

Aldrovandi

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Ulysses Aldrovandi of Bologna and Joachim Camerarius II of Nürnberg

Study of a Friendship during the Late Renaissance

When at the outset of the sixteenth century Bologna¹ was integrated into the papal states, she came to rest from long years of civil strife and to enjoy a peace that would prevail for nearly three hundred years. The decay of the *Studium*, the pride of the Bolognese, that had set in after a period of brilliance as the most outstanding scholastic institution in the fifteenth century, would lead, it must be admitted, to a state of lassitude and enfeeblement by the time of Aldrovandi; the city of Bologna herself, however, sharing in the privileges that her new status under pontifical sovereignty brought, afforded the patronage of many note-worthy men of letters whereby she could assert herself as one of the prominent cultural centres of Europe. Now at the same time flourished north of the Alps another city that had also experienced in the fifteenth and early sixteenth centuries a »golden age«, namely Nürnberg.² Certainly our idealized vision of the city of the *Meistersänger* (see fig. 1) is more a legacy of nineteenth century romanticism than a thoroughly accurate historical representation; yet it cannot be denied that Nürnberg did enjoy an economic affluence which allowed for the patronage of many artists and craftsmen, fostering not only Albrecht Dürer, but also Veit Stoss, Adam Krafft and Peter Vischer, and thus contributing to the cultivation of that excellence in style and taste characteristic of the high point of German Renaissance culture. Being neither the seat of a university, nor one of the great centres of humanism, she could not rival Bologna in matters of scholarship. But as the cross-roads of merchants in the Holy Roman Empire and a centre of trade between foreign lands, Nürnberg had also risen to a European capital of note.

That both cities came to enjoy a culturally privileged position must of course be considered in the context of the general urban impetus during the Renaissance that brought about a flourishing of bourgeois civility to the free and industrious cities rivaling the traditional hegemony of courtly culture. Bologna, although annexed to the papal states and subjected to the rule of the Holy See, found under her pontifical prince a source of tranquility in which the government of a senate formed from members of the nobility and representatives of the people, the so-called *Quaranta consiglieri e riformatori dello Stato di Bologna*, could tend to civic interests. Nürnberg, after a long struggle with the *Burggraf*,³ had become in the fourteenth century a free imperial city directly under the jurisdiction of the Holy Roman Emperor, being thereby guaranteed a *pax imperialis* upon which her economic flourishing depended, but allowing, similarly to Bo-

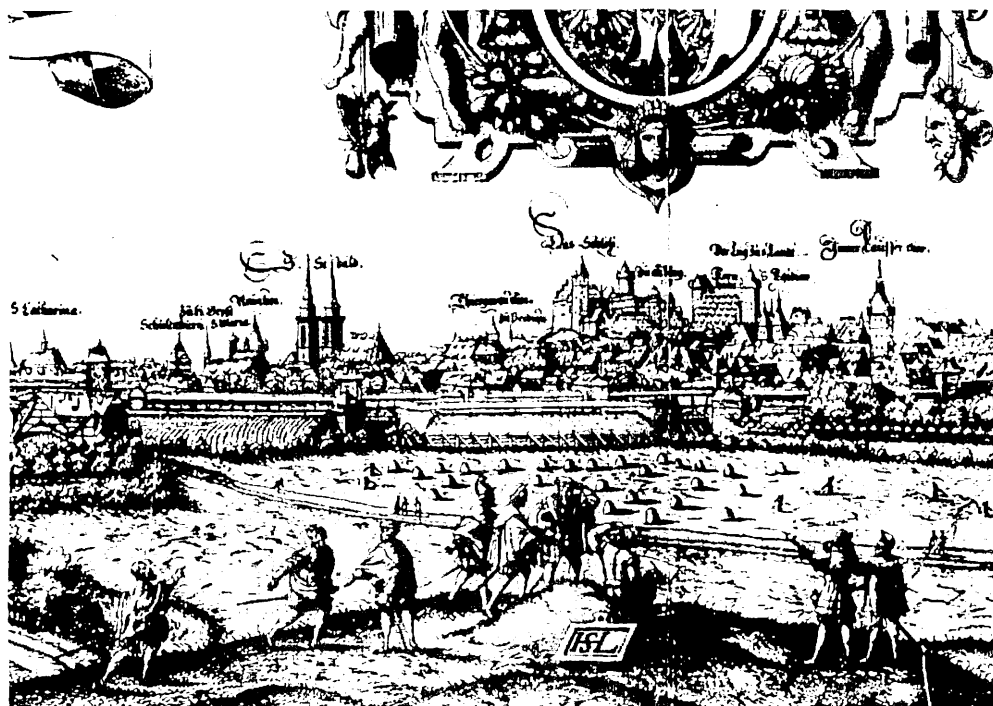


Fig. 1: Warhaffte Contrafactur der Löblichen Reychstat Nuremberg. gegen dem Aufgang der Sonnen A[nno] 1552.

Signed HSL [= Hans Lautensack], the full length engraving (of which here only a section is reproduced) = 295 x 1515 mm.

Section of the »Genuine Rendering of the Praiseworthy Imperial City of Nürnberg from the East in the Year 1552«.

(Courtesy of the Germanischen Nationalmuseum, Nürnberg)

logna, for the internal rule of a council of patricians and guild members.

When then of all the relations which Ulysses Aldrovandi cultivated with scholars north of the Alps⁴ that with Joachim Camerarius II of Nürnberg being amongst the most salient, it might prove particularly worthwhile in an historical consideration of Aldrovandi's life and times to study this friendship not only because Camerarius was considered by his contemporaries to be one of the most learned physicians and significant botanists, but even more so since it might shed some light on social circumstances underlining intercourse in the republic of letters during that era. Despite ideological differences between Bologna, directly under the *aegides* of the Roman Catholic church, and Nürnberg, a stronghold of the Protestant reformers, there are a number of striking similarities in the biographies of these two Renaissance scholars which, when considered, might

explain the affinities which lead to such a fruitful association. The circumstances of their parallel careers might be seen as representative of those of an intellectual elite which rose outside the traditional confines of the scholastic university⁵ in connection with urban advancement and the prospering of a bourgeoisie interested in patronizing the profane sciences.⁶ But their relations were those of friends and their friendship expressed itself in the intercourse they maintained on a scientific



IOACHIMUS CAMERARIUS Ioach. Babe-
berg: Filius Med. Doctoret Botanici celeberr.
Nürnberg. natus 6 Nov. A. C. 1534. Doctor creatus Bononiae A. 1562.
In Patria Praecon. ecclesiae Hortum Medicum plantans. et P. A. Ma-
thioli Comment. in Dioscor. notis illustrare cepit. A. 1564. Collegium
Medicorum civium (Camerarius fuit praenotatus, inde Senatus auctoritate
fundavit. A. 1592. Tandem hunc medendi apud principis servare
quibusvis curaculis in vita confecti moris beat. A. 1598. et 64.

Fig. 2: Joachim Camerarius II

Etching by unknown artist, 17th century; portrait = 129 x 104 mm.

The family coat-of-arms is depicted on the pillar at the right. The accompanying text reads in translation: »Joachim Camerarius, Joachim of Bamberg's son, doctor of medicine and famous botanist. Born in Nürnberg Nov. 6, 1534; graduated doctor at Bologna in the year 1562. In his fatherland he practiced medicine, layed out the medical garden and furnished in the year 1564 P. A. Mathioli's Commentary on Dioscor[ides] with notes; founded in 1592 with the authority of the illustrious senate the Medical College, whose dean he was for the rest of his life; zealous to serve through the art of curing anyone who was ill, at length he ended his own career passing away on Oct. 11, 1598 at the age of 64.« (Courtesy of the Herzog-August-Bibliothek, Wolfenbüttel (Porträtsammlung))

level. A study of this fruitful exchange thus behooves us to consider furthermore the methodology that they held in common and thereby offers an expedient opportunity for examining to what extent scientific discourse too is determined by social conditions.

If we first take a look at their ancestry, it is striking that both scholars were born into families whose fathers were not members of the powerful patriciate of their native cities, but rather of the professional class in civic service who had married into nobility. Like Ulysses,⁷ who was born on 11 September 1522 as son of Teseo Aldrovandi (ca. 1492-1529), notary and secretary to the Senate of Bologna, and Veronica née Marescalchi, a noble family of the city, so too was Joachim,⁸ twelve years Aldrovandi's younger, born as middle son of the famous humanist and schoolman Joachim Camerarius I (1500-1574), at that time in Nürnberg, and Anna Truchseß von Grünsberg, daughter of a noble family of Franconia,⁹ on the 6th of November 1534. Remarkable also is that beyond being born of professional fathers, the one a notary, the other a schoolman, both had important family connections to their respective churches. Not only were two of Aldrovandi's sisters, Veronica and Tesaura, to become nuns, but his brother, Achilles, to become one of the *Canonici Regolari* of San Salvatore, then Abbot of Ravenna and *Commendatore in appresso di S. Spirito di Roma*; moreover, through his maternal aunt he was a cousin of Ugo Boncompagni, later to become Pope under the name of Gregory XIII. Camerarius' father, Joachim I, a pupil and friend of Philipp Melanchthon, had for his part played an important role in the establishment of Protestantism, at first as one of the mediators between the Catholics and Lutherans, present for example at the reading of the *Confutatio pontificia* at Augsburg in 1530, then in the establishment of Protestant humanism through the educational reform movement which swept through Germany.

