

THE OLD DUTCH AND LATIN EDITIONS OF THE LETTERS OF ANTONI VAN

LEEUWENHOEK.

A BIBLIOGRAPHICAL STUDY BY

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Note. If this study is ever published as a booklet, this booklet should be 16 cm wide and 20.5 cm high. This way, it would line up with the old dutch and latin editions which it describes.

This book is dedicated to Dr. A. Schierbeek,
Nestor of the dutch historians of science,
Life-long student of Antoni van Leeuwenhoek.

THE BASIC LITERATURE ON ANTONI VAN LEEUWENHOEK.

There is a quite extensive literature on the life of Antoni van Leeuwenhoek and, to a lesser extent, on his works. For those, who want to be informed on Leeuwenhoek without embarking on a research project, the following works are essential.

Clifford Dobell, Antony van Leeuwenhoek and his "little animals", being some account of the father of protozoology and bacteriology and his multifarious discoveries in these disciplines.

Amsterdam, N.V. Swets & Zeitlinger, 1932.

The life of Leeuwenhoek and a discussion of his work, with special reference to protozoology and bacteriology, the specialty of Dobell. This book contains the first bibliography of Leeuwenhoek; the one most used by bibliographers and antiquarians. In addition, there is an extensive list of references.

A. Schierbeek, Antoni van Leeuwenhoek, zijn leven en werken.

Lochem, De Tijdstroom, 1950 (vol. I), 1951 (vol. II).

The most up to date book on Leeuwenhoek, written in the dutch language. The discussion of Leeuwenhoek's life takes into account the many discoveries, made since the tercentenary of Leeuwenhoek's birth, 1932. This book contains a discussion of all aspects of Leeuwenhoek's work. Dobell's bibliography is repeated with a few corrections, there also is a list of Leeuwenhoek's letters and a list of references.

A. Schierbeek, Measuring the invisible world, the life and works of Antoni van Leeuwenhoek, FRS. London and New York, Abelard-Schumann, c. 1959.

The life of Leeuwenhoek in this book was written by Maria Roosseboom. The discussion of Leeuwenhoek's works in this book is less elaborate than in the preceding volume; the bibliography is too brief to be of real use.

Alle de brieven van Antoni van Leeuwenhoek; The collected letters of Antoni van Leeuwenhoek.

Edited, illustrated and annotated by a committee of dutch scientists. Amsterdam, Swets & Zeitlinger Ltd., 1939 (vol. I), 1941 (vol. II), 1948 (vol. III), 1952 (vol. IV), 1957 (vol. V), 1961 (vol. VI), 1964 (vol. VII), 1967 (vol. VIII), to be continued.

The modern edition of Leeuwenhoek's works, a model of scientific editing. This publication will contain all letters, written by Leeuwenhoek and published previously in the Philosophical Transactions, the old dutch editions and elsewhere, in addition to letters, never printed before. The text is presented in the original dutch language as well as in english translation, on opposite pages. The annotations are from the hands of experts in the many fields in which Leeuwenhoek was active. It may be estimated that at least twelve more volumes will be needed to complete the work; the slow publication rate is the only drawback of this publishing venture. The four works mentioned here should be available in every biological library.

CHAPTER I.

THE LIFE OF ANTONI VAN LEEUWENHOEK. 1/

Antoni van Leeuwenhoek was born in Delft on 24 October 1632. It has been claimed that he came from an aristocratic family, this however is not quite true; his father, as well as his paternal grandfather were basketweavers. They were however perfectly respectable people and probably fairly well to do.

For many centuries, the brewing of beer had been the main source of wealth in Delft; Delft beer was valued everywhere in the country and was even exported abroad. However, in the early years of the Eighty Year War (1568-1648) which the Dutch waged against Spain, the Delft beer industry started to decline and was gradually displaced by the earthenware industry for which the city is still well known. Earthenware used to be packed in baskets and hence, basket making flourished along with the earthenware industry. It is not impossible that the parents of Antony worked themselves up to small entrepreneurs who had workers in their service.

It appears that the family name "van Leeuwenhoek" was first used by a great uncle of Antoni. In those days, many persons did not have a family name, but were known by their given name and the name of their father. Thus, the name of Antoni's great grandfather was Philips Thonissoon; Philip, the son of Antoni. The names of his grandfather and father were respectively Thonis Philipsz. (+1643) and Philips Thonisz. (+1638) and the name under which Leeuwenhoek was baptized was Thonis Philipsz. again.

Delft was a walled city, as most cities were in those days. When a city was walled, considerable more space than taken up already by the existing buildings was usually inclosed, to provide room for future expansion. As a result, farmland was often found within the walls of a city. As time went on, more and more of this land was covered with buildings and, after this land had been all used up, further expansion

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required the use of the land, located behind existing buildings. If one walks in the streets of Delft even today, one will sometimes notice that house numbers are skipped. At that location one will find a narrow alley which gives access to a little place or street around which houses are clustered which houses are built behind the houses on the main street. Such an alley often had a gate at its entrance and such gates had names. In the eastern part of the city, near the Oostpoort (East gate) in the city wall, there was such a gate, called the Leeuwenpoort (Lion's gate), probably named after the sign of a nearby house. This is the location of the house which was owned by the father of Antoni, the house in which he was born. It must have been the corner (hoek) house, hence the name, adopted by the family: van Leeuwenhoek.

Antoni's mother was Margriete Jacobsdr. Bel van den Bergh (+1644); she married Philips Thonisz. van Leeuwenhoek in 1622, She came from a brewers family which, although reasonably prominent at one time, had declined in status. Het grandfather, Bastiaan Cornelisz. Bel van den Bergh (+1605) was, since 1579, a member of the Council of Forty, a self perpetuating body which elected the government of the city and from amongst whom the magistrates were elected, to which Council one was appointed for life. He was schepen, a member of one of the governemental bodies to which one was elected for one year at a time, eight times. Her father, Jacob Sebastiaansz. Bel van den Bergh (+1615) was also a member of the Council of Forty (since 1608), but was schepen only once. Her brother, Daniel Jacobsz. de Bergh (+1679) was schepen twice; curiously, he is not found in the list of members of the Council of Forty 2/. Clearly, the van den Berghs belonged to the upper class, but not to the top class of the city; many names occur much more frequently in the lists of the magistrates.

One might wonder how, in class conscious Holland of the seventeenth century, Philips Thonisz. managed to marry a girl belonging to a family of higher standing; the answer probably is that she was an orphan. Lack of standing is probably also the reason why an obviously very capable man, such as Antoni van Leeuwenhoek was, never partici-

pated in the government of his city; if he had had male descendants, the family probably would have made it in a generation or two. However, his parentage to the Bel van den Bergh family probably helped him to obtain the position on the city payroll, he later had.

Antoni had four older sisters, of which the two oldest married and one younger brother, who died young. When Antoni was six years old, his father died; two years later his mother remarried with Jacob Pietersz. Molijn who was a painter, such as his father, Pieter Molijn had been. Three years later, Antoni's oldest sister, Margriete, married Jan Jacobsz. Molijn (c. 1619-1691), her step brother. Jan Jacobsz. was a "schilder-verver", hence a house painter who was also active as an artist. In addition, he served as a bailiff.

The second marriage of Antoni's mother must have presented problems in the household; Antoni was soon sent to a boarding school in Warmond (near Leiden) and later to an uncle in Benthuizen, a lawyer, to be instructed in legal procedures. The identity of this uncle is unknown.

Around 1648, Antoni was sent to Amsterdam. Boitet has the following to say about this:

His mother considered it advisable to send him to an important merchant in woolen fabrics (lakens) to work in his office as a bookkeeper and a cashier and, although his time was largely required to carry out these two duties well, he managed in his extraordinary zeal to save enough time for the study of the manufacture of woolens to be able to pass his masters examination in six weeks, with the intention to settle as a merchant at a later time, which however he never did 3/.

It appears that Boitet colored the picture somewhat. The "important merchant" was nobody but Antoni's uncle Pieter Mauritsz. Douchy, a wool comber. He was the husband of Antoni's aunt Catharina Jacobsdr. van den Bergh. Antoni's sister Margariete had lived with this uncle also, until her marriage in 1643 4/. This error of Boitet causes us to suspect the rest of his communication also; however, the fact that Antoni lived with a wool comber makes it more credible that he attemp-

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ted to pass the masters examination, be it probably after more than six weeks of preparation.

It is clear that, after the second marriage of Antoni's mother, the family was broken up, this perhaps explains the life long aversion of Antony for the Molijns, which he later expressed in his will in an uncommonly sharp way.

During the time he lived in Amsterdam, Leeuwenhoek probably met Barbara de Mey. She was the daughter of Elias de Mey, a dealer in serge who came from Norwich in England and Maria Virlin. To escape religious persecution, many people of dutch (or rather flemish) descent settled in Norwich in the second half of the sixteenth century. Many of them came from the southern part of Flanders. They had their own religious community there with their own pastor. Later, they gradually returned to the Netherlands, but not to their home country which was still in spanish hands; protestants were not welcome there. It appears that most of the de Mey's went to Zeeland. On 29 July 1654, Antoni van Leeuwenhoek married Barbara de Mey and took his bride to his home town, Delft. He bought a house on the Hyppolitusbuurt, one of the most distinguished streets (or rather canals) in the heart of Delft. The price of the house was 5000 guilders, a considerable sum in those days, of which he paid 1000 guilders in cash, the remainder was financed by a mortgage. In this house, called "Het Gouden Hoofd" (The Golden Head), he started a textile shop, an occupation for which he had been trained in Amsterdam. A few receipts for money, paid to him in exchange for his wares, have survived; they indicate that his shop was mainly a notions shop.

However, selling textile wares was apparently not what Leeuwenhoek wanted to do for the rest of his life, therefore, as Boitet expresses it:

he started, shortly after his marriage, to train himself in the art of navigation, astronomy, mathematics, philosophy and physics, without instruction of anybody, and this with such great success that he may be equated to the most important masters of these arts; in summary, there was no virtuoso who surpassed him in the

latter science.

Here again, we may suspect that Boitet overrated the achievements of his hero somewhat; Leeuwenhoek never had even a secondary education, knew only his mothertongue and was thus rather handicapped in self-study of all these subjects. In his later letters in which he laid down the results of his scientific investigations, he often presented computations, but these seldom surpass the level of elementary mathematics and simple area computations. On the other hand, his studies qualified him for some appointments which require a scientific education of some kind at a later time, hence we should not underrate his achievements either.

In 1660, a change came in the life of Leeuwenhoek, he was appointed "camerbewaarder" at the city hall. It is difficult to give an english equivalent for this title, especially since various authors do not agree on the duties which this office required of Leeuwenhoek. The word "chamberlain", which has been used by one author certainly does not cover his duties; the dictionary defines this word as 1) an attendant on a sovereign, 2) one of the high officers of a court, 3) a steward in a nobleman's household or 4) a treasurer or receiver of public money. The word "janitor", the equivalent of which has been used by others, certainly does not either; it was somewhere in between. In an attempt to clarify this, a rough translation will be given of the document, by which Leeuwenhoek was appointed,

Our Lords Burgomasters and Governors of the City of Delft have decided and commission herewith, Antoni van Leeuwenhoek to open and close the chamber where their Lordships, the Schout and the Schepens and those, representing the law in this City have their meetings, both for ordinary and for extraordinary meetings of these Gentlemen, in such a way as is required and needed; further to show these Gentlemen all respect, honor and reverence and to zealously carry out and loyally perform all services with which he may be charged and to keep secret all he may overhear in this chamber, to clean this room when required and keep it spotless, to lay the fire when needed and keep the unconsumed coals well to

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his profit 5/, so that they, or the fire of the candles will not cause accidents and furthermore to perform all services, which a good and loyal Camerbewaarder should perform. For which services the said Antoni van Leeuwenhoek will enjoy the same salary, benefits, emoluments his predecessor, the late Jan Strick did enjoy; his service will start 24 January 1660 and his salary will be paid at the same dates, it was paid the foresaid Strick. Thus decided by all Burgomasters at the meeting of 26 March 1660 and signed by the Pensionaris, J. Camerlingh.

