

# CHARLES ESTIENNE: CONTEMPORARY OF VESALIUS

by

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THE career of Andreas Vesalius is a milestone in the history of anatomy, since the publication of Vesalius' *Fabrica* in 1543 gave rise to an independent way of thinking and new methods of research. Indeed we owe him the foundation of our modern medical science which is characterized by systematic observation of cases. Certainly there is no doubt about this nor would anyone intend to minimize Vesalius' great achievements and his importance. Appreciation of this great anatomist should not, however, prevent our investigations into the achievements of his predecessors. Several medico-historical publications of recent years dealing with Vesalius' immediate predecessors and contemporaries have endeavoured to show that Berengario da Carpi as well as Nicolo Massa and Giovanni Battista Canano, etc., were similarly capable of independent thinking.<sup>1</sup> In this context, however, one personality who showed even clearer tendencies of breaking with medieval authoritarian orthodoxy has not been sufficiently appreciated: Charles Estienne or—to give him his Latin name—Carolus Stephanus. His name is rarely mentioned in literature and no biography of him exists. Some details about Estienne's life and work are to be found in old manuals and encyclopaedias—for example, Portal's *Histoire de l'Anatomie*<sup>2</sup> and the Encyclopaedia of Bayle and Thillaye.<sup>3</sup> Recent publications on Estienne have dealt mainly with the illustrations of his work.<sup>4</sup>

And yet this man should be placed among those anatomists who tried to obtain an objective picture of the structure of the human body. Far more than any of his contemporaries Estienne ventured to doubt tradition—*expressis verbis*—in his work without, however, following this path courageously to its end, as Vesalius did, but compromising instead with Galenic tradition. The discordance typical of this epoch, the vacillation of the anatomist between his findings at the dissection table and the traditional doctrines established by Galen, the courage on the one hand, fear on the other—all these trends and moods are epitomized in Estienne's anatomical work.

In 1545—two years after the publication of Vesalius' *Fabrica*—Estienne's *Tres libri de dissectione partium corporis humani*<sup>5</sup> appeared in Paris, followed in 1546 by a French edition.<sup>6</sup> It has been proved that the book had been compiled entirely independently of the *Fabrica*, for, as Estienne stated in his preface, his work had been printed up to the middle of the third book as early as 1539, four years before the publication of the *Fabrica*. The printing had then been interrupted 'ob enatam controversiam' or according to the French edition 'a cause d'un procès'.<sup>7</sup>

It is true that Estienne did not attempt to overthrow Galen's fourteen

hundred year old authority—his conciliatory character would have prevented this—but should he therefore be considered as an uncritical adherent of Galen and an inferior anatomist, as Moritz Roth called him?<sup>8</sup> On the first pages of his book Estienne states his aims by a dictum of Galen: that he intended to trust his own eyes rather than the anatomical books.<sup>9</sup> Did he really act according to this resolution?

In the first book of the *De Dissectione* several attempts to add personal experience to the stock of knowledge handed down by tradition can clearly be recognized. While in the early chapters Estienne would begin or interrupt his anatomical descriptions by the traditional phrases 'ait Galenus' or 'inquit Galenus', etc., later, especially in the third book, these parentheses become rarer and rarer. Only in connection with the *nervi recurrentes* is Galen's name mentioned by Estienne, and rightly so, since Estienne points out that the nerves owe their name to Galen.<sup>10</sup>

In addition, he frequently announces additions to Galen's knowledge by 'Accessio ad Galeni sententiam', a phrase which he stressed decidedly in the printed marginalia of the book. Moreover, in discussing, for example, the rectus muscle he confronts Galen's doctrine explicitly with his own findings: 'Galeni sententia' is qualified by 'nostra administratio'.<sup>11</sup> Several times he even dares to contradict Galen with his own experience: 'Galenus dixit, nos vero . . . comperimus'.<sup>12</sup>

Such a positive independent attitude based on personal observations is to be found in no other of Vesalius' predecessors or contemporaries. Of course they all expressed from time to time doubts as to the traditional knowledge, but in a very subtle way and in very carefully chosen words. Berengario da Carpi whose life-span overlaps Vesalius' adolescence may serve as an example. His undecided and hesitating attitude towards tradition is clearly demonstrated by his description of the famous rete mirabile, the marvellous net of arteries which according to Galen developed at the basilar bone out of the internal carotids below the dura mater. Although some animals are provided with this arterial net, it is not found in man.

