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CHINESE MEDICINE

A COMPARISON WITH RENAISSANCE AND

STUART MEDICINE

being a Thesis submitted for the degree
of M. D. Edin.

BY

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Aim of Thesis Within our own day, there has struggled out of its secret lair a complex and unwieldy civilisation that had been regarded by all as the decaying image of a world that was dead. China, after many alarms from without and convulsions within, is now a factor in world history. Ever a mark for the curious and the reputed home of wonders unspeakable, she is rapidly assuming the veneer of Western externals that will prove a greater obstacle to the discovery of her true character than any grandiose edict of seclusion.

Of the wildest stories of her old-time quaintness and barbarity, there are few to equal in fascinating horror the commonly accepted ones of wholesale infanticide, deliberate crippling and nauseous but magical cures. But it is humiliating to recollect that our much vaunted Occidental superiority is but a growth of the last century or two. And it will be my endeavour to show how similar our position was at least till the end of the 17th. Century. And that European Medicine at the time of Harvey was a duplicate of that in the Middle Kingdom.

Philosophical basis. The Art and Science of Medicine in all countries and eras has always been coloured by the contemporary philosophy even when it has not been dominated or crushed by it.

In China, both philosophy in general and medicine in particular, though independent of any recorded external influence, present the same picture to-day as they did centuries ago. The culture from which they sprang in common is, however, traceable to that fountain-head of all culture, Mesopotamia. There by the headwaters of the Oxus and the valley of the Taurus, the Sumerians and Aryans were cradled with the ancestors of the Chinese in that vague period dated as about B.C. 3000 or 4000.

It is to this fact one can trace many of the striking analogies between the writing, and religion, and medicine of these varied peoples.

Again the highly wrought Babylonian culture, borrowed and developed by these Semitic conquerors of old Accadia from the Sumerians was imported to a large extent into China during its later feudal period about a thousand years before our era. Thus from this common source developed the distinct civilisation we now know in harmony with the national type. The positivism that underlies the Chinese

character (for their representative, Confucius, is a true Agnostic) cannot resist the degrading animism of the earlier peoples from which they came and amongst which they settled. Dominated by this philosophy, the principles elaborated in the post-Confucian age are burdened by useless astrological notions and antiquated physics. They are in bondage to a system half Mesopotamian, half native, at least two thousand years old.

"One part is true and has high value. Six parts are fanciful and useless." This is the estimate of a writer in the Journal of Peking Oriental Society. It is this common heritage from a primitive philosophy that explains the wonderful parallelism in Oriental and Occidental notions of physiology, the basis of therapeutics all the world over.

As Neuberger shows, the highest achievement of Babylonian civilisation is a scheme of the universe rounded and complete which is exactly the case with the Chinese system, self-contained as it is and free from all internal contradictions. All attainments empirically arrived at are either forcibly harmonised or rejected. A marvel of formalism, it owes any advantages it has to its foundation on a cosmic theory, much on the Chaldean lines.

There all things were held to represent emanations of the Divine power which is omnipresent. Thus the same force impelled and the same laws ruled all things. Natural phenomena corresponded each to each as reflections in a mirror. The over-arching dome of heaven was quite reasonably taken to be the most important manifestation, and as a consequence astronomy was held to give the clearest insight into the working of a symmetrical universe.

So fortified by age-long records and commentaries of human history, astrology ruled by the analogy of sun and seasons. The individual was demonstrated to be but a copy of the universe, a microcosmos.

By their proverbial industry and subtlety the Chinese pursued this theory to its minutest details. Macro- and microcosm were interdependent as well as analogous. The pantagram "pa kua" ascribed to Fu-hsi B.C. 2900, expresses this symbolically, being a diagram into which can be read all the manifestations of the life universal, the human microcosm included.

These mysterious associations became the only legitimate field of speculative investigation. They had to be endorsed but never corrected by whatever facts empiricism brought to light. An exaggerated reverence

for the past bred an unreasoning belief in authority. And as a natural result intellectual stagnation followed in every department of knowledge, choked with a childish pedantry and the subtlest formalism. With all their powers of practical observation, the Chinese have smothered with the weirdest fantasy any ability to appreciate the higher abstraction of thought. At any rate, what originality there may have been disappears after the 10th century.

At the start, there is no clear distinction between physiology and metaphysics, which is as true of Europe as of China. Here the Summist School of medieval Scholasticism only voiced the ambition of its time. From Hugo of St. Victor early in the 12th century to Bacon in the 17th, they occupied their time systematising authorities. Theology, logic, metaphysics, physiology and physics were not even differentiated. They could not be studied separately as they were mutually complementary. And more, they elucidated each other. For to the early thinkers, a captivating analogy was irresistible.

As Allbutt says: "the riddle of the formation of variable and transitory individuals in the eternal ocean of existence was explained by some such interaction

as that between 'cause and effect' 'form and matter' 'male principle' and 'female element' or the 'thought and expansion' of Descartes." This exactly corresponds to the Chinese theory of the Dual Powers, = 氣 from which cosmos sprang.

The male Yang, and the female yin are the basis of all phenomena. Yang is active and yin is passive. Yang is expansive and governs all that is light and pure and causes it to ascend. Yin governs the heavy and thick, causing it to descend. As their saying is "On the tops of the mountains, there are no trees owing to the excess of yang principle, below the trees, there is no grass owing to the excess of the yin element." Similarly diseases are to be explained. Health is due to a due balance. The stages of fever clearly show the influence first of the chill, depressing yin and then of the excitatory and heating yang. In cholera the yang does not ascend as it should, the yin descends and the diaphragm (sic) is drawn down. Of the 12 organs of man, six are ruled by yang, whose chief domain is -- of all parts -- the humerus. Six are ruled by yin, which resides in the blood. Thus a right proportion of strength and weakness, heat and cold, dryness and fluidity constituted health.

From early times in the West, there had been a gradual recognition of certain characteristics of matter, such as heat, cold, denseness and rarity, moisture and dryness. These were the ἐναντιότητες of Anaximander and figure greatly in his cosmology. But of a formless substance was separated these opposites which by combination produced elements. As Dryden puts it in his 'St. Cecilia's Day'

"From harmony, from heavenly harmony
This universal frame began."

Even in Bacon's "Novum Organum," we find these antitheses conceived as entities, a survival of the Mesopotamian theurgical-empirical scheme.

These elementary contraries as constituents of the elements combined in the human body also. This was the foundation of the Humoral Theory, said to be borrowed by Hippocrates from the East. But it was chiefly expounded by that great Medical authority for Western Europe, Galen.

In a state of health, the humours were mixed in due proportion, each possessing the normal amount of the elementary qualities as ;-

cholera,	hot and dry.
melancholy,	cold and dry
phlegm,	cold and moist.
blood,	hot and moist.

This popular view is well illustrated by Shakespeare when his Antony says of Brutus;

"His life was gentle, and the elements
So mixed in him, that Nature might stand up
And say to all the world; This was a man".

The four "elements" of fire, water, earth and air with the fifth or "quintessence" of Aristotle are represented in China by the five elements, earth, wood, fire, metal, water. And this number five exercises the same fascination there, as in Western lands does the number seven. The latter is derived more directly from the Semitic "tabu" on seven, illustrated in Babylonian prescriptions and enumerations of drugs or the Jewish Sabbatical observance or the planetary category of mediaeval astrology. In China, diseases are classified according to the five elements, and so are tastes and consequently medicines. Organs, colours and planets are also correlated.

Of this Martin in his "Cycle of Cathay" gives an amusing instance. It appears that a clerk attached to an expedition complained that he was suffering from an illness caused by too much "wood," and suggested that the best remedy would be connected with "earth." In fact, he was suffering from life on ship board and possibly hinted at a cure by a spell of life on land !

All medicines that are sour belong to the element wood and are classed as "impeding," affecting the liver. Bitter medicines, classed as possessing "looseness and warmth" belong to fire and affect the heart. Sweet things are "strengthening and harmonising" as of the earth and have as their province the stomach. Acids "disperse and mollify" the lung conditions under the element metal. Salt things "descend" to the kidneys, naturally the region of "water."

Thus we have some such formal scheme as

<u>Elements</u>	<u>Tastes</u>	<u>Organs</u>	<u>Colours</u>	<u>Planets</u>
Earth	Sweet	Stomach	Yellow	Saturn
Wood	Sour	Liver	Green	Jupiter
Fire	Bitter	Heart	Red	Mars
Metal	Sharp	Lungs	White	Venus
Water	Salt	Kidneys	Black	Mercury

There are also the five vapours arising from rain, sunshine, heat, cold and wind. The viper, scorpion, centipede, toad and spider comprise the five poisonous animals. The toad even in the land of topsy-turvydom lives under the same opprobrium as at home. The mystic power of five is responsible for the generation of the ~~leucic~~ ^{leucic} virus. For it is held that in inter-course with five consecutive men a prostitute becomes syphilitic from the fifth. And the household remedy for all domestic emergencies is the "water of the five precious metals" gold, silver, iron, lead and tin obtained by boiling personal ornaments and a handful of scrap metal.

The "Great Plan" written about 2000 B.C. in the dim early feudal period gives these five elements. But diseases are more rationally classified in the latter feudal period (B.C. 1100-200). For example, under the four seasons, headaches and neuralgias come in spring, skin diseases in summer, fever and agues in autumn and bronchial and pulmonary complaints in Winter.

The renewed influence of the Persian empire from B.C. 800 - 400 gave an impetus to the spread of astrological notions which we have already noticed. And it is here that we get another striking parallel with Western practise.

The occult sciences were so much in accord with the temper of the middle ages that they swayed

medical theory and practise, till the revival of learning. Even at the Renaissance the accepted theories held so powerful a sway that men doubted their own observations, if they conflicted with authority.

The apparatus of the medical art was derived largely from archaic versions of Galen and Aristotle. Galen's great authority, Hippocrates, was not bewildered by the plausible ratiocinations of the speculative schools of his day, because his clinical method was based on the observation of outward maladies. He came at a time when the Asclepiad tradition was strongly assailed by the competition of the wandering Pythagoreans set loose by the break-up of their colony in Crotona. It was the Sage of Cos, who in the fifth century B.C. first separated medicine from philosophy. Aristotle, Plato and the Ionians too had little fancy for astrology, so sane and clear-sighted was the spirit of the Hellenic race. But, of all the treatises of Plato, the Timaeus was the one set apart to instruct the medieval world. The unscientific and fantastic chimera of the microcosm again exerted its baneful influence. The genius of Aristotle could not altogether modify the neoplatonism of the Alexandrian School and Ptolemy's 'Tetrabiblon' as astrological treatise, was current throughout the Western

Schools for centuries. The art of forecast, so plausibly systematised, naturally attached itself to medicine. At its summit in the 14th century, Kings and Princes courted astrology, while physicians dared only exhibit drugs under the aegis of the heavenly bodies. It required the exquisite satire of Dean Swift to crush its popularity, when in 1707 he predicted with grave irony the exact date of the death of the notorious John Partridge, who was a cobbler turned apothecary and almanac maker, and then followed it up with a report of the fulfilment of his prophecy with an elegy containing the famous epitaph:

"Here, five feet deep, lies on his back
 A cobbler, starmonger, and quack.
 Weep, all you customers, who use
 His pills, his almanacks or shoes."

The fame of this spread all over Europe. And the inquisition of Portugal, hearing of the verification of the predictions gravely ordered the books containing it to be burnt as obvious emanations from the evil one.

But at the time of Harvey, what progress there was loomed through a fog of astrology, cheiromancy, withh burning, and black magic. The welter of methods and practices was reduced to a state corresponding to that of

Rome in its decay, where medicine in spite of Greek Science held by the ancestral Etruscan tradition, which was again derived chiefly from Egypt and Chaldea.