The Pensionaris was an official, comparable to a city attorney of today. Petra Beydals has remarked that this document is suspect 6/; the Pensionaris Johan Camerlingh, who is supposed to have signed this document on 26 March 1660, died (according to Boitet) on 2 March 1640! It is also curious that the appointment is dated 26 March, while the job started on 24 January. What obviously happened is, what often happens in bureaucracies; a previous document was copied with the names and the year changed. From other documents it appears that Leeuwenhoek indeed started his duties on 24 January. Petra Beydals suggests that Jan Strick was the husband of a cousin on his mother's side of Leeuwenhoek, but this Jan Strick died in 1672 hence, if he is the one, the expression "the late" must have been thoughtlessly copied also. At any rate, both Jan Strick and Antoni van Leeuwenhoek were, either directly or by marriage, related to the family Bel van den Bergh and we may assume that this relationship to a minor patrician family was essential to such an appointment. The specification of the services required, as described in the document, indeed do not suggest more than a janitorial position. However, the phrase: "to keep secret all he may overhear in this chamber" indicates that not everybody was considered acceptable to have this job. A greater loyalty was apparently expected from someone who was in some way related to the gentlemen who met in the chamber.

The starting salary was 260 guilders plus 54 guilders for supplies. Already four years later, Antoni's salary was increased to 400 guilders. For sake of comparison it may be mentioned that the annual salary

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of the municipal secretary amounted to 800 guilders.

At some unknown time, but before 1699, Leeuwenhoek was given a help to do the rough chores; his name was Arnold Ramp and his annual compensation was 54 guilders. At the same time it appears that Leeuwenhoek does not receive the 54 guilders for supplies any more, hence it looks as if the transaction really amounted to this, that Leeuwenhoek paid for Ramp; what the city paid to Ramp, they saved on supplies. In 1718, five years before the death of Leeuwenhoek (who was 86 at the time) the City Magistrate decided that, after the death of Leeuwenhoek and Ramp, the expense for the office of Camerbewaarder would no more exceed 300 guilders.

Considering all this, it may be decided that Leeuwenhoek's position was certainly not a sinecure as has been suggested, it was a meaningful job which was however only given to persons on the fringe of the aristocratic families and was much better paid than the services rendered justified.

On 14 July 1666, Leeuwenhoek's wife Barbara died. She had given him five children, the last of which she paid for with her life. Only one of them survived the mother, Maria van Leeuwenhoek (1656-1745), who took care of her father in his old age.

In his bereavement, Leeuwenhoek must have looked for consolation in his studies; on 4 February 1669 he passed the examination for surveyor. This did not yield him an appointment; surveyors were engaged only when required and there is no evidence of activity of Leeuwenhoek in this field.

During this period as a widower, Leeuwenhoek made his one and only trip abroad. In a letter, dated 7 September 1674, he wrote:

Having been in England some six years ago because the country interested me and having seen large mountains made of chalk and much chalky country, I often thought about that and have attempted to separate the particles of the chalk and finally, I observed that chalk consists of small transparent globules and, these

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transparent parts, being stacked upon each other, is in my opinion the reason why chalk is white.

More-over, I have also viewed some of the English Earth which is yellowish, and some other that is of a deeper yellow than that, which is found between Harwich and London, and wherewith some Land is only as 't were covered; Which yellowish Earth our Potters of Porcelan-ware make use of, when they want that Flemish Earth that is got at Tournay V.

Leeuwenhoek remained a widower less than five years; on 25 January 1774, he married Cornelia Swalmius (1630/5-1694). She was an orphan, just as Barbara had been. Her great uncle Henricus Swalmius had been Dutch Reformed minister in Delft from 1617 until 1626, at which time he left for Haarlem. Her father, Johannes Arnoldsz. Swalmius (+1661) also was a Dutch Reformed minister, he lived in Valkenburg near Leiden. She had a nephew, Adriaan Swalmius, who was a barrister at the Court of Holland in The Hague; Leeuwenhoek addressed one of his letters (R40) to him. In the Swalmius family, there were several more ministers and also physicians. Cornelia presented Leeuwenhoek with one son, who died young.

During the first years of his marriage with Cornelia, Leeuwenhoek must have started his microscopical investigations. It has been asserted that the remarks on english chalk, quoted above, show that Leeuwenhoek made microscopical examinations already in about 1668, this view is however disputed. It is indeed very well possible that Leeuwenhoek examined the chalk while travelling in England, if we only do not assume that he did it with a Leeuwenhoek microscope. To acquire the marvellous skill, needed to make the microscopes he used later must certainly have taken considerable time; a time-span of five years (until 1673, when he started to communicate his first observations) certainly does not seem excessive. How it happened that Leeuwenhoek started to make his own microscopes is unknown. Schierbeek states as his belief that Leeuwenhoek got the idea from a "dradenteller" (linen tester), a magnifying glass of low power which views a square bounded field. When placed upon a piece of fabric, the number of warps and woofs can be counted within the bounded field

and thus the quality of the fabric judged.

There is however an interesting remark in Swammerdam's Bible of Nature, it is found in the History of the Bee:

This [white pellucid crystal-like globules on vine branches] I mention particularly, that I may be able to explain with greater accuracy the nature of that particular mouldiness to which the Bee-bread is subject; for though this mouldiness appears to be composed of hairy, or featherlike, or downy little parts, or, as the celebrated Dr. Hooke has delineated in his micrography, of a peculiar kind of minute plants, yet it really consists of an accumulation of globules that are some bigger than others. This was first shown to me at Delphos [Delft] by the industrious Leeuwenhoek, by the help of a microscope constructed after the model of that invented by the honorable Mr. Hudde, consul at Amsterdam 8/.

Swammerdam made the investigations on which his History of the Bee is based in 1673; this encounter with Leeuwenhoek must hence have taken place before that time, that is, in his "formative years". Swammerdam says that Leeuwenhoek had patterned his microscope after the one of Hudde. Jan Hudde (1628-1704), who served in the municipality of Amsterdam in various capacities, is mainly known as a mathematician. Already in 1657, he expressed in a letter his decision to study animal procreation by means of magnifying glasses; in 1663 he showed his microscopes to the french traveller Monconys (1611-1665). His microscopes were simple microscopes, consisting of a spherical lens, the size of a pea. Hence, his microscope reminds of the ones, Leeuwenhoek made later, which also were simple microscopes, although his lenses were much smaller than a pea. It is very well possible that the "dradenteller" aroused Leeuwenhoek's interest in the "invisible created truths" and that Hudde's glass spheres showed him how to achieve greater magnifications. Leeuwenhoek soon left his predecessors far behind by making microscopes of much greater magnifying power and with less distortion. How he did this, he never told.

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Armed with his microscopes, Antoni van Leeuwenhoek now started making discoveries. The amazing feature of his microscopic work is however not the discoveries he made; with such a comparatively new instrument this was inevitable. He did not use his instrument as a toy, looking randomly at various objects which came his way, such as Robert Hooke had already done and described in his Micrographia (1665) and what many microscopists would do later. Leeuwenhoek set himself problems which he systematically investigated, the composition of matter, the generation of animals, the circulation of the blood and so on. And in all these fields, he obtained important results. He, the unlearned "Camerbewaarder" of Delft chose sides in such important questions as spontaneous generation and he defended his position with the discussion of actual observations.

He must have spoken about his first observations and thoughts with the physicians of his city, Cornelis 's Gravesande (1631-1691) and Reinier de Graaf (1641-1673). The latter is another citizen of whom Delft is justifiably proud. He was well known for his research on the pancreatic juice but became famous in the entire scientific world for his research on the human organs of generation. The Graafian follicles are named so in his honor. 's Gravesande came from an old patrician family and hence played a role in the city government. He was "municipal anatomist" and dean of the pharmaceutical college. He probably lived next doors to Leeuwenhoek, in the house, later occupied by Leeuwenhoek's printer Henric van Kroonevelt.

In 1668, de Graaf sent a copy of his book on the male generative organ to Henry Oldenburg, secretary to the Royal Society. This book was discussed at a meeting of the Society and criticized. From this, a correspondence about priority of certain particulars developed, in which especially Dr. Timothy Clarke was involved 10/. In 1677, de Graaf published his book on the female generative organs; this book caused a priority controversy with Jan Swammerdam, who asked Henry Oldenburg to act as an arbiter. It^{is} in the course of his correspondence with Oldenburg on this subject that de Graaf mentioned Antoni van Leeuwenhoek in a letter, dated 28 April 1673:

That it may be more evident to you that the humanities and sciences are not yet banished among us by the clash of arms [the european war in which England and Holland were on opposite sides and which ended with the peace treaty of Westminster, 19 February 1674] , I am writing to tell you that a certain ingenious person here, named Leeuwenhoeck, has devised microscopes which surpass those which we have hitherto seen, manufactured by Eustachio Divini and others. The enclosed letter from him, wherein he describes certain things which he has observed more accurately than previous authors, will afford you a sample of his work; and if it please you, and you would test the skill of this most diligent man and give him encouragement, then pray send him a letter containing your suggestions, and proposing to him more difficult problems of the same kind ll/.

An abstract of Leeuwenhoek's letter followed this announcement in the Transactions and was followed by this remark:

So far this observer: who doubtless will proceed in making and imparting more observations, the better to evince the goodness of those his glasses.

De Graaf died soon thereafter, on 17 August 1673, a great loss not only to the learned world, but also to Leeuwenhoek who, without doubt had been inspired and encouraged by de Graaf, probably owed the idea on some subjects for investigation to him and would have been very valuable to discuss observations and theories. It has been stated that the death of de Graaf was caused by the controversy with Swammerdam. Leeuwenhoek believed this also; in a letter of many years later, he gave his opinion on the controversy and implied that both had been wrong:

Concerning the propositions of Swammerdam and R. de Graaf [the following] . I have known both gentlemen very well and they have visited me at my house many times and observed my discoveries with pleasure and I do not doubt that these gentlemen, if they were still alive would be red in the face with embarrassment over the imagined fictions which they exchanged, as each wanted the honor of the new discovery on the subject of generation, the

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"egg-nest". On account of the strong exchange of words, the latter not only fell ill, but died also, as I was told at the time 12/.

However, Boerhaave has stated that de Graaf died of the plague.

This first letter of Leeuwenhoek to the Royal Society was followed by many more; he contributed letters for fifty years; the last one was dictated on his death bed. Not the least due to the publicity, he received through his contributions to the Philosophical Transactions, his fame started to spread through Europe and many visitors, foreign ones as well as compatriots, started coming to Delft. With the exception of the physicians of Delft and perhaps some others, interested in natural philosophy, his fellow citizens were probably quite unaware of the fact that a genius lived among them. From their point of view, his career developed as might have been expected from a person of Leeuwenhoek's status.

In 1677, Antoni van Leeuwenhoek was appointed "wijkmeester-generaal", an office which carried an annual reward of 50 guilders. The title of "wijkmeester" can probably be translated by "precinct-captain" and may have been what in other cities was called "buurtheer". Their task was general supervision of the inhabitants of their precinct and to keep a list of them. The "wijkmeester-generaal" than was presumably the supervisor of all "wijkmeesters". In 1711 it was decided that, after the death of Antoni van Leeuwenhoek, this office was to be abolished; it appears that the need for a "wijkmeester-generaal" was not too great.

On 15 August 1699, Antoni van Leeuwenhoek was appointed "wijnroeier" (wine gauger), his task was to calibrate the casks in which liquids were sold, such as wine and beer. One would believe that Leeuwenhoek was appointed to this office on account of his mathematical knowledge. There were two wine gaugers in the city of Delft and they may have been quite busy, considering the fact that Delft was a brewery city. It is difficult to say how much a wine gauger earned, the regulations were changed several times and quite drastically, during Leeuwenhoek's tenure. There was a fixed annual reward, probably 100 guilders and a

fee for every vessel which had been gauged. The statutes of the city demanded that the gauger performed the necessary work himself; nevertheless, Leeuwenhoek was given a help mate when, in 1704 (at the age of 72), he resigned his job and had to be persuaded to stay on. Hence it appears that the magistrate appreciated his work and was willing to soften the regulations in order to help him.

In 1680, the income of Leeuwenhoek hence may be computed as follows, 400 guilders as "Camerbewaarder", 50 as "wijkmeester-generaal", 100 as "wijnroeier" and perhaps some 250 in fees for gauged vats. This was quite a satisfactory income in those days; Leeuwenhoek was doing very well.