Like all anatomists before him Berengario describes this fictitious net in detail, adding, confident of his personal observations, the well-known phrase: 'Ego istud rete numquam vidi'. And he goes on to conclude: 'This net between the basilar bone and the dura mater does not exist!'<sup>13</sup> He had never discovered it in more than a hundred dissections; nevertheless he describes it for fear of accusing Galen of an error.

Even Estienne did not entirely overcome this fear of Galen and other ancient authorities. He lacked Vesalius' courage to accuse Galen publicly of an error, even if the mistake was evident; he always tried instead to justify Galen's errors. Significant of this discordant attitude of Estienne is his presentation of the nerves of the spinal cord. Galen described only the upper nerves up to the second thoracic vertebra. 'Haec Galenus', Estienne said, 'praeterea autem paucissima admodum aut nihil omnino de aliis vertebris refert'.<sup>14</sup> Galen's description is a fragment; it appears unsatisfactory to Estienne. If he had accepted it, his readers claiming a complete work would have judged his description as 'mancus'

or 'truncatus'. 'Propter facilitatem', he continued, 'ita breviter absolvemus, quod Galenus tacuisse visus est.'<sup>15</sup> Estienne does not doubt in the least that Galen knew these nerves and their location—only he failed to describe them; he 'concealed' them!

During his studies in Paris Estienne, like Vesalius, had been imbued with Galenic tradition and was influenced by the same teacher, Jacques Dubois-Sylvius, who represented the strongest obstacle in the movement to break with traditional anatomy. It is a well-known fact that Vesalius broke fairly early with his teacher's anatomy which was strongly orientated towards Galen. And what about Estienne? Did not the dogmatic ideas of Sylvius leave traces on him? This question may best be answered by means of an anatomic example—by the descriptions of the human sternum given by the three anatomists mentioned which reflect the teacher's and his disciples' typical attitudes towards anatomical tradition.

Since Galen the human sternum had been graduated into seven bones, although dissections made during the fifteenth and sixteenth centuries had proved that this did not agree with the observations. Even Sylvius had to admit in his lectures and anatomical treatises that 'nowadays in our bodies the number of sternal bones is very rarely seven, but mostly less: i.e. six or five, sometimes only four or three, although in rare cases even eight'.<sup>16</sup> How can these findings, though, be brought into line with Galen's doctrine? Sylvius obviously precluded any possible error on Galen's part. Another explanation had to be found for this manifest contradiction, and Sylvius did find it by the argument that the human body had undergone modifications during the fourteen hundred years that had passed since Galen's lifetime. Not only did Sylvius suppose a modification, but he speaks of degeneration, thus adding an evaluating element to the discussion. According to him the nature of mankind had been vitiated since Galen—he employs the verb *vitiare*. The reduction of the number of sternal bones appeared to him as a serious defect, since it might shorten the thorax more than might be beneficial to it; he mentioned a 'corrupta longitudo sterni'.<sup>17</sup> In view of such a dogmatic attitude the acquisition of new anatomical knowledge could not be expected, still less the abandonment of medieval orthodoxy.

The portrait we have so far tried to draw of Charles Estienne points to the fact that in describing the human sternum Estienne would not follow blindly his teacher Sylvius. In fact, the front-view illustration of the human skeleton in Estienne's *De Dissectione* shows a sternum composed of three bones, exactly in accordance with the anatomic situation. In Chapter 13 of the first book Estienne states: 'The sternum seems to be composed of three bones which are joined so skilfully that one cannot imagine anything linked more closely nor more neatly.'<sup>18</sup>

This clear and obvious description clearly opposes the Galenic view. Estienne has, of course, to comment on this contradiction, if only not to be considered ignorant. He seems to be faced by an apparently insoluble task: he has to reconcile his correct description based on his findings on the corpse, with Galen's erroneous doctrine. He is neither willing to revoke his own findings nor

dare he accuse Galen—*expressis verbis*—of an error. The solution of this dilemma ought to be considered as a masterpiece of dialectic sophistry.