For two or three centuries in England, the fourteenth century "Doctour of Physik" delineated by Chaucer is no bad type of his kind.

"For he was grounded in astronomye.
 He kepte his pacient a ful greet del
 In houres, by his magik naturel,
 Wel, coude he fortunen the ascendent
 Of his images for his pacient.
 He knew the cause of everich maladye
 Were it of hot or cold or moiste or drye
 And where engendered and of what humour.
 He was a verry parfit practisour."

His authorities too were nearly all Arabs or Arabian versions of old Greeks. It was they who having acquired the stores of medical knowledge preserved at the downfall of Rome in the Eastern Empire, had added in Spain through their Latin translations the vast mass of Eastern lore to the older Hippocratic tradition.

"We knew he the olde Esculapius,
 And Deiscorides, and Aesculapian,
 Old Ypocras, Haly and Galien;
 Serapion, Rasis and Avicen;
 Averrois, Damascien and Constantyn;
 Bernard, and Gatesden, and Gilbertyn."

The claim to superiority is based on a complete knowledge of the classic authorities, and it was in medicine as in all other departments that the tyranny of authority governed everything. Europe needed at that time chiefly stability and coherency. No schism was brooked in Church, State or Science. ^{Galen} ~~Galen~~ dominated medicine and Aristotle philosophy. Remnants of the old lore of Greek Medicine became a drug instead of a help in this atmosphere of oppressive uniformity. It was the heights of Galen's visionary conceits that imposed upon the Middle Ages. And as surgery was regarded as unfit for a scholar and a gentleman, the mutilated fragments of a perverted science were handed down untempered by exact surgery. Such a state of matters is well illustrated by an extract from "The Husbandman's Practice" (1464). "It is good to purge with electuaries, the moon being in Cancer; with pills, the moon being in Pisces; with potions, the moon being in Virgo. It is good to take

vomits, the moon being in Taurus, Virgo or the latter part of Sagittarius. To purge the head by sneezing, the moon being in Cancer, Leo or Virgo. To stop fluxes and rheumes, the moon being in Taurus, Virgo or Capricornus. To bathe, the moon being in Cancer, Libra, Aquarius or Pisces."

It seems hardly comprehensible that great and stable societies have been built up on transcendental schemes of thought. At least the social fabric can bear no rough handling. Yet such was the inertia of scholastic dogma that such a galaxy of talent as Palissy, Copernicus, Kepler, Galileo, Vesalius and Harvey made little impression for a hundred years or so.

It is not easy for us to imagine that there was a time in this country when it was inconceivable that progress could be made only by the successive abandonment of provisional hypothesis when reasons were not tested, but were weighed against each other.

So in China, the mass of the people and the old-style literati cling in all matters to the Old teaching, except where the influence of Western Schools, such as that of Hong Kong or Shanghai, makes itself felt. The one medical college of the Empire was The Tai-i-Yuen in Peking. Its particular office was to preserve carefully the teaching of the old medical classics and to

discourage departures from the recognised methods of treatment. From its students, the Court physicians were chosen. Its curriculum embraced the following branches.

1. Diseases of the large blood-vessels
2. Diseases of the small blood-vessels.
3. Fever
4. Disease of women
5. Diseases of the skin
6. Acupuncture
7. Eye diseases
8. Diseases of the throat, mouth and teeth
9. Diseases of bones

This is a pitiful commentary on the self limitations of a so-called science.

It recalls the school of the Cinque Cento in Italy where elegance was preferred to matter and style to knowledge. Even in the 15th century the University of Paris, that School for all Christendom was petrifying in like manner. In Vatican, Sorbonne and consistory, it was felt that as studies made government difficult, they should be discouraged. The Parliament of Paris issued an edict that no teacher should promulgate anything contrary to the

accepted doctrines. Such culture contained the seeds of death, but little else.

But Marcel Monnier in his preface to Matignon's "Superstition en Chine" paints China in a similar plight. "Superstitieux, le Chinois, c'est a tel point qu'on ne saurait se faire une idée des entraves apportées aux moindres actes de son existence par la geomancie, la necromancie, la sorcellerie, la mauvaise oeil, et autres enfantillages"!

Anatomical Foundation.

But if China in philosophy, and physiology recalls the worst periods of medieval times. In Anatomy she is still more backward. Imagination, not observation, is the guiding principle, and the School of Hippocrates seems still to survive in the middle Kingdom. There is no distinction drawn between tendon and nerve, the word 筋 'Kin' doing duty for both, as in old times νεῦρον served the Greeks. Arteries and veins are both as the Hippocratic φλέψ. Capillaries are of course undreamed of. In osteology, the cranium, pelvis, forearm and leg are described as one bone each.

The larynx leads through the lungs to the heart. Some such similar idea may account for the

The central organ of the liver is equally important as a reservoir of blood and animal courage.

In "Twelfth Night" Sir Toby speaking of Agueface says :

"For Andrew, if he were opened, and you find so much blood in his liver as will clog the foot of a flea, I'll eat the rest of his anatomy."

The Chinese have a corresponding phrase 肝火盛 plenty of liver-fire alluding to a courageous man. The liver with its 7 lobes is placed on 9th vertebra. Their word 胆 'tan' also signifies both gall and courage. This gall is supposed to be strained out of the fluids of the body and stored in the gall-bladder. Another instance of corresponding notions, for in Europe without any knowledge of the structure of functions of the organs, or the passage of nutritive fluids from the alimentary canal to the blood-vessels, the process of digestion was supposed to be accompanied by various "coctions" and the yellow-bile (choler) and the black bile (melancholy) were said to be strained off from the blood. These two with the blood and the phlegm constituted the four humours, before mentioned.

The old-time Chinese also mention a hollow organ without which the viscera would not functionate. This is the San tsiao, which may be identified with either the peritoneum or pleura. The brain is assigned only a small space in the cranium and from it the spinal cord proceeds and ends in the testicles. It is from this central nervous system that the semen is produced, corresponding to the Hippocratic idea of the brain as a gland exuding a viscid fluid. It is in the right kidney however, that the Orientals place the seat of the sexual function. We also find it stated as a fact that the ribs, in women, number fourteen, while men possess only the usual twelve.

This state of knowledge is to be ascribed to the result of Confucian maxims. They inculcate the duty of every man preserving intact the heritage received through his mother from his Ancestors. Mutilation was discouraged. Amputations are very rarely submitted to, even under Western advice, and then often the severed limb is preserved by the patient in order that it may be buried with him. I have known men, who under the stress of suffering and weakened by illness, have consented as a last resort to the dreaded amputation, risking thereby their possible exclusion from the promised Paradise of departed spirits. But on

approaching the anxious but healthy and orthodox relatives for the requisite permission, one has only succeeded in inspiring them with the fear that their parent's soul would thus be unfitted to act as the tutelary spirit to his family, and the wretched man is hurried off that he may at least die at home in full possession of all his members, which are his chief passport to the realm of beneficent influences.

As a development of this theory, there can be no post mortem examinations, even at inquests which are conducted by quite childish guess-work and superficial inspections. In some few instances, a more enlightened or possibly only curious or morbid order is made for the dissection of criminals. In their case the sentence of decapitation is based on the supposed lasting handicap to the malefactor in the spirit world.

In Britain the sentence of hanging used to be emphasised by the addition of a subsequent surrender of the body to the dreaded anatomist for dissection. Of this, many of the skeletons in the Edinburgh Anatomical Museum are examples.

Even Galen's expedient of the dissection of lower animals does not seem to have found favour, though his invasion of anatomy by speculative thinking which foisted metaphysics in another guise upon medicine is closely simulated. He had, however, advanced somewhat on the Hippocratic content, though, as Sir William Turner points out, there was no accurate knowledge of anatomy before Aristotle.

Neither after Galen was much continuous work accomplished till the time of Vesalius. Bacon's plaint in "The Advancement of Learning" (1605) that in medicine he found "much iteration, but small addition" is exemplified by such an anatomical table as may be gathered from the contemporary "Anatomy of Melancholy" of Burton (1621).

The body is divided into the

(1) Part contained and (2) the parts containing.

These latter are also divided into those that are similar and those that are dissimilar (our modern tissues and organs). The dissimilar ones fall into the two classes outward and inward, and of the inward parts some are ignoble and some noble. Of these last there are three, the brain, the heart with the lungs, and the liver with the digestive organs.

But this is far out-distanced by the curious perversion of Chinese orthodox anatomy that results in a transposition of the viscera and is the foundation of their very ancient theory of the significance of the pulse. As the heavens above and the earth beneath enclose between them the human race, so man in himself exhibits a like threefold divisions. The body is divided into three parts, the superior extending to the epigastrium, the middle to the umbilicus, and the inferior comprising the rest. Now the pulse can be examined at any one of eleven points, but the usual one, as with us, is at the wrist. Also they use three fingers, but such is the refinement of the art that in the pulse on the right side the upper finger should detect the beat caused by the heart, the middle finger that of the stomach and spleen, and the lower finger that of the right kidney. Further on the left side should be discernible by the upper finger the beat belonging to the lungs, in the middle that of the liver, and below that of the left kidney and small intestines.

Much as one would wish to give the Chinese the credit for the prehistoric recognition of the circulation as of other valuable discoveries such a dogma

is clearly at variance with any correct idea of anatomy. It however has long been practised and excited the admiration of such a wide-read scholar as Isaac Vossius (1685).

It is our cursory examination of one pulse only that so often lowers the Western physician in the estimation of the Chinese. His doctors, when they do happen to undergo a course of training are supposed to spend two years in acquiring the knowledge of the fifty-seven variations of these six pulses in the eleven recognised situations. And no assumed manner of omniscience will blind the shrewd Chinese country farmer to the fact the chief means of diagnosing his serious "internal disease" is being slurred over by a pretentious barbarian. For an accomplished native physician, after only one or two questions at most will spend even more than an hour on the examination of the all-important pulse, perhaps supplementing this by noticing the outward appearance of the patient and his tongue. The tip of the nose is said to be an index of the state of the stomach and the lobe of the ear of the kidneys.

In Europe, before Harvey's epoch-making discovery, the pulse was ascribed to various agencies,

Francis Bacon's hypothesis being given as "Pulsus cordis et arteriarum in animalibus fit per irrequietatem et dilationem spirituum et receptorum ipsorum per vice."

These spirits were the outcome of all animate life and variously formed. Thus the chylus or product of the digestive coctions was conveyed to the liver and then converted into blood. That great organ gave it nutritive properties and it became the "natural spirits." On its arrival in the left ventricle however, by admixture with the air from the cooling lungs and by the innate beat of the heart itself, it was laden with "vital spirits."

The brain, besides being a refrigerator of humours, generated from these "vital spirits." something that existed apart from the blood and was supposed to be carried in the nerves, the so-called "animal spirits." These were pent-up and impeded in their passage by vapours arising from indigestion.

Thus arose a kind of justification of Phlebotomy, by which the vapours could be got rid of and the animal spirits liberated again. As in Defoe's story of the French prisoners rescued by Robinson Crusoe, whose temper is allowed to be more volatile,

more passionate, and more sprightly, and their spirits more fluid than other nations.

"Their spirits, whirling about faster than the vessels could convey them, the blood grew hot and feverish, and had help not been at hand would in a few moments more have been dead; our surgeon was obliged to let above thirty of them of blood." And again he has a reference to the custom. "I do not wonder that with a reprieve they bring a surgeon also, to let blood of the Malefactor that very moment they tell him of it, that the surprise may not drive the animal spirits from the heart and overwhelm him."

