Historical and Bibliographical Notes.

A SERIES OF SKETCHES OF THE LIVES, TIMES AND WORKS OF THE OLD MASTERS OF ANATOMY AND SURGERY.

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VII. REALDO COLOMBO.

1494–1559.

COLUMBUS was one of the best as he was also one of the most celebrated of that illustrious line of Italian physicians, surgeons and anatomists, which imparted glory to the medical school of Padua, in the sixteenth century. He was born in Cremona, a small Milanese village, but the precise year of his birth is uncertain. Most medical historians state that he died at Rome, in the year 1577. This is obviously an error. All bibliographers agree that but one edition of his work, *De re anatomica: libri* XV. was ever printed at Venice; this was the first, it was in folio, and issued "*ex-typographia Nicolai Bevilacquæ Tridentini Anno Christi*, MDLIX." Columbus dedicated it "*Datæ Romæ, calen. Junii*, MDLIX," to Pope Paul IV. This pon-

tiff was elected May 23, 1555, and died August 18, 1559. The Pope's privilege to publish the work is dated June 17, of the same year. Now it appears that Realdus Columbus died while the work was in press, but before it was published. A few sheets or copies must have been printed for I am the fortunate possessor of one containing the author's own dedication to Paul IV, and also a copy bearing the same date (1559), identical in every particular as to type, lines, paging, and even errors, but in this the dedication is by the two sons of Realdus, viz; "*Lazarus et Phœbus Columbi S. et F.P.D.*" to "*Pio IIII, Pont. Max.*," who was the immediate successor of Paul IV.

In this dedication the sons say their father in former years had written a work on anatomy in fifteen books, that death came to him after it was set in type, and "although we, who have been thus put about in grief and sorrow on account of the death of so great a man, still we began shortly after to breathe again. O! Pius IV, Pontificus Maximus, we have decided to put forth and dedicate these labors of our father to thy most happy and excellent name." It seems strange that Haller, Eloy, and so many other learned men should have perpetuated so great an error and one so susceptible of correction as above shown. The odd bit of luck by which two copies of this rare book drifted into my hands from two remote points in Europe, whereby I have been enabled to almost determine the day in which death laid his finger upon this grand old anatomist is my apology for occupying so much space concerning this matter of date.

Columbus was probably about sixty or sixty-five years of age when he died, making his birth about the year 1494. The curious engraved title-page represents him with a venerable countenance, a bald head and a lengthy flowing beard. He stands with scalpel in hand, his cadaver on the table be-

fore him; a number of earnest students, for the most part greybeards in gowns, are looking on, some taking notes and others comparing the parts demonstrated with the descriptions and plates in anatomical treatises opened before them. It is a spirited and admirable old wood-engraving, which some execrable vandal has ruthlessly cut out with his knife from one of my precious copies—may his bones and inwards adorn some pathological museum as a warning to others of like disposition.

The father of Realdus was a noted apothecary to which occupation he trained his son, but subsequently put him under the instruction of the distinguished surgeon Jean Antoine Plazzi, and afterward in the medical school of Padua, where he imbibed anatomy from the renowned Vesalius, whose earnest disciple and warm friend, and finally, successor he became.

He spent six years of his life in this city. He filled the chair of anatomy during the frequent and prolonged absence of Vesalius, and when at last his master resigned it, having been called to Madrid as first physician to Philip II, Columbus in 1544 became his immediate successor and filled the position with credit and honor to himself and added renown and popularity to the university. In 1546 he was appointed professor of anatomy to the University of Pisa, whence he was called in the same capacity to the University of Rome, by Pope Paul IV. From this pontiff he received every possible mark of high consideration and favor, in recognition of which Columbus, as above stated, dedicated his splendid treatise on human anatomy. Alas, after the work was in type, but before it was published, both the gifted author and the noble patron had paid the debt of nature.