After the Royal Society had received Leeuwenhoek's first letter, they were understandingly curious about this strange person. They obtained this information from Constantijn Huygens (1596-1687), in a letter, dated 8 August 1673. The story of this contact is unclear. From Huygens' letter, one would conclude that Oldenburg had approached Leeuwenhoek and asked him to subject his observations to Constantijn Huygens, probably because he was the father of Christiaan Huygens (1629-1695) who was a fellow of the Society. Christiaan lived in Paris at the time. But in his next letter, his first to Oldenburg, dated 15 August 1673, Leeuwenhoek did not refer to a letter or commission of Oldenburg at all; the letter starts with phrases, such as one might expect in the first letter of a correspondence. Constantijn Huygens wrote:

Our honest citizen, Mr. LEEWENHOECK - or LEAWENHOOK, according to your orthographie - having desired me to peruse what he hath set down of his observations about the sting of a bee, at the requisition of Mr. OLDENBURG, and by order, as I suppose, of your Noble Royal Society, I could not forbear by this occasion to give you this character of the man that he is a person unlearned both in sciences and languages, but of his own nature exceedingly curious and industrious, as you shall perceive not onely by what he giveth you about the bee but also by his cleere observations about the wonderful and transparant tubuli appearing in all kind of wood ... His way for this is to make a very small incision in

the edge of a box, and then tearing of it a little slice or film, as I think you call it, the thinner the better, and getting it upon a needle of his little microscope - a machinula of his owne contriving and workmanship - brass ... I trust you will not be unpleased with the confirmations of so diligent a searcher as this man is, though allways modestly submitting his experiences about them to the censure and correction of the learned ... 13/.

Leeuwenhoek remained in contact with Constantijn Huygens and through him, became acquainted with Christiaan later, when he returned from Paris. The opening phrases of Leeuwenhoek's first letter to Oldenburg are too typical of him, not to quote them here:

I have several times been pressed by various gentlemen to put on paper what I have seen through my recently invented microscope. I have constantly declined to do so, first because I have no style or pen to express my thoughts properly, secondly because I have not been brought up in languages or arts, but in trade, and thirdly because I do not feel inclined to stand blame or refutation from others. Pressed by Mr. Reg. de Graaf I have thought better of my intention and given him a memorial of what I observed concerning mould, the sting and some articulations of the bee, and also the sting of a louse, which memorial he (Mr. de Graaf) has forwarded to you and informed me of your reply. I see from this that my observations were not unwelcome to the Royal Society and that these gentlemen were anxious to see the figures of the sting and articulations of the bee which I there state to have seen. As I am not a draughtsman myself, I have had them drawn for me, but the proportions have not been observed as accurately as I could have wished. Also each figure has been seen and drawn through a particular magnifying glass ... 14/.

It appears that, at that time, Leeuwenhoek had already made several microscopes. This was the beginning of a long and steady correspondence. Although the gentlemen of the Royal Society published much of what Leeuwenhoek sent them, they remained sceptical for a long time, mainly because their demonstrator, Robert Hooke, was unable to repeat Leeuwenhoek's observations, and Hooke was regarded to be the leading

microscopist of the nation! Only in the year 1678 did he succeed to check Leeuwenhoek's observations. Leeuwenhoek tried to enhance his credibility by showing his observations to acquaintances in Delft and elsewhere and asking them to sign affidavits, describing what they had seen, which affidavits were included in his letters.

After about seven years of correspondence, the gentlemen of the Royal Society realised that they were dealing with a serious and outstanding observer, who would be worthy to be admitted as a fellow. Indeed, Robert Hooke wrote to Leeuwenhoek on 23 January 1680: "I doe much wonder that your name is not in the list of the Royall Society, especially since I find that Mr. Oldenburg Recieved the favour of soe many excellent communications from you. If I thought it would be gratefull to you I would propound you at a meeting as a candidate".

Leeuwenhoek replied to this:

Further I have seen that you are surprised that my name is not found on the list of the Royal Society; as far as I am concerned, I have never even thought of requesting such a thing from Mr. Oldenburg and if this gentleman, during his life time would have brought up the subject, I would have gratefully accepted. And since a honorable mind should always be receptive to an increase in honor, and since the proposals you make, that is, to accept and recognize me as a member of the Society, would bring me the greatest honor in the world, you would oblige me greatly and do me a great service if you could confer this distinction on me 15/.

Before this letter was written, at the meeting of 29 January 1680, the physician William Croone (1633-1684) proposed to admit Antoni van Leeuwenhoek as a member and the secretary, Thomas Gale was ordered to prepare a diploma for Leeuwenhoek. At the next meeting, 12 February, it was decided that the Society's great seal should be affixed to the diploma and that the diploma be inclosed in a silver box, especially made for the purpose. At the meeting of 19 February, it was ordered that the arms of the Society be engraved on the box and on 28 February, the president of the Society, Sir Joseph Williamson (1633-1701) presented the Society with a special press to affix the seal. Apparently,

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a newly elected member of the Society had never been presented with a diploma; the Society apparently went out of their way to honor Leeuwenhoek. Indeed, it was a honor; Leeuwenhoek was the second Dutchman to be elected a fellow; Christiaan Huygens had been the first, he was elected in the first group by the charter members. And the Netherlands of Leeuwenhoek's time was not short of scientists of merit, who would as members, have compared favorably with some of the actual members of the Society.

Leeuwenhoek thanked for this honor in his characteristic manner in a letter of 13 May 1680.

I was very much surprised to hear that the Gentlemen, members of the Royal Society have bestowed so much honor and dignity upon me, which I do not deserve, by recognising me as a member of their Esteemed College; this first by a letter of Mr. Secretary Thomas Gale and a few [days] later by receiving the sealed diploma itself; both of them full of expressions which my merits cannot justify. With this argument, I oblige myself deeply to the Gentlemen of the named Society, in return for the great favor done to me, to commit myself unchangingly and promise that for my entire life I will use all my force and potential to make myself even more worthy of this honor and favor, remaining, committing You Gentlemen to the everlasting protection of Allmighty God 16/.

This appointment must have made some impression on the burghers of Delft. When C. de Man painted the second "anatomical lesson" for the surgeon's guild of Delft in 1681, Leeuwenhoek was invited to join them as they were grouped around the body, "om dit werk meer luister by te zetten" as Boitet expressed it 17/. One might ask whether this painting indicates that there was a close relationship between Leeuwenhoek and the surgeons guild. Probably not. Leeuwenhoek never mentioned in his letters that he had learned something in the anatomical theatre. Dissection of human bodies was rare; Leeuwenhoek said about this in a letter of 1680:

[The customs] of our nation are such that it would not be tolerated that a dead body would be dissected, even those of people of low standing, even those who died in the poor house 18/.

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If a body was available, it usually was the body of an executed criminal, the skeleton was later used as an ornament in the anatomical theatre. Such a body was not often available; Boitet says that: "every once in a while, at winter time, part of a human body is dissected, to give our physicians and surgeons a chance to gain a good knowledge of the human body, anatomy being one of the arts, most needed in medicine and surgery 19/.

In a letter from the year 1699, Leeuwenhoek said:

I confess here openly that I know nothing about either medicine or surgery and also that I have watched the section of a human body not longer than two or three hours in total and since I have hardly ever watched this, I often go to the butchers and our public abattoir where I obtain the parts which I plan to study 20/.

One has the impression that Leeuwenhoek disapproved of the use of parts of the human body. He studied, for example, the eyes of mammals, birds and fishes in minute detail, but never rounded off his research by examining a human eye. He restricted his human material to matter such as hair, nails or teeth.

In 1686, Johannes Verkolje (1650-1693) painted his portrait and also made a mezzo tint of this portrait, the latter graced with a poem by Constantijn Huygens. From this portrait, most pictures of Leeuwenhoek are derived.

The fame of Leeuwenhoek soon spread beyond the city of Delft and visitors started to flock to the city for the sole purpose of seeing Leeuwenhoek. He often referred to his visitors in his letters, unfortunately however, he seldom gave names; he referred to his visitors in terms such as "a certain distinguished gentleman" or "a certain learned doctor". However, the names of some of his visitors are known, Jan Swammerdam in the early years of Leeuwenhoek's experiments, the professors Theodore Craanen, Herman Boerhaave, Petrus Hotton, Govert Bidloo and Jacobus Gronovius of the university of Leiden and the wellknown physician Cornelis Bontekoe. Leeuwenhoek was on good terms with Christiaan Huygens and was often asked to the estate of Antoni

Heinsius, the raadspensionaris (chief attorney) of the Province of Holland. The gentlemen of the Royal Society visited him on their european travels, among them Thomas Molyneaux, Alexander Stuart, a Mr. Vernon and Sir Hans Sloane. Among other foreign visitors we find the Danes Holger Jacobaeus, Caspar and Christophor Bartholinus, who came together with the botany professor from Leiden, Arnoldus Sijen, the famous surgeon Jan Palfijn and the german traveller Zacharias von Uffenbach.

Even european royalty showed an interest in Leeuwenhoek's work. Heads of minor states and princes, who would later bear a crown, even some crowned heads visited him. Among them we find James II and George I of England, Peter the Great of Russia, Augustus of Poland, Frederic I of Prussia and many more. Maria, queen of England came to see him, but found him not at home and Charles III, the pretender to the spanish crown invited Leeuwenhoek for a visit in The Hague; the archduke had to leave however before this visit could take place.

About twenty years after the Royal Society, the french academy invited Leeuwenhoek ^{into} their ranks also. On 4 March 1699, Leeuwenhoek was appointed correspondent of the Royal Academy of Sciences in Paris. As was customary, one of the members was charged with keeping in contact, in Leeuwenhoek's case this was Claude Burlet (+1731) who had been appointed élève (apprentice) to Denis Dodart (1634-1707) who was at that time premier titulaire pensionnaire-botaniste, in other words, he occupied the first chair of botanist as a permanent member. The world famous Leeuwenhoek was assigned to correspond with an apprentice botanist who was two and a half weeks older than he himself as an associate to the academy. No letters of Leeuwenhoek to Burlet are known; we may safely assume that there never were any.

During his entire scientific life, Leeuwenhoek sent his observations to the Royal Society; at first to the secretary, Henry Oldenburg, Thomas Gale, Robert Hooke or Francis Aston and occasionally to the president, Christopher Wren. In 1685, he started addressing his letters simply to the Royal Society, perhaps because his letters were not

acknowledged. Of the letters, he sent to London from October 1686 until September 1696 (letters B53- B83), only two were published in the Philosophical Transactions, they were however published in the old dutch and latin editions. Leeuwenhoek must have felt frustrated by this apparent lack of interest which was, at least partly, caused by stagnation in the publication of the Transactions. On 6 August 1687, he sent the following letter to Robert Boyle:

Most noble Sir,

I make bold to send you under cover these my small observations, about which I also did write to the Royal Society. First because I fancy they will not be unacceptable to your honour. Secondly because I know that the Royal Society do not meet at this time. I have written four distinct letters to the Royal Society; and although I have not received any answer hitherto, yet I do not doubt but the same have been duly delivered.

To wit, one I did write on the fourth of April 1687, in which I treat about the structure of the teeth.

Another on the ninth of May, in which I write about coffee: the third is of the thirteenth of June in which I speak of plants: a fourth is of the second of July, in which I treat of the pro-creation of silkworms.

I do hope that in these foregoing, and also in this present, something may be found which may please your honour, remaining in the mean while,

Most noble Sir,

Your most humble servant, etc. 21/.

and he added a copy of letter B57, dated 6 August 1687. However, this complaint did not help; letter B57 was also not published in the Transactions. and the copy he sent to Robert Boyle remained among his papers.