It was on these lines, that the orgie of phlebotomy was indulged in. It even went to such lengths, that it seems as if it were only now that we are recovering from the reaction to it which marked the 19th century. The Chinese disapprove of it, for to their reasoning a fever is like a pot boiling. It would be requisite to reduce the fire rather than to diminish the liquid in the vessel. "If" as it is naively expressed, "a cure of the patient is really desired."

It is to this horror of the sight of their own blood that is attributable the want of boldness in surgical procedure. A stolid labourer will patiently

suffer all the pain of a prolonged operation, but faint at the sight of the blood-tinged mucus from a tooth extraction. Long seclusion from the march of events and the shock and alarms of warring nations has left the Chinese with an unmitigated contempt for the mercenary soldier and a marvellous ignorance of extensive wounds or formidable mutilations.

The popular styptics are pepper-water, paper ashes, the burnt scales of animal skin, and such household remedies as are often seen in the West, as solution of alum or powdered tobacco.

And yet, when the feudal states were after many struggles united under an absolute monarchy (circ. B.C. 200) the knowledge of anaesthetics of a kind was utilised in what appear to be quite serious operations.

The justly celebrated Dr. Hua is famed for performing an operation on a General in which he opened his arm and scraped the bone to cure an obstinate wound caused by an arrow. It was this physician who supplemented his therapy with surgery. Of him it is said ~~in the~~

that when his medicines were of no avail for "internal complaints," he administered hasheesh and opened the abdomen with a sharp knife. The viscera were washed without causing pain, the diseased part removed and the abdomen sewn up with medicated thread and plastered.

Thread made of mulberry bark was highly thought of. There are also traces of the neolithic and also ultra modern custom of trephining for headache.

A poem by Su tung po is also considered to be descriptive of the operation for breaking up and dissolving cataract. The instrument is compared to the beard or awn of wheat, which is not a bad simile for the cataract needle. The "pearl within the eye" (a phrase exactly echoed in the popular phraseology of this country) is said to contract and interfere with the inward light of the eye which confuses the sight and a misty haze develops. The operator was careful not to wound any of the blood-vessels. Eye operations still include paracentesis of anterior chamber and needling for cataract.

Inflammation is treated with goat's gall, woman's milk and cheilidonia.

Milk is still a household remedy for similar cases here at home, and the cheilidonia or greater celandine has always been regarded as a specific for the eye. It is mentioned by John Wesley in his tract of domestic medicine, where he directs that it should be mixed with the pulp of a rotten apple. And a book of "Collection of receipts in Physik" (1759) brackets this same rotten apple with leaves of euphrasia or eye-bright for any hurt of the eye. Indeed Milton makes the Archangel Michael purge Adam's visual nerve with euphrasy and rue.

But for the most part in China, the term 'surgery' can only be applied to such procedure as cupping, cauterization with the iron and with mugwort and the almost universal acupuncture. This last was early introduced. The Tso chwen (580 B.C.) mentions the use of the stone needle as being the first employed. The great antiquity of the custom is thus suggested and reminds one of the stone knives used by the Augurs of Republican Rome that Livy speaks of (I 24). The rationale of the treatment

is comparable to that of phlebotomy. The whole frame is supposed to be permeated with minute canals carrying the corresponding animal spirits. The excess of these escapes through the puncture made by the needle and the part affected, whether superficial or deep obtains relief. Many risks are run by this form of "closed method" surgery though years are supposed to be spent in learning the ³²⁰ points at which the needle may be inserted. But as they may be a foot or so in length, abdominal viscera and joint cavities suffer many indignities. Yet we have, as late as 1801, E. Darwin in his 'Zoonomia' suggesting "In cases of strangulated hernia, could acupuncture be used with safety?"

The companion terror to Phlebotomy of the old-time practitioner was the cautery, actual and potential, which by the device of counter-irritation or even of actual combustion of the disease gave relief. With the analogous practice of blistering it was widely used in this country by a whole school of men dubbed the "causticators" who speciously promised all kinds of radical cures by this simple, outward means.

The sight to see, however, is some case of chronic arthritis in China, his body all blazoned over with the scars of the cautery, patiently and hopefully applied again and again, while the sufferer perseveres in his usual occupation of growing the water-loving rice plant in the marsh-lands where his livelihood is sought. The favorite method used to be the burning of a small cone of the downy covering of the leaves of the *Artemesia vulgaris*. The usual name of Moxa is from the Japanese contraction of their word "moe kusa" or burning herb. It was introduced into Europe from the East and is mentioned in Philosophical Transactions (1677) for the removal of gout. Inflammatory swellings of all sorts, deep-seated pains, earaches, headaches and corns were all treated by this method. The material employed as a substitute was often carded cotton or a pad made from a spiders web (quoted by Murray's Dictionary from Cyclopaedia of Practical Medicine 1833). In fact, the practice did not die out in Scotland till well towards the middle of last century.

Professional Status. At the present day in China the medical profession is not very highly esteemed. For the generality of practitioners are men who, if not coming of a family of physicians, are failures in other lines of life. It is only necessary for a bankrupt shop-keeper or a disappointed candidate for Civil Service honours to procure a book or two of prescriptions. He then sets up with a parade of learning a "Hall of Healing" and trades on the credulity of the lower classes, who will form the bulk of his practice. They are chiefly impressed by the learned man's power to read the mysterious books on which both they and he rely for treatment. This backed up by the sight of the immense spectacles and plausibility of manner go far, as in other countries, to establish confidence. Some Europeans call all the native practitioners quacks, and swindlers. But this is by no means always the case. Can Europe yet boast that she is entirely rid of the specious charlatan? But it is to the age of the Renaissance and the succeeding centuries that we must look for the companion picture to this horde of prescribers. Of the awful chaos of the medical profession in the 17th century it is not easy to give an adequate picture. For around the two classes of Barber-Surgeons - who had to be restrained by a Parliamentary injunction

to prevent pollution of the roadways from the enthusiastic practice of their privilege to "let blood" - and the Apothecaries - whose representative is sketched in "Romeo and Juliet" as a starveling in tattered weeds and overwhelming brows - there surged a motley throng of chirurgeons, alchemists, herbalists et hoc genus omne only redeemed at rare intervals by such men of genius as Harvey. They were recruited from all ranks of life and the "Medical Observer" says that of the famous quacks "one was a footman, two were porters, another a mountebank others respectively a rough rider, a ship-broker, a Jew pedlar, and a Clergyman termed 'empèric' for want of a living." Epicurus sneer that Aristotle, after having been a prodigal, enlisted and later sold antidotes in the market place as a travelling quack would have fitted many a thriving man of those days. Notably, the redoubtable Nicholas Culpeper, soldier, physician, astrologer and politician.

After the revolution against the monastic prohibitions and monopolies in the 16th century, "all the King's subjects having knowledge or experience of the nature of herbs whether obtained by regular study or by Divine favour recovered the right of ministration to any outward sore or wound according to their cunning." The original Greek texts re-acquired and re-read began to disturb men's old-established beliefs.

The thoughtful few, instead of accepting the distorted and cob-webbed versions of the ancients, were inspired by their great searching spirit and followed the true Hippocratic method. Physiology shared with physics the reformation that stirred so strongly in theology and politics alike. But the great Elizabethan sunrise burst of exploration and literature shed little glory on the medical profession. True, the old monopoly was being challenged, internal dissension and desertion made alarming progress. Schools vied with each other in bizarre theories. But the heritage of cabalistic tomes passed into the hands ^{of} mountebanks and 'medecins ambulants,' while the satirist found in both pedant and quack a rare mine of comedy. In France matters were not a whit better. The hide-bound University of Paris, assailed though it was on all sides was still the home of that dogmatic medicine, whose various elements formed one mass of authorities and influences, classic, medieval and contemporary, impossible to unravel. But the universal practice is summed up in Molières' comic formulae of the ceremonie burlesque,

"Clysterium donare

Postea seignare

ensuita purgare"

etc.

The great equipment for the practitioner was, however both in France and England, a glib tongue. And that "pudderer in physic all his life" , Francis Bacon, conceived it one of his accomplishments that he could "outcant a London chirurgeon"

This was by no means an easy task if we take the representation of one given by Thomas Middleton in "The Fair Quarrel" (1617) "Surgeon:- Now I must tell you his principal dolour lies in the region of the liver; marry, I made him a quadrangular plumation, where I used sanguis draconis, by my faith, with powders incarnative, which I tempered with oil of hyperion and other liquors mundificative.

But I purpose, lady, to make another experiment at next dressing with a sarcotic medicament made of iris of Florence; thus, mastic, calaphera, opoponax sacrocolla.

Patient's Sister:- Sacro halter ! What comfort is this to a poor gentlewoman ? Pray tell me in plain terms what you think of him

Surgeon:- Marry, in plain terms I know not what to say to him; the wound, I can assure you, inclines to paralism, and I find his body cacochynic: being then in fear of fever and inflammation, I nourish

him altogether with viands refrigerative, and give for potion the juice of savicola dissolved with water cerifolium. I could do no more, lady, if his best ginglymus were dissevered"

No wonder that the physicians of the day were satirised and laughed at and treated with contempt for "they saw things from afar off, as from a high tower and after the manner of spiders spun webs of sophistical speculations from their own bowels."

As in Stuart Britain so in China, the educated and well-to-do treat themselves for all but long continued and serious diseases. So the late Dr. Payne holds that Cato and Celsus were not professional doctors but patrician Romans who took medical charge of their own families and slaves. And in both countries, there is the same predilection for the physician, whose father was a physician before him. Indeed, James VI of Scotland brought down to London his body-physician, David Bethun, who came of an ancient Highland family, whose hereditary practice was medicine, as similar families in Wales and Ireland, as well as Scotland, were hereditary keepers of relics, or historians, poets, etc.

A well-to-do Chinaman will call in such a one who coming in his sedan chair to the house, as on a ceremonial visit, will be received and offered a drink of aromatic tea and possibly a whiff of tobacco. His examination of the patient may take 2 or 3 hours, but the time is devoted mostly to the detailed examination necessitated by the intricate pulse-lore. Very few questions are asked. The state of the tongue and the facial expression may be noted. And then the complicated prescription is written out usually on red paper to be prepared at the druggist. For the better class practitioner never dispenses his own medicine, while the druggist does not prescribe. Though the struggling Quack may decorate his room with a few samples.

Doctor William Bulleyn, cousin to the unhappy Queen Anne, lays down in his 21 Rules for Apothecaries a similar understanding in England "The Apothecary is to meddle only in his own business and to remember he is but the physician's cook." It was when the London Apothecaries increased to 1000 and started prescribing that the anarchy that characterised the profession was made worse. The physicians retorted by opening dispensaries where, it was advertised, drugs were sold at cost price. The state of affairs is well shown in a tract of 1701

entitled the "Bellum Medicale" where legislation is regarded as the only remedy.

There are no legislative restrictions in China, though gross carelessness and mal praxis are supposedly guarded against by edicts. And in some towns, the authorities hang a red lamp over the door of the practitioner whenever a patient of his dies. This seems to act more as an advertisement for the wide experience of the doctor and not as a deterrent to would be patients ! The best-read men are often those possessing B.A. degrees who fail to get government appointments. They sometimes spend two years with an experienced physician to learn the clinical significance of the all-important pulse.

The popular esteem is exemplified in a school text-book that places medical practitioners above priests but below geomancers and school masters. While in the after life, a place in the second hell is reserved for ignorant, but persistent physicians. The fourth hell is for those using bad drugs. The seventh for the resurrectionists and cemetery profaners. And in the lowest hell lie the criminal physicians, gored by sows.

