

mer's patronage. He had known of overdoing efforts in making additional sales and companion sales.

Charles W. Holton asked how the cafeteria in the drug store could be excused. Mr. Philip did not think this was necessary; Mr. Ruth said that side-lines were necessary for defraying expenses and bringing profit, and his viewpoint on the subject had changed from a very restricted one to a much broader one, as conditions of business varied greatly.

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### THE DOCTRINE OF SIGNATURES.\*

BY LEO SUPPAN.

When, where and how the belief originated that the form, color, taste and other properties of a plant are indicative of its medicinal properties may be an interesting subject for conjecture but is impossible of solution. Perhaps it represents a phase of sympathetic magic general among all primitive races. That it is very ancient is certain, and of its prevalence in the earliest historic times of which we have records we have evidence more or less complete. At first an element of folk-belief, it became in the period of the Renaissance a well-defined scientific hypothesis, not based upon facts, to be sure, but the product, rather, of the imagination, the source of much of the speculation and theorizing of that active age. It was Paracelsus who raised it from the humble state of folk-lore to the dignity of scientific doctrine, and it was through the influence of his own domineering personality and the almost servile acceptance of all Paracelsian teachings by his pupils and the dissemination of these ideas by the spoken and written word that it maintained its place for nearly two centuries. The doctrine is known as that of "Signatures."

Traces of the belief are evident in the medicine of ancient India, where we find plants with yellow flowers recommended for the cure of jaundice. In China it is very old and is a fundamental principle in materia medica even at the present day; we all know the importance the Chinese physician attaches to ginseng and the high price a Chinese herbalist will pay for a specimen closely resembling the human figure in form. The Chinese have developed the belief in considerable detail. They divide the plant regionally into three parts: the upper parts, such as flowers, buds and so forth, being regarded as efficacious in treating maladies of the head; the middle parts, that is, the stem and its appendages being recommended for diseases in the trunk, while the roots and rhizomes are a specific for troubles in the feet and legs. This correspondence holds also for drugs derived from the animal kingdom: the skin of the elephant is useful in affections of the skin, the lungs of various animals for diseases of the lungs, and so on. Chinese materia medica, further, divides drugs into male and female, the active warming or cooling drugs being classified as male, while the milder, sour, bitter, sweet and saline drugs are relegated to the female class. This classification is not so much a consequence of the belief in signatures as a corollary from the postulate of the Yang and the Yin, the male and female principles which, according to Chinese philosophy, constitute the basal elements of the universe and which play so important a part in their symbolism.

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The belief in signatures is well represented among the peoples of classical antiquity by the marvellous powers which these attributed to the tuber of a plant which they called *orchis*, the exact botanical origin of which is still in question but which was unquestionably one of the *Orchideæ*. These tubers suggested to the Greeks a resemblance to the testes, and, in fact, the Greek word *orchis* means a testicle. Hence, because of this similarity in form it must be a powerful aphrodisiac. Pliny has preserved for us some account of this plant and its supposed virtues. He writes in his *Historia naturalis*:

"*The Orchis or Serapias*: There are few plants of as marvellous a nature as the *Orchis* or *serapias*, a vegetable production with leaves like those of a leek, a stem a palm in height, a purple flower and a two-fold root formed of tuberosities which resemble the testes in appearance. The larger of these tuberosities or, as some say, the harder of the two, taken in water, is provocative of lust; while the smaller, or in other words, the softer one, taken in goat's milk, acts as an antaphrodisiac."

And further:

"The *Cynosorchis*, by some called *Orchis*, has leaves like those of the olive, soft, three in number, half a foot in length and lying upon the ground. The root is bulbous, oblong and divided into two portions, the upper one hard and the lower one soft. These roots are either boiled like bulbs (of onions) and are mostly found growing in vineyards; if males eat the upper part they will be parents of male issue, they say, and females, if they eat the lower part, of females. In Thessaly the men take the soft portion in goat's milk as an aphrodisiac and the hard part as an antaphrodisiac. Of these parts the one effectually neutralizes the action of the other."

The statement regarding the Thessalians occurs also in Theophrastus in his account of the *Cynosorchis*.