Although Leeuwenhoek sent most of his letters to the Royal Society, he addressed some of them to others also. These letters usually have material which was discussed in letters to the Royal Society also. In 1694, he must have been tired of the apparent lack of interest of the Royal Society; he started addressing the majority of his letters to others, of which the raadspensionaris Antoni Heinsius and F.A. van Reede were

the most favored ones. Van Reede was the author of the famous Hortus Malabaricus. After Sir Hans Sloane, who had been elected secretary to the Royal Society in November 1693, had visited Leeuwenhoek in the year 1700, Leeuwenhoek started addressing many of his letters to the Royal Society again, many of them to Sir Hans Sloane himself. One may expect that Leeuwenhoek had clearly expressed his displeasure with the way his letters were handled at the Society, although it must be said to the credit of Sloane that eight letters of Leeuwenhoek had been published by the Society since Sloane had been elected secretary. After Sloane's visit, things went better; Leeuwenhoek's letters were published regularly in the Transactions until 1712. Thus, most of the letters of Leeuwenhoek, written between 1686 and 1700 are not found in the Transactions; they are however found in the old dutch and latin editions. For the letters, written between 1702 and 1712, the reverse is true. These letters are all found in the Transactions, but were never published in the old dutch and latin editions. The reason why is unknown. The last volume of dutch letters which had been issued at that time, the Sevende Vervolg (seventh continuation), published in 1702 covered the letters for five years, hence a volume of similar size was due in 1707 or 1708. It appears that the letters were ready for the press, that the plates for the illustrations had been cut and that even a latin translation had been made. These materials were among Leeuwenhoek's effects at the time of his death in 1723. The publication of these, and later letters was perhaps postponed on account of the death of Leeuwenhoek's publisher, Henric van Kroonevelt in 1708 and never resumed. An allegorical drawing by Jan Goeree, dated 1707, may have been intended as a frontispice for this publication. In 1718, the last volume of letters of Leeuwenhoek, the Send-Brieven was published in Delft by Adriaan Beman.

Among the acquaintances in Delft of Leeuwenhoek was Gerard van Loon (1683-1758), who came from a brewers family and had studied law in Louvain. He is mainly known for his work on dutch historical medals. Leeuwenhoek addressed one of his letters to him (R22). It is possibly via van Loon that Leeuwenhoek came in contact with the professor in Leuven, Antonius Cinck (1668-1742). Leeuwenhoek addressed several letters to him. Cinck, who was a theologian who later had to flee the

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university as a suspect of jansenism (1729), decided, together with two other professors of the college "The Wild Pig" 22/, the physicians Ursmer Narez (1678-1744) and Hieronymus Rega (1690-1754), to have a medal struck in honor of Leeuwenhoek. This medal was sent to van Loon to be presented to Leeuwenhoek and van Loon, as a true lawyer, performed this ceremony before a notary public and had the following protocol executed:

Today, 3 June 1716, appeared before me, Jacob van der Werff, notary public of this city of Delft, in the presence of the witnesses who are mentioned below, Mr. Gerard van Loon of the brewery "De Verkeerde Wereld" in this city, who stated that he had received a letter, addressed to the honorable, world famous Mr. Antoni van Leeuwenhoek, inclosed [in a letter to him, van Loon], containing a silver medal, showing on one side the image of the above mentioned Leeuwenhoek with the inscription: "Antony Leeuwenhoek, R^{eg}: Soc: Angl: Membr." and on the other side a view of the city of Delft with the inscription: "in tenui labor, at tenuis non gloria", contained in a box, made of horn, lined with velvet on the inside and inclosed in a little purse, made of gold thread, which had been sent to the person who appeared, as he stated, by Mr. Antony Cinck, professor of philosophy, great prebendary of St. Peter in Louvain, President of the College at Cranendonk etc. etc., asking him in an accompanying letter that the person who appeared would be so kind to take the trouble to hand the letter, medal, box and purse to the already mentioned Mr. Leeuwenhoek in the name of Mr. Cinck and other professors of medicine and philosophy at Louvain as a free gift in recognition of and as proof of their respect for his, Mr. Leeuwenhoek's famous and never sufficiently praised discoveries in natural sciences;

which letter, medal, box and purse were, according to the request made in the letter, presented to Mr. Leeuwenhoek by the person who appeared.

There also appeared before me, notary public and witnesses Mr. Antoni van Leeuwenhoek, who stated to have received these objects and who thanked Mr. van Loon 22/.

The gift was accompanied by a latin poem from the hand of J.C.Kerk-

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herdere, which was published in a latin edition of Leeuwenhoek's letters (nr. 21c and 21d). Leeuwenhoek later addressed several letters to the professors Cinck, Narez and Rega and also to Kerkherdere in recognition.

A honor such as this, or similar to the election to the Royal Society, Leeuwenhoek never received from his compatriots. The city of Delft honored him by lightening his task at the City Hall and gave him a small pecuniary reward when a volume of his letters was published (these are the volumes, published in Delft by Henrik van Kroonevelt), but that was as far as it went.

Leeuwenhoek always had a good health, but in his later years, his health declined somewhat. He complained about this in several of his letters. At the age of 91 years, he had to pay his toll to nature, he died on 26 August 1723. He remained loyal to his mission to the last moment; on his death bed he still dictated two letters to the surgeon Johannes Hoogvliet, which the latter, in latin translation, submitted to the Royal Society. Leeuwenhoek had written letters to the Royal Society for fifty years. In one of his letters, he had promised that, after his death, the Society would be presented with a lacquer cabinet, containing twenty six microscopes. These, his only surviving child, his daughter Maria, sent to London with the following letter:

Most excellent Sirs,

Instantly upon the sad death of my beloved father Antonij van Lewenhoek, I took care to have this my loss made known to you by our reverenced and most learned pastor, Peterus Griebius; adding thereto, that after the space of six weeks would be sent to the noble and far famed Royal Society, at London, a little cabinet with magnifying-glasses, made of silver wrought out of the mineral by my dear departed father his very self; which same is now sent to Your Excellencies, even as my late father made it up, with six-and-twenty magnifying-glasses in their little cases: truly in itself a poor present to so celebrated a Royal Society, but meant to betoken my father's deep respect for such a learned Society,

whereof my most beloved and dear Father, of blessed memory, hath the honour to have been a fellow-member, Your most humble servitress now begs Your Excellencies, please be so good as to let me have word whether this trifling gift is come safe into the hands of the far famous College, that I may rest content I have fulfilled my father's wish.

Wherewith, most famous Gentlemen,
your most respectful Servitress
and my father's Grief-stricken
Daughter now and hereafter
will ever be and remains

Your humble Servant
Maria van Leeuwenhoek
Antoni's daughter, 24/

Delft, the
4th October 1723
New Style

The microscopes were duly received, were in the collections of the Royal Society for many years, but have now disappeared. So have most of the hundreds of microscopes, Leeuwenhoek made with his own hands during his long life. After his death, all his effects remained in the hands of his daughter Maria. After her death, the microscopes were sold at auction. From the list of buyers, written down in a copy of the sales catalog, one has the impression that they were mainly bought for their metal value or as souvenirs. But for a few, these microscopes have vanished also, as have Leeuwenhoek's manuscripts. What did not disappear, and never will, is his fame as the founder of almost every branch of science, which is practised by means of the microscope.

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Foot notes for Chapter I.

- 1/ This brief biography is mainly based on A.Schierbeek, Antoni van Leeuwenhoek, zijn leven en werken. Lochem, De Tijdstroom, 1950 (vol. I), 1951 (vol. II). The archival and literature references which substantiate Schierbeek's study have not been copied; for these, reference is made to the original. Only where I deviate from Schierbeek's narrative, have supporting references been given.
- 2/ The data on the political activities of the Bel van den Bergh family are found in Boitet's: Beschrijving der Stadt Delft, Delft, R. Boitet, 1729.
- 3/ A free translation from Boitet, p. 765.
- 4/ Petra Beydals, Twee testamenten van Antoni van Leeuwenhoek, Bijdr. tot de Gesch. der Geneeskunde, 13, 67-79, 1933. See p. 78.
- 5/ This has been taken by some authors to mean that Leeuwenhoek was allowed to take the unconsumed fuel home, which is not impossible, since it was the custom in those days to place unconsumed fuel in an airtight receptacle, the doofpot, where it was soon extinguished for lack of air. However, the verb bewaren (keep safe) in the original text does not suggest the coal to be taken home but rather to be used for the next fire, while the expression tot zijn profijt may mean that there was a certain budget for fuel and that the camerbewaarder had to make up out of his own pocket if this budget was exceeded. Leeuwenhoek got an allowance for buying everything, needed to fulfill his duties.
- 6/ Petra Beydals, l.c., p. 72.
- 7/ First alinea trans. by the author, the remainder from Phil. Trans., 9, 181, 1774.
- 8/ Letter R40, dated 19 August 1717.
- 9/ Jan Swammerdam, The Book of Nature etc. Translated from the Dutch and Latin edition by Thomas Flloyd, revised and improved by John Hill, London, C.G.Seyffert, 1758, See p. 163.
- 10/ For the correspondence of R. de Graaff with H.Oldenburger see: A.Rupert Hall and Marie Boas Hall, The correspondence of Henri Oldenburger, Madison Wisc., the University of Wisconsin Press, 1967 (vol. IV), 1970 (vol. VII).

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- 11/ Cl. Dobell, Antony van Leeuwenhoek and his "little animals", Amsterdam, Swets & Zeitlinger, 1932. See pp. 40-41. See also Phil. Trans., 8, 6037-6038, 1673, where an abstract of Leeuwenhoek's letter is given also.
 - 12/ Letter B81 to G.Garden, dated 19 March 1694.
 - 13/ W.Ploeg, Constantijn Huygens en de natuurwetenschappen, Rotterdam, Nijgh & van Ditmar, 1934. See pp. 126-127.
 - 14/ Alle de Brieven van Antoni van Leeuwenhoek, Amsterdam, Swets & Zeitlinger, 1939 (vol. I). See p. 43.
 - 15/ Letter to R.Hooke, dated 13 May 1680.
 - 16/ Boitet, l.c., p. 528.
 - 17/ To give this work more glamor.
 - 18/ Letter B29, to R.Hooke, dated 12 Jan. 1680.
 - 19/ Boitet, l.c., p. 531.
 - 20/ Letter B120, W. van Tschirnhausen, unknown day and month, 1699.
 - 21/ Th. Birch, The Works of the Honourable Robert Boyle, London, W.Johnson etc., 1772. See vol. VI, pp. 668-670. The letters which Leeuwenhoek mentions are B53- B56 of which the last is not dated 2 July, but 11 July.
 - 22/ This is not a joke. It was the college, most students from the northern Netherlands attended, Jan Ingenhousz was a member for example.
 - 23/ A.J.Servaes van Rooyen, Anthoni van Leeuwenhoek door Leuven's hoogeschool gehuldigd, Album der Natuur, 53, 380-384, 1904.
 - 24/ Cl. Dobell, l.c., pp. 98-99.

CHAPTER II.

BIBLIOGRAPHY OF THE OLD DUTCH AND LATIN PUBLICATIONS OF ANTONI VAN LEEUWENHOEK'S LETTERS.

In the introduction to this book, a few remarks on the difficulties which confront the examiner of most Leeuwenhoek issues have already been made. Leeuwenhoek laid down his discoveries in letters which he wrote to the Royal Society in London; at a later date he started sending them to various distinguished persons also.

In 1684, publication of Leeuwenhoek's letters in their original dutch language started. The publisher was aware of the fact that he did not have an unbroken chronological set and therefore he printed the letters on separate signatures so that his booklets could be taken apart and the letters bound in chronological order after the complete set had been eventually published. A later publisher, Boutesteyn, started to assign numbers to the letters. Although these numbers probably originate from Leeuwenhoek himself, they will be called Boutesteyn numbers and be preceded with a "B". The Boutesteyn numbers start with B28; the preceding letters were never released by Leeuwenhoek for publication in Holland, although most of them had already been published in extract in the Transactions. This series runs until B146, which letter is dated April 1702. Between 1702 and 1712, Leeuwenhoek did not release any letters for publication in Holland; in 1718 a new series was started by the publisher Beman. Since it was possible that the letters from the period 1702-1712 might later be released for publication, Beman started a new numbering but, since his name unfortunately starts with a "B" also, we cannot name them Beman numbers. To distinguish his numbers from the preceding ones, Beman used roman numerals; therefore we will precede these numbers with a "R" and use arabic numerals instead of the roman ones.

In order not to have to repeat information in the descriptions of the various issues and also as a working tool, four tables are offered

in addition to the bibliography itself. Some notes on these tables follow here.