Historical Parallel. It must be always borne in mind that, as Dr. Krause says: "Dass die heutige chinesische Medicin sich nicht nur im Zustande des Stillstands sondern auch im Verfalle befindet, unterliegt einem Zweifel." The whole present-day system rests upon the universal treatment of disease by internal remedies. These are divided into tonics, astringents, resolvents, purgatives, and alteratives, and they are in the large majority of instances of vegetable origin. Of 442 drugs examined by Hobson, 314 were parts of plants, 78 were from animals, and the remaining 50 would be classed in the mineral kingdom.

Very early in the history of their materia medica, comes soda sulphate which was "invigorating" And we have the authority of Pere Cibot for the statement that cinnabar was used internally as early as the 3rd. century B.C., when also a kind of mesmerism was adopted as an adjuvant to drug - administration, consisting of the burning of incense and muttering of charms accompanied by moving the limbs of the patient in a prescribed manner, in which some see the germs of our more modern massage and medical gymnastics. These however had been treated of as

early as the reign of the Emperor Huang-ti (B.C. 2697-2597) He is credited by the ancient writers with having published, besides a treatise on hygienic gymnastics, a large anatomical work, the Mi-tzing, and an encyclopedia. But even before him, the successor to the primeval Fu-hsi, had experimented and discovered the healing properties of herbs by tasting them. And the Emperor Chen-hung (B.C. 2737-2697) had written a Materia Medica with as many as 260 receipts contained in it.

But it is to be feared that most of these circumstantial statements are to be discounted, largely owing to the desire of later editors and compilers to give authority to their dicta by invoking the authorship of legendary monarchs and beneficent dieties. The Egypto-Assyrian theory in a similar way attributed the origin of medicine to its secrets being divulged by the sons of God to the daughters of men during their intercourse. A deified King of Assyria was also subsequently claimed to have a large share in the discovery of the healing art. This was Bacchus who probably owes this reputation to the fact that he was also the reputed

inventor of wine. And Pliny makes an Illyrian King and a physician to a King of Mauretania the respective sponsors of the Plants gentian and euphorbia.

This regal connection with Divinity on the one hand and with medicine on the other, is well illustrated in that very common practice of the King's touch for Scrofula. This was instituted in England at least as early as the reign of Edward III, who first made a public display of the power professed by the Kings of France from the days of Clovis. Gold Medals or "touch pieces" were coined and a regular office was inserted into the Service Book under Henry VII. which did not disappear from certain editions of the Prayer book until the middle of the 18th century.

The efficacy of this method of healing rests on respectable evidence is credited by such men as Heylyn, Collier and Bp. Bull. It is stated that so popular did the Royal Healing become during the reign of Charles II., that over 10,000 strumous persons were "touched" by him. But the practice was cut short on the accession of the Hanoverians in 1714. One of the last well-known cases is the pitiful and unavailing one of Samuel Johnson, who in his third year, weak and ailing was taken up to London, inspected by the Court Surgeon, prayed over by the Court Chaplains, and stroked, and presented

with a piece of gold by Queen Anne.

Alchemistic Fancies. But amid all this jungle of ancient compilations and redactions one looks in vain for any large generalisation of results or even minute analysis of element. As a result of patient researches for the Elixir of Life and the Philosopher's Stone, the Chinese of the present day have a number of exceedingly simple and economical processes often subtle in their preparation and brilliant in their results. But their practical skill far outruns their theoretical knowledge. Alchemy, that parent of modern chemistry, does not seem to have appeared among them till introduced from the West about A.D. 150. At any rate, the science seems to have degenerated into a mass of curious trials of the purity of substances which attest the ancient prevalence of that habit of sophistication that, as Flint remarks, is the original sin of the Chinese. At a very early date, sulphide of mercury was known to Chinese experimenters. It naturally tended to acquire miraculous powers as "it defied the fire, and came out a pure and noble metal." So too it was ascribed the power of raising men to the rank of the Eight Genii or Immortals, as well as combining with other substances to form metals.

This is the identical theory of the

European alchemists who postulated a "prima materia" capable of transmutation by the addition of various elements. This was early identified with the "mercury of the philosophers," which was not so much the actual 'hydrargyrum' itself, as the innate spirit of the mercury, only to be isolated by sundry manipulations. The true philosopher's stone was generally regarded to be sulphur. And its spirit with that of mercury by mutual interaction produced all the metals of which gold of course was the most valuable and the most sought after.

This theory was held by such scientists of their time as Newton (1642-1727) Boyle (1627-1671) and Boerhaave (1668-1735) though not with all its attendant phantastic theorising, by which in the popular usage of the day alchemy and magic were bracketed together. For both West and Far East were strongly affected after these long centuries by the heritage of ancient Persian influences and Babylonian planetary symbolism, which crops up again and again, as in Chaucers' "Chanoun Yemannes Tale":-

"The bodies sevene eeke lo hem heer anoon
 Sol gold is, and Luna silver we threpe,
 Mars yren, Mercury quicksilver we clepe,
 Saturns leed, and Jupiter is tin,
 And Venus coper, by my fader kin."

Possibly, as suggested by M.P.E. Berthelot, this was used as a mask to hide the trade secrets of those who wished to hold the monopoly of imitative jewellery. And that in course of time these transmuters of the base metals succeeded in deceiving themselves that gold was ^{really} ~~really~~ produced as they had led their dupes to believe.

This ultimate and most noble of all metals, gold, came to have a great place in the pharmacy of the nations, which it has not yet altogether relinquished, the "gold-cure" still wielding a fascinating influence in the treatment of dipsomania, hysteria and other widely differing neuroses.

But it was in that great age of charlatanry the 17th century, that it gave its name to all kinds of quack remedies, being only faintly rivalled by "vin amétille" containing chiefly antimony. They are both mentioned by that satirist of his time, Molière, and pilloried in his "Le

medecin malgré lui " There the "Gold Drops" are equivalent to the Elixir of Life, a few drops of which the parrot-doctor, Sganarelle, uses to restore life to a woman, already dead six hours ! The West and East are in the mass not so very far apart and especially in those earlier times.

For Koh-hung, an alchemistic author in China of the fourth century states with great gravity that "He who swallows gold will exist as long as gold." And further, "He who swallows the real essence of the dark sphere of heaven (jade) will enjoy an everlasting existence."

This jade, which is chemically a silicate of alumina and iron seems to unite all the magic qualities, which pearls and precious stones have been attributed with in the West. It is the hardest and heaviest of pebbles, of varying tints and shades and is eagerly sought after for articles of vertu and for charms and amulets. I once spent a most interesting afternoon with a Chinese Jeweller, who related, one after another, a whole series of fantastic tales of the magic properties and protective power

of this precious stone. It is supposed to be the solidified sap of magnificent mountains in the far West. It is the favourite symbol for all that is rare and beautiful. The uncovered diminutive feet or "golden lilies" of some Court favourite are referred to as the precious "jade shoes". And the morning dew on the fair fruit blossom is not the sparkling diamond of the West, but the whitest and purest jade to the Eastern poet.

My informant was at the time wearing a perforated disc of the mineral of a greenish tinge with curious red markings in it. He averred that it was his most valued possession. The red markings were due to its having "absorbed the blood from a corpse, which must have been buried in the time of the Han dynasty." It had since been recovered and was now for all intents and purposes a sort of duplicate or secondary "life" of his own. For, if he met with any accident, which might otherwise prove fatal to him, this age-old blood-containing charm would be broken and therefore the necessary 'life' being spilled and spent, he would in consequence escape with his own life.

Theophrastus unites Jade and emerald. And Pliny, the great authority for the Middle Ages, affirms that Jade or Jasper (the same word as used by the pseudo-Orpheus) is the colour of emerald and was worn in his time by the Easterns as an amulet. The Jade of Oceania popular in later centuries in Europe is really a feldspar, called nephritite. It was supposed to be a specific for the pains of nephritic colic, and was worn round the neck. In fact, a M. Voiture, quoted by Blondel in a report of the Smithsonian Institute, writes to a lady friend of his, Mademoiselle Paulet, that his embarrassment at receiving gift of a Jade necklace from her was relieved when he recollected that it was not an avowal of tender sentiment on her part but rather a kindly help to relieve him of the gravel from which he suffered and for which such necklaces were used in his time. And Monardes, a Spanish Physician of the period is translated by a 17th Century writer as saying :-

"A gentleman, having a stone put it on his arm and he doeth make hym to expell and caste out much sande, that many times he doeth take it away, for he thinketh it doeth hurte hym for to put on so muche and in taking it away he ceaseth to cast any from hym"

Even that Master of deductive logic, Francis Bacon treats of such matters when he says in his "Sylva Sylvarum" that it is held that bloodstone is good for those that bleed at the nose. This is not far removed from the state of knowledge which in China prescribes "powdered dragons' bones" for the same complaint.

And they also use the same bloodstone as a styptic and tonic and even in cases of retained placenta

Typical Practitioners. This Renaissance period and the following seventeenth century contain many interesting characters. The new medicine does not really take root until the advent of the English Hippocrates, Sydenham (1624-1689) He gained the confidence of many in spite of his "not being bound by the four humours, by sal, sulphur and mercury, by acid and alkali" and yet for the "iliac passion" his remedy was a newly split puppy applied to the abdomen. And for reviving an old man he declared nothing could equal his having a young boy to bed with him. But it is only in these few instances that Sydenham seems to claim kindred with such picturesque but unscientific contemporary characters as for instance Nicholas Culpeper (1616-1654)

He earned the hatred of the hidebound collegians of his day. For as one of their publications says "he had done (very filthily) into English by two years drunken labour and gallimawfred the apothecaries' book into nonsense." His own herbals contain many quaint reasonings and an almost oriental panacea is found in two or three herbs.

Betony is good for, among a host of other things, "epidemical diseases, sickness palsy, dropsy, agues of all sorts, venemous beasts and mad dogs, bleeding, boyls, coughs and colds." Truly he was a good successor to the medieval practitioner and he had not advanced far from such a man as Boorde, the doctor-cleric of the century before him.

Fuller's account of Andrew Boorde credits him (though erroneously) with the authorship of the first medical book written in English. How far from a purely colloquial manner it is written in may be gauged by the extract from the Dedicatory Epistle:-
 "Egregious Doctors and Masters of the Eximious and Arcane Science of Physick, of your urbanity exasperate not yourselves against me for making this little volume."

He was physician to Henry VIII and a much travelled man of singular shrewdness and kindness. But his farrago of vulneraries "Olibanum, franckensense, literge, yreos, rotes of lylies, pome garnade, rynes, galles, aloes and such like" proclaim the universal meddling with wounds. Despite his contempt of cobblers turned physicians, of which they were many in his day and his boast that he could receive any doctor living with a specimen of his urine, yet we have a sure prescription from him for stone "Take of Brome sedes, of Percilles seed, of Saxfrage seeds, of Gromel seeds, of eyther of them an ounce; of Gete stone a quarter of an ounce, of Date stone as much, of eggeshelles that a chekyn hath lyne in, the pythe pulled out half an ounce, make a powder of all this and drynke halfe a sponeful mornynge and evenynge with posset-ale or whit wine"

This is on a par with the huge doses and pills by the hundred which are commonly taken by the patients of a Chinese doctor of the present day. One prescription analysed and published in the *New Bulletin* contains slices of glycyrrhiza, dried flowers of a composite plant,

cock-roaches, dried cock-chafers, the skin, head and tail of a lizard to be all boiled together and drunk for heart-burn, toothache, cough or dimness of sight. Another contained the fruit heads of a species of *Eriocaulon*, spiny hooks of a Gambier uncaria, transverse section of *Akelia quintata*, bark of *Eucomnia Ulmoides* and the twigs of a Willow.

