Some of the Old Chinese Drugs used in Obstetrical Practice.*

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A review in detail of the many old Chinese drugs used as remedies for the diseases of women would be too lengthy a task for one paper, moreover, it would be a difficult one on account of the conflicting ideas associated with their use, because of the lack, in some cases, of scientific work upon their exact identity, and the need of scientific evidence to prove some of their great claims.

Rather is it of primary importance to consider some of the reasons which have led to their use. History abounds with instances of drugs being taken for the treatment of diseases for which they were of no real use whatever, some strange dogma or delusion having established them, and human credulity sustained their use over long periods of time. In the evolution of modern medicine one sees the passing of numerous elementary ideas upon which empirical medicine was founded. In this paper there will be cited three which are closely related to the present subject.

1. *The doctrine of signatures.*[1] This doctrine is a very ancient one to be found extensively quoted in the Orient and the Occident. In the 16th century Paracelsus was a strong advocate of it, but its influence in Europe waned toward the end of the 17th century, when it was treated as a poetic fancy. The theory was that the Creator in providing herbs for the service of man had stamped upon them, in many instances, and indication of their special value. Mandrake roots resembling in some cases the male form were used by the Greeks for the treatment of sterility.[2] (See Fig. 1.) In Europe aristolochia was used for the womb, it is also used in China for chronic fluxes of women and children, it being specially cultivated in Chekiang under the classical name of "Ch'ing Mu Hsiang" 青木香. Leeches and beetroots are recommended in China for dysmenorrhœa, the association of ideas is quite obvious. It is probable that the reddish colour of the roots of polygonum

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multi-florum, 何首烏 (Ho shou wu), led to their use for post-partum hæmorrhage, etc. Stalagmites shaped like a woman's breast are prescribed as a galactagogue, possibly the calcium therein may have some value.[3]

The Gingko recommended for uterine fluxes has characters of colour and shape which may have suggested this use. A well-known plant called I Mu, meaning benefit to the mother, clearly depends on this principle. There are two similar varieties of the plant, one with purple and one with white flowers. The purple one alone is said to promote fertility.



FIG. 1. Chinese Mandrake, taken from Kleinweg de Zwaan's Volkerkundliches der Chinesen, etc.

Before passing away from this doctrine one should observe that in some cases the signatures of drugs were observed after their real use had been discovered. The poppy capsule, for instance, under this doctrine was regarded as a brain medicine, on account of its shape like a head, but it is likely that its value as a brain soother was established long before any such inference was made.

2. *The Doctrine of Sympathy.*[1] This is perhaps best explained by a quotation from Pliny, "If any person shall be sorry for a blow he has given another, afar off or near at hand, if he shall presently spit into the middle of the hand with which he gave the blow, the party that was smitten shall presently be free from pain." The sympathetic ointment in great favour in the time of Good Queen Bess always contained the moss from a dead man's skull, the man should have died a violent death and his name should not have had more than three letters. In China the abrus seed has a striking name 相思子, meaning love sick, referring to

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the legend of a man who died by the side of one of these shrubs, whereupon his wife came and wept till she died also. Their use for expelling cat-devils is quite sympathetic in character, greatly resembling the formulas advocated by Madame Sevigné (1696). "If a cat-devil has been seen use one seed each of abrus, castor oil and croton add cinnabar and wax. Make into pills and administer at once. Surround the patient with ashes and place her before a cinder fire. She is to spit the medicine into the fire and as it bubbles up, mark it with a cross on the surface of the fire and the cat-devil will die."[3]



FIG. 2. "Emperor Shen Nung," the father of Chinese medicine, and "Fu Hsi," the first Chinese philosopher to set forth the dual principle of "yin" and "yang." (Picture from Peking Drum Tower Museum).

3. *The Doctrine of Temperatures.*[1] The compound prescriptions used in old Chinese medicine are usually defended on the ground of synergistic action. As a matter of fact far more involved principles are concerned which rightly should be classed with the old Galen doctrine of temperatures. It would be plainer if one used the term "harmony." Whilst one does refer to hot and cold there is also use made of the terms humid and dry. The object of a prescription was carefully to harmonize these various qualities so as to produce a mixture cold in the third degree or dry in the first. When one recognizes this principle one sees that in a long prescription there occur many drugs not of specific value for uterine diseases but they are put in to harmonize the whole. This is no simple matter for the qualities of drugs are closely bound up with the doctrines of *Fu Hsi* (see Fig. 2) concerning the principles of

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Yin and Yang resident in the various body organs in greater, medium and lesser amounts, and all carefully correlated in the plants, which led up to formulating these old prescriptions which are so standardized to-day. Much more might be said concerning the influence of the stars and geomancy as relating to drugs, but it seems from everyday practice that such things, whilst they count much in some forms of medical practice, do not play an important part in pharmacy. However strange some may be I have not read in Chinese medicine of any such conscious fraud as that arising out of the "Chymical Marriage of Christian Rosencrentz" put forth in 1616 in Europe a few years after Li Shih Chen's Pharmacopœia, in which the writer claimed divine revelation for his knowledge of how to make gold, and to heal the sick. His many followers showed their sense in some ways by not meeting more than once a year and by not publishing their discoveries, but their chagrin must have been extreme when the author before his death expressly stated that he had written his revelations purely as works of fiction.