TABLE I. It is of importance to determine which letters are contained in a given issue and, since the letters are often unnumbered, this is in many cases difficult to do. In Table I a complete chronological list of all Leeuwenhoek letters, found in the old dutch editions, is presented. This list gives the B-number or the R-number, the date, the name of the recipient and the number of the issue in which the letter is found. It must be understood that, if a letter is found in the first edition of a given issue, it is found in all later editions also; hence these are not mentioned. The names of the recipients are spelled the way they are in modern works of reference.

TABLE II. This table presents a complete chronological list of all Leeuwenhoek letters, found in the latin editions. These editions offer an additional difficulty in that the letters often are not only unnumbered, they are in addition undated. For such letters the incipit is presented in Table II. Other letters have their date given in roman fashion; these roman dates are also presented in Table II. While transcribing these dates, numerals which are given in words are here given as roman numerals; e.g. the date "Tertio Nonas Sextiles 1688" is given as "III Non. Sext. 1688"; this will probably cause no difficulty. A note on the roman calendar is given in an appendix.

TABLE III. The illustrations in all dutch editions and latin translations of a given issue are always printed from the same plates, although the identifying legend was often changed. In the older editions, all illustrations were printed in the text, at a later time, some of them were printed on outside-text plates, the latest editions have all their illustrations on plates. The illustrations which are printed in the text offer no problem; the plates however do, since they are often bound at the wrong place or altogether wanting. Therefore, information on the plates is presented in Table III.

Identification of the plates presents a problem however. It would be

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best and easiest to present a reproduction of them all, however, providing reproductions of 110 plates appears to be impractical. Describing the contents of the plates likewise appears to be not practical; few users of this book would recognize a plate from a description of whatever it represents. Therefore, identification of the plates is based on three criteria, their dimensions, the number of figures they contain (both of which criteria are the same for all "states" of the plate) and the legend which was intended for the binder and which varies in various editions and translations. Using a preliminary version of this table in the bibliographical work showed that it is possible to identify plates from these data.

To allow referring to the plates in the bibliographical descriptions, the plates have been numbered. Plates with plain numbers are found in all editions; plates with a letter added to their number are found only in latin editions; in the dutch editions, they are printed in the text. Table III next offers the number of the letter to which the plate belongs and an indication whether the plate is a folding plate or not. In some cases, the latter information must be taken cum grano salis; some plates are folded in some copies and not folded in others. The dimension of the plates is given in millimeters, width first, height second. The plates, numbered up to 20b are not bordered, their size is determined by the impression of the copper plate. This impression is sometimes hard to see, or it is hidden in the spine of the book, hence these measurements may well be a mm. or so off. Starting with plate 21, the plates are bordered; their dimensions should be accurate to the nearest millimeter. In the next column the numbers of the figures on the plate are recorded, e.g. the entry 10-20 means that figures numbered 10 through 20 are found on this plate. In the next two columns, the number of the issue and the number of the pages in this issue between which the plate ought to be found is presented, together with the identification which is found on that particular plate. **In some cases this identification is written on the plate in ink. In these cases, the identification is printed in italics.**

TABLE IV. Since 1939, a modern edition of Leeuwenhoek's letters, both in the original dutch language and in an english translation is

being published under the title: Alle de Brieven van Antoni van Leeuwenhoek, and also: The Collected Letters of Antoni van Leeuwenhoek. This work progresses only very slowly; to date eight volumes have been published, which brings the publication of the letters up to the year 1692. The plates of the old Leeuwenhoek editions are, of course reproduced in these books, although in some cases the original drawings of Leeuwenhoek are used instead of the old engravings. As an additional help in identifying the plates, the numbers of the tables in this modern edition on which our plates are represented in the Collected Letters are presented in Table IV.

FRONTISPICES.

In some Leeuwenhoek editions, a frontispice is found; there are three different ones. A reproduction of each of them is given in this booklet. These are allegorical plates. Of two of them, an explanation is offered in the book in which they are found; the first one however is not explained, hence the following explanation had to be devised by the author.

FRONTISPICE A. A female figure with five breasts, representing Mother Nature sits on a throne which is adorned with the capitals A and L, artfully entwined. She holds a horn of plenty from which all sorts of animals and plants emerge. On her right (left in the picture) is a female figure, representing Philosophy, holding a book with a picture of a sphinx on the cover in her right hand while pointing with a sceptre in her left hand to a female figure, named Research who looks at an object which is supposed to be a Leeuwenhoek microscope and is recording her observations on a writing table. In the left background, a male figure, Zeal, draws another male figure, Error, towards the scene, while also holding the mantle of Mother Nature. In the foreground sit a male and a female figure, bringing natural products to be examined.

This plate was engraved by Romein de Hooghe (1645-1708), one of the best dutch engravers of the time.

There exist four states of this print, if states they may be called, for they differ only in the lettering.

State I. ONTDECKTE/ ONSIGTBAAR-/ HEEDEEN/ DOOR/ ANTONI van LEEUWENHOEK/
R. DE HOOGHE AMICO SUO/ D D 1685.

State II. (Cartouche blank)
EPISTOLAE/ ANTONII a LEEUWENHOEK/
R. DE HOOGHE AMICO SUO/ D D 1685

State III. A. V. LEEUWENHOEK/ ONDEKTE (sic)/ ONSIGTBAARHEEDEN/
LUGDUNUM BATAVORUM/ By C. BOUTESTEYN 1696/
R. DE HOOGHE AMICO SUO/ D D

State IV. A.V.LEEUWENHOEK/ INVESTIGATIO/ ARCANORUM /
LUGDUNI BATAVORUM/ Apud IOH: ARNOLDI LANGERAK/
R. DE HOOGHE AMICO SUO/ D D

FRONTISPICE B. Philosophy, the queen of sciences, points with her sceptre to Mother Nature who emerges from behind a curtain. In front of Mother Nature, many natural products are seen, which products are being studied by Research by means of a microscope (which still does not look like a Leeuwenhoek microscope, but comes closer than the preceding print); her mantle is covered with eyes. In the background, Zeal pulls Error, who is blindfolded and has donkey ears, towards the scene. Three ignorant philosophers are grouped around the steps on which Research is standing, in the background a "superstitious jew", in the middle an "overcredulous christian" and in the foreground an "aristotelian heathen", the latter carrying a sign on his back, saying occult qual (hidden particulars). In the left foreground stands Truth, holding a sun in one hand and a book which carries the name of the artist in the other. Truth stands on a prostrated figure named Envy. A "divine celestial light" throws its rays on Research.

This plate was engraved by J. van Schaak.

There exist three states of this print.

State I. Arcana/ NATURAE/ detecta/ ab/ ANTONIO/ van/ LEEUWEN/
HOEK.

DELPHIS BATAVORUM apud HENRICUM CROONEVELD CIO IO XCV

State II. Vijfde ver/ volg der/ BRIEVEN/ van ANTONI/ van/
LEEUWEN/ HOEK

DELPH by HENRIK van CROONEVELD CIO IO XCVI

State III. Arcana/ NATURAE/ detecta/ ab/ ANTONIO/ van/ LEEUWEN/ HOEK
(The bottom inscription has been replaced by hatching).

FRONTISPICE C. A female figure, Knowledge of Nature, with a wreath of flowers in her hair, discloses the secrets of nature to Zeal, a female figure carrying a sceptre. Behind Knowledge is a little boy, Simplicity, playing with a dove, while in the background, Ignorance, again blindfolded and provided with donkey ears, fumbles around. Mother Nature, again with five breasts, is now represented as a statue in the left background; a little angel in the foreground points to an angel, Fame, floating in the air while blowing a trumpet and holding a portrait of Leeuwenhoek. This portrait is encircled with the inscription: ANTONIUS LEEUWENHOEKIUS DELPHIS NATUS MDCXXXII.

This plate was engraved by Jan Goeree (1670-1731), a wellknown engraver of the time, as is shown by the legend: J.Goeree sculpt. direx.

There exist two states of this print:

State I. Te DELFT by ADRIAAN BEMAN, 1716

State II. DELPHIS apud ADRIANUM BEMAN, 1719.

PORTRAIT OF LEEUWENHOEK.

This is a full page engraving, based on a painting by Johannes Verkolje (1650-1693), produced by the Delft engraver Abraham de Blois (-1717), as is shown by the legend at the bottom of the print: "J.Verkolje pinx. --- A. de Blois fec.". This print was the model for most later representations of Leeuwenhoek.

There exist two states of this print:

- 24
- State I. ANTONI VAN LEEUWENHOEK/ Lid van de Koninglijke Societeyt/
tot Londen.
- State II. ANTONIUS A LEEUWENHOEK/ Regiae Societatis Londinensis/
membrum.

THE BIBLIOGRAPHY. After all these introductions, it is not necessary to say much about the bibliography itself. In this bibliography, the dutch editions and the latin ones are grouped together. Of each issue, the title is given diplomatically, followed by an english translation of the title. In addition, the place of publication, the publisher and the year of publication are given.

Under the heading Collation, the composition of the book is presented, the number of signatures, the signature format and the signature marks with their anomalies, if present l/.

Next comes a description of the Contents which is self explanatory and needs only the following remarks. All pages are assumed to be numbered; if they are actually not numbered, the numbers they should have are given in parenthesis. Likewise, if the Leeuwenhoek letters are not numbered in the pertaining issue, the number they should have is given in parenthesis. For the letters, the pages on which text figures are found, are noted. In the case of plates, the numbers of the pages between which they ought to be found are given, together with the number of the plate.

Finally, whatever is worth noting about the issue is presented under the heading Remarks.

Note to Chapter II.

1/ In the english language, the word signature has more than one meaning, even in its bibliographical sense. It may mean the group of pages, produced by appropriate folding of a printed sheet or it may mean the symbols (letters or other), used to label the sheet. In order to be more precise, I will adopt the following usage:

signature, a group of pages, obtained by appropriate folding of a printed sheet,

signature name, the principal symbol which labels the signature,

signature marks, the labels, based on the signature marks, which are found on the various pages of the signature,

signature format, a consicutive listing of the signature marks on the pages in a given signature, in symbolic form.

For example, the signature, named "A" may have the signature format: (A,A2,A3,bl.), where bl. means blank, no mark.

TABLE I.

LEEUWENHOEK'S LETTERS IN THE DUTCH EDITIONS.

<u>Numb.</u>	<u>Date</u>	<u>Addressed to</u>	<u>Publ. in Nr.</u>	<u>Notes</u>
E28	25 Apr. 1679	N.Grew, SRS	8	
B29	12 Jan. 1680	R.Hooke, SRS	8	
B30	5 Apr. 1680	R.Hooke, SRS	8	
B31	13 May 1680	Th. Gale, SRS	8	1/
B32	14 June 1680	Th.Gale, SRS	1	
B33	12 Nov. 1680	R.Hooke, SRS	1	
B34	4 Nov. 1681	R.Hooke, SRS	8	
B35	3 Mar. 1682	R.Hooke, SRS	8	
B36	4 Apr. 1682	R.Hooke, SRS	8	
B37	22 Jan. 1683	Chr.Wren, PRS	4	
B38	16 July 1683	Chr.Wren, PRS	5	
B39	12 Sep. 1683	Fr.Aston, SRS	1	2/
B40	28 Dec. 1683	Fr.Aston, SRS	2	
B41	14 Apr. 1684	Fr.Aston, SRS	3	
B42	25 July 1684	Fr.Aston, SRS	5	
B43	5 Jan. 1685	R. Soc.	5	
B44	23 Jan. 1685	R. Soc.	6	
B45	30 Mar. 1685	R. Soc.	6	
B46	13 July 1685	R. Soc.	7	
B47	12 Oct. 1685	R. Soc.	7	
B48	22 Jan. 1686	R. Soc.	9	
B49	2 Apr. 1686	R. Soc.	9	
B50	14 May 1686	R. Soc.	9	
B51	10 June 1686	R. Soc.	9	
B52	10 July 1686	R. Soc.	9	
B53	4 Apr. 1687	R. Soc.	10	
B54	9 May. 1687	R. Soc.	10	
B55	13 June 1687	R. Soc.	10	
B56	11 July 1687	R. Soc.	10	
B57	6 Aug. 1687	R. Soc.	10	