Indeed in Tudor and Stuart times such a prescription as that of W. Bulleyn, a cousin of the unhappy Queen Anne, "for nervousness, a younge mouse, rosted" is marvellously simple, and as uncommon as in China.

Malleyn the greatest Physician of Charles I time had a sovereign balsam for hypochondriacs mainly composed of bats. And the autobiographical picture drawn by Jerome Cardan, a graduate of Padua, of a grave consultation over a case of infantile convulsions is true of those times for many a long day after. The meeting of the learned doctors, their mutual hatred and cunning, their impressive quotations from Hippocrates, the utter uncertainty and helplessness of the orthodox practitioners and the ready resource of the unauthorised

Cardan with his fomentations and lint moistened with oil of linseed and lilies brought up to combat that mysterious ailment "Opisthotonos" whose very name shed a gloom over all concerned, are all pictured for us by one who was one of the most successful empirics of his day. He had studied no anatomy, trusted for prognosis to his dreams of the night before, prescribed pearls and unicorn's horn to safeguard his position and spent many days in casting horoscopes, the one of Edward VI of England being startling refuted without dismaying the author in the least.

No better parallel than this could be found with the old-style ceremonious bundle of high-sounding phrases, erroneous physiology, shrewd experience, intricate pharmacy and hard commercialism that make up the city doctor of the Chinese civilisation. A knowledge of Astrology was often the only claim of a practitioner would advance in defence of his methods. Arthur Dee, the friend of Sir Thomas Browne and who was later made physician in ordinary to Charles I, had no degree. He was a great astrologer and exhibited at his door a list of sure cures for many diseases. For this, however, he had to answer to the Royal College of Physicians of his day. His friend, Sir Thomas Browne, despite his almost encyclopaedic knowledge was not a whit less trammled in

the toils of Ptolemaic cosmogony. He writes "my ascendant was the watery sign of Scorpius, I was born in the planetary hour of Saturn and I have a piece of the leaden star in me". Yet all these men were greedy of knowledge. They had travelled in many lands and were inspired to study all wonders and portents, and ~~not~~^{still} we find their teaching and practice on a level with that which we today designate as barbarous and ineffective. They were the outstanding men of their time, however, and the great majority of healers well merited the stinging rebukes and scathing denunciations heaped upon them by all right-minded men. Bishop Earle's "A Meer Dull Physician" (1628) quoted by Mr. Kirkby, satirises the 17th. century doctor "as a sucking consumption and a very brother to the worms, both engendered from man's corruption. He tells you your malady in Greek, though it be but a cold or a head-ache, and follows with a writ to his druggier in a strange tongue, which he understands though he cannot conster (construe). If he have leisure to be idle, he has a snatch at Alcumy and is sick of the philosophers stone. His best cure being done on his own purse, from which a lean sickness he hath made lusty and in flesh".

The age was one ready to follow any fancy and anything like the systematic treatment of subjects was only just commencing. The early writing concerned with

botany and materia medica where little more than a chaotic mixture of magic, astrology and the healing art as then understood. The pioneers are given by Dr. Green in a paper read before as Brunfels (1530) and Fuchs (1542) with whom first originated the idea of making lists of plants. Turner's "New Herball" certainly owned adherence to the hearsay evidence of Dioscorides and Pliny but it had the great defect of an utter absence of any attempt at methodical arrangement. This was remedied by the "Stirpium Adversaris" of L'Obel, a Dutchman, published 1570 and dedicated to Queen Elizabeth. The greatest production however was that of Gerards. He divides the Vegetable kingdom into three divisions, grasses, useful plants and miscellaneous shrubs, trees, mushrooms and seaweeds. It contained 1800 woodcuts and included much popular lore, traditional treatments and new discoveries. Its edition in 1633 we owe to Thomas Johnson, whose successors carried on the work of amplification and classification.

In China, with its ancient system of writing and the early use of printing, Dispensatories were common and books of recipes are heirlooms in the families of physicians. Indeed, it is said that so esteemed were the ancient books that when the great political peacemaker, the Emperor Shi Hoang-ti (B.C. 264-209) ordered all

books to be burnt, he made an exception in favour of books on medicine. Of these there are a large number of historical interest, but the main ideas are buried deep in an almost unintelligible mass of redundancies. The classical book is a massive di-spensatory

本草綱目

- Pen t'sao kang mu

or Synopsis of ancient Herbals. It was compiled by Li Shi-chen in A.D. 1597, who arranged the 1518 various drugs of 39 previous pharmacopeias, adding 374 of his own suggesting. It must have required no little ardour in the study of natural history to produce it, extending as it does, to 42 quarto volumes in its last reprint in 1826. Besides the enumeration of 1892 distinct drugs, it gives 11,886 recipes, which however is later surpassed by a book of therapeutics by a prince of the Ming dynasty containing 27,739 recipes. The first three volumes of the Pen ts'ao consists of illustrations by 1100 rude woodcuts, the body of the work being taken up by classified descriptions. All natural objects are divided up into three kingdoms each of which has five divisions

A. INANIMATE SUBSTANCES

1. Water
2. Fire
3. Earth
4. Metal
5. Stones.

B. P L A N T S

1. Herbs
2. Grains
3. Vegetables
4. Fruit
5. Trees

C. A N I M A L S

1. Insects (including worms & scaleless creatures).
2. Scaly creatures (lizards, serpents fish).
3. Shelly animals (said to have their bones outside).
4. Birds (heath, mountain, forest)
5. Hairy animals and man.

In a very encyclopaedic manner the synonyms are collated and corrected. The names explained according to their origin, sound and sense. Often Chinese transliterations are given of the Sanscrit and Tungusic names. Each drug's source, form and general history is recounted. Its collection and preparation for use as a drug are followed by directions as to its preservation. Its nature and properties are then briefly discussed and the therapeutical indications for its use as vouched for by various authoritative works, solutions of dubious points and discussions of its antipathies are followed by a host of formulae.

This work has attracted the attention of many sinologues and western physicians, who at first sight

have pronounced it a mass of disgusting and impotent remedies. But it remains a monument of ancient industry and a treasury of empirical medicine, which does not deserve the disuse into which its precepts have fallen in popular practice.

It relies chiefly on plant remedies, quite after the Hippocratic manner. For, after diet and the use of different kinds of wine, his pharmacy is chiefly herbal. Indeed there remain between a hundred and two hundred drugs to be found in our shops to-day which Hippocrates used. It was in the six hundred years between him and Galen that pharmacy developed enormously and the new commerce with the East, fostered by the Ptolemies, bred the wild polypharmacy of the Alexandrine and Roman Schools. It was based on the theory that the activity of a remedy increases in duplicate ratio when compounded with others.

The famous Mithridatum, mentioned in all pharmacopeias from that of Corvus Valerius till the 19th century, contained any number of ingredients up to 72. To ensure some accuracy many prescriptions were versified and the world was ransacked for more varied treasures. The Empirics were the boldest users of drugs and were largely the means for the introduction of animal products, e.g. blood of tortoises, and the testicles of the wild boar. The chief improvement on the more ancient

Mithridatum was the Therapion containing dried vipers among its 61 ingredients. Thus demonology, astrology, onichomancy and other conceits were not the only sorrows of the sick in those times. An overloaded and filthy pharmacy added to the "hurt, damage, and destruction of many of the King's liege People, especially of them that cannot discern the uncunning from the cunning." (3 Henry VIII. cap. II.). So that the Or-iental practice of to-day seems but a survival of the universal practice of an age not so very remote in our own history.

Let us take some of the drugs in use to-day in China. For respiratory catarrh, some of the favourite remedies include celery, ginger, nenombo, aconite, gentian, cinnamon, opium, bamboo, violets and the very ancient prescription of fine powder from cakes of the persimmon (*Diospyros Kaki*). Besides the burnt scales of tortoises and toad's saliva, arbor vitae and colt's foot are extensively used. This last is often referred to by the older English herbals. Its name of *Tussilago farfara* is matched by the more colloquial synonym of cough-wort. It was a frequent constituent of many old "pectoral apothegms." The arbor vitae (the Thuja of Theophrastus) was also used in England, for Miller's "Herbal" states that the leaves chewed in the mouth for several mornings, fasting, do great service in expectorating and freeing the

lungs from "Flegm." Aristolochia was another plant freely used to cleanse the lungs and also as its name implies to promote the catamenia and lochia, the more popular name being birth-wort. In China too the "horse-bell" seeds of the Aristolochia with their papery valves, divided and subdivided into many cells, naturally suggest the structure of the lung. It follows that it is considered good for lung complaints and an ammoniacal drink with aristolochia, clematis and liquorice is one form of treatment for pneumonia. The adjuvants, as in this case, are often the most potent of the mass of remedies. Another instance of this is in a vaunted cure for pht~~h~~isis where the extract of a well water from the district city of Tung-o in Shantung is held in great esteem. The resulting gelatinous material is helped in its formation by the boiling in the water of an ass's skin for seven days.

All jellies seem to have a fascinating suggestion of concentrated nourishment in them. The various kinds of Fuci with which the China coast abounds are pressed into Service. *Lawrenzia papillosa* from Formosa, *Gelidium corneum*, sold in Ning po streets as an iced jelly, and *Laminaria saccharinia*, said by Dr. McGowan to give a gelatinous consistence to 500 times its weight of water, are examples of the extended use of these as tonics. Shad oil and fuci and seaweeds

rich in iodine are also empirically used for goitre.

(Pharmaceutical Journal 1860).

The same genus of Florideae also gives us in this country "Carageen moss" or *Fucus crispus* and the corresponding preparation from Iceland moss has not yet lost its claim with many to be an ideal food in wasting diseases, though it was Hjame in 1683 who first recommended it for pulmonary disorders. From it is extracted by boiling water as much as 70% of Lichen starch, which is a structureless,, gelatinising body with a bitter principle and some traces of organic acids.

Oedema is variously treated by the Chinese with old loam, water plantains, convolvulus, black-beans, areca nut, asparagus, cheionanthus (it contains saponin) and smilax. It is the sudorific and diuretic power of this last that gained for it such a high place in the armen-tarium of both Eastern and Western physicians. The woody root of various kinds, *S. China*, *S. Glabra* and *S. lanceae folia* are used to make decoctions and are used in the sudorific treatment of syphilis. Garcia d'Orta states that the Portugese learnt of it from the Chinese at Goa in 1535, when it was selling at 2½ oz. for 1 crown. It was greatly used till the end of the 17th century as a sudorific and alterative, Vesalius in 1546 testifying to its efficacy in the cure of the gout of the Emperor

Charles V. For what the French called the lues
Hispanica and the English the French Pox, species from
South America were more esteemed as the Smilax officinalis
and syphilitica but the action was the same and is
comparable to that of Sarsaparilla still a remedy in
request.

But to anyone who has sat through a thorough-going dinner given by a Chinaman, whose ear is chiefly to be gratified by the chorus of resonant eructations of his well-filled guests it is no wonder that as in heavy-eating England of old time carminatives, digestive tonics, appetizers and condiments are in the greatest request. They are largely needed alike by sleek but inactive gentlemen and the hard-working labourer who contrives to subsist on infrequent but bulky meals of often indifferent rice. Cardamoms, orange peel, ginger skin, peppermint leaves, cassia, mustard, and pepper, but more often the substitute capsicum, orange pips, coriander and carraway seeds ("the wind-breaker") complete a formidable list. Bretschneider states that it was in the fourteenth century that saffron became a customary food ingredient in China as it did in England under Edward III. It became a very valuable commodity towards the end of the 16th century, being used in all sorts of medicines, as a colouring agent and condiment which use still survives in Cornwall. This practice was at one time universal as is shewn when the clown in "The Winter's Tale" recounts the necessaries for the sheep-shearers feast "saffron to colour the warden pies, mace; nutmegs, seven; and a race or two of ginger."