The fame of Columbus as an anatomical teacher was exceedingly great and wide-spread. Students were attracted

to the universities where he professed from all quarters and in large numbers. He was an ardent student of his favorite science and imbued with the genius and enthusiasm of an original investigator. He was not satisfied with the critical examination of mere structure, but extended his researches into the more subtle, difficult and important investigation of physiological function. He has been most aptly styled the Claude Bernard of the sixteenth century. The work of Columbus is a masterpiece in method and purity of style, as well as on account of its richness in facts and observations. He spent over forty years in these studies and researches. He dissected an extraordinary number of human bodies. It must have been an age of remarkable tolerance for scientific investigation, for in a single year he dissected no less than fourteen bodies. He also entered the crypts and catacombs of ancient churches where the bones of the dead had been preserved and had accumulated century after century, and there with unwearied care he handled and compared over a half million of human skulls. Nor did he confine his observations to the remains of the dead, his physiological researches by the aid of vivisections were numberless. He was the first to substitute dogs in place of swine, hitherto only used for this purpose. He wrote a treatise on this subject in which he said that vivisection would teach us more in one day than we would learn in three months' perusal of Galen's works.

The restricted limit of these sketches will not admit of a detailed account of all the discoveries and improvements which were made by this anatomist. Portal, in his history of this science, has quite exhausted this subject and to him the reader must be referred.

His description of the brain and its vessels, the internal ear, the cavities of the heart, its valves, the blood vessels, and the entire skeleton are all more correct than by any previous writer.

The one thing, however, which will outlive all else that Columbus ever did, is his description of the pulmonary or lesser circulation of the blood. The following is as translated by Willis (William Harvey, pp. 89 and 90). "Nothing, however, can pass through the septum between the two ventricles, as is commonly said; for the blood is carried by the vena arterialis to the lung, whence, after having been attenuated, refined and mingled with air, it is brought by the arteria venalis to the left ventricle, *a fact which no one until now has referred to in words or recorded in his writings.*" Concerning the valves our author says. "When the heart dilates it draws natural blood from the vena cava into the right ventricle, and prepared blood from the pulmonary vein into the left, the valves being so disposed that they collapse and permit of its ingress; but when the heart contracts, they become tense, and close the apertures, so that nothing can return by the way it came. The valves of the aorta and pulmonary artery opening, on the contrary, at the same moment, give passage to the spirituous blood for distribution to the body at large, and to the natural blood for transference to the lungs."

Is not this remarkable language to find in a book sixty-nine years before Harvey published his discovery of the circulation of the blood?

This is certainly the first publication of the discovery of the pulmonary circulation ever made in an anatomical work. It is true that Servetus had written a similar description, and it had been printed, but never published, in his work on "The Restitution of Christianity," six years prior to the publication of Columbus' treatise. It is well-known that only two, or at most three copies of the book of Servetus were saved from the fires which burned both author and work.

It is highly improbable that Columbus ever saw or ever heard of the passage in the work of the medico-theological

Spaniard—the poor unfortunate victim of religious intolerance, and of John Calvin's unsanctified zeal. On the other hand, it is quite probable that Servetus must have been present at the lectures of Columbus, and there became initiated into the mysteries of the pulmonary circulation which were already known on Italian soil. Columbus assures us that he was engaged many years in the preparation of his work, and congratulates himself on its completion during the pontification of Paul IV.

Who knows how many years before 1559 it had been in manuscript, or had been taught to his pupils in his lectures? Are we to believe that this man, so beloved by all, so frank, so independent, such a profound lover of truth, is a base hypocrite—a barefaced liar—a literary sneak-thief? I am sorry that Harvey's claims cannot be sustained by Dr. Willis without such an intimation, which is more excusable in James Douglas, who suggested the same thing in 1714. (Bibliographia anatomica.) It is, however, an unsettled question whether Servetus and Columbus, each independently, made this discovery; or that either learned it from the other, and who should have the credit of priority. I incline to Realdus Columbus—the careful dissector and physiological investigator of forty years' application, rather than to the visionary, erratic, metaphysical and theological controversialist, Michael Servetus.

The original edition, Venice, 1559, is printed with large type, marginal notes, no plates or engravings, excepting the full page engraved title above referred to, 269 pages, and 4 preliminary leaves.

De re anatomica: libri, xv, *Venet.*, 1559, folio. *Paris*, 1562, 8°; 1572, 8°; *Francfort*, 1590, 8°; 1593, 8°; 1599, 8°; 1609, fol. *Leyden* (in German), 1667, 8°.