The botanist Tabernaemontanus, whose famous Herbal was published in 1613, at Frankfort, gives some interesting details regarding the *Orchis*, supporting his statements by the authority of the ancients. He tells us that in his own time the tubers were used as a food, but few people being acquainted with their virtues as a remedy for impotence; or, as he expresses it, "for decayed men who have lost all boldness with women," and he quotes Galen to the effect that the tuber "possesses a high degree of moisture, wherefore, if eaten, it excites to the conjugal duties and helps the old weak man upon his feet." He cites Dioscorides as authority for the assertion, found also in Pliny, regarding the eating of the upper and lower tubers by men and women, respectively, and the ensuing consequences. Regarding the administration of the drug he says: "It is used in various ways; some drink it in good wine, some mix it with their food while others take it in the form of a jam; others, bake it in the form of a cake and give this to eat." He offers some suggestions of his own for making the drug more palatable, recommending the addition of honey and a small quantity of pepper and forming the whole into an electuary; or he would have you take one loth of the tuber, a quintal of a root called *Haschwurtz* and a scruple of long pepper, which are to be incorporated with honey and the mixture to be taken by the patient upon his going to bed. The small, shrivelled tuber he recommends to the virgins of the cloister, for it allays effectually all erotic desires and dreams of connubial felicity. Tabernaemontanus also informs us that according to Northern mythology the giantess Brana administered to her favorite Halfdam *Broenngras* in order to obtain his

love and that the goddess Freya similarly employed *Freyagrass*, both plants being species of *Orchis*.

All these beliefs were more or less isolated and referred to certain plants only the action of which had been learned from common experience. It was left to the bold genius of Paracelsus to furnish a principle which should apply to all medicinal plants and thus make him the author of what is specifically known as the "Doctrine of Signatures." Underlying his theory was the broad postulate of the parallelism of the microcosm and the macrocosm, a postulate which dates back to the times of the Babylonians. What is above is like that which is below, and harmony between them is assured by the perpetual activity of a supreme being, God. The existence of all things from the greatest to the most minute is thus dependent upon this ultimate source. Material things derive from a principle lower in the hierarchy of being, a primordial substance which he calls Yliaster; besides this primordial substance there is an activity or vital essence which sets them in motion and preserves them in this state—the *Archæus*. This *Archæus* is encapsuled, so to speak, in an invisible medium designated *Mumia*, when it enters the human body, and in disease this *Mumia* must be acted upon by the *Arcana* or spiritual essence of drugs, it being the most important function of chemistry to determine the magical powers of these arcana. In accordance with the central doctrine of Macrocosm and Microcosm and the goodness of God, there must exist for every disease a specific—medicinal plants were created for the express purpose of healing disease. Hence the well-known aphorism of Paracelsus: *Die ganze Welt ist eine Apotheke*.

By what indications is man to be guided in selecting the plant proper to a given disease? Paracelsus answers: By its physical characteristics, that is to say, its form, its color, taste, odor, etc. Its form is of prime importance, for the resemblance of its parts to the organs of the human body, in so far as form is concerned, is an unfailing guide. "The properties of forces and of plants," he says, "are not to be learned from Dioscorides and Macer, but from the *signatura* which Nature has impressed upon every vegetable product." In his *Labyrinthus medicorum*, published in 1564, he says: "Seeing that all bodies have form in which they exist, so form indicates the medicinal virtue which is in them;" and he goes on: "Therefore, if it (the plant organ) has the form of the feet, it applies to the feet, if of the hand, to the hand; similarly with the head, back, belly, heart, spleen, liver, etc." "Everything that Nature bears she forms according to the nature of its virtues." "The virtue is therefore manifested by the form, figure, body and substance; thus, these make clear the essence, for the virtue and the form are alike in the same degree, so that through the form the virtue is understood and through the virtue the form." There is a subtle thought latent in the last sentence. Expressed in modern terminology it is, that structure is the complete expression of function.

In illustration of his contention Paracelsus cites a number of examples. Thus *Wundkraut* (*Polygonum Persicaria*) Wound Herb, so called because of the red spots on its leaves, heals wounds; St. John's Wort with its "punctured" leaves is a remedy to be used in the treatment of wounds caused by stabbing; *Orchis* tubers are anaphrodisiac, in consonance with tradition; thistles are good for

piercing pains in the body; the shield-like tissues of *Alium victoralis* suggest that it is useful in warding off felonious attacks upon the person, and so on.

Paracelsus even went so far as to propose an altogether new system of therapeutic nomenclature, which was to consist in substituting for the names of diseases those of the plants which were efficacious in combating them. "A true physician," he writes in the *Paragranum*, "says: 'this is *morbis terebinthinus*, this is *morbis Sileris montani*, this is *morbis helleborinus*, etc., and not: this is *bronchus*, this is *rheuma*, this is *catarrhus*, this is *coryza*.'" Taste and color are also of importance in his eyes and in interpreting these he gives his fancy free rein.