Of cathartics the Chinese share with the 16th century such drugs as croton-seeds, liquorice, prunes, senna and rhubarb. Of these two last Purgative drugs invoked by Macbeth, rhubarb finds its home in the fastnesses of Tibet and North-western China. It is in the Pen-King herbal of the Emperor Shen-ming (circ B.C. 2700) But Amongst the Chinese it is placed at the head of poisonous plants, though their prescribers are surprised at our small doses, possibly owing to the deteriorated stocks used by their druggists. Castor oil, strangely enough, fell early into disuse in this country only being readmitted to the London Pharmacopeia of 1788. But the nuts and leaves of the plant and the expressed oil are used for many purposes in China. Rubbed into the temples, it is a remedy for headache; into the palms, for palsy; into the urethral meatus for stricture; and into the soles of the feet, for retained placenta !

Senna with tamarinds and prunes were alike introduced to both nations by the Arabs along with other less drastic purgatives. To Europe it was through the famous School of Salerno who also largely used the *Prunus damascena*.

The subtropical climate that distinguishes the major part of the Chinese region and the abundance of fruit exposed for sale in the height of the fly-breeding season causes intestinal catarrh and epidemics of dysentery to be very common complaints. For the first pepper, cloves, squills, coriander, french beans, green orange peel and the crop of young fowls are sometimes used, while for the latter among many common remedies in use are magnesia, water-plantain, nut-meg, aloes, helianthus, cinnamon, rhubarb, snake skin and peel of pomegranate root. This last illustrates the astringent treatment with the *Punica granatum* used by Dioscorides and mentioned by many writers, - Boorde above mentioned among them. It finds a place in the Inidan Official pharmacopeia (Waring). It is extremely successful in the hands of native practitioners, but has given rise to dangerous symptoms when used at their direction by Europeans resident in the treaty ports. *Ailanthus glandulosae* is another intensely bitter and astringent anthelmintic that is used in this disease.

A large number of the herbs surnamed
^{'officinae'}
~~official~~ to-day have as a basis for their tonic

and invigorating qualities, the fact that they contain a bitter principle. These were the pot-herbs of which the English Physicians were so free in their use. The present day official dandelion is a survival of a number of similar plants. Solomon's 'Synopsis medicae' (1671), that specimen of free-lance medicine contains the statement that gentian is so strong that it resists poison and the plague. *Gentiana lutea* was held in the Middle ages not only to expel poison but to dilate wounds. This felwort, to give it its other name, increased appetite, expelled worms, was good for bites, and was administered in all kinds of ague. For exactly similar purposes various kinds of *Gentiana* are used in China to-day, where they share with *Justicia paniculata*, *Dictamnus albus* and some of the *Erythraee*, the appellation of 'dragon's gall' descriptive of the quality which in Bengal gives gentian the name of 'maha-tita' or 'King of bitters.' - Here again we have corresponding plants used in early English medicine, the dittany and centaury both having legendary virtues. Dittany, especially the wonderful Levantine variety was credited with being the plant gathered on Mt. Ida by Venus to heal her favorite Aeneas' wounds

and the centaury (~~Erythraea~~ Centaureum) was so-called after Cheiron, the centaur, who benefited from its use. Linacre calls it by such an Oriental name as "earth-gall" and it is to be found in a Saxon 'Leechdom' as early as A.D. 1000.

For malaria there is no quinine, except where introduced by foreigners. They give magnolia hyperbolica and some rational use is found for iron peroxide, but boiled tortoise heads are also used. The book name for the disease is 疟疾 mo-chi or cruel man from its course. It is described as long ago as 2.600 B.C. but the treatment is still limited to aromatic and antispasmodic measures. During the perspiration stage, cinnamon, libanotis root and liquorice are administered, but if there is no perspiration ephedra is added as a "derivative to the skin". Other simple measures include ginger, peppermint, and carraway, in honey and water.

Plague, which has its cradle in the Western confines of the Country, is little understood. - Some inkling has been obtained of its nature, however, as the popular view that it is due to ground exhalations is based on the observation that animals who live in the ground as rats and mice suffer more severely and are attacked before men. Fires are lighted in the rooms, which are cleaned out roughly or otherwise they are abandoned and burnt along with the harvests and the people camp out on the hills. The treatment is summed up in purging with rhubarb, sweating with ginger and diuresis with potassium nitrate. The mass of the people however rely on puerile remedies and charms, such as a piece of horse bone wrapped in red cloth and worn by men on the right side and women on the left. This Budnell states to be publicly recommended by the civic authorities in the Yangstee towns. Another fearfully common disease is small pox, which they believe in a curiously modern way to contain in the pustules its infection, which is spread by the wind. This probably accounts for their method

of variolisation, which has been known since the tenth century. Scabs of a carefully selected, mild case of the disease are powdered and rubbed into the nostrils or navel.

This is not an entirely Chinese curiosity because the practise of "buying the Small Pox" was a familiar practice in the Highlands not so long ago, threads steeped in the fluid contents of the pustules being wound the wrists. It was in 1718 that Lady Mary Montague introduced the Turkish custom of inoculation. They made up parties for the purpose, "taking it by way of diversion, as they take the waters in other countries" as a sprightly French consul observed. The Chinese assert that the disease (which is familiarly known as the 'Great Guest' in contradistinction to the milder exanthemata or 'Little Visitors') can be aborted by the use of celery, dahlia, origanum and liquorice. This is another instance of the wide use of liquorice for various diseases.

In the West it was equally valued. Theophrastus (B.C. 300) mentions it as the sweet Scythian root and its use for multifarious purposes continued. It is mentioned in A.D. 1264 in the

Wardrobe Accounts of Henry III. While a herbal dedicated to Sir Hans Sloane (1722) says "it mitigates the acrimonious particles, which cause soreness of the 'Arteria aspera'" (trachea and bronchi) and is good for urinary trouble and heartburn.

This stomachic use is still prevalent in country districts in this land. It is held in China to be second only in importance to the famed "Ginseng."



or "man image" plant.

This root with a reputation that is enhanced by its antiquity has been an object of the faith of millions. It has won a conspicuous place among flora of the world by its fixed place in the commerce of many countries and the fabulous prices it still commands. It grows in both a wild and cultivated state in Japan and Korea, as well as China.

Classed among the Araleaceae, it is the *Panax quinquefolius* of Linnaeus (1753). It somewhat resembles a parsnip, being spindle-shaped and in colour a creamy white. When from one to six years old it is about 3-10 inches long by 1/8 -

$\frac{1}{2}$ ins. in diameter, weighing when dried according to age $\frac{1}{8}$ - $1\frac{1}{2}$ ounces. The cultivated root usually weighs more, but one of 5 oz. is rare. The stem is erect and from 12-24 ins. in height, terminating in from 3-5 leaf stalks bearing compound palmate leaves of five leaflets. These are abruptly pointed, parallel veined and deeply serrated. The flowers appear about the second or third year on a stalk 1-9 ins. long which springs from the apex of the stem bearing the leaf-stalks. They are umbels of small, yellow-green flowers appearing early in July. The fruit is small and berry-like gradually becoming scarlet in colour and containing 2 seeds in each. The whole umbel producing about 30 to 50 fruits. The seeds are said to require eighteen months to germinate. Each year the stem dies and falls, leaving a scar on the perennial root stalk, by which some idea of its age can be gathered. One root is said to show an age of 65 years.

It is this root that is used exclusively. It has an aromatic taste somewhat resembling liquorice. An analysis by Dr. Peter of Kentucky, Agricultural Experimental Station gives the following results;-

Crude Ash	5.278
Nitrogen	1.660
Lime	.856
Phosphoric acid	.535
Potash	.776

A chemist of Philadelphia S.S. Garrigues has isolated an active substance to which he has given the name "panquilon."

Its fame first reached Europe through the accounts of F. Jartoux (1711) in China and Kaempfer in Japan, though Mentzelius had published in 1686 a curious Latin account with accompanying Chinese text and illustrations. But about the same time it was discovered in Canada (1704) by members of

the same order of Jesuits and Sargent in a ~~Kew~~ publication vouches for the identity of the Canadian and Manchurian roots. At any rate, after the peace of Utrecht, large quantities of this root were among the first articles exported from Canada. Since then there have been many attempts made to cultivate it in several states in America but without much success. In China, it is the wild root, protected by law and gathered under an Imperial monopoly that commands the highest price. It is washed and dried and classified till it becomes translucent and then it may fetch anything from £8. to £40 per lb. Sometimes the wild root is transplanted to a plot more convenient for supervision. Its value is midway between the wild and cultivated roots. The Korean cultivated ginseng may fetch up to £5. per lb. It is grown, according to Mrs. Bishop, in beds covered with reed blinds. The white roots are steamed for 24 hours in large jars and then dried in hot rooms, being finally exposed on the tops of houses in

baskets to the bright winter sun, rendering it rather hard and brittle and of a red colour. The white root is the more highly esteemed being prepared by washing with a soft brush, coated with sugar and steamed. This process is repeated several times, the resulting syrup which acquires the flavour of the drug, being sold as a less powerful preparation at somewhat cheaper rates to those who cannot afford the real article, which is somewhat expensive, as noted before, owing to the wild Manchurian root requiring seven years to mature, while in Japan it is ready in from 3 or 4 years. The parts used in Korea are chiefly the branching bunches of rootlets, called "heads and tails" These are cut off and give the root the appearance of a quaint headless, and two legged figure roughly resembling the human outline. It is to this it owes its name of "gin-seng:" and all its reputation for marvellous powers of healing. The earlier European descriptions fail to notice this resemblance. But it is curious that the identical plant in America went under the name of 'garent oguen' which was the Iroquois phrase for a man's thighs and legs separated (Lafitan's Memoire Paris 1718)

400,000,000 people have been using it for centuries in the form of pills, ointments, confection and infusion. The latter is the commonest way. These multitudes have a firm belief in its efficacy for all weakness and debility, nervous disorders and senility. It is even said that if a small quantity can be administered to a corpse of a man recently dead that it will resuscitate him. Of course, its aphrodisiac qualities are guaranteed by the outward resemblance of the root, and it is probably this that is the basis of all the fancied strengthening and invigorating properties that make it the Oriental panacea. It certainly seems to effect in the majority of cases quite as much as the vaunted tonics and cure-alls of Western lands and probably for the same reason. For there is a flourishing trade in adulterations and imitations of the valued drug, that for the poor and credulous do all that is attributed to the genuine article.

The cassava, or manihot utilissima is one of these roots largely used especially among the Chinese population of San Francisco probably from its superficial resemblance to the renowned mannikin

plant. At least this cassava is a good source from which starch may be prepared and it is known to contain an appreciable quantity of hydrocyanic acid. But the genuine ginseng, despite researches, is not known to contain any very novel or potent therapeutic substance, being stated, as by Porter Smith, to be generally carminative, stimulant and demulcent under the inclusive title of "Alterative". As is only natural, an extensive system of wonderful tales has sprung up round this herb, so necessary to poor suffering humanity, which Heaven is said to have appointed the wolf, the tiger, the leopard and the snake to guard and protect.

The roots are believed to have the power of travelling to and fro underground, mysteriously, removing themselves from place to place.

Possible to counteract this puzzling habit, some plants have a berry or two at a higher level than the regular cluster. These are believed to point in the direction of another root of the same kind, which can then be found within a few paces.

