

HISTORY OF CINNABAR AS DRUG, THE NATURAL SUBSTANCE AND THE SYNTHETIC PRODUCT

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The main fact that is being established here is that cinnabar first came to be known as a drug, which was at that time recovered as the natural substance from its ore. The subject requires being treated as a whole, primarily indicating what led to the selection of cinnabar as a drug. Life in ancient times was hard and the aged incapable of much exertion was felt as parasite and was exiled as ascetic to live as best as he could in a forest. Here the first requirement of the ascetic was a drug that could strengthen him physically. He could then collect his ration from the resources of the forest. He now acted on the principle, like-makes-like, which later on became the Doctrine of Signatures recognized by several systems of medicine. This has already been discussed elsewhere.¹ Even Paracelsus believed in it and mentions a drug illustrating the above doctrine which appears in Jacobi's selection of his works.²

The Chinese ascetic found jade to be a hard stone which does not tarnish. He pounded it and took it orally hoping to see his body becoming tough and stone-hard. Later, it became a drug of longevity and even of resurrection, when the dead was interred with a piece of jade in the mouth. There is a famous finding, illustrated in Needham's classical work³ on Chinese civilization of "jade-cases from (royal) tombs (in which jade) ensured the incorruptibility of the corpse" (text abbreviated). The case is parallel to that of ephedra, known as *Soma* in Rgveda. It started with its juice as an anti-fatigue drink consumed thrice daily by the Aryan hunters. It then became the drink of longevity with the middle aged, and this automatically made it a drink of immortality. Finally, the plant was interred with the dead to expedite resurrection. This has been the discovery of Stein.⁴ Thus in both the cases, jade and ephedra began with utility, later became agencies of longevity and ended as conferring resurrection.

Sivin⁵ gives the "formula for grand unity jade powder elixir" of Chinese medicine. He explains that "the jade powder is extremely hard and difficult to pound fine". This, in fact, explains why it was selected as a drug to make the ascetic's body jade-like or tough. Moreover, the above formula also included quartz which easily rivals jade in resisting all deterioration due to weather. Besides jade and

quartz given in the above formula there are others where chalcedony was used. That such substances have been powdered and used as drugs goes to show the desperation rather than the common sense on the part of the user struggling to prolong his life somehow. We can easily conclude that the user of such drugs was an ascetic who realized that his life in a forest could not be very long. Finding that such substances have actually been used, Welch⁶ writes that "the hope of discovering the elixir (of life) prompted the alchemists (the ascetic) to grind up and eat every rock that came to their attention". This voracious appetite for strength-donating minerals was in fact an extension of having exhausted herbalism with the same desperation. Gutzlaff⁷ had previously observed that "there is scarcely a shrub, or a leaf or root which has not been adopted as an ingredient of medicine". With such first-hand knowledge of plants and minerals the ascetic became the real founder of medicine in China.

Continuing his search the ascetic found gold to be the one substance on earth which is fire proof. Hence it became the ideal drug to keep the human body deterioration-proof. Gold easily replaced jade and it has been shown⁸ that the inscribed character of gold, *Chin*, is an improved version of that of jade. Briefly gold as drug was looked upon as "super" jade, and even gold in China came to be known first as a drug. This has been duly explained in the article referred to above.⁸

It is obvious that gold, be it as fine granules, was an inert substance and left the ascetic very disappointed. He now resorted to another theory according to which blood is soul and redness is active principle or soul-concentrate. It follows that all red substances were rich in soul-content and can donate a quantum of life-force to its acceptor. Earlier, there was the theory that like substitutes like. Accordingly, when there was wound or blood-loss the wound was dressed with red ochre to replace the loss of redness as blood. Even the cave man used red ochre as a drug of longevity and later as that of resurrection, for he interred the dead smeared with red ochre. Such findings have been reported of the Neanderthaler as also of Peking man. Even in Baluchistan archaeologists have been able to confirm the same.

I have referred to red ochre as illustrating the Doctrine of Signatures as it does not signify redness as the active principle. In China the best drug of this category would be peach, which is blood-red at the core. In fact *Shou-Hshing*, the god-of-longevity, emerges from the peach. Peach became a sacred fruit. When an individual was required to take a solemn oath he was to do it in a garden of peach trees. This would be as sacred a place as a temple or a church. With the recognition of a god-of-longevity emerging from the peach no doubt is left as to the importance of peach. This at once takes it to its blood-red colouration seen at the core. This fact is of crucial importance and can not be over emphasized. There had been other plants, also red, and likewise considered as contributing to longevity. But there

did exist the belief that there can be something better. We have seen earlier that herbalism, of which Gutzlaff spoke, was superseded by mineralism which Welch has explained. Plants not being heat resistant gave way to rocks as more stable forms of drugs.