Typical perhaps of the rise of the bourgeois elite, both Aldrovandi and Camerarius, after receiving a careful primary education, went on to university to study a profession. Although Aldrovandi's father died when Ulysses was merely six years old, his mother saw to it that he receive the first elements of letters, employing a tutor for the education of her sons. Camerarius was more fortunate in that his father, who had gone to Nürnberg in 1526 at the urging of Melanchthon to become the first rector of the newly organized *Gymnasium*,¹⁰ then to Tübingen in 1535, and finally to Leipzig in 1541 where he was called to help reform the university,¹¹ had it in his power to ensure that his sons obtain the best humanistic education available. After beginning his formal education in Leipzig¹² as a pupil of Leonhard Wolf¹³ and Ernst Vöglin,¹⁴ Joachim II entered the famous *scuola portae* (German: »Schul-Pforte«)¹⁵ with his brother Philipp in 1548 where his humanistic education was carefully tended to by the erudite friend of his father, the teacher of physics, ethics and other liberal arts, Esrom Rüdiger.¹⁶ It was however in Leipzig, according to the records of the school,¹⁷ that Camerarius finished his primary education in 1551, having studied there under Wolfgang Meurer¹⁸ and Caspar Naeve,¹⁹ the latter being of particular interest, for reasons

which will later become apparent, as a correspondent of Pietro Andrea Mattioli.

From Leipzig Camerarius proceeded to Breslau where he studied practical medicine during the years 1555-1557 under the auspices of his father's friend, the famous humanist and physician, Crato.²⁰ With a desire to broaden his learning, he went on to Wittenberg in 1558,²¹ where, lodged in the home of Melanchthon, he attended lectures not only in medicine but also in philosophy.

Similar to Camerarius, Aldrovandi's higher education is also characterized both by its variety and its excellence, for just as the Nürnberger had profited from the best humanistic education of the German Renaissance, so too had the



Fig. 3: Ulysses Aldrovandi

From his *Ornithologiae hoc est de avibus historiae libri XII*. Bononiae: Apud Franciscus senensem, 1599

The Inscription reads: Ulysses Aldrovandus Bononiensis anno Ætatis LXXIII. – Non tua, Aristoteles, hæc est, sed Ulyssis imago: Dissimiles vultus, par tamen ingenium. – Sensibus hæc imis res est non parva reponas

Bolognese benefited from study under the most prominent scholars in their respective fields. Being determined to follow the profession of his father, Aldrovandi took up law at the *Studium* of his native town, studying in the school of Andrea Alciato,²² famous for introducing humanistic studies into jurisprudence at the resistance of more traditional teachers such as Marino Socino,²³ favoured by the Italian students even over Alciato,²⁴ and of Agostino Berò,²⁵ a scholar, it is said, more industrious than subtle, but famous nonetheless as teacher of several future popes. Rhetoric, a handsome asset for any lawyer, was also studied under Romolo Quirino Amaseo,²⁶ the humanist of the pontifical court, famed for his erudition and elegant style, and Achilles Bocchi,²⁷ founder of the *Accademia dei Letterati* and Imperial Orator at the court of Rome. Although Aldrovandi was solemnly pronounced notary on 16 June 1542,²⁸ he pursued further studies in philosophy under Giovanni Antonio Locatelli²⁹ and Claudio Betti,³⁰ and went on to Padova in 1548 and 1549 to broaden his learning in this field, attending the lectures of Bernardino Tomitano³¹ in logic and Marco Antonio de Passeri³² in philosophy. Here he came to hear Giovanni Battista Montano³³ in medicine and Pietro Catena³⁴ in mathematics, and having made a decision to devote himself to the sciences, returned to Bologna to receive a doctorate in philosophy and medicine on 23 November 1553.³⁵ In similar manner both men of letters fulfilled a desire to expand their field of experience by undertaking an extended journey to foreign lands. It is true that the pilgrimage which Aldrovandi made to Santiago de Compostela via the Provence, Languedoc, and Aragon and on the way home through Navarre, Aquitaine and Toulouse before taking up university studies, might be more appropriately designated as adventures of youth when compared to the *grand tour* which brought Camerarius to Italy to finish his formal education. But similar to his German counterpart, who travelled to expand his medical knowledge, so too was the journey profitable to Aldrovandi who would later make mention of many a plant, animal or mineral observed on route.

Upon the recommendation of Crato, Camerarius went to Padova in 1559³⁶ where he stayed for two years attending the lectures of some of the most prominent medical teachers in Europe. Here he attended not only the last course of lectures given in 1560 by the great Gabriele Falloppio,³⁷ but also lectures of other professors of medicine, then renowned though not the most outstanding in the history of Patavian scholarship:³⁸ Girolamo Capivaccio,³⁹ Vittore Trincavelli⁴⁰ and Luigi Bellacato.⁴¹ In addition he took up anatomical exercises and the art of disputation with Giovanni Vincenzo Pinelli.⁴² Here too he probably met Fabricius of Acquapendente,⁴³ the celebrated teacher of William Harvey, who was at this time a fellow student. Although Camerarius was attached to his *alma mater*, even acting as assessor (*consiliarius*) of the philosophical and medical sections of the German Nation from August 1560 until July 1561, he left for Bologna at the end of that year because of strife in Padova.⁴⁴ Unfortunately unrest followed him, for it was exactly at the time of his Bolognese sojourn, in that fateful winter of 1561-1562, that the long simmering dispute between the constables of the papal

legate to the University (the *sbirri*) and the *Natio germanica*⁴⁵ finally came to a head, leading to the great exodus of the German students from Bologna to Padova and the absence of the *Natio* from Bologna for the next eleven years.⁴⁶ Camerarius must have spent some time in Bologna however, for he did receive his doctorate in medicine there: the recently published records of the University, the *Acta* and the *Liber secretis*,⁴⁷ confirm that which Joachim Camerarius I proudly stated in a letter to Hieronymus Wolf dated on the Ides of July 1562: »Meus filius Ioachimus est ιατροδιδασκαλος solenni renunciatione declaratus Bononiae.«⁴⁸ If Camerarius stayed any length of time in Bologna during the winter semester 1561-1562 he might have attended the lectures which Aldrovandi, who had been promoted to lecturer-in-ordinary in 1559,⁴⁹ read that year on »De fossilibus, plantis et animalibus« under the rubric *Ad Philosophiam naturalem ordinariam*.⁵⁰ But it is beyond doubt that here the two men did meet and began a friendship that would endure a lifetime.

Before we come to a consideration of the significance of this friendship however, let us follow the course of their biographies through to the end. Upon his return to his native city in 1564 Camerarius took up medical practice, which Aldrovandi never did. Similar, however, was that both nurtured an interest in botany. In the very year that Camerarius had met the Bolognese who was later to become his colleague, Aldrovandi had been appointed to the position of lecturer-in-ordinary of simples⁵¹ and in the next, supervisor of the production of drugs. Both abhorred, so it seems, the multiplicity of medicaments and in general preferred the most simple, above all those extracted from plants. Thus, just as Aldrovandi had been named supervisor of the garden for simples as early as 1568 in connection with these appointments, so too would Camerarius found a botanical garden in Nürnberg in order to cultivate plants and try to acclimatize foreign ones in view of their medicinal virtues. With this interest in mind both were eager to gather samples of as many varieties of plants as nature had to provide. Although they each had special connections for obtaining exotic and rare specimens (Camerarius' botanical endeavours profiting, for example, from the exotic species which his friendship and correspondence with Leonhard Rauwolf of Augsburg, who had travelled to the Levant, afforded him,⁵² as did Aldrovandi's with Melchior Guilandini of Padova who had spent some time in Egypt⁵³), they both participated in the European network of epistolary exchange which united the Renaissance scholars in a republic of letters and which led to such fruitful scientific intercourse. To mention but those persons with whom they mutually⁵⁴ corresponded is to list some of the most illustrious names of the period: Prosper Alpino of Padova, Francesco Calzolari of Verona,⁵⁵ Giuseppe de Casabona of Florence, Giacomo Antonio Cortusio of Padova,⁵⁶ Charles de l'Escluse of Leyden,⁵⁷ Conrad Gesner of Zürich, Ferrante Imperato of Naples,⁵⁸ Joachim Jungermann of Leipzig,⁵⁹ Justus Lipsius of Louvain,⁶⁰ Pietro Andrea Mattioli,⁶¹ Girolamo Mercurialis, Giovanni Vincenzo Pinelli of Padova,⁶² Laurenz Scholtz of Breslau⁶³ and Jacob Zwinger of Basel.⁶⁴

Considering the service of science as their utmost duty, neither, it might be mentioned, were interested in riches, although both stood in the good graces of ecclesiastical and temporal potentates. His zeal for botany induced Camerarius to cede to the instances of the Landgraf of Hessen-Cassel, for example, who had invited him to his capital to lay out the botanical gardens. Because of Camerarius' fame as outstanding physician, his assistance was sought by the young prince elector of the Palatinate, Friedrich IV, at which time the caring father took the opportunity to introduce his son to the prince and thus set Ludwig on his political career.⁶⁵ Similarly Camerarius enjoyed the favour of the prince electors of Saxony, Christian and his successor August, for whom Camerarius had travelled to Dresden, restoring the health of his benefactor from a serious illness shortly before his own death. The bishops of Mainz, Würzburg and Bamberg, so it is said,⁶⁶ were also indebted to him. Aldrovandi too enjoyed the favour of members of the ruling elite; since however his relations to the Grand Dukes of Tuscany, to the Dukes of Modena and Urbino, to the Farnese family and the Cardinal Paleotti, all of whom generously encouraged his pursuits in natural history, are well documented,⁶⁷ we need not go into greater detail here.

