cc of a 20% solution of Rochelle salt and 800 cc of distilled water. The second solution (which must be mixed immediately before using only) is poured into the first with constant stirring. A powder, at first glittering red, then changing back to black, falls, which on the filter has a beautiful bronze appearance. After washing it should be removed whilst in a pasty condition and spread over watch glasses or flat basins and allowed to dry spontaneously. It will be seen that this is a reduction of silver nitrate by ferrous sulfate...

"Although the gold–colored silver (into which the nitrate used is wholly converted) is very permanent when dry, it is less so when wet. In washing, the filter must be kept always full of water; this is essential. It dries into lumps exactly resembling highly polished gold...

"If we coat a chemically clean glass plate with a film of gold–colored allotropic silver, let it dry, first in the air, then for an hour or two in a stove at 100° C, and then heat the middle of the plate carefully over a spirit lamp, we shall obtain with sufficient heat a circle of whitish gray with a bright, lustrous golden ring round it, somewhat lighter and brighter than the portion of the plate that has not been changed by heat. This ring consists of what I propose to call the "intermediate form"...

"With sulfuric acid diluted with four times its bulk of water and allowed to cool, an immersion of one or two seconds converts a film on glass or on pure paper wholly to the intermediate form...

"Its properties are better seen by using a film formed on pure paper, one end of which is heated over a spirit lamp to a temperature just below that at which paper scorches. The change is sudden and passes over the heated portion of the surface like a flash. Examining the changed part, we find:

1st. That it has changed from a deep gold to a bright yellow gold color.

2nd. When subjected to a shearing stress it does not whiten or change color in the slightest degree.

3rd. It is much harder, as is readily perceived in burnishing it.

4th. It no longer shows the color reaction with potassium ferricyanide and ferric chloride, changing only by a slight deepening of color.

"Of these characteristic changes the second is the most remarkable. The gold-colored silver in its original condition changes with singular facility to white silver; almost any touch, any friction, effects the conversion...

The intermediate form is distinguished from normal silver almost solely by its bright yellow color and its higher luster."

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