

fessionalism. Let us not be unmindful of the fact that pharmacy is unique among the professions, that it is a curious mixture at best in which there can be no hope of material success without business ability. Let us by all means cling to ideals and high standards. On the other hand, no one should for a moment forget that business has always been a forerunner of civilization and the practical application of all scientific discoveries has been due to business methods carefully planned.

GARCIA DA ORTA AND THE FIRST DESCRIPTIONS OF ASIATIC DRUGS.*

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The end of the fifteenth century saw two great events, the discovery of the Americas by Columbus and the opening of the sea route to India by Vasco da Gama. As a consequence of these voyages the tropics with all their new and remarkable products were first made known to Europeans.

The original scientific description of many new plants of the western hemisphere was by Oviedo (5), a physician as well as a botanist. In his *Historia general y natural de las Indias*, he describes maize, the pineapple, the prickly-pear, the rubber tree, manioc and the manner in which its poisonous starchy root is rendered edible by washing, the guava from which a delicious jelly is made, the avocado or alligator pear, believed by the natives to have aphrodisiac properties, the calabash or giant gourds, and the sweet potato. The plates showing figures of many of these plants were the first pictures of them published.

What was done for the plants of the New World was done for Asiatic plants by Garcia da Orta, a Portuguese physician and botanist of the sixteenth century (4).

Da Orta was born about 1490 at Elvas, a frontier town of southeastern Portugal celebrated for its antiquity, the purity of its water, and the excellence of its plums, three good things on which to rest the fame of a town. He studied medicine at the Spanish universities of Alcala de Henares and Salamanca, and after a short period of practice in small towns of his native province went to the University of Coimbra as a professor. In 1534 he accompanied a new viceroy to Goa, the capital of Portuguese India (1).

Da Orta spent the rest of his life in the Orient, serving as viceregal physician or in other official capacities, traveling, practicing medicine and studying the natural history of India and the character of its civilization. His travels cannot now be definitely traced but it appears that he visited nearly all the native states on the west coast of India, and the island of Ceylon probably more than once. He held the island where Bombay now stands under a long term lease and had there his botanic or "physic garden." From it he sent many valuable seeds and plants to Portugal, among others tradition says the first plants of the China orange to reach Europe. As this is the parent stock of our citrus fruit, the value of this one importation is considerable (1, 2, 3).

Da Orta was a friend and physician to many of the Indian princes of the Malabar coast who eagerly sought his professional services and who rewarded him with

* Section on Historical Pharmacy, A. PH. A., Rapid City meeting, 1929.

princely fees. About 1560 he settled permanently in Goa to enjoy an old age of wealth and wisdom and to receive the homage which both command (3). He was a friend of the poet Camoens, the historian Correa and the viceroy, and in 1563 he published his celebrated work "The Colloquies on the Drugs and Spices of India (2, 6).

This work is notable for these reasons:

1. It contains the first scientific description of such important Asiatic plants as nux vomica, datura (stramonium), cannabis indica, betel nut and its use, opium, pepper, ginger, cinnamon, cloves, camphor, benzoin, cubeb and such tropical fruits as the mango, mangosteen, custard apple and the durian. He gives the first correct account of the palm and its many uses.

2. In it da Orta describes the methods of growing these and many other drug plants, the native names, the uses, the tests for purity of the crude drug, adulteration, prices and similar matters. It is thus a foundation work in pharmacognosy.

3. It contains the first description by a European medical man of Asiatic cholera.

4. It constitutes a remarkable picture of the tropics and of Asiatic life and culture in the sixteenth century.

5. It was the third European book printed in Asia. A copy of the first edition was recently offered for sale for \$6250.

Da Orta's accounts are most interesting and include such non-medical subjects as elephants, chess men, the caste system, an Indian market place and similar matters. Asiatic plants are, of course, the subjects that make up the bulk of the work. Here is his description of the nutmeg and mace. This is from the opening of the thirty-second colloquy which describes the appearance of the nutmeg tree (*Myristica officinalis*), the leaves, flowers and fruit, as well as medicinal virtues attributed to these different parts (2).