By this opinion contradicting Galen [he continues] we do not wish to appear more stupid and ignorant than Galen. For when Galen stated that the sternum consisted of seven bones, he did so, because according to an old custom he divided the sternum vertically in two exact halves. Thus the three bones described by us became six. As seventh bone he counted the xiphoid process.<sup>19</sup>

After having seemingly reconciled the findings by this unique somersault of thought he was bold enough to launch a veiled attack against Galen.

All those are wrong [Estienne continued] who compare the human sternum to that of another creature in the belief of ascribing likeness. For although the sternum of a monkey really consists of seven bones, it must not be concluded that the same is true of the human structure. Whereas many parts of our body are the same as those of a monkey, a pig or a dog, this by no means applies to all parts from head to toe regarding their positions, shapes and numbers. As the structure of a monkey differs from that of a pig and that of a pig from a dog, it is only natural that man differs in many aspects from those animals! This applies doubtlessly to the sternum, too. It may be put into boiling water [he concludes], or into seething oil or one may try to divide it skilfully with a metallic instrument—never will there be more than three bones to it.<sup>20</sup>

Even though Estienne does not mention Galen's name in this context his attack is aimed obviously against the 'princeps medicorum' and his blind and prejudiced followers, since Galen used monkeys and pigs for his dissections.

Vesalius was the first anatomist who dared break openly with the Galenic tradition. But even he needed considerable time before he recognized that Galen was not infallible. At the outset of his anatomical career he was a Galenist, like all anatomists of his time; he could not be anything else. Thus in 1538, one year before Estienne wrote *De Dissectione*, Vesalius still drew the sternum as composed of seven bones in his *Tabulae Anatomicae*; in accordance with Galenic tradition he has the joints articulate with the first seven ribs. His comment on this illustration admits no doubt: 'Pectoris os septem constat ossibus sicuti costae, quae illi alligantur.'<sup>21</sup>

On the famous table of the *Fabrica* showing a front view of the human skeleton, the sternum still does not appear in accordance with nature, but it consists of five bones and the xiphoid process. However, the detached drawing of the sternum precludes any doubt; the sternum being depicted in its correct composition.<sup>22</sup> While describing the sternum in his *Fabrica* Vesalius attacked the Galenic view. His polemics, mentioning the name of Galen, culminate in the phrase that he had certainly never discovered seven bones in the human sternum, but only three differing widely from each other.<sup>23</sup> With this criticism of Galen he goes beyond Estienne by confronting consciously and openly the findings resulting from work at the dissection table with a millennium old, inherited error—a step which before Vesalius nobody dared take.

Estienne's efforts at 'trusting his own eyes rather than tradition' foster expectations that he might have arrived at new anatomical ideas and results in his *De Dissectione*. And there are, in fact, a number of anatomical discoveries to be found in his work, the most important of which is the description of the central canal of the spinal cord.<sup>24</sup> It is not surprising that the remarkable

extension of anatomical knowledge due to Estienne and his, in many details surprisingly, independent attitude have been contrasted by a rather traditional description of anatomy in his *De Dissectione*, for Estienne could not deny his era. In his work Galen's frequently discussed rete mirabile<sup>25</sup> takes its place as well as the traditional two-horned uterus.<sup>26</sup> The pores of the heart through which, according to Galen, the blood passed from the right into the left ventricle were described by Estienne as tradition required.<sup>27</sup> He refrained, though, from illustrating or even mentioning the malleus and incus of the ear which had been depicted by Berengario in his *Isagogae* twenty years earlier. 'Il n'est point excusable,' Portal writes in this context.<sup>28</sup> The five-lobed liver, however, ascribed to Estienne by several authors is not mentioned in the *De Dissectione*; describing this organ Estienne referred to the lobes of the liver, saying 'in nonnullis corporibus tantum duo, in aliis tantum unicus, in permultis tres et quatuor reperiuntur'.<sup>29</sup>

Several anatomists of the sixteenth century reflect the trend of that epoch, when trust in their own observations began to overcome inherited book learning. Yet not one was confident enough to overthrow Galen's doctrine dating back more than a millennium. Only when the right time had come to present anatomy with a great man—Andreas Vesalius—a new era began in this science. It should be recognized, however, that apart from Vesalius his contemporary Charles Estienne had advanced most in the process of dissociation from traditional outlook. He was one of the first to criticize Galen consciously and to confront his own findings with the inherited anatomical knowledge. This ought to be remembered in the history of anatomy.

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