Hence Ko-Hung (Davis and Wu⁹) maintains that "the Red Herb has branches and leaves red like corals and when tapped its sap flows like blood" (text abbreviated). Yet "materials of vegetable origin being subject to decay and destruction can not prolong people's lives" (p. 239). Then looking for a blood-red mineral they finally found cinnabar to be red as blood. Before cinnabar they had discovered minium or red oxide of lead but cinnabar was superior in its approach to blood by its colouration. The technique of purifying metals was by subjecting their ores to a furnace. When ores of minium were discovered these were purified in a furnace and lead was recovered. When ores of cinnabar were heated they recovered mercury since cinnabar is red mercuric sulphide. They could not recover cinnabar from its ores by using heat. This fact is not mentioned in the literature but is crucial to our understanding of how cinnabar was used first and then as a drug. In China the ascetic was the indefatigable seeker of drugs of longevity and it was he who used jade and exploited gold granules found in river beds and finally selected cinnabar which was red like blood and heat resistant unlike peach which was liable to decay. This explains how gold and cinnabar each was used first as drug.

Since cinnabar decomposed with the heat employed in purifying minerals, its ores were powdered as fine as possible and subjected to levigation. The fine suspended material in water was poured into a vessel and when such fractions amounted to a sizeable quantity of cinnabar it was filtered. The pictograph of the vessel containing cinnabar underneath a level of water is seen as *E* in Fig. 1. A crate with two long poles to hold them had two shorter ones across, over which a cloth was stretched



Fig. 1. C, Tan written with brush. D, Tan, pictograph of powdered cinnabar being filtered on a rectangular piece of cloth. E, Tan filtrable cinnabar in a receptacle with a layer of water above. From Wieger (1927).

to serve as filter. *D* in Fig. 1 is the pictograph of such a filter. Li¹⁰ gives illustrations of filtration used for preparing Chinese ink and the same being sufficiently primitive must have also been used to recover levigated cinnabar. One such simple filtering arrangement can easily give *D* of Fig. 1 as its pictograph. Thus in *E*, cinnabar is seen under water and in *D* on the filter cloth. *C* in Fig. 1 is the version of *D*, expressed with a writing brush, in its modern form. All the items of Fig. 1 come from Wieger.¹¹ Karlgren¹² had specialized in interpreting Chinese inscribed characters. As character 965 he writes "*Tan*, vermilion (or synthetic cinnabar character Fig. 1, *D* here) is a picture of a melting pot and its content cinnabar, the Chinese alchemist's decoction". The terms "melting-pot" as also "alchemist's decoction" are self contradictory, for decoction implies boiling and not melting. Above all *E* in Fig. 1 can represent a pot which it does, while *D* in Fig. 1, to which he refers, by no means depict a crucible; it obviously represents a filter, the like of which Li has illustrated as actually in use. Karlgren¹³ must have realized the incorrectness of his earlier view for, by 1940, he admits that "the explanation of the graph is uncertain". But what is important is that he takes the inscribed character *Tan*, cinnabar, to Chou dynasty so that it can be dated c. 1000 B.C. Then the knowledge of *Tan*, cinnabar, must be at least 200 years earlier, which makes it 1200 B.C. Waley¹⁴ writes that "it is certain that cinnabar was one of the most important life-giving substances sought by the ancient Chinese and I would suggest that the formula of early Chinese alchemy was essentially recipes for compounding cinnabar". He is correct in so far as that the Chinese were the first people to take it as a drug and alchemy attained its highest stage by synthesizing cinnabar-gold, *Chin-Tan*. This was done much later when the art of sublimation had been invented. By now we are in a position to realize that the Doctrine of Signatures or the principle like makes like, gave gold as the ideal ever-lasting substance which became the best preserver of the human body. The other theory that redness is soul-concentrate gave cinnabar as the one substance on earth that is as red as blood and also heat-stable, though not fire-proof. We can safely conclude that the seeker of longevity must have preferably used two substances as drugs, gold to preserve the body and cinnabar to prolong life.