On account of their knowledge and experience in medical matters both were called upon to apply their expertise to civic affairs, for like Aldrovandi, one of the *protomedici* of Bologna, Camerarius too was to become one of the foremost medical administrators of his native city, especially being remembered for his founding the *Collegium medicum* of Nürnberg in 1592, where he lived as dean till the end of his days.

The parallelity of their life-stories followed thus faithfully through to the very end, for both finished their days in their native cities, Aldrovandi on 10 March 1605, Camerarius on 11 October 1598, without, it might be added, finishing their lives' work, but having instructed faithful amanuenses to care for the posthumous editions of their unfinished works: Camerarius' collection of *Emblemata* would be completed by his son Ludwig, just as Aldrovandi's pupil, Johannis Cornelius Uterverius,⁶⁸ a native of Delft, saw to the publication of the *Historia animalium* that his mentor had begun.

Indeed, Camerarius himself did not maintain such an important collection in natural history as Aldrovandi, but we can consider his collecting botanical material as parallel to Aldrovandi's *museale* activity. As a connoisseur of fine botanical literature and illustrations, he bought for example from Caspar Wolf the precious library, the manuscripts and the more than 1500 wood-blocks of botanical figures that had been logged to the physician of Zürich by Conrad Gesner, a collection that has been appraised as one of the five of first-rate importance brought together during that century.⁶⁹ As fruit of his botanical studies and collections, Camerarius published a new and enlarged edition of Mattioli's commentaries on Dioscorides in 1586.⁷⁰ While preparing the edition however, Camerarius was faced with the same problems of iconography as his Bolognese counterpart, and his complaints concerning the engravers commissioned are

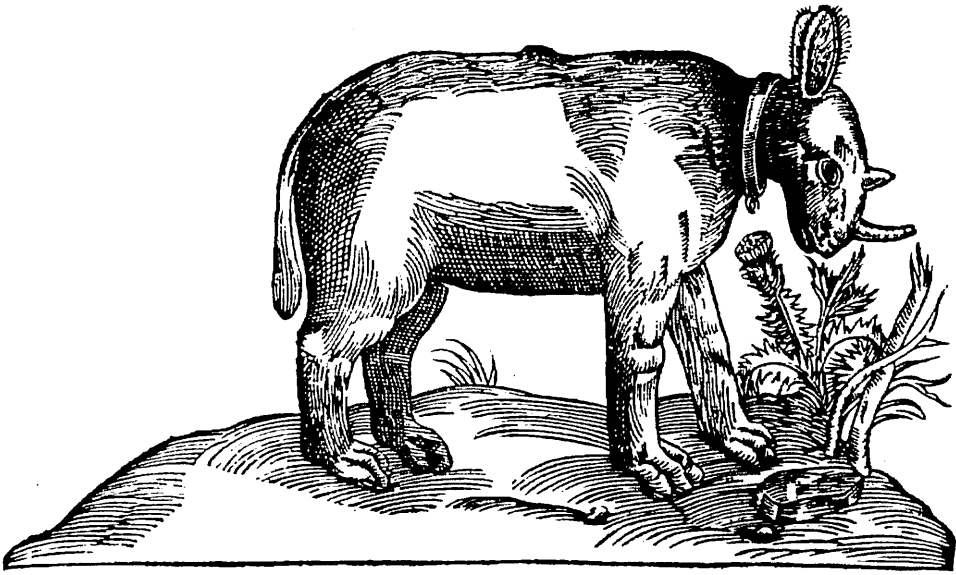


Fig. 4: *Asinus cornutus*

Woodcut, cut (foreground x height to tip of ear) = 218 x 129 mm.

From Aldrovandi's *De Quadrupedibus solidipedibus* (1649) after the drawing sent by Joachim Camerarius II in 1595. The figure, prepared for a member of the imperial embassy of Maximilian II to the Sublime Porte, represents a live specimen that had come to Constantinople from Abyssinia.

(Courtesy of the Niedersächsischen Staats- und Universitätsbibliothek Göttingen)

certainly reminiscent of Aldrovandi's: if the artists weren't continually supervised, he wrote,⁷¹ their tendency to sacrifice truth for picturesque form would prevail. Yet his diligence in supervising the artists brought its just rewards, for the cuts used by Camerarius have been considered as the most perfect executed in wood. He further regretted that he was obliged to reproduce the figures in reduced dimensions, but in order to preserve uniformity he could not dispense with the method which had been adopted by Gesner. Despite this, Camerarius was successful in attaining the accuracy he desired, for the plants represented display such an exactness that the species are recognizable on first sight. Thus, as we see, similar to Aldrovandi the problem of scientific representation was for Camerarius of utmost concern.

In the domain of scientific exchange, it is thus not surprising, considering their professional interests, that botanical matters dominated. If the numerous

lists of seeds desired or sent by the correspondents are now nearly the only remnants to testify to a once lively and fruitful exchange,⁷² it would be however erroneous to conclude that their scholarly intercourse was limited to forwarding botanical specimens. In Aldrovandi's writings vestiges of their friendship are preserved in two other connections: in acknowledgment of objects of natural history and drawings sent, and above all else in the employment of material from the Nürnberger's three centuries of emblems,⁷³ for here the writings of Camerarius found a systematical integration into the encyclopedic work of the Bolognese polyhistorian.

In the domain of natural history in general, Aldrovandi was especially interested in obtaining minerals from Germany, and in the volume *Museum metallicum* he made mention by name to the Nürnberger friend who had procured for him two specimens of silver.⁷⁴ It is not said from whence the silver originated, but it might be noted that Camerarius had notable correspondents in the traditional silver mining region of Germany, the Harz mountains.

Of all the items in Aldrovandi's collection, however, that can be documented as having been forwarded by Camerarius, perhaps the most interesting and fateful is a drawing which Aldrovandi published in the volume of the *quadrupedorum solidipedorum* under the heading: »De Asinis cornutis« (see fig. 4). In the text Aldrovandi renders gratitude to his fautor in the following terms: »Communicavit iconem doctissimus, pariter atque excellentissimus reipub. Norimbergensis archiater Ioachimus Camerarius sylvestris asini nomine.«⁷⁵ The illustration was obviously of note, for over a century after its first publication none other than the renowned French naturalist, Georges Cuvier, still deemed the figure worthy of notice, mentioning the fact that the original had been forwarded to Aldrovandi by Camerarius. Cuvier's appraisal, however, that the figure published by Aldrovandi was »reconnoissable, quoique mediocre«,⁷⁶ is misleading, for although Cuvier was able to identify it as representing a rhinoceros,⁷⁷ neither Aldrovandi nor Camerarius had understood it to be one. Rather, it was as a representation of the wild ass reported by the ancients that Aldrovandi reproduced the drawing. Not only did Aldrovandi treat the rhinoceros in an entirely different volume, that of the *quadrupedorum bisulcorum*; it was moreover not the Camerarius drawing, but rather the famous xylography of Albrecht Dürer⁷⁸ taken from Conrad Gesner's *Historia animalium* of 1551 (see fig. 5) which was employed to depict the animal. But Camerarius too had given a version of the exotic beast in the second century of emblems⁷⁹ (see fig. 6) which was based neither on the drawing of the wild ass nor the wood-cut of Dürer, but on the elegant representation which Philippe Galle⁸⁰ had executed in 1586. Although Aldrovandi does expressly acknowledge Camerarius as one of the authors who had discussed the animal,⁸¹ it was Dürer's version which Aldrovandi chose for portraying the rhinoceros, a version that may indeed be aesthetically more appealing for the manly traits, the solid powerful proportions and reassured, resolute form and bearing used to characterize the awesome creature, but seemingly less accurate on a scientific basis, to judge from