The modern educated man is apt to be cynical in his attitude to remedies based upon such unscientific dogmas. We must look further than such, however, and be more pragmatical in our attitude. Long usage is deserving of attention and study. When we have applied all our most critical tests of the action of a drug we come back to the ancient question, Does it work? Has it any real use? Let us take the evidence of three drugs which have received some attention.

1. Ginseng.

Ginseng is pronounced Jen Shen in the official Chinese language, the name 人參 jenshen being given on account of the resemblance of the forked roots to a man. (see Fig. 3.) As noted in our introduction this is dependent on the doctrine of signatures.

At one time wild Manchurian ginseng was considered the finest. It was fabulously scarce, it was a government monopoly, and was valued at $6000 a pound. The high price of this drug has led to the saying, "Eat ginseng and hang yourself," (on account of debt).

The miraculous powers ascribed to ginseng by the Chinese led to considerable comment in scientific journals in earlier days. Chemists and physiologists turned to it expecting to find one of the most potent therapeutic agents. With disappointment it was thrown on the scrap heap as worthless, but to-day a new era brings to light fresh knowledge of its composition and action, making it worthy of fresh attention,

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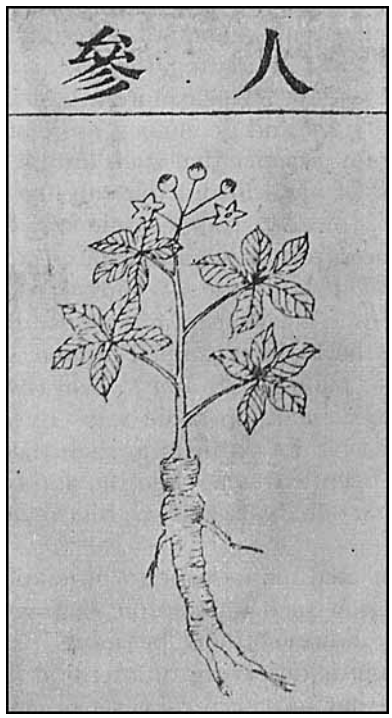

FIG. 3. Woodcut of "Ginseng." Taken from Pen T'sao Kang Mu.

The reputed virtues of Ginseng. Apart from the usual potency said to result from the astral influences of the constellation of Orion upon this plant there is ascribed to it alterative, tonic, stimulant, carminative, and demulcent properties. All form of debility, spermatorrhœa, asthenic hæmorrhages, various forms of dyspepsia, the persistent vomiting of pregnancy, chronic malaria, continued fevers, exhausting discharges, old coughs and polyuria, are treated with this drug in confidence of relief and cure.[3] Standard books upon modern medicine refer to these uses in such language as the following. "This plant possesses little more than properties of a stomachic . . . In China both varieties are used as a panacea, and particularly for vomiting, dyspepsia, nervous disorders, and sexual impotence."[4] "The extraordinary medicinal virtues formerly ascribed to ginseng had no other existence than in the imagination of the Chinese. The constituents of ginseng are quite unimportant."

Two Japanese scientists, Abe and Saito,[5] have recently isolated a potent glucoside, named by them "Ginsenin" which is soluble in absolute alcohol but not in ether nor in petroleum ether. This

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followed the chemical work done by Kondo and Tanaka who reported the preparation of a pure saponin like glucoside by extraction with methyl alcohol and subsequent purification by precipitation with lead acetate and barium hydroxide.

The active principle. The potency of this principle was demonstrated by Saito.[6] He showed that ginseng has a restraining effect on adrenalin hyperglycæmia, alimentary hyperglycæmia, and diuretine hyperglycæmia.

Abe and Yonekawa[7] found two particularly important actions of the ginsenin :

"1. Ginsenin has a mild tail-raising action when it is injected into the subcutaneous tissues of the young white rat. The tail-raising action may be due to excitability of the sacral cord, and is one of the typical reactions of an aphrodisiac, such as yohimbin.

2. Ginsenin has a mild sympathicotonic action. When it is applied to the excised organs, such as intestine or uterus, they become sensible to the action of adrenalin. When there is a mild sympathetic stimulus it gives rise to warm feeling. Consequently the warm feeling, which is caused by oral administration of ginseng may be due to this action.