<u>Numb.</u>	<u>Date</u>	<u>Addressed to</u>	<u>Publ. in Nr.</u>	<u>Notes</u>
B58	9 Sep. 1687	R. Soc.	10	
B59	17 Oct. 1687	R. Soc.	10	
B60	28 Nov. 1687	R. Soc.	10	
B61	25 May 1688	R. Soc.	12	
B62	6 July 1688	R. Soc.	12	
B63	3 Aug. 1688	R. Soc.	12	
B64	24 Aug. 1688	R. Soc.	12	
B65	7 Sep. 1688	R. Soc.	11-12	
B66	12 Jan. 1689	R. Soc.	12	
B67	1 Apr. 1689	R. Soc.	12	
B68	27 Nov. 1691	R. Soc.	13	
B69	4 Jan. 1692	R. Soc.	13	
B70	1 Feb. 1692	R. Soc.	13	
B71	7 Mar. 1692	R. Soc.	13	
B72	22 Apr. 1692	R. Waller, SRS	13	
B73	24 June 1692	R. Soc.	13	
B74	12 Aug. 1692	R. Soc.	13	
B75	16 Sep. 1692	R. Soc.	13	
B76	15 Oct. 1693	R. Soc.	14	
B77	20 Dec. 1693	R. Soc.	14	
B78	24 Jan. 1694	R. Soc.	14	
B79	24 Feb. 1694	R. Soc.	14	
B80	2? Mar. 1694	R. Soc.	14	3/
B81	19 Mar. 1694	R. Soc.	14	
B82	2 Apr. 1694	R. Soc.	14	
B83	30 Apr. 1694	R. Soc.	14	
B84	14 Sep. 1694	R. Waller, SRS	16	
B85	30 Nov. 1694	P. Rabus	16	
B86	10 Apr. 1695	A. Heinsius	16	
B87	22 Apr. 1695	F. A. van Reede	16	
B88	1 May 1695	A. Heinsius	16	
B89	18 May 1695	F. A. van Reede	16	
B90	10 July 1695	F. A. van Reede	16	
B91	20 July 1695	A. Heinsius	16	

<u>Numb.</u>	<u>Date</u>	<u>Addressed to</u>	<u>Publ. in Nr.</u>	<u>Notes</u>
B92	15 Aug. 1695	F.A.van Reede	16	
B93	18 Aug. 1695	A.Heinsius	16	
B94	20 Aug. 1695	F.A.van Reede	16	
B95	18 Sep. 1695	Kurfurst of the Paltz	16	
B96	9 Nov. 1695	Kurfurst of the Paltz	16	
B97	28 Dec. 1695	H.van Bleyswijck	17	
B98	20 Feb. 1696	F.A.van Reede	17	
B99	8 May 1696	N.Witsen	17	
B100	6 July 1696	N.Witsen	17	
B101	10 July 1696	N.Witsen	17	
B102	10 July 1696	R. Soc.	17	
B103	16 July 1696	F.A.van Reede	17	
B104	26 Aug. 1696	F.A.van Reede	17	
B105	29 Aug. 1696	H.van Bleyswijck	17	
B106	12 Sep. 1696	A.Heinsius	17	
B107	27 Sep. 1696	H.van Bleyswijck	17	
B108	5 Apr. 1697	R. Soc.	18	
B109	3 Sep. 1697	J.van Leeuwen	18	
B110	10 Sep. 1697	R. Soc.	18	
B111	9 May 1698	R. Soc.	18	
B112	20 Sep. 1698	A.Heinsius	18	
B113	17 Dec. 1698	H.van Zoelen	18	
B114	1 Feb. 1699	N.N.	18	
B115	26 Apr. 1699	H.van Zoelen	18	
B116	9 June 1699	R. Soc.	18	
B117	23 June 1699	R. Soc.	18	
B118	5 Aug. 1699	Board East India Company, Delft	18	
B119	25 Sep. 1699	R. Soc.	18	
B120	1699	W.von Tschirnhausen	18	
B121	16 Oct. 1699	A.Magliabecchi	18	
B122	2 Jan. 1700	H.Sloane, SRS	18	
B123	14 Jan. 1700	N.Boogaert van Beloys	18	
B124	20 May 1700	H.van Bleyswijck	18	
B125	2 June 1700	F.A.van Reede	18	
B126	20 May 1700	A.Heinsius	18	

<u>Numb.</u>	<u>Date</u>	<u>Addressed to</u>	<u>Publ. in Nr.</u>	<u>Notes</u>
B127	15 June 1700	H.Sloane, SRS	18	4/
B128	9 July 1700	H.Sloane, SRS	18	
B129	10 July 1700	A.Heinsius	18	
B130	27 June 1700	H.Sloane, SRS	18	
B131	1700	Anon.	18	
B132	7 Sep. 1700	H.Sloane, SRS	18	
B133	16 June 1700	Anon.	18	
B134	26 Oct. 1700	H.Sloane, SRS	18	
B135	25 Dec. 1700	H.Sloane, SRS	18	
B136	28 June 1701	H.Sloane, SRS	18	5/
B137	15 Apr. 1701	R. Soc.	18	
B138	21 June 1701	R. Soc.	18	
B139	21 1701	H.Sloane, SRS	18	6/
B140	2 Aug. 1701	R. Soc.	18	
B141	26 Aug. 1701	F.A.van Reede	18	
B142	6 Dec. 1701	J.Somers, FRS	18	
B143	20 Dec. 1701	R. Soc.	18	
B144	9 Feb. 1702	H.van Bleyswijck	18	
B145	14 Feb. 1702	R. Soc.	18	
B146	20 Apr. 1702	Charles, Landgrave of Hessen-Cassel	18	
R1	8 Nov. 1712	A.Heinsius	19	
R2	17 Dec. 1712	A.Heinsius	19	
R3	28 Feb. 1713	J.Meerman	19	
R4	14 Mar. 1713	J.Meerman	19	
R5	25 Mar. 1713	A.van Assendelft	19	
R6	29 Mar. 1713	A.Heinsius	19	
R7	28 June 1713	R. Soc.	19	
R8	30 June 1713	A.Heinsius	19	
R9	24 Oct. 1713	A.Cinck	19	
R10	22 June 1714	R. Soc.	19	
R11	21 Aug. 1714	R. Soc.	19	
R12	26 Oct. 1714	R. Soc.	19	
R13	4 Nov. 1714	A.van Assendelft	19	
R14	9 Nov. 1714	R. Soc.	19	

<u>Numb.</u>	<u>Date</u>	<u>Addressed to</u>	<u>Publ. in Nr.</u>	<u>Notes</u>
R15	20 Nov. 1714	R. Soc.	19	
R16	26 Mar. 1715	A.Cinck, U.Narez and H.J.Regæ	19	
R17	7 July 1715	A.Cinck, U.Narez and H.J.Regæ	19	
R18	28 Sep. 1715	G.W.Leibniz	19	
R19	18 Nov. 1715	G.W.Leibniz	19	
R20	13 Mar. 1715	G.W.Leibniz	19	
R21	10 May 1715	H.K.Poot	19	
R22	16 May 1716	G.van Loon	19	
R23	19 May 1716	G.W.Leibniz	19	
R24	22 May 1716	C.Spiering	19	
R25	12 June 1716	A.Cinck, U.Narez and H.J.Regæ	19	
R26	22 June 1716	J.G.Kerkherdere	19	
R27	17 Sep. 1716	A.van Bleyswijck	19	
R28	28 Sep. 1716	H.Boerhaave	19	
R29	5 Nov. 1716	H.Boerhaave	19	
R30	17 Nov. 1716	G.W.Leibniz	19	
R31	21 Nov. 1716	H.Boerhaave	19	
R32	2 Mar. 1717	A.van Bleyswijck	19	
R33	6 Mar. 1717	N.N.	19	
R34	6 Mar. 1717	N.N.	19	
R35	6 May 1717	E.van Bleyswijck	19	
R36	26 May 1717	Abr.van Bleyswijck	19	
R37	15 June 1717	R. Soc.	19	
R38	6 Jul. 1717	A.Cinck, U.Narez and H.J.Regæ	19	
R39	13 July 1717	J.G.Kerkherdere	19	
R40	19 Aug. 1717	A.Swalmius	19	
R41	26 Aug. 1717	H.Boerhaave	19	
R42	10 Sep. 1717	F.A.van Reede	19	
R43	17 Sep. 1717	R. Soc.	19	
R44	8 Oct. 1717	R. Soc.	19	
R45	22 Oct. 1717	R. Soc.	19	
R46	20 Nov. 1717	R. Soc.	19	

Notes to Table I.

- 1/ This letter does not start on a new page as is customary with the others; therefore it is easily overlooked. It has the heading Vervolg op het voorgaande (Continuation of the preceding; i.e. letter B30).
- 2/ The correct date appears to be 17 Sept. 1683. See Coll. Lett. 4, 118-155.
- 3/ In all copies I have seen, there is a smear after the "2" of the date; it looks as if a digit is wanting. The roman date, XIII Kal. Apr. translates as 20 March; hence this is the correct date.
- 4/ In Schierbeek's list, the date is given as 14 Aug.; the roman date XVI Kal. Jul. translates as 16 June and is apparently in error also.
- 5/ In Schierbeek's list, the date is given as 28 Jan., which would fit in the chronological sequence and is probably right. However, the text (nr. 18, p. 308) has clearly 28 June; the roman date IV Kal. Jul. also translates as 28 June.
- 6/ In Schierbeek's list, this date is completed to 21 June.

TABLE II.

LEEUWENHOEK'S LETTERS IN THE LATIN EDITIONS.

<u>Numb.</u>	<u>Incipit or date</u>	<u>Addressed to</u>	<u>Publ.</u> <u>in Nr.</u>	<u>Notes</u>
B28	Deportatis jam literis meis	N.Grew, SRS	21	
B29	Postrema mea epistoli tibi	R.Hooke, SRS	21	
B30	Inter observandum varios	R.Hooke, SRS	21	
B31	Haec sequentia faciunt	Th.Gale, SRS	21	
B32	XVIII Kal. Quint. 1680	Th.Gale, SRS	23	
B33	Frid. Id. Nov. 1680	R.Hooke, SRS	23	
B34	Ante hac scripsi corticem	R.Hooke, SRS	21	
B35	Saepius ante hac propositium	R.Hooke, SRS	21	
B36	Post quartodecim dies	R.Hooke, SRS	21	
B37	XI Kal. Feb. 1680	Chr.Wren, PRS	23	<u>1/</u>
B38	26 Jul. 1683	Chr.Wren, PRS	20-21	<u>2/</u>
B39	Frid. Id. Sept. 1683	Fr.Aston, SRS	23	
B40	V Kal. Jan. 1684	Fr.Aston, SRS	23	
B41	Post. Id. Apr. 1684	Fr,Aston, SRS	23	
B42	25 Jul. 1684	Fr.Aston, SRS	20-21	
B43	Non nemo nostrae civitatis	R. Soc.	20-21	
B44	Sal Cardui Benedicti	R. Soc.	21	
B45	Anno 1683, in Aestate	R. Soc.	21	
B46	In ultima mea de propagatione	R. Soc.	21	
B47	In ultima mea epistola	R. Soc.	21	
B48	Cinnabarum nativam accurato	R. Soc.	21	
B49	Nobilissimi Domini, Vos inter	R. Soc.	21	
B50	Cum praeteria aestate occupatus	R. Soc.	21	
B51	In literis meis	R. Soc.	21	
B52	10 Jun. 1686	R. Soc.	21	<u>3/</u>
B53	4 Apr. 1687	R. Soc.	22	
B54	9 Mai 1687	R. Soc.	22	
B55	13 Jun. 1687	R. Soc.	22	
B56	11 Jul. 1687	R. Soc.	22	
B57	6 Aug. 1687	R. Soc.	22	
B58	9 Sept. 1687	R. Soc.	22	

