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Some Errors About Asellius and the Chyliferous Vessels

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It is widely accepted that *Asellius* died in 1926, and that his handwritten notes have been edited by two of his friends or disciples in 1627.

Though there is a general agreement on this point, discordances and errors appear and multiply on several items, i. e. a) about the place where *Asellius* lectured: Pavia (8), Milano (9) and Padova (7); b) about the place where the discovery was made: Pavia, according to *Hahn* (8), *Rodriguez* (12) and *Cronkite* (5), but more probably Milano (9, 4); c) about the, though memorable date, when *Asellius* saw that part of the products of the intestinal digestion did not go to the liver by way of the mesaraic veins (like it was taught at that time), but passed into the "milky veins" or "lacteal vessels": *Veith* (14) and *Cronkite* (5) mention 1622, *Hahn* (8) indicates July 23rd 1623, *Hahn* et al. (7) indicate July 23rd 1622, while *Drinker* and *Field* (6) do not hesitate to let *Asellius* make his discovery in 1627, five years late and two years after his death; and d) about the names of those who assured the posthumous publication of *Asellius'* work: Taddino and Settala according to *Hahn* (8) and *Henry* (9), Talino and Settala according to *Costanzi* (4), Tabino and Septalio according to *Battezzati* et al. (2), and in reality Tadinus and Septalius.

To these errors, which are errors of historians, may be added the anatomical errors of Asellius himself. He described and figured the chyliferous vessels as leaving the intestine and leading the chyle through the mesentery, to the "pancreas" (fig.), from which two large milky veins conducted to the liver; indeed, in two wooden coloured* engravings, which accompany the text of the original edition (Number 4469 of the Muséum d'Histoire Naturelle of Paris), *Asellius* figured correctly (in Q) the pancreas in the form of a tongue, adhering to the intestinal loop; however he interpreted it as a "*pars quoedam carnosa, glandulosa ed adiposa canibus peculiaris*" and he named pancreas, i. e. an entirely fleshy, massive organ, situated somewhat above the center of the mesentery, "*in quam venae lacteae inter se implexa insinuantur forma capreolorum*"; he also indicated by (N) two lacteal vessels "*progressus lactearum ex pancreate ad hepar*". In reality, the pancreas of *Asellius* is the major lymph center of the mesentery of the carnivores, the big lymphatic node in which the intestinal chyle is collected, before it gains the cisterna of *Pecquet* and the thoracic duct. Moreover, the vessels indicated

* Apparently the first coloured anatomical plates of the world and probably the work of Cesare Bassano.

with (N) by *Asellius* do not reach the liver; they do derive from it and are the hepatic lymphatic vessels, the "*ductus hepatici aquosi*" of *Rudbeck* (13); this author proved indeed that on ligating these vessels, they empty behind the ligature and dilate in front of it.

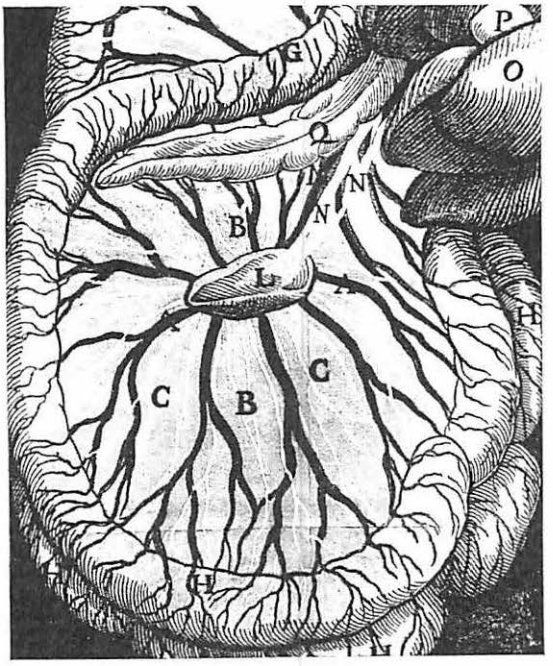

Fig. 1 Photograph of Plate II in the posthumous work of Asellius: "De lactibus . . ." (Reproduced thanks to the extreme kindness of the custodian of the Muséum d'Histoire Naturelle of Paris and of Miss Monseigny, photographer of the museum). In L: the pancreas of Asellius, lacteal center forming "capreolorum".

In reality, *Asellius* was born in Cremona (1581) and did his medical studies in Pavia. There he presented his thesis and practiced afterwards as a surgeon in Milano. It was in Milano that he made his discovery, on the 23rd of July, 1622. During a demonstration of the recurrent nerves and the movements of the diaphragm in the dog, he observed the "*sottili, blanchissimi . . . tenuissimos, candidissimosque*" cords, which became the chyliferous vessels; however he did not find them back the next day, while dissecting a dog "*siccum et impastum*", but he found them again in another dog, on the 26th of July and from then on he observed them easily in the pig, the lamb, in cattle and in a horse.

His discovery led to his nomination as lector and prosector at the University of Pavia in 1624. In september 1625, he was attacked with an acute and malignous fever and he died. His friends had a commemorative plate put in the church of S. Pietro Celestino in Milan (15) and published: "De lactibus . . . ". There were several editions and the Muséum de Paris possesses a specimen of the edition of 1627.

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EDITORIAL

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Lymphatic Dissemination of Cancer Cells

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The experimental results obtained by *Franchi* and collaborators and published elsewhere in this issue show that the lymphogenic metastatic paths of malignant tumors are characterised by various factors. If there is no hindrance to the flow from the lymphogenic drainage area of the malignant tumor, then metastases are to be expected in the immediately following and regional lymph nodes.

If the lymphogenic drainage path is blocked and other drainage possibilities are lacking, a collateral circulation develops. Having by-passed the block the collateral vessels usually lead back to the original flow.

However, when there are two possible primary lymphogenic drainage paths then the main flow takes place along the more direct path. If this path is blocked the main flow will occur via the second possible path, and at the same time collateral vessels develop in the blocked area.

Only with reservations is it possible to transfer the results obtained by *Franchi* and collaborators to human beings. Lymphographic examinations have shown that with a total block of a lymph node group due to lymph node metastases, as well as following extirpation of lymph nodes, similar alterations to those in animal experiments can be observed. Collateral vessels are able to by-pass damaged lymph nodes, and also provide a connection to other regions of flow which were not originally connected to the drainage area of the tumor. This means that the lymph node metastases do not always have to spread along the paths indicated, but may also arise in the neighbouring flow areas.