By these experimental results, we found the reason why the ginseng has been favoured as tonic and aphrodisiac by laity, and we determined that the glucoside "Ginsenin" is the active principle of ginseng."

Further work has been done on its diuretic effects.[8] When ginseng is taken in large amount the output of urine is increased and later decreased. It is stated that the so-called pure principles formerly isolated were mixtures and did not even represent the active part of the drug.

2. Tu Chung. Fig. 4.

Eucommia ulmoides. 杜仲 (Tu-chung). This tree is said to be found in Hupeh, Honan.[3] Another name is 木棉 (Mu-mien), which refers to the fact that on breaking the bark, and drawing the fractured edges asunder, a delicate, silvery, silky fibre is seen, which may be drawn out to the length of almost an inch without breaking. The bark is the part used in medicine, and is met with in quilled or shrivelled pieces of four to five inches in length. The brown, roughened cuticle is often removed in greatest part, exposing the dark brown fibre. The flowers, fruit, and wood are astringent, and may be used in medicine. The action of the bark is considered to be tonic, arthritic, diuretic, and depurative, and

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is especially prescribed in difficulties of the liver, kidneys, women's diseases, and as an anhydrotic.[3]



FIG. 4. Woodcut of "Tu Chung" from the Pen T'sao.

The naturalist Wilson came across large numbers of these trees in Szechuan from which the commercial product is obtained. It is the only tree of this natural order in China, and previously, on account of its inland habitat, was not well known. Wilson fears that they may be entirely destroyed if the State does not protect them.[9] The characters of the bark have been carefully studied by Fugita and Shiroma,[10] the lenticels on the outer surface and the latex cells are quite characteristic and serve to distinguish this drug from another used under the same name in Japan, viz. Euonymus japonicus. (See Fig. 5.) At one time the French held

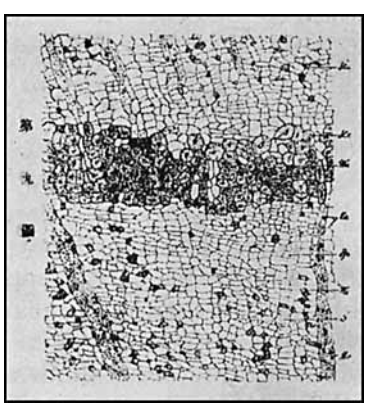

FIG. 5. Cross section of the bark of Eucommia ulmoides, showing the latex cells, as published in Japanese by Fugita and Shiroma.

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out hope of using this tree as a source of rubber, the chemical work of Dybrowski[11] having shown that there can be obtained quite a good yield. No potent physiological principle has yet been isolated, but I know that certain workers have obtained from it most hopeful results when testing out its action upon the uterus.

3. Angelica. Fig. 6.

A. polymorpha var. sinensis. 當歸 (Tang Kuei.) This ranks next to licorice in frequency of use in prescriptions. It comes principally from the three western provinces, but it is also prepared in Shansi, Shantung, and Chimli. It is met with in the form of brown fleshy rootstocks, branching and dividing into a mass of large, close, pliant rootlets, something like gentian root. The interior is soft, sometimes mealy, and of a whitish or yellow colour, or sometimes much darker. The odour is very strong, resembling that of celery and the taste is sweetish, warm, and



Fig. 6. *Tang-kuei* from the Pen T'sao Tu P'u. showing the unbelliferous flowers and roots resembling human extremities.

aromatic. The drug is much used by medical men in China in the treatment of the menstrual, chlorotic, and puerperal diseases of women. It is used in hæmorrhages of all kinds, colds, fluxes, dyspeptic complaints, ague, and a large number of other difficulties. Its name is said to be derived from its asserted power to make the female "revert" to her husband, and much of its employment is probably to be referred to the wish of women to stimulate their generative organs, in order to increase their opportunities of bearing children.[12]

This drug was introduced into Western medicine in 1899 by Merck in the form of a liquid extract sold under the name of

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Eumenol, and later in the form of Eumenol tablets. These preparations were recommended in the treatment of menstrual disorders.

More recently this drug has been worked out pharmacologically in the laboratories of the Peking Union Medical College with the following results.[13]

Extracts were prepared either by boiling the drug with water or by percolating it with diluted alcohol, the percolate being freed of alcohol and suspended in water for animal experiments. When an extract prepared in either of these ways was injected intravenously into dogs anæsthetized with ether, urethane, hydrated chloral, or phenobarbital (luminal), three effects were quite constantly produced :—

1. A fall in blood pressure, sometimes, but not always, followed by a rise.

2. Diuresis, which occurred no matter what changes in blood pressure were noted, and was sometimes very striking and prolonged.