That versatile genius, Giambattista della Porta, physicist, physiognomist, occultist and playwright, carried the views of Paracelsus still further, in his remarkable work entitled *Phytognomia*. Unlike Paracelsus, whose contempt for the Ancients is well known, he respected them. Saturated with the spirit of occultism he was not content with the general philosophical speculations of Paracelsus; he sought to penetrate into the occult properties of the plants themselves, and announced his supposed discoveries in terms that led to the complete mystification of his readers; these he associated with their form, color, etc., achieving the same end as did Paracelsus. Thus, he maintained, yellow flowers and yellow plant juices act upon a yellow bile, dark colored ones upon the black; plants with a scorpioid inflorescence are recommended against the effects of a scorpion's bite; certain plants with flowers suggesting the forms of insects are good for insect bites. He also proposed a system of taxonomy based upon the resemblance of the more important parts of plants to the organs of man and other animals, whereby he arrives at classifications grotesque enough. He also considers the moral qualities of plants; thus there are merry ones, melancholy ones, sedate ones, sympathetic ones and so on through the gamut of the affections; these qualities are also used in his system of classification and, of course, they play a momentous rôle in his therapeutics.

The step from the doctrine of signatures to astrology is a short one. Both were combined after the way had been made clear for the one. Indeed, the fusion is inevitable, for both are corollaries from the theory of the microcosm. It is unnecessary to enumerate the writers who made them the basis of their speculations. Two men stand out as typical of the attitude—Bartholomæus Carrichter and Johann Christian Schroeder. Carrichter published toward the end of the sixteenth century an herbal in which he went into much detail regarding the proper time for collecting and preparing medicinal plants, these times being, of course, those when the constellations were favorable. Schroeder is of a later period having been born in Salzzuffeln in 1600 and dying in Frankfort as town-physician in 1664. He had studied medicine and the natural sciences—the two went together at that time—in Germany and Italy. He was an ardent Signaturist, and described a huge number of drugs valuable in his eyes because of their resemblance to features of the human body in one respect or other. Schroeder is a person of mark in the history of pharmacy, his reputation resting on a *Pharmacopœia-medico-chymica*, which first saw the light at Ulm in 1641 and passed through many editions; it was printed in the Latin, and a translation was made into German by J. N. Mueller as late as 1717. It was a stock manual for apothecaries until the middle of the eighteenth century. Schroeder describes medicinal substances derived

from all the kingdoms of nature and discusses their properties and action from Hermetic-Hippocratic principles, as is stated on the title page. The work is divided into five parts: in the first, medicinal plants are classified on an astrological basis. The sun, we are told among other things, is the "planet benevolent," and within his domain are numerous plants, these being all the *aromatics*, *acetosa*, *acetocella*, *borage*, *calendula*, *chelidonium*, *cetraria*, *crocus*, *dictamnus*, *fraxinus*, *gentian*, *granatus*, *helonium*, *hypericum*, *lavandula*, *laurus*, *majorana*, *malva*, *rosmarinus*, *poma aurantia*, *poma citria*; thus, mastiche, myrrh and there are others falling within the influence of the moon, the planets, and various stars and constellations. In the second part of the work are given the proper times for collection, this being the practical application of the assertions contained in the first.

As a scientific discipline the doctrine of signatures was dead in the early part of the eighteenth century, although it continued its vogue among the peasant class and, indeed, survives there to this day. An attempt was made to revive it—as Tschirch says "to warm it up"—by Johann Gottfried Rademacher of the tincture fame, in 1841, when he published his "Verstandesrechte Erfahrungsheilkunde," and it found a number of supporters among physicians on the ragged edge of medicine; I believe that there are some who have not rejected the Rademacher cult even at the present day. Traces of it may be latent in the Hahnemannian postulate of *similia similibus*, though that also is on the decline. It is not at all unlikely that it may find a quasi-rejuvenation in these days of ours when the most fantastic of medical cults are finding converts. The time is ripe for it as it is for another Cagliostro. "The more civilization advances," says Voltaire, "the more noise does superstition make." There are indeed strange portents in the sky. Astrology is with us in as healthy a state as it ever displayed—see the daily horoscopes published in the newspapers. Let somebody take a bifurcated radish and make a good sales talk to an emotionally sympathetic congregation, and the trick is done.

The doctrine of Signatures reminds of the words of Mephistopheles:

"Ich bin ein Teil von jener Kraft  
Die stets das Böse will and stets das Gute schafft."

Not that its advocates desired to work evil—on the contrary; theirs was not the spirit of negation; but they followed the path that leads not to truth. The good they accomplished was adventitious and did not fall within the province of their dreams. The search for likenesses led to a close scrutiny of the characteristics of plants, and thus furnished a vast amount of material for descriptive and ultimately for systematic botany. And the search for *arcana* has not been fruitless. In many instances they have been found; but they have not revealed themselves as spiritual essences, rather in the form of active principles. One dream of Paracelsus has thus been in a sense realized. As to the fundamental proposition of the doctrine of signatures, modern pharmacologic chemistry, in seeking to deduce the relation between molecular groupings and physiological action of compounds, tacitly accepts the postulate which Paracelsus dimly sensed—that structure is the complete expression of function.

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