<u>Numb.</u>	<u>Incipit or date</u>	<u>Addressed to</u>	<u>Publ.</u> <u>in Nr.</u>	<u>Notes</u>
B59	17 Oct. 1687	R. Soc.	22	
B60	28 Nov. 1687	R. Soc.	22	
B61	VIII Kal. Jun. 1688	R. Soc.	23	
B62	Prid. Non. Quint. 1688	R. Soc.	23	
B63	III Non. Sext. 1688	R. Soc.	23	
B64	IX Kal. Sept. 1688	R. Soc.	23	
B65	VII Id. Sept. 1688	R. Soc.	23	
B66	Prid. Id. Jan. 1689	R. Soc.	23	
B67	Kal. Apr. 1689	R. Soc.	23	
B68	V Kal. Dec. 1691	R. Soc.	23	
B69	Prid. Non. Jan. 1692	R. Soc.	23	
B70	Kal. Feb. 1692	R. Soc.	23	
B71	Non. Mar. 1692	R. Soc.	23	
B72	X Kal. Mai. 1692	R. Waller, SRS	23	
B73	VIII Kal. Quint. 1692	R. Soc.	23	
B74	Prid. Id. Sext. 1692	R. Soc.	23	
B75	XVI Kal. Oct. 1692	R. Soc.	23	
B76	Id. Oct. 1693	R. Soc.	23	
B77	XIII Kal. Jan. 1694	R. Soc.	23	
B78	IX Kal. Feb. 1694	R. Soc.	23	
B79	VI Kal. Mar. 1694	R. Soc.	23	
B80	XIII Kal. Apr. 1694	R. Soc.	23	
B81	XIV Kal. Apr. 1694	R. Soc.	23	
B82	Post. Kal. Apr. 1694	R. Soc.	23	
B83	Prid. Kal. Mai. 1694	R. Soc.	23	
B84	XVIII Kal. Oct. 1694	R. Waller, SRS	23	
B85	Prid. Kal. Dec. 1694	P. Rabus	23	
B86	IV Id. Apr. 1694	A. Heinsius	23	
B87	X Kal. Mai. 1695	F. A. van Reede	23	
B88	Kal. Mai. 1695	A. Heinsius	23	
B89	XV Kal. Jun. 1695	F. A. van Reede	23	
B90	VII Id. Jul. 1695	F. A. van Reede	23	
B91	XIII Kal. Sext. 1695	A. Heinsius	23	
B92	XVIII Kal. Sept. 1695	F. A. van Reede	23	

<u>Numb.</u>	<u>Incipit or date</u>	<u>Addressed to</u>	<u>Publ. in Nr.</u>	<u>Notes</u>
B93	XV Kal. Sept. 1695	A.Heinsius	24	
B94	XV Kal. Sept. 1695	F.A.van Reede	24	5/
B95	XIV Kal. Oct. 1695	Kurfurst of the Paltz	24	
B96	V Id. Nov. 1695	Kurfurst of the Paltz	24	
B97	V Kal. Jan. 1696	H.van Bleyswijck	24	
B98	X Kal. Mart. 1696	F.A.van Reede	24	
B99	VIII Id. Mart. 1696	N.Witsen	24	
B100	Prid. Non. Jul. 1696	N.Witsen	24	
B101	VI Id. Jul. 1696	N.Witsen	24	
B102	VI Id. Quint. 1696	R. Soc.	24	
B103	XVIII Kal. Sext. 1696	F.A.vanReede	24	
B104	VII Kal. Sept. 1696	F.A.van Reede	24	
B105	IV Kal. Sept. 1696	H.van Bleyswijck	24	
B106	Prid. Id. Sept. 1696	A.Heinsius	24	
B107	V Kal. Oct. 1696	H.van Bleyswijck	24	
B108	Non. Apr. 1697	R. Soc.	25	
B109	III Non. Sept. 1697	J.van Leeuwen	25	
B110	IV Id. Sept. 1697	R. Soc.	25	
B111	VII Id. Mai. 1698	R. Soc.	25	
B112	XII Kal. Oct. 1698	A.Heinsius	25	
B113	XVI Kal. Jan. 1699	H.van Zoelen	25	
B114	Kal. Feb. 1699	N.N.	25	
B115	VI Kal. Mai. 1699	H.van Zoelen	25	
B116	V Id. Jun. 1699	R. Soc.	25	
B117	IX Kal. Quint. 1699	R. Soc.	25	
B118	Non. Aug. 1699	Board East India Company, Delft	25	
B119	VII Kal. Oct. 1699	R. Soc.	25	
B120	1699	W.von Tschirnhausen	25	
B121	XVII Kal. Nov. 1699	A.Magliabecchi	25	
B122	Post. Kal. Jan.1700	H.Sloane, SRS	25	
B123	Post. Id. Jan. 1700	N.Boogaert van Beloys	25	
B124	XIII Kal. Jun. 1700	H.van Bleyswijck	25	
B125	Post. Kal. Jan. 1700	F.A.van Reede	25	6/
B126	XIII Kal. Jun. 1700	A.Heinsius	25	

<u>Numb.</u>	<u>Incipit or date</u>	<u>Addressed to</u>	<u>Publ.</u> <u>in Nr.</u>	<u>Notes</u>
B127	XVI Kal. Jul. 1700	H.Sloane, SRS	25	<u>7/</u>
B128	VII Id. Jul. 1700	H.Sloane, SRS	25	
B129	VII Id. Jul. 1700	A.Heinsius	25	<u>8/</u>
B130	V Kal. Jul. 1700	H.Sloane, SRS	25	
B131	1700	Anon.	25	
B132	VII Id. Sept. 1700	H.Sloane, SRS	25	
B133	XV Kal. Jul. 1700	Anon.	25	<u>9/</u>
B134	VII Kal. Nov. 1700	H.Sloane, SRS	25	
B135	VIII Kal. Jan. 1701	H.Sloane, SRS	25	
B136	IV Kal. Jul. 1701	H.Sloane, SRS	25	
B137	XVII Kal. Mai. 1701	R. Soc.	25	
B138	XI Kal. Jul. 1701	R. Soc.	25	
B139	1701	H.Sloane, SRS	25	
B140	Post. Kal. Sext. 1701	R. Soc.	25	
B141	VII Kal. Sept. 1701	F.A.van Reede	25	
B142	VIII Id. Dec. 1701	J.Somers, FRS	25	
B143	XIII Kal. Jan. 1702	R. Soc.	25	
B144	V Non. Feb. 1702	H.van Bleyswijck	25	<u>10/</u>
B145	Post. Id. Feb. 1702	R. Soc.	25	
B146	XII Kal. Mai. 1702	Charles, Landgrave of Hessen-Cassel	25	
R1	8 Nov. 1712	A.Heinsius	26	
R2	17 Dec. 1712	A.Heinsius	26	
R3	28 Feb. 1713	J.Meerman	26	
R4	14 Mar. 1713	J.Meerman	26	
R5	25 Mar. 1713	A.van Assendelft	26	
R6	29 Mar. 1713	A.Heinsius	26	
R7	28 Jun. 1713	R. Soc.	26	
R8	30 Jun. 1713	A.Heinsius	26	
R9	24 Oct. 1713	A.Cinck	26	
R10	22 Jun. 1714	R. Soc.	26	
R11	21 Aug. 1714	R. Soc.	26	
R12	26 Oct. 1714	R. Soc.	26	
R13	4 Nov. 1714	A.van Assendelft	26	
R14	9 Nov. 1714	R. Soc.	26	

<u>Numb.</u>	<u>Incipit or date</u>	<u>Addressed to</u>	<u>Publ.</u> <u>in Nr. Notes</u>
R15	20 Nov. 1714	R. Soc.	26
R16	26 Mar. 1715	A.Cinck, U.Narez and H.J.Regæ	26
R17	7 Jul. 1715	A.Cinck, U.Narez and H.J.Regæ	26
R18	28 Sept. 1715	G.W.Leibniz	26
R19	18 Nov. 1715	G.W.Leibniz	26
R20	13 Mar. 1715	G.W.Leibniz	26
R21	10 Mai. 1715	H.K.Poot	26
R22	16 Mai. 1716	G.van Loon	26
R23	19 Mai. 1716	G.W.Leibniz	26
R24	22 Mai. 1716	C.Spiering	26
R25	12 Jun. 1716	A.Cinck, U.Narez and H.J.Regæ	26
R26	22 Jun. 1716	J.G.Kerkherdere	26
R27	17 Sept. 1716	A.van Bleyswijck	26
R28	28 Sept. 1716	H.Boerhaave	26
R29	5 Nov. 1716	H.Boerhaave	26
R30	17 Nov. 1716	G.W.Leibniz	26
R31	21 Nov. 1716	H.Boerhaave	26
R32	2 Mart. 1717	A.van Bleyswijck	26
R33	6 Mart. 1717	N.N.	26
R34	6 Mart. 1717	N.N.	26
R35	6 Mai. 1717	E.van Bleyswijck	26
R36	26 Mai. 1717	A.van Bleyswijck	26
R37	15 Jun. 1717	R.Soc.	26
R38	6 Jul. 1717	A.Cinck, U.Narez and H.J.Regæ	26
R39	13 Jul. 1717	J.G.Kerkherdere	26
R40	19 Aug. 1717	A.Swalmius	26
R41	26 Aug. 1717	H.Boerhaave	26
R42	10 Sept. 1717	F.A.van Reede	26
R43	17 Sept. 1717	R. Soc.	26
R44	8 Oct. 1717	R. Soc.	26
R45	22 Oct. 1717	R. Soc.	26
R46	20 Nov. 1717	R. Soc.	26

Notes to Table II.

- 1/ The year must be 1683.
- 2/ The day must be 16.
- 3/ The month must be July.
- 4/ The date must be VI Id. Jul. 1695.
- 5/ The date must be XIII Kal. Sept. 1695.
- 6/ The date must be Post. Kal. Jun. 1700.
- 7/ The date must be XVII Kal. Jul. to agree with 15 June 1700.
- 8/ The date must be VI Id. Jul. 1700.
- 9/ The date must be XVI Kal. Jul. 1700.
- 10/ The date must be V Id. Feb. 1702.

TABLE III.

IDENTIFICATION OF THE PLATES.

<u>Nr.</u>	<u>Lett.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
1	B29	f	333x420	1-9	8,18/19 21,12/13 8a, 18/19 21a,12/13 21b,12/13 21d,12/13	tusschen fol: 18 en 19 none <u>18</u> <u>13 tom: 2</u> <u>13 tom: 2</u> 13 tom: 2
2	B29	f	277x411	10-20	8,26/27 21,20/21 8a,26/27 21a,20/21 21b,20/21 21d,20/21	tusschen fol: 26 en 27 none <u>26</u> <u>26 tom: 2</u> <u>20 tom: 2</u> Tom 2. Pag. 21
3	B30	-	98x124	1-2	8, 34/35 21,26/27 8a,34/35 21a,26/27 21b,26/27 21d,26/27	tusschen fol: 34 en 35 <u>26 tom: 2</u> <u>34</u> <u>26 tom: 2</u> <u>26 tom: 2</u> Tom 2. Pag. 26
3a	B33	-	100x118	4-5	23,18/19 23a, 18/19	<u>19</u> Lat: P. 18
3b	B42	-	76x134	1-2	21a,46/47 21b,46/47 21d,46/47	none <u>47</u> Pag. 47
3c	B43	-	76x92	A-0	21a,2/3 21b,6/7 21d,2/3	<u>6</u> <u>6</u> pag. 2
3d	B43	-	92x55	A-G	21a,10/11 21b,10/11 21d,10/11	<u>11</u> <u>11</u> pag. 11
3e	B43	-	110x62	A-G	21a,14/15 21b,14/15 21d,14/15	<u>15</u> <u>15</u> pag. 15

<u>Nr.</u>	<u>Let.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
3f	B43	-	111x68	A-I	21a,16/17 21b,16/17 21d,16/17	<u>16</u> <u>16</u> pag. 16
4	B45	f	162x204	1-2	6,48/49 21,154/155 6a,48/49 21a,154/155 21b,154/155 21d,154/155	<u>p. 48</u> <u>155</u> <u>49</u> <u>p. 48 (del.); 155</u> <u>155</u> Tom. 2; Pag. 155
5	B46	f	144x340	1,A	7,4/5 21,58/59 21a,58/59 7a,4/5 21b,58/59 21d,58/59	<u>p. 4</u> <u>59 tom 2</u> none <u>4</u> <u>59</u> Tom. 2; Pag. 9
6	B51	f	155x164	1-6 <u>1/</u>	9,66/67 21,228/229 21a,228/229 9a,66/67 21b,228/229 21d,228/229	tusschen fol: 66 en 67 tusschen fol: 66 en 67 numb. del., repl. by <u>228</u> tusschen fol: 66 en 67 numb. del., repl. by <u>228</u> tusschen fol: 66 en 67 tusschen fol: 66 en 67 numb. del., repl. by <u>229</u> Tom. 2; Pag. 228
6a	B53	-	76x102	4	22,6/7 22a,6/7 22b,6/7 22c,6/7	<u>6</u> Inde continuatio: <u>6</u> none <u>6</u>
7	B54	-	142x171	1-7	10,18/19 22,14/15 22a,14/15 10a,18/19 22b,14/15 22c,14/15	<u>19</u> <u>14</u> <u>?? (del); 14</u> <u>p. 19</u> none <u>19</u>
8	B55	-	141x170	1-3	10,28/29 22,20/21 22a,20/21 10a,28/29	<u>28</u> <u>21</u> <u>?? (del); 21</u> <u>p. 28</u>