"I am able to tell you the various names of the nutmeg and of mace for I asked for them in Malay, Persian, Arabic and Turkish. The tree of the nutmeg is the size of a pear tree and the leaves are rounded as are some pear leaves. Banda, the native place of the nutmeg, belongs to Portugal. The rind is hard, the outer skin harder than that of a green pear. When this is removed there is a very fine rind like that about a chestnut. This delicate skin is the mace. We need not refer more to the thick outer rind except to say that it makes a very good conserve with sugar, is most agreeable to taste and smell and is good for brain and nervous complaints. It comes from Banda in jars of vinegar and some people eat it as salad. When the nutmeg ripens it bursts the outer rind and the mace breaks through and changes to a red color. It is a beautiful sight when the trees are loaded."

He also describes the effects of datura (Stramonium). He supports the observations of the Dutch traveler, Linschoten, regarding the Boccaccio like incidents of infidelity of the wife before the very eyes of her spouse who under the influence of the drug takes reality for a dream. Here is what Linschoten says of datura (3).

"The man sitteth with his eyes open, not doing or saying anything, but laugh or grin like a fool, or a man out of his wits: and when the time cometh that he reviveth out of his trance, he knoweth nothing that was done, but thinketh that he had slept."

Da Orta mentions that datura was often used by thieves to cause the victim to voluntarily give up their possessions and mentions a patient who had given her

jewels in this way to her maid, the latter having administered datura to her mistress in order to effect this result.

All of da Orta's writings were remarkable for their interest, pungency and accuracy. The latter feature is attested by that great pharmacognosist, Frederick Augustus Flückiger who says (1):

"The Colloquies are notable for both the richness of information they contain and their faithful and minute descriptions. No one has described the drug plants of India with so much care, or with such accuracy, and subsequent investigators have almost invariably confirmed the statements of Garcia. The historian of Asiatic drugs must of necessity refer often to Garcia da Orta, his defects are few and may be attributed rather to the lack of modern instruments of precision than to any other cause. The Colloquies will always hold a place of highest honor in the history of pharmacognosy."

Da Orta died at Goa about 1570. At some future time the writer hopes to make a few more short translations from the Colloquies of the original descriptions of nux vomica, opium, cannabis indica, betel nut, cinnamon, ginger, and pepper, as well as of Asiatic cholera and some of the more striking vignettes of Asiatic life and customs (6).

BIBLIOGRAPHY.

- (1) "Garcia da Orta e seu Temp," Count de Ficalho. Lisbon, 1886.
- (2) "Colloquies dos Simples e Drogas e Cousais Mediciniais da India." Lisbon, 1872.
- (3) "Vasco da Gama and His Successors," K. G. Jayne. London, 1910.
- (4) "Pioneers in Plant Study," Ellison Hawks. London, 1928.
- (5) "Beginnings of Agriculture in America," Carrier. New York, 1923.
- (6) "Garcia da Orta—The First European Writer on Tropical Medicine and a Pioneer in Pharmacognosy," Louis H. Roddis, *Annals of Medical History* (February 1929).

MERGERS.

We are pleased to quote from an editorial of the February *Industrial & Engineering Chemistry*.

The movement, of such prominence in the last few months, has naturally extended to the drug field, where manufacturing units have found it desirable to merge their interests, where wholesalers have pooled their resources, and where in the retail stores we find some of our best examples of the modern chains. It is to be hoped that this development will not interfere in any degree with the outstanding duty of all those connected with the drug business, which is humanitarian service. • • •

"Mergers are expected to yield profits. They sometimes bring into an organization groups unfamiliar with the traditions and the ethics of the business. Some remedies cannot be produced on a great quantity basis; for fortunately they are not needed in ton lots. But what are made are invaluable to the few

who need them. Profits customarily lie with quantity production. Will the merged organization, whether it be the retail chain or the combined manufacturers, continue to be willing to supply the needs where, at times, profits must be secondary? Some believe that present trends may bring a new opportunity to the well-trained individual pharmacist, who, as of old, may make, with his own hands, some of the pills, powders, tinctures and elixirs which may be demanded, but in too small quantity to attract the huge units.

"If the mergers in the drug field follow the precedent established in other lines, they will, in self-interest, expand rather than contract their services, and consider average profits on a complete line rather than returns on individual items. Through standardization and utmost control in production they can improve their products, and give the public reason to be pleased with their service and thankful for their existence. In this lies their opportunity."