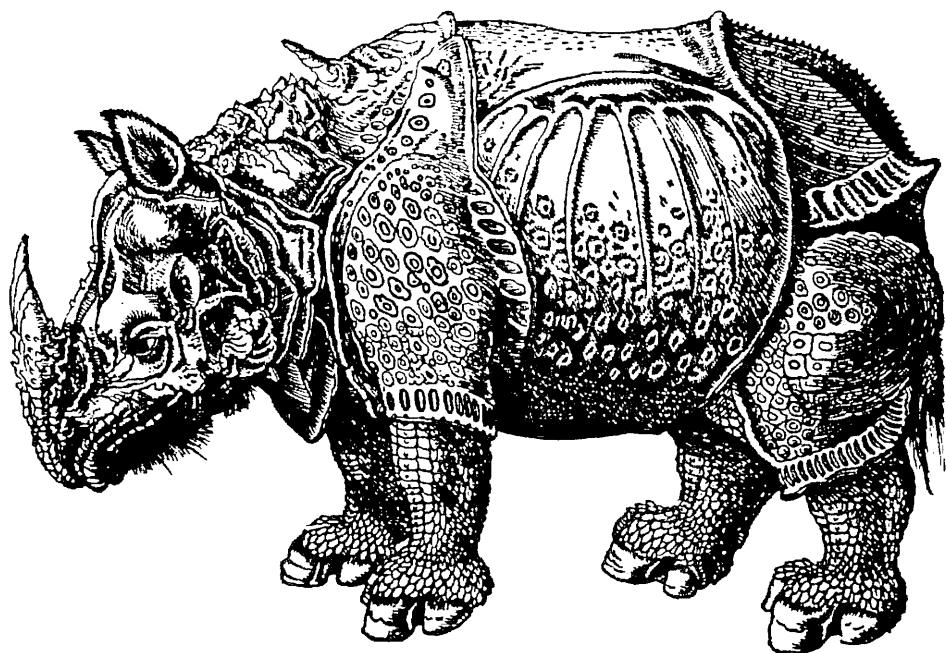


Fig. 5: The Rhinoceros

Woodcut (after Albrecht Dürer), animal = 160 x 234 mm.

This wood-cut from the book of Conrad Gesner's *Historia animalium* devoted to *de quadrupedibus viviparis* (1551) was borrowed by Aldrovandi to depict the rhinoceros in his volume of the *quadrupedum biscalcorum*. Dürer's original drawing (now in the British Museum) and wood-cut thereof were executed in 1515 after a drawing of the live specimen of an Indian rhinoceros which had been sent by the Portugese mission to Lisbon in 1514. (Courtesy of the Niedersächsischen Staats- und Universitätsbibliothek Göttingen)

our present knowledge, on account of the curious horn on its back. The question may thus be legitimately posed as to the reason for Aldrovandi's accepting the Dürer version rather than recognizing the wild ass to be a representation of the animal, as Cuvier later would, or the version that Camerarius had published in the *Emblemata* as a more accurate depiction of the Indian rhinoceros. A short digression into this intricate matter might prove profitable, for it seems to present an example especially conducive to elucidating scientific discourse in the age of the Renaissance in general. A definite scientific methodology, shared by these learned men of common background and parallel careers, did underlie the discussion of the rhinoceros. But its epistemological foundation was obviously not determined by those social circumstances which lead perhaps to a mutually profitable friendship. Furthermore, that a man of science like Buffon would have his reasons to criticize the method of his predecessors during the Renais-

sance and accuse them of encumbering natural history with such a quantity of useless erudition as to fail in what should be their real goal is perhaps understandable when it be remembered that one of the intentions of the *Histoire naturelle* was to lay a new scientific foundation for this field;⁸² but that we should continue to propagate these prejudices and accept uncritically the notion of »érudites compilations«⁸³ can only be detrimental in an historical perspective. The discourse of these men of the Renaissance might be foreign to us, but their method and aims were certainly no less »scientific«, as we shall see, than our own.

In the well-known story of the rhinoceros which Dürer was inspired to immortalize,⁸⁴ it was the Portuguese mission in India that had received the live animal as a gift of the Sultan of Guzerat in 1514 and that had forwarded it to Lisbon for their king, Emanuel I, arriving in the Portuguese capital on 20 May 1515. Since Camerarius too stated in the text accompanying the emblem that his was an accurate copy of the copper-engraving produced in Spain based on a live specimen,⁸⁵ he was obviously referring to the second animal, known under the nick-name of the »Madrid rhinoceros«, that had been sent live from the Portuguese Indian mission to Lisbon and brought by Philip II of Spain to his capital.⁸⁶ According to their sources then, both Dürer's and Camerarius' representations being supposedly based on live specimens, no hint is given as to Aldrovandi's preference.

Although Aldrovandi had never seen a live specimen, he did possess extensive knowledge about the animal, as is evident from the chapters devoted to it. In trying to ascertain its habitat, for example, he cited not only the ancients, but also the reports of contemporary sea-farers who asserted its presence in Africa as well as India. So too concerning the variety of species, Aldrovandi could cite⁸⁷ from Giovanni Botero's *Relationi dell'Africa*,⁸⁸ and the different voyages to the East Indies published by Giovanni Antonio Magini,⁸⁹ Gotthard Artus⁹⁰ and Jan Huyghen van Linschoten.⁹¹ Although the specimens which had come to Lisbon were of the Indian species, and thus, to judge from our present knowledge, evidently furnished with but a single horn affixed to the extremity of the chamfrain, Aldrovandi was aware that opinion differed concerning the form of the horn as well as its number: some authors maintaining that it was straight and tubular with a black line running through whilst others asserted that it was straight but without a line, and many authors contended that there were two, not one.⁹² Now authorities might have differed on the size of the second horn in relation to the first, but no author had ever contended that the second horn be located above the main one, towards the forehead.⁹³ As could be deduced from statements by Domizio Calderio⁹⁴ and Theodoro Marcilio,⁹⁵ who argued in their commentaries to Martial that the greater horn was located on the nose, the smaller on the back, or Jean Bodin⁹⁶ and Conrad Rittershaus,⁹⁷ who purported in their commentaries to Oppianus the greater to be above, the lesser below,⁹⁸ it seemed beyond all doubt that in the event of a second horn, it was located on the right shoulder, a trait which Dürer's wood-cut admirably demonstrated.⁹⁹ The reason why the rhinoceros reported by all these trustworthy observers could have noth-

ing to do, as far as Aldrovandi was concerned, with the alleged *Asinus cornutus* sent by Camerarius, becomes thus quite apparent: the drawing distinctly illustrated the animal portrayed as possessing indeed a second horn, but in the wrong location.

In a letter dated 19 May 1595 which Camerarius addressed to Aldrovandi¹⁰⁰ we learn more about the drawing of this curious horned ass which Camerarius himself had received »ante multos annos« from a certain nobleman in the entourage of the imperial embassy to Constantinople. It reportedly represented an animal that had been taken live in Egypt as part of the spoils obtained by the Ottoman prefect there in his victory over the satrap of Abyssinia and sent to the Sultan, Selim II.¹⁰¹ Although the Turks held it to be the true unicorn, as Camerarius wrote, some of the more learned judged it to be a species of wild ass (the *Onager*), while others held it to be the unicorn of Paul of Venice. At the command of Carl von Rym, an ambassador of Maximilian II in Constantinople and diligent investigator of nature,¹⁰² the likeness had been carefully executed which was later



Fig. 6: The Rhinoceros Whets his Horn
Copperplate signed by Hans Sibmacher (after Philippe Galle) Ø = 71 mm.

Emblem from the second century of *Symbolorum & emblematum* (No. IV) by Joachim Camerarius depicting the rhinoceros who whets his horn on a rock in preparation for his fight with the elephant. The text above the medallion reads in translation: »Thus I shall not turn back unavenged«; the text below: »To vanquish or to die a noble death is laudable, / To retreat trembling from the fight, however, disgraceful.«

(Courtesy of the Niedersächsischen Staats- und Universitätsbibliothek Göttingen)

to come into Camerarius' hands. Camerarius, for his part, expressed doubts on the whole matter of the horned ass, for, quoting a principle of Aristotle, he knew that animals with digits are always in want of horns. Elsewhere Aristotle had stated that the *Asinus indicus* was a single horned soliped (whole-hoofed); the *Oryx*, a sort of gazelle, which was indeed a bisulcus (cloven-hoofed), had too but one horn. Moreover, Camerarius states that which would be repeated by Aldrovandi, that he knew of no case where two horns had ever been attributed to the *Asino indico*, nor indeed had it ever been observed on any living creature that one be situated above the other in the middle of the forehead. Since the drawing represented an analogous creature which defied all natural historical rules and observations, Camerarius suspected, as he stated in conclusion to his letter, that the drawing might well represent a monstrosity born of a rhinoceros and the Indian wild ass (*Onagri indici*).