All the fame and magical properties of this very ordinary plant are suggested to the primitive minds of simple, illogical peoples by its fancied and oft-times artificial resemblance to a human figure. Identical curative powers are attributed throughout the Western world from ancient times to the analagous plant *Atropa mandragora*, which was called by Pythagoras 'anthromorphon'. It is a member of the Solanaceae, allied to the *Atropa belladonna*, with a very rich heavy smell and possesses almost narcotic powers. Hippocrates said that a small dose of it in wine relieved the deepest depression and anxiety, while Dioscorides explicitly asserts the anaesthetic value of it. These were the medical authorities 'par excellence' for us till well into the 17th century.

Shakespeare's *Cleopatra* calls for mandragora that she "might sleep out the great gap of time" while her Antony was absent.

It is represented in rough wood-cuts, as a plant growing out of the heads of perfectly shaped human figures, male and female, which the roots were supposed to resemble. Even a portion kept near one was considered a splendid tonic.

Its use still survives in Norfolk and Kerry and Fife and other country districts in the custom of carrying a potato in one's pocket as ^a cure and preventative of rheumatism. Terrible tales were told of the difficulty of gathering it. The gatherer ran the risk of being childless, but at least the act of pulling it was a reputed cure for lumbago. Some even said that the man might die and recommended tying a dog to the uncovered root and then walking away when the dog in its attempt to follow would pull up the root and then be struck down dead, while the almost human root uttered a piercing shriek as it was drawn from the earth. It has been identified with the "dudha' im" (loves) or love apples of the Old Testament and it is here that it corresponds most closely with the 'ginseng' root of the Far East, where aphrodisiacs are valued and sons are necessary to the continuance of the family ancestral worship.

Both these plants in East and West have gained this quite unfounded reputation on the ground of their similarity to the human form. And the Orchidaceae

are also named from their fancied resemblance. The names foxstones, dogstones and goat-stones for the *Orchis mascularis* or salep are indications of this universal habit of thought for which Gerarde ((1636) says "our age useth these" It forms a jelly with large proportions of water and thus secondarily is considered highly nourishing and strengthening like Iceland moss, and Culpeper only caters to the demand of his time when he includes in his published books, asparagus artichokes, clary, groundnuts, mint, orchis and parsley as under the domain of Dame Venus.

This 'doctrine of signatures' accounts also for the use of such plants as eyebright for eye diseases because of the pupil-like black spot in its corolla; the lesser celandine or pilewort for haemorrhoids because of the little nodular excrescences^{en} on its roots; the hard seeds of *Lithospermum officinale* or gromell, still used in Yorkshire popular medicine and the L.

erythrorhizon variety in Manchuria for urinary calculus, as in the time of Henry VIII - when conserve of hips and saxifrage was in request for the same purpose. Saxifrage is an illuminating case of a name given to a plant because of its natural habit being twisted by popular usage to indicate its medicinal properties.

This same doctrine of "Omne simile a similibus confirmatur" is the starting point of all that weird and often disgusting organotherapy that crowds so many medieval bestiaries, and handicaps the research of laborities even now and which is still in full force in that museum of superstitions, the Orient. There it is confidently asserted that remedies derived from the upper half of a root of a necessity "ascend" and affect the heart and lungs, while those from the lower half of the same root "descend" and affect the liver and kidneys. So

those from branches go to the limbs; those from the peel or bark to the skin; and from the core or pith to the viscera.

Thus the testicles of sheep, seals, asses and deer fetch a high price as aphrodisiacs the latter selling at nearly £9. per lb. For the same reason tiger's bones, bone-jelly and blood are highly esteemed as strengthening substances. A boar's gall-bladder is also considered a tonic. This is paralleled and even surpassed by Bacon's statement in his *Sylva Sylvarum* (1627) that the heart of an ape even only worn near the heart "comforteth the heart and increaseth audacity."

For jaundice and hepatic congestion beside sweet basil, bamboo shoots and elephant's hide, the Chinese prescribe an extract of pig's liver made with vinegar and strengthened with ox bile, which together make a most disagreeable

dark broth. As the eyes are admitted to have some sort of sympathy with the liver similar concoctions are used for all sorts of conjunctivitis. This internal treatment is supplemented by the application of various irritating substances to the eyes such as goat's gall and a powder prepared from decorticated horse-tail plants. Cheilidonia is also used, and here again the same plant is quoted by an English Author, Holland (1601) who repeats Plynny's reason that it is so called because "old Swallowes with the helpe of this hearb helpe their young ones to see again." It was applied outwardly to the eyes, but was also contained in a recipe for Aqua mirabilis and was thought "to dry up rheums."

Bat's dung is another favorite remedy for the eyes because those animals see so well in the dark and feed upon mosquitoes, the myriad remains of whose eyes are visible in their excrement. It is good too as a general tonic, because their native name suggests the same sound as "Happiness" which they symbolise in the

numerous designs of conventional Chinese art. As they live in caves, they are supposed to feed on Stalactites and thus be typically strengthening if used as a medicine. Thus not only are they and their excrement used in ophthalmia and otorrhea, but also for ague, coughs, tabes, infantile dyspepsia and offensive sweats.

Another powder possessing healing properties for eye diseases is one made from rhinoceros' horn. But indeed there are few troubles for which this drug does not seem to be adapted. A portion of one, or so it is alleged, forms an important part of the stock in trade of every reputable druggist. The horn of "the sworded cow" combines in its unique form all the strength, courage, and force inherent in the almost mythical unicorn.

And indeed a great virtue was attributed to it by the learned leeches of Europe. At the close of the sixteenth century the doctors of medicine in Augsburg met in solemn conclave to examine a specimen of unicorn's horn, which they found to be true and not a forgery. The proof was evident, for they administered some of it to

a dog that had been poisoned with arsenic and which recovered after swallowing the antidote. They further gave nux vomica to two dogs, and to one of these twelve grains of unicorn's horn, which effectually counteracted the poison. But the other poor dog got none, so he died.

This alexipharmic property is exemplified in the use of the horn for drinking cups, for they possessed the property of neutralising or at least of revealing the presence of the poison, which in those days was an ever present danger to the man, who had enemies. The "unicorn" of Aristotle is probably derived from Ctesias' description of the Indian wild ass, while the "unicorn" of the Jacobite translation of the re'em of the Old Testament is the "urus" of Julius Caesar. But the actual horn of the fabled animal was in these northern lands generally derived from the narwhal (Monodon monoceros) and sometimes the rhinoceros. The city of Dresden owned one valued at 75,000 thalers And it was enacted that when portions were sawn off the precious horn to be used for medicinal purposes, two persons of princely rank should be present at the ceremony. *Not only was it a sovereign remedy in*

cases of poisoning, but the equally formidable and obscure plague, fevers, epilepsy and the dreaded hydrophobia yielded to treatment by this efficacious ~~drug~~^{drug}. This belief remained until at least Charles II reign, when a horn sent to him by "The Great Sophy" was handed over to the Royal Society for experimental trial, as mentioned by Sir Ray Lankester. But it did not give the encouraging results obtained at Augsburg. They were valued at enormous prices and pieces were sold for their weight in gold. A German traveller in the time of Queen Elizabeth saw one which was kept among the jewels at Windsor and was valued, according to this writer, at £10,000. It was included in the Pharmacopeia of the Royal College of Physicians both in the year 1678 and 1724.

The horn of the Rhinoceros is much favoured by the Chinese for this same reason as a material for drinking cups, often of a somewhat archaic form. The dense structure of the horn is well adapted for this purpose, and its beautiful amber hue makes the vessel a very agreeable object to the eye, enhanced as it is by its antidotal properties. The usual form is of a boat shape on a square foot and the

carved decoration is often copied from that of bronze vessels of the earlier dynasties. The specimen in the Victoria and Albert Museum noted by Dr. Read in the Encyclopedia Britannica, is an example of a freer and more naturalistic manner. The bowl being formed as the flower of a magnolia and the entire horn, at times more than 2 ft. in length is utilised in the design.

Naturally, the antiquity of any object enhanced its value in many ways, but this attains a perfectly mystical degree when it is used as a medicine. The Chinese reverence for age-old customs and objects again finds an opportunity for full play, and from the refuse of indigo vats or the soot from old ovens or the fossil remains of crabs and shell-fish and the bones and teeth of extinct mammals marvellous tonics and specifics for longevity are produced.

Professor H.N. Moseley has identified among these "dragon's teeth and bones" the remains of various extinct mammalia of the tertiary period including those of the rhinoceros, elephant, horse, mastodon, stag and hippotherium. That medical authority, the Chinese Repository, published in Canton

A.D. 1832, states that the bones of dragons are to be found on banks of rivers and caves of the earth, places where the dragon died. Those of the back and skull are highly prized; being variegated with different streaks on a white ground. The best are known by slipping the tongue over them to which they will adhere if genuine. The bones are hard and strong, but if taken from damp places or by women, they are worthless. Care must also be taken not to let them come in contact with fish or iron. The medicine made from them cures heart-ache, stomach-ache, drives away ghosts, cures cold and dysentery, irregularities of the digestive organs, paralysis etc. and increases the general health. This mythical dragon, whose remains are held so useful may be either a tradition of some late survival of the gigantic Saurians that once existed or the vivid imagining of some discoverer of a heap of lizards' bodies, bat's wings, stags' heads and cave lions' teeth, that have become the stereotyped idea of the fire-breathing dragon in all countries.

One variety of drug with the high-sounding title of "water dragon's bones" is nothing more than the caulking of old ships, while the dung

of white pigeons is specified as the "left coiling dragon" and used as an anthelmintic. The dragon is also held sponsor for a species of resin, called "dragon's blood" obtained from the *Calamus draconis*, a rattan palm growing in swampy forests in Malaya and Borneo. During the 10th and 15th centuries, when there was a great trade with the Far East through the Arabs, it was introduced into China by them and shrewdly sold under this name. It was said it was suggested by the fact that on the skin of the fruit being stripped off a figure of a dragon could be discerned. It is supposed to be the same as the *κίβρις* of Dioscorides obtained from another Arabian centre, Socotra. It was largely used in Europe and was highly valued in Portugal in 1455. But that was obtained chiefly from a source in the Canary Islands, being a product of a liliaceous tree, one ancient specimen of which is still pointed out.

These carefully preserved products of centuries ago by their very age contribute to the increased longevity of those that take them, and of

other substances which are taken for the same purpose a medicine made from sliced or powdered deer's horns is highly thought of. This is partly owing to the fact that the deer is the symbol of long-life. In Hangchow there was a fine apothecaries' shop, that contained a herd of deer numbering from twenty to thirty, that were kept neatly, and cleanly in stalls and placed on exhibition.

Our spirits of harts horn first obtained its medicinal reputation from some such feeling. And it was even taught that "the bone from the heart of a hart" was good for faintness and swooning, a case of reduplication of sound and efficacy. In a like manner as a remedy against poison, the Philosophical Transactions of 1670 mention the heart or liver of a viper as "one the greatest alixteries in the world."

Topsell in his "History of four-footed Beasts and Serpents" (1657) gives a careful account of how to prepare these "Fyssh of the mountayne". "Wash the flesh and boil in two parts of Wine and season the broth with good Spices and eat it. It keepeth youth, causing a good colour above all medicines; it cleareth the eyesight, guardeth

surely from grey hairs and keepeth from the falling sickness. It expelleth scabbiness and the like infirmities with a great number of other diseases." After such a comprehensive eulogium can one wonder at the Chinese who use snake wine as a febrifuge and for palsy ?

Many animal substances are thus prepared by macerating in fermented liquors, the chiu or native arrack. Mutton wine is held to be a great restorative, strengthening the stomach, kidney and all-important testes. Tortoise wine is used curiously enough for bronchitis.