But the idea of longevity, best conceived as immortality, admits that when body and soul are one they are inseparable and everlasting. What are two are bound to separate sooner or later. Accordingly, what had hitherto been a cult of longevity now tried to prepare a substance which is gold-cum-cinnabar wherein either gold becomes as red as cinnabar or cinnabar becomes as fire-proof as gold. With this aim the cult of longevity tried to produce a synthetic drug, dual-natured but as unity. This phase came to be recognized as alchemy which began with its first synthetic drug about 500 B.C. Now, when gold and cinnabar were heated together to fuse them an amalgam of gold was recovered. Cinnabar ore could only

deliver mercury for it decomposes with heat. There was no option left than to solve the problem of preparing red-gold in some other way. It has been explained elsewhere¹⁵ that they took gold granules and rubbed into them an extract of a herb of longevity. The resultant became red-gold, red colloidal gold—a herbo-golden complex. It was designated according to its make-up. In Chinese Gold is *Chin* and Plant juice is *I* or *Yeh*. Then *Chin-I* or *Chin-Yeh*, literally gold-cum-plant juice, became the best drug of longevity where gold and redness were inseparable from each other. It was a heat resistant product. In Fukin dialect *Chin-I* is *Kim-Iya* which entered Arabic as *Kimiya*. It was transliterated into Greek as *Chemia* but pronounced exactly as the Arabs did.¹⁶ This was about 200 B.C.

There was however the limitation with *Chin-I* that it was only brick-red as powder while the ideal drug of longevity was to be blood-red. Cinnabar was definitely blood-red and gold can be added to it. This now required making cinnabar synthetically. Experiments with cinnabar gave the technique of sublimation. It was then established that cinnabar is constituted of sulphur and mercury. Then sulphur, mercury and gold, all three, subjected to sublimation gave the product required. Cinnabar-gold was one sublimable product. Just as *Chin-I* was named according to its make up, the resultant of the sublimation was called *Chin-Tan*, literally gold-cum-cinnabar. Comparing *Chin-I* and *Chin-Tan*, each was dual natured but nevertheless as unity. Each was redness incorporate or soul-like. Each contained gold to preserve the body and redness as soul to prolong life, and in neither of the two gold could be separated from redness. In *Chin-I*, gold was the main constituent and it contained redness as its inseparable quality. In *Chin-Tan*, gold was in traces, but it was inseparable as it sublimed along with cinnabar. This explains how Ko-Hung, the Chinese alchemist, observed that "I found nothing other than *Huan-Tan* (sublimated cinnabar) and *Chin-I* the two substances for the achievement of *Hsien Tao*, the way to immortality" (Quoted from Davis and Wu⁹ p. 234) (with the extract condensed). *Huan-Tan* would be pure cinnabar which was later improved upon by *Chin-Tan*, gold-cum-cinnabar. When *Chin-Tan* was finely powdered it was blood-red or soul-like, which is what best characterized a drug of longevity. The active principle is a quantum of soul which added to the stock of soul increases life-span. Gold was also there and would suffice to preserve the body. This product is made in India even today and is called *Makaradhvaja*. When it is levigated and the finest particles collected it is called *Anu-Makaradhvaja*, or atomized-Makaradhvaja. I mention this to emphasize that cinnabar was first obtained as drug also by levigation. Then the atomized form due to its fine nature, makes it more soul-like. Such a product is both dust-fine and blood-red. What is to be noted is that the technique of levigation first gave cinnabar as a natural substance as drug and again it is the same that gave the best form of synthetic cinnabar as *Anu-Makaradhvaja*.

The history of cinnabar is really the history of alchemy, for the first synthetic drug with which alchemy began was to turn gold red like cinnabar. The birth place of alchemy then would be China. It was taken to Egypt by pagan Arab sailors. The Alexandrian Greeks welcomed it as promoting rejuvenation and longevity. However, the Greek word *Chemia* for alchemy is taken to the root *Khem*, being the ancient Egyptian word for Egypt. Let us now consider how far Egypt could have been the birth-place of alchemy. Earlier, the immediate antecedents of alchemy have been shown to be two simples, gold and cinnabar, to preserve the body and to prolong life span. Let us now consider the position of Egypt with regards to these two basic substances of alchemy, Edwards¹⁷ of the British Museum kindly informed that "gold was never used for medicinal purposes in ancient Egypt". Also that "cinnabar was unknown to the ancient Egyptian". Above all, Prof. Klaus Baer¹⁸, Professor of Egyptology at Chicago intimated that "there was no medicine for longevity. If one pleases God one is rewarded with long life". Thus in ancient Egypt there was no drug constituted of gold, nor of cinnabar, above all no drug of longevity. With such facts discussion need not be continued further. The question however does arise as to how it is that China did give birth to alchemy. The first fact to be realized is that both among the Chinese and the Indo-Aryans there has been asceticism and it was the ascetic that needed a drug to acquire bodily strength and longevity. The Egyptians had no ascetics and hence there was no drug of longevity.