As Camerarius explained further in his letter of May 19th, his interest in this animal was prompted by his concern to identify the true »monoceros«, the mythical unicorn. He had been collecting information not only from the writings of ancient and modern authors, but through personal contact and epistolary exchange with contemporary scholars as well, in order to eradicate the many erroneous opinions which had been promulgated concerning the animal. His study, he believed, would be of public utility, a statement which we can appreciate when we call to mind his role as supervisor of drugs, for the greatest service he thought to render was to determine which was the true horn that should be used in those preparations that were being »gulped down«, as he wrote, despite the fact that they were produced for the most part from adulterated or false horns. Although he wrote to Aldrovandi that the material had grown into a work of four parts, a work *De Monocerote etiam sive unicornu* was apparently never published under Camerarius' name.¹⁰³ Yet the enumeration of the divisions that he intended to make should certainly be of historic interest, for it showed scientific concerns that were Aldrovandi's as well. The first part was to deal with horned animals and what pertains to their nature in general. The second, he wrote, would deal with the equivocal and univocal unicorn, presenting various and several hitherto unpublished depictions of unicorned animals, leading finally to a disquisition on the true monoceros. In the third he would say something of two-horned and multi-horned animals; the fourth dealing exclusively with the virtues that the horns of the unicorn as well as of deer and similar animals might have, and with their surrogates and adulterations. It was thus in connection with this work that he called upon Aldrovandi's expertise for an opinion on the *Asinus indicus*.

Thus we see that the bond linking the rhinoceros to the *Asino indico* is the unicorn of ancient fable, a bond which would unite the texts of Aldrovandi as well, for the description of the *Asini cornuti* given by Aldrovandi immediately precedes that of the unicorn, and the section of the rhinoceros begins with the definition: »Septem animalia *Monocerota*, siue unum tantum cornu habentia viri eruditi observarunt.«¹⁰⁴ And hence the search for the true unicorn continued.

Ulysses Aldrovandi of Bologna and Joachim Camerarius II of Nürnberg

Study of a Friendship during the Late Renaissance

- * Without the kind intervention of Professor Giuseppe Olmi who arranged that copies of the letters of Camerarius to Aldrovandi preserved in the *Biblioteca universitaria* of Bologna be sent, this essay would not have been possible. For this as well as for his support of my research by sending literature unavailable to me in Göttingen, I wish to extend to him my sincere thanks. Furthermore I would like to take this opportunity to express my gratitude to Herrn Klaus Schmidt (Göttingen) for his helpful suggestions on emblematics in general and on the rhinoceros in particular.
- 1 For particulars on the history of Bologna until 1509 see Ghirardacci/Sorbelli, *Historia di Bologna*; for the 16th century see Muzzi, *Annali della città di Bologna*, vol. 5-6, and Adelman, *Malpighi*, I, 8 ff.
- 2 For the details of Nürnberg's history we have relied mostly on Pfeiffer (ed.), *Nürnberg. Geschichte einer europäischen Stadt*.
- 3 On this struggle see Pfeiffer, *Nürnberg*, esp. chapters 13-15.
- 4 See Maragi, »Corrispondente mediche di Ulisse Aldrovandi coi paesi germanici«.
- 5 Cf. Mandrou, *Des humanistes aux hommes de science*, 35.
- 6 Cf. *ibid.*, 14. Aldrovandi was of course a professor at the *Studium* of Bologna; but his medical offices (inspector of simples and *protomedico* in charge of the botanical gardens) were civic appointments and his museum, for which he is most famous and which he bequeathed to the »Illustri. Senato di Bologna [...] in onore, & utile della Città« (see his *Testamento* published by Fantuzzi, *Memoire della vita*, 76), was brought together at his own expense and efforts, and through his personal relations to generous benefactors.
- 7 The biographical sketch of Aldrovandi here succinctly presented is based on Fantuzzi, *Memorie della vita di Aldrovandi*, on the autobiographical fragment, *La vita di Aldrovandi* edited by Frati in *Intorno alla vita di Aldrovandi* and on the manuscript *Discorso naturale di Aldrovandi* published by Tugnoli Pattaro in *Metodo e sistema*, 175-232; biographical notices and information are furthermore to be found in Alidosi, *I dottori bolognesi*, 181; Imperiale, *Museum historicum*, 144-151 (with portrait); Freher, *Theatrum viror. erudit.*, 1316-1318 (with portrait); Pope Blount, *Censura autor.*, 589-590; Vander Linden, *De scriptis medicis*, 466-467; Crasso, *Elogii d'huomini letterati*, I, 135-140 (with portrait); Bayle, *Dictionaire historique*, I, 193-194; Kestner, *Med. Gelehrten-Lexicon*, 24-25; Jöcher, *Allg. Gelehrten-Lexicon*, I, 240; Mazzuchelli, *Gli scrittori d'Italia*, I/1, 403-408; Fantuzzi, *Notizie degli scrittori bolognesi*, I, 165-191, III, 367; Brambilla, *Storia delle scoperte*, II/1, 226; *Biographie universelle* (publ. by Michaud), I, 474-475 (article by Cuvier); *Biographie médicale* (ed. Jourdan), I, 128-132 (article by editor); *Biographisches Lexikon der hervorragenden Ärzte aller Zeiten und Völker* (ed. Hirsch), I, 81 (article by Puschmann); *Dictionary of Scientific Biography* (ed. Gillispie), I, 108-110 (article by Carlo Castellani); *Gli scienziati italiani* (ed. Mieli), I, 328-336 (article by Giovanni Battista de Toni); Capparoni, *Profili biografici*, I, 17-19 (with portrait); *Dizionario biografia degli italiani* (ed. Ghisalberti), II, 118-124 (article by G. Montalenti). Since the data of Aldrovandi's biography are readily accessible, no attempt has been made to retell the tale once again in any great detail. More attention has been paid to that of Camerarius however, since it has hitherto never been critically presented.
- 8 Biographical information on Camerarius has been pieced together from sources to be specified at the appropriate chronological juncture. A genealogical table of the Camerarius family can be found in Schelhorn, *Philipp Camerarius*, ad pag. 8. The main biographical sketches of Joachim II are (of varying reliability): Adam, *Vitae medicor.*, 344-356; Freher, *Theatrum viror. erudit.*, 1300-1301 (with portrait); Teissier, *Eloges*, IV, 338-341; Papadopoli,

- Historia gymnas. patau.*, II, 259-260; Kestner, *Med. Gelehrten-Lexicon*, 168-169; Jöcher, *Allg. Gelehrten-Lexicon*, I, 1594-1595; Will, *Nürnberg. Gelehrten-Lexicon*, I, 173-176, and V (= supplement 1), 145-146; Jäck, *Pantheon der Literaten*, Heft 1, 154-155; *Biographie universelle* (publ. by Michaud), VI, 602-605 (article by Du Petit-Thouars); *Biographisches Lexikon der hervorragenden Ärzte aller Zeiten und Völker* (ed. Hirsch), I, 808 (article by W. Stricker).
- 9 The castle of Grünsberg had come into the hands of Nürnberg during the Bavarian war of succession (1503).
- 10 The *Egidienschule*.
- 11 On Joachim I's role in the reform of the University of Leipzig see Helbig, *Reformation der Universität Leipzig*, passim.
- 12 Being immatriculated in the winter semester 1544 (Bavari, 37; see Erler (ed.), *Matrikel der Universität Leipzig*, I, 647) and again in the summer semester 1545 (Bavari, 4; *ibid.*, I, 658).
- 13 Wolf (also known as *Lycius*) (Hippolstein, (?) - Leipzig, 1570), dean of the philosophical faculty (Nicolaischule) in 1542 and 1556, became professor of rhetoric at the university in 1562 and in 1567 professor of physics; 1562 and 1568 he was rector of the university.
- 14 Vöglin [also written Voegelin] (Constanz, 1528 - Heidelberg, 1590).
- 15 See Bittcher (ed.), *Pförtner Album*, p. 11 no. 15 and Hoffmann, (ed.), *Pförtner Stammbuch 1543-1893*, p. 7 no. 99. The *Pforta* was a former cloister which had been siezed by the Duke of Saxony in the wake of the Reformation and transformed in 1543 into a school to become noted for its humanistic orientation and high scholarly standards.
- 16 Rüdiger (Bamberg, 1523 - Nürnberg-Altendorf, 1591), later to become Joachim II's brother-in-law, was co-rector on the *Schul-Pforte* in Leipzig.
- 17 Graduating »baccalaureus« on 15.II.1551 (see Erler (ed.), *Matrikel der Universität Leipzig*, II, 718).
- 18 Meurer (Altenberg, 1513 - Leipzig, 1585) was to become the first Protestant rector of the Nicolaischule in Leipzig in 1535; in 1540 he gave up his position as dean of the philosophical faculty and travelled to Italy to hear Bonamicus, Janua, Montagnana in Padua and to visit Florence, Rome and Naples. From Italy he was called to the newly reformed university in Leipzig where he taught Aristotelian doctrine for 27 years with the approbation of the College and Camerarius senior.
- 19 Naeve (Chemnitz, 1514 - Leipzig, 1574), physician of the prince elector of Saxony and professor of medicine in Leipzig.
- 20 Crato (Johann von Krafftheim) (Breslau, 1519 - Breslau, 1585). According to a letter from Crato to Quirinus Schlaher dated October 25, 1557 (quoted by Gillet, *Crato*, I, 71), Camerarius had spent the summer as his »study companion« (»Genosse seiner Studien«) and prepared the fair copy of his *Curationes Montanicae*.
- 21 Being immatriculated there on 21.VII.1558 according to Foerstemann (ed.), *Album Academiae Vitebergensis*, I, 348.
- 22 Alciato (Alzano, near Milano, 1492 - Pavia, 1550) taught law in Avignon, then Bourges at the request of François I. The great jurisconsult was called to Bologna and at the invitation of Hercules II, to Ferrara, finally retiring to Pavia.
- 23 Socino (Siena, 25.III.1482 - Bologna, 19.VIII.1556) taught in Pisa, Siena, then Padova and finally after 1540 in Bologna for many years with the approbation of his students.
- 24 See Pasquier, *Recherches de la France*, livre neuvième. chapitre xxxix, p. 855-856: »[...] tous les Escoliers Italiens faisoient beaucoup plus de compte de celui-cy [Socino] que de l'autre [Alciato]. Voire que ceux qui plaidoient, pour s'asseurer de leurs causes, recherchoient plus le Solin. Pour cette seule consideration (disoient-ils) que iamais il n'avoit perdu le temps en l'estude de lettres Humaines, comme Alciat.«
- 25 Berò (Bologna, 1474 - Bologna, 1554) taught civil and canonical law in Bologna from 1504 until his death, publishing a work on the institutions of law and a legal digest. Aldro-