This reminds one vividly of the course of treatment inaugurated and carried to a successful conclusion by Cardan for the asthma from which the then Archbishop of St. Andrews suffered. He was summoned from Italy to Edinburgh, where he arrived early in the year 1552. His diagnosis of asthma was not that of the other advisers and he traced most of the trouble to excessive "heat". So in addition to tortoise soup and distilled snails he prescribed a fluid diet of barley water and two to four pints of ass's milk from one fed on cooling

herbs only. The brain, too, was supposed to be heated by want of sleep, worry and excessive eating. So the further procedure was adopted of an ointment to be applied to the region of the coronal suture that "the humours soaked down from the brain to the overtaxed lungs might be purged away." This ointment which would have delighted the heart of a Chinese compounder consisted of Greek pitch, ship's tar, white mustard, euphorbium and honey of anthardus. By this means two pints were withdrawn in the 24 hours. The treatment was highly successful and earned for the suspected foreign doctor such generous treatment that his eulogium over his Scottish sojourn is good reading to the much maligned "Canny Scot".

So that this country can match the barbarous fecundity of the therapeutics of Eastern lands. Take such a medley as the balsam of Malleyn, one of the best men of the early 17th. century. It contains besides hats, adders, sucking whelps, earth worms, hog's grease, the marrow of a stag and the thigh-bone of an ox - an excellent remedy for hypochondriacs for whom it was used. The Gascoigne's powder that

was used till the middle of the 17th century was sold in balls like sal prunella at the high price of 40/- per oz. and consisted of equal parts of crab's "eyes", black tips of crab's claws, oriental pearls, bezoar and white coral in hart's horn jelly. After that one does not so readily marvel at such a list of medicinal imports as that of the city of Canton given in the returns of the Imperial Customs 1889.

"Dried silk-worms, scorpions, red lady-bug, blistering fly, maggots found in liquid manure, common earthworms, centipedes, dried toads, toad's spittle in cakes, cast skins of cicadas. Wasps nests, wens and corns from monkeys, dried lizards, snails and tortoise-shell glue, snake skins, buffalo horns, chrysalides of the mantis, goats' sinews, dried snakes, caterpillars, hedge-hog skins, and the dung of silkworms, magpies, bats, rabbits and cockroaches."

One gets an insight into the curious workings of the mind of man wonderfully the same all the world over when one compares such a Chinese expression as 濕生 'Shi sang' or "creatures engendered from moisture and putrefaction" which include frogs, centipedes, wire worms, slugs and snails with Sir Francis Bacon's explanation of the use of "creatures bred of putrefaction as earthworms and snails" and the "parts of beasts putrefied, as castoreum and musk."

"For," says he in his *Sylva Sylvarum*, "that putrefaction is the subtlest of all motions in the parts of bodies. And since we cannot take down the lives of living creatures (which some of the Paracelsians say, if they could be taken down, would make us immortal) the next for subtlety of operation is to take bodies putrefied". Thus all the disgusting practices of Oriental Physicians can easily be paralleled by such a prescription as that given to William III. as he lay dying when the juice of sixty hog's lice was administered at six o'clock at night, and it is reported that "next day he looked very well and cheerful." It was not till the *Pharmacopia* of 1721 was published

in England that the excrements of birds and mammals were omitted from the list of official drugs. So that the Chinese belief in the efficacy of the urine of animals, especially that of the white horse, ass or child is not so foreign to our methods. The urea and other constituents are obtained by boiling down the urine and adding common salt. It is used to soften fresh meat as well as in medicine.

All these practices seem to have a common origin from the primitive idea of cannibalism, which though indulged in by a few degraded tribes from want or gluttony is usually either honorific to the dead or more often coupled with an animistic belief in the transfer of the qualities of the dead person to the eater. So in China not only are the spleens and livers of executed criminals of the robber class eagerly sought for but a great specific for consumptives is an article called Blood Bread, which is made by soaking up in balls of pith the blood of men recently decapitated. This ^{is} vouched for by such men as Surgeons McCarthy and Rennie who saw it in Peking. But it is not so very long ago that similar ideas prevailed in this country.

The blood of animals or of suicides or the scrapings from the skulls of human beings, especially

of suicides, was held to be a sovereign remedy for those suffering from epilepsy. Sir James Simpson mentions an instance of this that came under his notice in the parish of Nigg in Rosshire where relatives of an epileptic sent a messenger nearly a hundred miles to procure the skull of a suicide. And this is but a simpler form of a prescription by a Dr. Hall, son-in-law of Shakespeare, who in his "Select Observations on English Bodies" recommends a compound of powdered human skull and human fat with a solution of goose excrement and frog spawn water. After such a draught, the suggestion made by Ficinus, quoted by Bacon, that for consumption a vein in the arm of some wholesome young man should be opened and the blood sucked seems clean and reasonable, and worthy of trial.

At any rate, I myself have not felt any great thrill of horror when called in as a last resort by some well-to-do Chinaman, and his younger sons consulted me as to the advisability of one of them sacrificing a portion of his own flesh to be made into strengthening broth for his dying father. The belief in its efficacy is fostered among them by the tenets of all the systems,

Shamanism, Confucianism and Buddhism, with which the Chinese are imbued. They hold that the health-giving flesh must be taken from the patient's own family and not from any elder member of it and to be of any use at all it must be from a male. Thus the opportunity is given to the sons only to show their filial respect for their parents. I remember once when the knowledge of this helped me to persuade a stubborn old landed proprietor to allow a large area of ulceration on his back to be skin-grafted. At first he refused the suggested treatment with incredulity and scorn, but on being reminded of his own native belief and practice as to the internal efficacy of flesh taken from a son, he at last consented to external treatment with skin grafts taken from his boy. The more primitive form of treatment is often publicly mentioned with commendation and an account of its successful use is lauded in the Pekin Gazette of July 5th. 1870.

To people who believe in such measures as those detailed above, it seems also quite natural to make use of human milk as the great restorative for aged persons. It is said to be sweet in taste and to nourish the viscera. It is a soothing application to abraded skin surfaces and inflamed eyes and fattens old and decayed persons.

There is quite a trade in it, and women, who on a cursory examination appear to be satisfactory wet-nurses for weak infants, turn out to be positively harmful, from the fact that their milk is lacking in all proper constituents from their constant practice of selling it for long periods to be hawked about the streets, as in Amoy, where it is purchased by old men as an aid to further longevity. Its use is not confined to China and we find John Wesley advocating it in his "Primitive Physic," a tract of household remedies. "In the last stage of consumption, suck a healthy woman daily. This cured my father."

Similarly, the Highland remedy for a cold made by grinding a portion of burnt umbilical cord and drinking it in water, is only a modified form of that recommended in "a Thousand Notable Things" published in 1670. "The piece of a child's navel string worn in a ring so as to touch the skin is good for the falling sickness and colick." And in China the secundines are accounted "good for the respiration and blood, especially for those who are thin or weak minded or epileptic." This is owing to its being formed "from flesh and blood." It is said to have a sweet and salt taste. It

is directed to be taken from a primipara with no noxious poisons. It is to be washed in running water and mixed with spirit and boiled, or toasted and powdered or boiled to shreds and eaten with rice.

After this review of only selected portions of Chinese medical practice we can quite understand that though they say "that when a man is ill he has great respect for doctors" yet they have many and cogent reasons for another saying that "to take no medicine is as good as a middling doctor." And in many instances it is a merciful chance that allows a physician who is not able to procure the drugs he considers necessary to write them on a prescription form, which the patient then swallows, confident in its efficacy. And the paucity of proverbs appreciative of doctors, so deplored in this country is as well founded in China where they have also shrewdly noticed that "Of the sons of clever doctors many die from disease."

SUMMARY The facts adduced in the foregoing pages, vouched for by eminent authorities, and some at least of them coming within my own experience, will suffice to bear out my thesis that "European medicine at the time of Harvey was a duplicate of that in the Middle Kingdom."

For alike in philosophical basis, historical progress and stagnation, anatomical foundation, professional education and status, and therapeutic measures, the two widely separated countries have many points in common. Even if their common origin from Central Asia be disputed, there still remain undoubted traces of the debt both European and Chinese philosophy owe to Babylonia. Both inherited the legacy of a complete system of the universe in which no distinction was drawn between physiology and metaphysics. A humoral theory was common to them both, based on a kind of astrological dualism. Out of this they both constructed an occult apparatus of elements, diseases and planetary influences which governed the prognosis and treatment of all kinds of illness. And in both countries investigation was crushed by the iron influence of authority, while the mass of the people struggled in a mire of superstitious practices.

For similar reasons anatomy was hardly studied and completely misunderstood. The medieval contempt for the body and the Chinese dislike of mutilation before or after death contributed to a complete neglect of dissection. So tissues were not differentiated. Organs, such as the lungs, heart and brain had strange functions assigned to them. The lungs being cooling organs and the gall-bladder being the seat of courage. And it is in the explanation of the pulse and the views on its importance in health and disease that we find Chinese lore only to be matched by the ignorance and fantasy of scientific men even in this country before the time of Harvey. Surgery, in consequence was extremely limited in its scope. And phlebotomy and cauterization that flourished in England gave rise to the corresponding abuses that the Chinese acupuncture and moxa have to plead guilty to.

In both countries, the medical profession was chiefly indebted to well-read and travelled men who cultivated this art among others. But both lands groaned under a horde of impudent impostors who took advantage of the chaotic state of science and the profession to dupe a credulous people.

Then again in their therapeutics, both were largely indebted to alchemy for any minerals used in medicine, though **not** sparingly. The search for the Elixir of life animated all their research, clouded though it was with a reverence for planetary influences and the desire for the Philosopher's Stone.

But in the main both China and Britain relied chiefly on the plant Kingdom for their equally varied remedial measures. Herbals and dispensatories abounded and the Bestiaries contained many disgusting things. Besides the real Chinese treasures, rhubarb and liquorice widely used in both countries, there is a large number of herbs used for similar purposes by both peoples. Coltsfoot, violets, convolvulus, and aristolochia for lung conditions; gentian, centaury and dittany as tonics; most of the carminatives for equally hard worked digestions East and West; greater and lesser celandine, aconite and smilax, with the drugs introduced to both lands by the great middlemen and traders of their age, the Arabs, such as prunes, tamarinds, cinnamon, pomegranate and dragon's blood. These are only a few from the jungle of plants held to be beneficial, but in most cases they

are good for nearly all the common diseases and again we find the corresponding wants of the two nations to be few. Diaphoretics and febrifuges are the most specific, after the purgatives and these with narcoctics and the widely useful alteratives form the most usual drugs, if we except the general tonic and the valued aphrodisiac.

"Good to stop bleeding and for the falling sickness" is the testimony to a multitude of Chinese and European medicaments.

The part of the Chinese pharmacopeia which is most often held up to opprobrium and disgusted criticism is easily paralleled by an exactly similar use and abuse of animal substances in our own country in times not so very remote. And I think there is no better description of present-day Chinese medicine than that in which Sir Clifford Allbutt sums up the state of Europe in his "Science and Medieval Thought".

"Each period of human achievement has its phases of spring, culmination and decline and it is in its decline that the leafless tree comes to judgment.

..... Broadly speaking, pathology was until the 17th. century a factitious schedule and medicine

a farrago of receipts, most of them nauseous and many of them filthy."

The quickening of Chinese art and science in the renaissance that is even now going on will ultimately revivify medicine, itself both an art and a science. This can take place only on the same lines as in Britain where the age-long frost was gradually broken up by the recrudescence of that divine spirit of curiosity which threatens authority with investigation and builds up operational method not on empiricism but by experiment.

E. Wilbur Smerdon.

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