3. Contraction of smooth muscle—uterus, intestines, bladder. (See Fig. 7.)

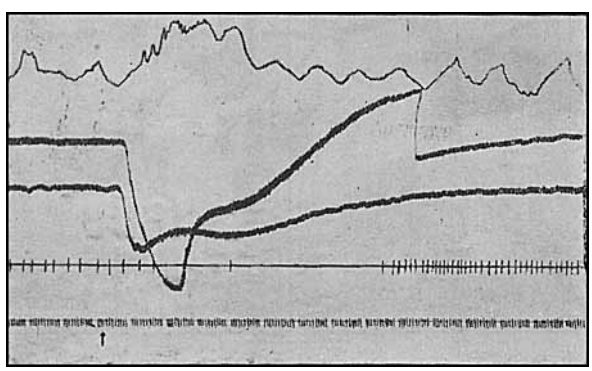

FIG. 7. *Tang-kuei* experiment on female dog, not pregnant. Upper record : uterine contractions. Second record : kidney volume. Third record : carotid blood pressure. Fourth record : urine output, in drops. Time, five seconds.

The action on the uterus. Uterine contractions followed the injection of the whole or distilled extract in 10 out of 20 experiments on dogs anæsthetized with phenobarbital, urethane or ether. Of these 20 experiments, 16 were made on non-pregnant animals, two on pregnant ones, and two on lactating animals. All the 10 failures occurred in experiments on non-pregnant dogs, so that the drug caused contraction of the non-pregnant uterus of the dog in only 37.5 per cent. of attempts, while in pregnant or recently

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delivered animals it was 100 per cent. effective. While the number of experiments of the latter type was relatively small, the results suggest that Tang-kuei had a more constant stimulating action on the pregnant or recently evacuated uterus of the dog than on the non-pregnant or virgin organ.

In anæsthetized rabbits 0.1 or 0.2 mg. of a nonvolatile sugar free basic crystalline material isolated by us, caused powerful uterine contractions and a sustained rise in blood pressure; in one experiment on a pregnant animal, successive doses of 0.1 or 0.2 mg. each elicited a powerful uterine contraction, and when a total of 0.6 mg. was reached the contraction was strong enough to burst an amniotic sac.

Isolated rabbit uterus went into prolonged spasm in the presence of one part in two millions of these crystals. (Fig. 8).

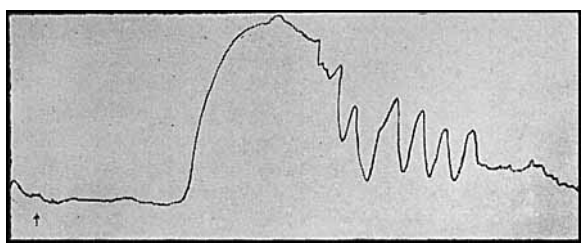

FIG. 8. *Tang-kuei* experiment on isolated virgin rabbit uterus, suspended in Tyrode solution.

Strips of human uterus, removed for fibromyoma, were stimulated by one part in 250,000. With either preparation, the effect disappeared on replacing the solution containing the drug with fresh Tyrode solution, and could be brought out repeatedly in the same preparation with no diminution in the effect.

Isolated rabbit gut showed an increase in rhythmic movements in the presence of one part in 100,000 of this material. The action was not influenced by atropine, and could be brought out again and again by substituting fresh solution and adding more of the drug.

BIBLIOGRAPHY.

1. Wootton, A. C. *Chronicles of Pharmacy*, London, 191-.
2. De Zwaan, J. P. *Nat. Verh. v. d. Hollandsche Maatsc. d. Wetensch. t. Haarlem, derde Vers.*, Kleinweg 1917, vii.
3. Li Shih Chen. *Pen T'sao Kang Mu*, 1596 *A.D.* (Chinese Dispensatory).
4 .National Standard Dispensatory, 1908, Philadelphia, U.S.A.
5. Abe, K. and I. Saito. *Jap. Med. World*, 1922, ii, 166.
6. Saito, I. *Keio Med. Journ.*, 1921, i, 8.
7. Abe, K., and M. Yonekawa, *Transac. Far East. Assn. Trop. Med.*, 1925, i, 1065.

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8. Inada, S., and J. Takamezu. *Jap. Med. World,* 1922, ii, 343.
9. Wilson, E. H. "A Naturalist in Western China." New York, 1913, ii, 41.
10. Fugita, N., and M. Shiroma. *Journ. Pharm. Soc. Japan,* 1926, dxxxi, 385.
11. Dybrowski and Frou. *Compt. rend. Acad. Sc.,* 1899, cxxix, 558.
12. Stuart, G. *Chinese Materia Medica,* Shanghai, 1911.
13. Schmidt, C. F., Read, B. E., and Chen, K. K. *China Med. Journ.,* 1924, xxxviii, 362.

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