vandi's cousin, Ugo Boncampagni (later Pope Gregory XIII), also studied under him. Berò was held in high esteem by his contemporaries for his legal counsel and given the opportunity to put his legal competence to use in civic matters as a member of the *Consiglio degli anziani* of Bologna.

- 26 Amaseo (Udine, 1489 - Roma, 1552) was called by Pope Paul III to educate his grandson, Alexander Farnese; later ambassador to the Emperor and other princes of Germany, and the King of Poland; he then became secretary to Pope Julius III. On account of his elegance of style, he was hailed as amongst the first rank of scholars in Rome. As of 1543 he was professor of rhetoric, poetry, Greek letters and humanities in Bologna, serving the city as secretary to the *Reggimento di Bologna*.
- 27 Bocchi (Bologna, 1488 - Bologna, 1562) was also professor of rhetoric, poetry, Greek letters and humanities in Bologna from 1508 until his death. Amongst other works, he published a history of the city of Bologna in 1532.
- 28 See Ridolfi, *Il Notariato di Alaròvandi*, 30.
- 29 Locatelli ((?) - Venosa, 1571), after his promotion to doctor of philosophy in 1545, read logic until 1553. In 1561 he became *Canonico di S. Pietro* of Bologna and in 1567 Bishop of Venosa.
- 30 Betti (Modena, 1520(?) - Bologna, 1589), lecturer of philosophy in Bologna from 1545 until his death, published works such as *de honore* and *de anima*. Amongst the many manuscripts he left, his lectures in philosophy and a commentary on the works of Aristotle are certainly the most important. It might be useful to note that he also practiced medicine.
- 31 Tomitano (Padova, 1506 - Padova, 1576), after teaching philosophy and poetry for many years privately, was called to the chair of logic in 1543. Despite the fame he had acquired in the field, he gave up his chair after twenty years in order to devote himself to his medical practice.
- 32 Passeri (alias *Genova*) (Padova, 1478 - Padova, 1550), of a Genoese family, was professor of philosophy and physician, known especially for his commentaries on works of Aristotle: *de anima*, the *physics*, *de coelo & generatione* and the *metaphysics*.
- 33 Mōntano (Verōna, 1498 - Padova, 1551), as representative of the school of medical philology which flourished in the sixteenth century, was especially noted for his editions of Galen, containing voluminous commentaries on physicians of antiquity. One of the most famous practitioners of his day, he was protected by Cardinal Hippolyte de Medici. Crato was amongst his pupils.
- 34 Catena (Venezia, 1501 - Padova, 1576) taught mathematics from 1547 until his death. His historical significance has been seen in the contribution he made to his field as the first in the 15th century to lecture on the problems of the formal evaluation of Euclidean geometry and epistemological foundations of mathematical certitude, naturally within the framework of Aristotelian logic.
- 35 See Bronzino (ed.), *Notitia doctor. bonon.*, 47.
- 36 Departed for Italy on October the 4th, 1559 and arrived on the 2nd of November, according to a letter to Crato paraphrased by Gillet, *Crato*, I, 73; he was immatriculated in Padova three days later (5.XI.1559) according to Rossetti, *Matr. nat. germ. art. patav.*, 13.
- 37 This is deduced from Papadopoli's assertion that Camerarius studied under Falloppio, and Adelman's statement (*Embryological Treatises of Fabricius of Aquapendente*, I, 7) that Falloppio, not being able to hold lectures during the winter semester 1559-1560 because of failing health, taught for the last time in the summer semester 1560.
- 38 The fame of the Padovan school in the sixteenth century was founded upon anatomists of the stature of Andreas Vesalius and Realduus Columbus.
- 39 Capivaccio [Capodivacca] (Padova, 15(?) - Mantova 1589) taught medicine from 1557 until his death, championing the Arabic over the Greek and the experimental schools of medicine. Although scholastic in his writings and limited in his knowledge of anatomy, he did gain fame for his successful treatments, especially in cases of lues using mercury.

- 40 Trincavelli (Venezia, 1496 - Venezia, 1568), after completing his medical education in Padova and in Bologna, where he learned classical Greek, returned to his native city to become one of the most celebrated and richest practitioners of his day. In 1551 the senate of Venice offered him a professorship of medicine in Padova, which he held until his death. He was especially influential in reviving knowledge of ancient medicine, being, for example, the first to base his lectures on texts of Hippocrates in the original Greek.
- 41 Bellacato (Brescia, 1501 - Padova, 1575) lectured as professor of medicine in Padova from 1531 (on Book III of Avicenna), as of 1546 first supernumerary professor of practical medicine until 1564, when he became full professor in second position. In that year however he left his chair to devote himself to his practice. He published medical consultations and lectures on practical medicine.
- 42 Pinelli (Napoli, 1535 - Padova, 1601), the famous polyhistorian and bibliophile, possessed one of the richest private libraries of his day, containing many manuscripts and rare editions. Rich too were the collections of all kinds which he maintained. Entirely devoting his life to his study, his home, so it is said, became a sort of academy in Padova. Camerarius would keep up his contact with Pinelli through correspondence, and visit him once again towards the end of his life while on a second journey to Italy in 1587.
- 43 Despite Papadopoli's statement (*Historia gymnas. patav.*, II, 259) that Camerarius had heard lectures given by Fabricius along with Fallopio, Capivaccio and Trincavelli, there is no evidence that Fabricius had begun his career as private instructor any earlier than 1563-64 (Adelmann, *Embryological Treatises of Fabricius*, 7).
- 44 In September 1561 according to a letter to Crato reported by Gillet, *Crato*, I, 73. The letters to Crato from XIII. Cal. Sept. 1561 (Gillet, *Crato*, II, 481-482) and 19. Martii 1561 (Gillet, *Crato*, II, 484-485) vividly detailed the conflict; see also Camerarius' report as assessor (*consiliarius*) of the *Natio germanica* in Padova edited by Favaro in *Atti della nazione germanica artistica*, I, 33-39. On the problem in general see Kessel, *Duitse Studenten te Padua. De controverse Rome-Venetie en het protestantisme in de tijd der Contra-Reformatie*.
- 45 On the episode see the letter from Camerarius to Crato dated Bologna, 31.I.1561 (Gillet, *Crato*, II, 490); *Migratio germanorum ex academia Bononiensi*; Muzzi, *Annali di Bologna*, VI, 537-538; Simeoni, *Storia della Università di Bologna*, II, 69; Adelmann, *Malpighi*, I, 33; von Kress, »Briefe eines Nürnberger Studenten«, 161.
- 46 So that it is not surprising that Camerarius is nowhere to be found in the published records of the *Natio*: he is mentioned neither in Friedländer/Malagala (ed.), *Acta nation. germ. bonon.*, nor in Knod (compilor), *Deutsche Studenten in Bologna (1289-1562)*.
- 47 *Acta* 193 f. 64^{ro}; *Liber secretis* 1504-1575 f. 137^{vo}, according to Bronzino (ed.), *Notitia doctor. bonon.*, 62, in which Camerarius' graduation is dated as taking place on the 27.VI.1562.
- 48 Camerarius I, *Epistol. familiar.*, 475.
- 49 On 14.XII.1553 Aldrovandi had begun his academic career as *Numerario nel Collegio di Filosofia e Medicina*; in 1554 he became lecturer in logic and on 11.II.1561 lecturer on simples.
- 50 See Dallari, *I Rotuli dei lettori*, II, 151.
- 51 On 11.II.1561 according to Fantuzzi, *Memorie della vita*, 22.
- 52 On the relationship between Rauwolf and Camerarius see Dannenfeldt, *Rauwolf*, 218, 221, 227 and 229.
- 53 Dated 1559; published by Fantuzzi, *Memorie della vita*, 219-221.
- 54 according to Frati, *Catalogo dei manoscritti*, and Schmidt-Herrling (compilor), *Die Briefsammlung Trew*.
- 55 Fantuzzi (pp. 243-247) published a letter from Calzolari dated 1571; Cermenati, »Calzolari e Aldrovandi«, published 39 letters of the correspondence from 1554 to 1573.
- 56 For Cortusio's correspondence with Aldrovandi see De Toni, »Spigolature XIX. Il botanico padovano Giacomo Antonio Cortusio nelle sue relazione con Ulisse Aldrovandi«.