Now it can be documented that Chinese medicine began not as a system of treating diseases but of prolonging life since the founder was an ascetic who struggled to acquire drugs of longevity in the first instance. Nakayama¹⁹ tells us that "The Chinese term *Pen-Tshao*, which is the equivalent of pharmacology, originally meant the study of *medicines for longevity* and immortality. Later, it was applied to the study of *Materia Medica* in general. The primary goal of Chinese alchemy was to find a recipe for immortality rather than obtain noble metal from base metal". It means Chinese medicine was founded by ascetics whose aim was longevity using a mixture of simples and it later evolved as alchemy when a dual-natured drug, as unity, appeared as the first synthetic drug man prepared. And alchemy, inspite of its adoption in the West, continued to retain its original aim. Holmyard²⁰ quotes Dastin, an English alchemist, writing to Pope John XII about 1320 A.D. that "according to the tradition of all philosophies (alchemy) makes an old man young and drives out all sickness of the body". This has been the ideal even when the cult of longevity depended entirely upon herbalism with the god-of-longevity conceived as emerging from the peach. There is a parallel case in *Rasāyana*, the branch of Indian medicine, aiming at rejuvenation and thereby at longevity, and the *Rasāyana* system was also founded by ascetics. The best case of using cinnabar as drug would be that of Newton. He was born incapable of

getting married. To acquire virility he prepared cinnabar and used it orally. London²¹ writes that "On *one thousand and eighty occasions* he recorded tasting materials containing lead, arsenic and mercury. Another source may have been the dark red paint with cinnabar as its chief pigment (which he prepared). Spargo and Pounds found that hairs of Newton showed unusually high concentration of lead, antimony and mercury". The metals Newton used are typical of alchemy and believed to have aphrodisiac properties. What is missing above is traces of gold. Gold is the antidote against poisoning by cinnabar. That is why *Makara-dhva* incorporates traces of gold. Colloidal gold is still used in some cases of arthritis but its mechanism of action remains unknown.

SUMMARY

In ancient times life's struggle was severe and the aged being felt as parasite was exiled as ascetic to live in a forest. Here he needed a drug to strengthen his system and selected drugs on the principle, like makes like, which later appears as the Doctrine of Signatures. The Chinese ascetic took as drugs jade, quartz and chalcedony, minerals which are weather-proof and were imagined to make the consumer's body stone hard. Later, jade was superseded by gold which being fire-proof was considered the ideal agency to keep the body immune to deterioration. To prolong life he acted according to the theory that blood is soul and its redness the active principle or soul-concentrate. Hence peach, which is blood red at the core, became the fruit of longevity and *Shou-Hshing*, the god of longevity, emerged from the peach. Other plants incorporating redness were also used as herbs of longevity. But vegetable drugs were liable to decompose. Choice was directed to minerals which are red. These being heat resistant would be superior to plant products. They first selected minium but finally cinnabar. This being the one inorganic substance on earth nearest to blood in its colour was accepted as the ideal drug of longevity. Its redness as soul would enrich the stock of soul of the consumer and would prolong his life. Thus the cult of longevity selected two best drugs, gold to preserve the body and cinnabar to prolong life. It was considered that the ideal drug of longevity should represent unity though it may be dual-natured, for the two are bound to separate themselves. In effect it meant that either gold becomes red like cinnabar or cinnabar becomes fire-proof like gold. Cinnabar could not be fused with gold. Then a herbal drug of longevity rubbed into granules of gold did give red-gold, red colloidal gold. This was named according to its make up as *Chin-I*, gold (cum) herbal juice, a herbo-golden complex. *Chin-I* in Fukin dialect was pronounced *Kim-Iya* which entered Arabic as *Kimiya* and finally gave the word alchemy. Even as late as 1300 A.D. alchemy in Europe aimed at rejuvenating the aged and thereby prolonging life.

Cinnabar could not be recovered as such by heating its ore. Hence it was powdered, levigated, and filtered. The inscribed character *Tan*, cinnabar, is a pictograph of a product on its filter. Later, the technique of sublimation was discovered and when sulphur, mercury, and gold were sublimed together they recovered it as cinnabar (cum) gold, *Chin-Tan*, in Chinese. It is made even today in India and is called *Makaradhvaja*, which when pulverized and levigated gives *Anu-Makaradhvaja* or atomized form of Makaradhvaja. Thus the technique of levigation also persists along with the use of cinnabar as a drug.

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