- 57 195 letters (dating from 1573 to 1598) from Clusius to Camerarius were published by Hunger, *Charles de l'Eschuse*, II, 295-449; of the seven letters from Aldrovandi that De Toni reported to be preserved in Leyden, two (1570 and 1585) are published in his article «Il carteggio degli italiani col Clusio», 139-140.
- 58 One letter to Aldrovandi from 1573 is printed in Fantuzzi, *Memorie della vita*, 252-256.
- 59 In Frati to be found under the Latinized form «Juvenis».
- 60 Fantuzzi (*Memorie della vita*, 261-263) printed two letters from the years 1594 and 1595 which Lipsius had addressed to Aldrovandi and which were published in Lipsius' *Opera* (II, 283-284, 286). In the same volume of the *Opera* (p. 52) a letter to Camerarius is printed, the first containing two others (undated; pp. 143, 177-178).
- 61 7 letters (1553-1560) from Mattioli to Aldrovandi were published by Fantuzzi, *Memorie della vita*, 151-175; Raimondi reprinted these, adding 18 more written between 1553 and 1572.
- 62 Fantuzzi, *Memorie della vita*, 227-228, prints a letter from Pinelli to Aldrovandi dated 1561; one from Aldrovandi to Pinelli from the year 1583 appeared in Malagola's article «La cattedra di paleografia e diplomatica di Bologna», 447-451; De Toni, «Spigolature XVIII. Lettere di Giovanni Vincenzo Pinelli, bibliofilo».
- 63 Frati lists him under the name of «Lorenzo di Vratislavia».
- 64 Frati lists him under the name «Zuinger».
- 65 Cf. Schubert, *Ludwig Camerarius*, 29.
- 66 Adam, *Vitae medicor.*, 348.
- 67 4 letters of Aldrovandi to Francesco I, Grand Duke of Tuscany, dated between 1578 and 1587 were published by Palagi, «Quattro lettere»; 2 letters to Francesco I (1583 and 1585) and one to Ferdinando I de' Medici (1589) are to be found in Rosa's «Aldrovandi e la Toscana», 213-214; furthermore Mattiolo, «Lettere a Francesco I e Ferdinando I e a Francesco Maria II Duca di Urbino» published not only 30 letters (dated 1577-1587) to Francesco I and 19 (dated 1587-1604) to Ferdinando I, but also 7 letters (1599-1601) addressed to the Duke of Urbino; a letter of Aldrovandi dated from 1599 addressed to the Duke of Modena was published by De Toni, «Spigolature XVI. Intorno alcune lettere di Aldrovandi esistente in Modena», pp. 160-161; 4 letters of Aldrovandi to Cardinal Alessandro Farnese (1578-1586), 3 to the Duke of Parma and Piacenza, Ranuzio Farnese (1595-1598), and one to Cardinal Odoardo Farnese (1598) were published by Ronchini; finally two communications to the Cardinal Paleotti, one from 1581 «Avvertimenti del Dottore Aldrovandi sopra alcuni capitoli della pittura», the other from 1582 «Modo di esprimere per la pittura tutte le cose dell'universo mondo» have been printed by Barocchi in her editions of *Trattati d'arte* (pp. 511-517) and *Scritti d'arte* (pp. 923-930) respectively.
- 68 Concerning Aldrovandi's leaving custody of his books and museum to Uterverius see his *Testamento* in Fantuzzi, *Memorie della vita*, 79.
- 69 Arber, *Herbals*, 241.
- 70 The first Latin edition, *De plantis epitome utilissima*, which was published in Frankfurt by Sigismund Feyerabend, Peter Fischer and Heinrich Dacken in 1586 was accompanied by a simultaneous German version under the common name of *Kräuterbuch*. The German translation alone went through eight unaltered editions in Frankfurt and elsewhere until 1626. In 1596 an edition in Czech was published at Prague.
- 71 In the unpaginated preface to his edition of Mattioli, *De plantis epitome*.
- 72 The lists preserved amongst the Aldrovandi papers in Bologna are (always according to Frati, *Catalogo dei manoscritti*) the following: MS 136, vol. VII, f. 25 (Frati, 122) «Catalogus simplicium D. Joachimi Camerarii physici Norimbergensis»; f. 26 (Frati, 122) «Catalogus seminum missorum D. Joachimo Camerario Norimberg.»; ff. 36v-37r (Frati, 123) «Catalogus seminum quae Joachimus Camerarius Norimberg. ad me misit»; ff. 120v-122 (Frati, 123) «Catalogus seminum quae misimus Joachimo Camerario». MS 136, vol. IX, ff. 253-279

- (Frati, 128) »Index herbarum omnium tam vulgarium quam exoticarum, quae hoc anno 1582 in studiosorum horto publico Bononiae coluntur in gratiam D. Joachimi Camerarii medici prestantissimi concinnatus. Pridie Calend. Octobris«. MS 136, vol. XXI, f. 94-123 (Frati, 146) »Ex horto medico Joachimi Camerarii observationes desumptæ«. MS 136, vol. XXX, f. 162v-165 (Frati, 166) »Catalogus seminum aut plantarum, quas cupit habere Joachimus Camerarius Norimbergensis«. MS 143, vol. III, f. 8r° (Frati, 178) »Catalogus plantarum quae in horto D. Joachimi Camerarii aluntur«.
- 73 Camerarius, *Symbolorum & emblematum* centuria 1-3, a fourth century being posthumously published, as we mentioned above, by his son, Ludwig.
- 74 Aldrovandi, *Museum metallicum* (1648), 76: »Figura Argenti rubri rudis, quo flammæ ad-moto, exhalatio rubicunda euanescit, & purum, argentum refulget, quod à Ioachimo Came-rario fuit communicatum Clarissimo viro Vlyssi Aldrovando. In eodem tabella apparet icon argenti trichitis, de quo paulò inferius sermonem habebimus. Pariter hic exhibemus iconem argenti cærulei ab eodem Camerario dono dati, cuius purificatio constitit in aufe-renda exhalatione cærulea quam in locis subterraneis contraxerat.« *Ibid.*, 77: »Hic delinea-tur argentum purum extra pyritem metallorum matricem à natura gentium communica-tum à clarissimo viro Ioachimo Camerario rerum naturalium perquisitore diligentissimo. Vocatur hoc argentum trichites, nempè capillare [...].«
- 75 Aldrovandi, *De Quadrupedibus solidipedibus* (1649), 382.
- 76 Cuvier, *Description du rhinocéros unicorne*, 10.
- 77 On the history of rhinoceros literature and iconography before and after Cuvier see the excellent bibliography of Rookmaaker.
- 78 Aldrovandi, *Quadrupedum bisulcor. historia* (1642), 884. On Dürer's wood-cut itself, see Rupp-rieh (ed.), *Dürer – Schriftlicher Nachlaß*, I, 208 (and note 28 on p. 212) and Meder, *Dürer-Katalog*, 254-255; on the fate of Dürer's rhinoceros in general, of which Aldrovandi's borrow-ing represents only one case amongst many, see Cole, »The History of Dürer's Rhinoceros«, and Clarke, *The Rhinoceros from Dürer to Stubbs*. On the knowledge and representations of rhinos in antiquity, see Gower, »The Classical Rhinoceros«.
- 79 Camerarius, *Symbolorum & emblematum* centuria altera (1595), No. IV.
- 80 Philippe Galle (1537-1612). The original print of the so-called »Madrid Rhinoceros«, dating from Antwerp 1586, is according to Clarke (*The Rhinoceros*, 190 n. 11) extremely rare. He reproduces a copy of the plate on page 29, reporting another copy to be extant in the *Biblio-teca universitaria* of Bologna.
- ✓
- 81 Aldrovandi, *Quadrupedum bisulcor. historia* (1642), 888: »Nec ullum animal esse reor, cuius natura, & descriptio magis sit in lubrico, incertoque. Consulendi sunt Bellonius, Gesnerus, Ioachimus Camerarius, Angelus Politianus cap. 56.« For reasons unknown to me the rubric »Emblemata«, in which Camerarius is otherwise so often quoted, is failing for the rhino-ceros. It should be noted however that there are many other animals in the volume for which this too is the case – the most prominent being the *bas* and *camelus*, since Camerarius himself had devoted four emblems to the first and three to the latter. For other animals the rubric is not failing, for example *sus*, *muscus*, *ovis*, *cervus*, *capra*. I can only imagine that the reason lay in the preparation of the texts by Uterverius for the posthumous publication.
- 82 On Aldrovandi in particular cf. Buffon, »Premier Discours. De la manière d'étudier & de traiter l'Histoire naturelle«, in *Histoire naturelle*, I (1749), 26-28.
- 83 Delaunay, *Vie médicale*, 442: »A l'érudition confuse, encore toute imprégnée de légendes [...] Matthiole, Aldrovandi vont substituer d'érudites compilations où commence à poindre un essai de critique.« His *Zoologie au XVI^e siècle*, where the erudition is this time qualified as »indigeste« (p. 31), also leaves much to be desired in establishing a positive judgment concerning scientific method and theory. Delaunay, however, betrays himself as never having opened a volume of Aldrovandi before writing on this author when he asserts that

Aldrovandi like Gesner had arranged the animals alphabetically (p. 191). I can only explain this curious error as a misinterpretation of Buffon's word: »les ranger par lettres alphabétiques« (»Discours premier«, p. 27), where »les« refers to »les remarques« made on each animal, and not to the animals themselves. Buffon was obviously speaking of Gesner's method of presenting the material of each animal, which are themselves indeed arranged alphabetically, under rubrics designated by letter headings. In his article on »I meriti zoologici di Aldrovandi« (pp. 209, 212-221), Andres made the difference between Aldrovandi's and Gesner's arrangement of the animals sufficiently clear, even if exaggerated patriotism did hamper a judicial historical evaluation of the two methods.

- 84 See Cole, »The History of Dürer's Rhinoceros«, and Clarke, *The Rhinoceros from Dürer to Stubbs*.
- 85 I.e. from Philippe Galle. Cf. note 80 above.
- 86 The tale of this rhinoceros is narrated at more length by Clarke, *The Rhinoceros*, 28-30. As the author perspicaciously remarks (p. 206 n. 119 & 120), the windmill in the background of Camerarius' emblem might well be alluding to the Spanish landscape environing the original model.
- 87 Aldrovandi, *Quadrupedum bisulcor. historia* (1642), 888.
- 88 In his *Relationi universali*, where Botero wrote of »denti d'Elefanti, corna di Rinoceroti«. I have not been able to ascertain which edition Aldrovandi used when he gives p. 144 as the location of his reference. In the editions of Venice of 1595 and 1602 it appears on p. 167.
- 89 Magini, *Histoire des Indes Orientales*, 62-63. This first part of Magini's work is actually a translation of Cornelius Wytfliet's *Descriptionis Ptolemaicae augmentum* (first ed., Louvain: 1597).
- 90 Arthus, *De Bengalae regno* in his *Historia Indiae Orientalis*, 283-284.
- 91 Linschoten, *Navigatio*, 56-57.
- 92 *Ibid.*, 883-885.
- 93 *Ibid.*, 887.
- 94 Calderio, *Commentarii in Martialem*, f. 12v° [unpaginated].
- 95 Marcilio, *Martialis epigramata in Caesaris amphitheatrum*, ad epigr. XXII, p. 73-74.
- 96 Bodin, in his commentary to *Oppiani de Venatione*, f. 83v°. Also in his *Theatrum naturae*, lib. III, p. 355.
- 97 Rittershaus, part 2, p. 81.
- 98 Aldrovandi, *Quadrupedum bisulcor. historia* (1642), 884-885.
- 99 Why the second horn should have been thought to be located on the shoulder is another question. Not believing one to be located there, Camerarius tried to explain, for example, that poetic licence was responsible for Martial's calling the »hump« on the rhinoceros' back a »horn« (*Symbolorum & emblematum centuria altera* [1595], p. 12v°).
- 100 Copy in Bologna, *Biblioteca universitaria*, MS 136, vol. XXIV, f. 116r°-118r° (Frati, 148).
- 101 Selim II (1524-1574), son of Suleiman the Magnificent, in turn sultan of the Ottoman Empire from 1566 until his death.
- 102 Whom I have otherwise been unable to identify. His name does not appear in any lexicon, repertory or documentation on the period that I have consulted; nor is he mentioned in standard histories such as Zinkeisen's *Geschichte des osmanischen Reiches*. Furthermore he is not mentioned in any edition of correspondence between the Holy Roman Emperor and the embassy to the Sublime Porte which I have been able to examine, neither in Reusner's edition of the *Epistolarum turicarum*, nor in von Miller's collection of *Epistolarum Maximiliani secundi ad suos in Porta Ottomanica oratores*. Unfortunately I have not been able to locate Camerarius' original letter, for it is possible that Aldrovandi's copyist who misread »Noremburgae« as »Novembris« (as, for example, in the letter given by Frati [p. 13] as »Novembris III Nonas Januarij 1579« [MS 21, Vol. III, f. 118r°]) also made an error in transcribing the name mentioned here.

- 103 Despite the fact that the title appears in bibliographies, such as, for example, in Delaunay, *Zoologie au XVI^e siècle*, 284. I presume the source of error in the case of Delaunay is Michaud's *Biographie universelle* (p. 604), which incorrectly lists the title under Camerarius' works. After extensive bibliographical research my conclusion that the work does not exist in any major library of the western world corroborates the fact that the work is failing in the *Verzeichnis der im Deutschen Sprachbereich erschienenen Drucke des XVI. Jahrhunderts*. Nor is it to be found in any early bio-bibliographical work that I have consulted, for example Vander Linden's detailed listing.
- 104 Aldrovandi, *Quadrupedum bisulcor. historia* (1642), 878.
- 105 Aldrovandi, *De Quadrupedibus solidipedibus* (1649), 382, giving »Arist. lib. 3. part. 2« as his reference.

Buffon's Gnoseological Principle

- * This essay was first printed in: *Zeitschrift für allgemeine Wissenschaftstheorie*, XI, 2 (1980), 238-253.
- 1 Pascal, *Pensées*, § 438, in: *Œuvres complètes*, 1206. We have used throughout the text of the *Pensées* as established by Jacques Chevalier and published in his edition of the *Œuvres complètes de Pascal* for the Bibliothèque de la Pléiade (1969). Each reference will identify the pensée as to its number in this edition, followed by the page on which the passage is found.
- 2 Buffon, »De l'Age viril«, in his *Histoire naturelle générale et particulière, avec la Description du Cabinet du Roy* (1749-1767), II, 518. All texts by Buffon quoted in this article can be found in this edition. We shall refer the reader to the texts as reproduced in the *Œuvres philosophiques de Buffon*, edited by Jean Piveteau (1954), which will be given by page number, column letter and line. Except for the first line, this quotation is found in *Œuvres philosophiques*, 298 B 34-49.
- 3 The *Journal des Sçavans* for October 1748 announced the forthcoming work, giving a plan of the fifteen projected volumes which would present all of natural history, from the minerals to man, and adding that the first volume was already being printed. (Oct. 1748, 639-640).
- 4 Buffon, »Premier discours: De la manière d'étudier et de traiter l'histoire naturelle«, in: *Œuvres philosophiques*, 7-26. For an English translation of this discourse, see Lyon, »The „Initial Discourse“ to Buffon's *Histoire naturelle*« (1976).
- 5 And here is the point where commentators have ended their inquiries. Wohl in his »Buffon and his Project for a New Science« (1960) for example, has remarked the original and constructive nature of Buffon's enterprise, searching for the foundation of a new and more solid philosophy of science, but unfortunately he has not appreciated the profoundness of Buffon's thought. On this second level, Wohl has only noticed Buffon's positive construction from the methodological and logical critiques, both concerning Buffon's reaction to Descartes. The gnoseological and metaphysical critiques have gone all but unnoticed. The major error has been not to have understood Buffon's dialectical process and the real (and concrete) issues of his critiques which would follow therefrom, all which will be discussed shortly.
- 6 This foundation being the third level of consideration. The last statement concerning Kant is one which we cannot hope to demonstrate here, but which will be the subject of a future work.
- 7 These statements concerning »Truth« are Buffon's (not necessarily ours!), found in *Œuvres philosophiques*, 23 B 20-25.
- 8 The fallacy of older systems has been, according to Buffon, not to have known to distinguish correctly between what is real in a subject and what we arbitrarily invest in it, to recognize clearly those properties which belong to it and those which we imagine to belong. Thus from his theory of knowledge, Buffon wishes to establish a principle of ontological judgment. It is furthermore this principle regulating rational discourse which would serve as