<u>Nr.</u>	<u>Lett.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
					22b,20/21	none
					22c,20/21	<u>28</u> (del); <u>21</u>
9	B55	f	283x171	4-10	10,30/31	<u>30</u>
					22,22/23	<u>23</u>
					22a,22/23	<u>29</u> (del); <u>23</u>
					10a,30/31	p. <u>31</u>
					22b,22/23	none
					22c,22/23	p. <u>23</u>
10	B55	f	276x170	11-26	10,38/39	<u>38</u>
					22,28/29	<u>29</u>
					22a,28/29	P. <u>29</u>
					10a,38/39	p. <u>39</u>
					22b, 28/29	none
					22c,28/29	p. <u>39</u> (del); p. <u>29</u>
10a	B56	-	105x73	1-2	22,46/47	<u>47</u>
					22a,46/47	<u>47</u>
					22b,46/47	none
					22c,46/47	<u>47</u>
11	B57	-	140x170	1-10	10,84/85	<u>84</u>
					22,66/67	<u>66</u>
					22a,66/67	<u>66</u> (del); 84 (del); <u>66</u>
					10a,84/85	<u>84</u>
					22b,66/67	none
					22c,64/65	<u>84</u> (del); <u>65</u>
12	B58	-	139x179	1-8	10,98/99	<u>98</u>
					22,76/77	<u>78</u>
					22a,78/79	<u>98</u> (del); <u>78</u>
					10a,98/99	<u>99</u>
					22b,78/79	none
					22c,76/77	<u>99</u> (del); <u>84</u>
13	B59	-	143x180	1-11	10,128/129	<u>128</u>
					22,102/103	<u>102</u>
					22a,108/109	<u>109</u>
					10a,128/129	p. <u>129</u>
					22b,102/103	none
					22c,102/103	<u>129</u>
14	B60	-	143x174	1-5	10,154/155	<u>154</u>
					22,122/123	<u>123</u>
					22a,122/123	<u>123</u> (del); <u>151</u> (del); <u>123</u>
					10a,152/153	<u>152</u>

<u>Nr.</u>	<u>Let.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
					22b,122/123	none
					22c,122/123	<u>152</u> (del); <u>123</u>
15	B61	-	139x122	1-21	12,160/161	F. 161
					23,90/91	duijts P. 161; Lat. P. 90
					12a,160/161	duijts P. 161; Lat. P. 90
					23a,82/83	duijts P. 161; Lat. P. 83
15a	B62	-	67x44	A-F	23,110/111	<u>P. 111</u>
16	B64	-	144x178	1-11	12,240/241	F. 241
					23,150/151	duijts P. 241; Lat. P. 150
					12a,240/241	duijts P. 241; Lat. P. 150
					23a,138/139	duijts P. 241; Lat. P. 139
17	B64	f	285x178	1-10	12,252/253	F. 253
					23,158/159	duijts P. 253; Lat. P. 158
					12a,252/253	duijts P. 253; Lat. P. 158
					23a,146/147	duijts P. 253; Lat. P. 147
18	B65	f	445x190	1-10	12,276/277	none
					23,170/171	duijts P. 277; Lat. P. 170
					12a,276/277	<u>170</u>
					23a,156/157	duijts P. 277; Lat. P. 193
19	B66	f	288x176	1-17	12,306/307	F. 307
					23,192/193	duijts P. 207; Lat. P. 193
					12a,306/307	duijts P. 207; Lat. P. 193 3
					23a,176/177	duijts P. 207; Lat. P. 177
20	B67	-	145x175	one	12,334/335	F. 335
					23,214/215	duijts P. 335; Lat. P. 215
					12a,334/335	duijts P. 335; Lat. P. 215
					23a,198/199	duijts P. 335; Lat. P. 199
20a	B69	-	86x84	1-4	23,240/241	Lat. P. 240
					23a,220/221	Lat. P. 220
20b	B70	-	131x96	1-22	23,248/249	Lat. P. 248
					23a,228/229	Lat. P. 229
21	B71	f	240-176	1-15	13,400/401	Fo. 401
					23,262/263	duijts P. 401; Lat. P. 263
					23a,240/241	duijts P. 401; Lat. P. 241
22	Waller	-	71x116	one	13,432/433	Fo. 433
					23,282/283	duijts P. 433; Lat. P. 283
					23a,260/261	duijts P. 433; Lat. P. 261

<u>Nr.</u>	<u>Let.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
23	B72	-	153x173	1-4	13,434/435 23,286/287 23a,262/263	Fo. 435 duijts P. 435; Lat. P. 286 duijts P. 435; Lat. P. 263
24	B73	f	199x170	1-4	13,468/469 23,308/309 23a,282/283	Fo. 469 duijts P. 469; Lat. P. 308 duijts P. 469; Lat. P. 283
25	B74	f	444x173	1-20	13,478/479 23,314/315 23a,288/289	Fo: 479 duijts P. 479; Lat. P. 315 duijts P. 479; Lat. P. 289
26	B75	f	167x170	1-10 A-D	13,512/513 23,336/337 23a,312/313	Fo: 512 duijts P. 512; Lat. P. 337 duijts P. 512; Lat. P. 315
27	B76	f	339x168	1-20	14,542/543 23,356/357 23a,326/327	PAG: 543 duijts P. 543; Lat. P. 357 duijts P. 543, Lat. P. 379
28	B77	f	181x137	1-10	14,576/577 23,378/379 23a,346/347	PAG: 577 duijts P. 277; Lat. P. 379 duijts P. 277; Lat. P. 347
29	B79	-	126x167	1-5	14,626/627 23,414/415 23a,376/377	PAG:627 3/ duijts P. 627; Lat. P. 415 duijts P. 627; Lat. P. 377
30	B80	f	198x167	1-6	14,634/635 23,420/421 23a,385/386	PAG: 635 duijts P. 635; Lat. P. 420 duijts P. 635; Lat. P. 385
31	B81	f	422x171	1-5	14,676/677 23,446/447 23a,408/409	PAG: 677 duijts P. 677; Lat. P. 447 duijts P. 677; Lat. P. 447
32	B83	f	414x216	1-11	14,704/705 23,464/465 23a,424/425	PAG: 705 duijts P. 705; Lat. P. 465 duijts P. 705; Lat. P. 525
33	B86	-	107x95	one	16,20/21 23,496/497 23a, 452/453	duijts P. 20; Lat. P. 496 duijts P. 20; Lat. P. 496 duijts P. 20; Lat. P. 453

<u>Nr.</u>	<u>Lett.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
34	B88	f	285x309	1-17	16,44/45 23,512/513 23a, 464/465	duijts P. 44; Lat. P. 511 duijts P. 44; Lat. P. 511 duijts P. 44; Lat. P. 465
35	B89	f	180x106	1-9	16,62/63 23,528/529 23a,480/481	duijts P. 62; Lat. P. 528 duijts P. 62; Lat. P. 528 duijts P. 62; Lat. P. 480
36	B90	-	120-166	1-6	16,92/93 23,548/549 23a,496/497	<u>92</u> duijts P. 92; Lat. P. 548 duijts P. 92; Lat. P. 497
37	B91	-	89x161	1-6	16,106/107 23,558/559 23a, 508/509	duijts P. 106; Lat. P. 559 duijts P. 106; Lat. P. 559 duijts P. 106; Lat. P. 508
38	B93	-	87x168	1-4	16,122/123 24,2/3 24a,2/3	PA: 123 PA. 123; Lat. P. 2 PA. 123; Lat. P. 2
39	B95	f	193x173	1-5	16, 150/151 24, 24/25 24a, 24/25	PAG. 150 PAG. 150; Lat. P. 25 PAG. 150; Lat. P. 25
40	B98	-	140x174	1-9	17,204/205 24,70/71 24a,70/71	In 't duijts F. 204 In 't duijts F. 204; Lat. P. 70: In 't duijts F. 204; Lat. P. 70.

<u>Nr.</u>	<u>Let.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
41	B99	-	143x174	1-5 4/	17,224/225 24,86/87 24a,86/87	In 't duijts F. 224 In 't duijts F. 224; Lat. P. 87 In 't duijts F. 224; Lat. P. 87
42	B99	-	140x176	1-8	17,236/237 24, 96/97 24a, 96/97	In 't duijts F. 236 In 't duijts F. 236; Lat. P. 97 In 't duijts F. 236; Lat. P. 97
43	B101	-	139x174	one	17,266/267 24,124/125 24a,124/125	In 't duijts Fo. 267 In 't Duijts Fo. 267 Lat. P. 124. In 't duijts Fo. 267 Lat. P. 124
44	B102	-	139x173	1-6	17,278/279 24,134/135 24a,134/135	In 't duijts Fo. 297 In 't duijts Fo. 297 Lat. P. 135 In 't duijts Fo. 297 Lat. P. 135
45	B108	f	153x172	1-4	18,4/5 25,4/5	duijts Pa. 4 duijts Pa. 4
46	B111	-	144x173	1-5	18,46/47 25,40/41	duijts Pa. 46 Pag. 41
47	B112	-	299x162	one	18,56/57 25, 52/53	duijts Pa. 57 Pag. 52
48	B116	-	129x33	2-4	18,92/93 25,68/69	duijts Pa. 74 5/ Pag. 58
49	B119	-	139x175	1-5	18,114/115 25,114/115	duijts Pa. 115 duijts Pa. 115
50	B121	-	145x176	1-3	18,148/149 25,142/143	duijts Pa. 149 Pag. 142
51	B122	-	141x75	1-2	18,158/159 25,150/151	duijts Pa. 158 Pag. 150
52	B123	-	142x174	1-5	18,176/177 25, 166/167	duijts Pa. 176 Pag. 167

<u>Nr.</u>	<u>Lett.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
53	B124	-	81x63	one	18,184/185 25,178/179	duijts Pa. 184 Pag. 178
54	B125	-	143x176	1-7	18,190/191 25,180/181	duijts Pa. 191 Pag. 181
55	B125	-	142x175	8-11	18,198/199 25,186/187	duijts Pa. 198 Pag. 187
56	B128	-	140x170	1-7	18,230/231 25,220/221	duijts Pa. 230 Pag. 220
57	B131	-	141x172	1-3	18,254/255 25, 242/243	In 't duijts Pa. 254 Pag. 242
58	B134	-	141x121	1-2	18,286/287 25, 274/275	duijts Pa. 287 Pag. 274
59	B134	-	139x172	1-5	18,288/289 25,274/275	duijts Pa. 288 Pag. 275
60	B135	-	142x42	1-7	18,300/301 25,286/287	duijts Pa. 300 Pag. 286
61	B136	-	140x175	1-6	18,310/311 25, 298/299	duijts Pa. 310 Pag. 299
62	B138	-	138x174	1-2, 4-5	18,332/333 25,316/317	duijts Pa. 333 Pag. 317
63	B138	-	140x174	3, 6-8	18,334/335 25, 334/335	duijts Pa. 335 Pag. 335
64	B141	f	349x67	one	18,382/383 25, 362/363	duijts Pa. 382 Pag. 363
65	B142	-	88x59	1-5	18,390/391 25, 370/371	duijts Pa. 390 Pag. 370
66	B144	-	89x56	1-3	18,406/407 25,386/387	duijts Pa. 406 Pag. 386
67	B145	-	142x176	1-3	18,418/149 25,398/399	duijts Pa. 418 Pag. 399
68	B146	-	144x175	1-7	18,434/435 25,412/413	duijts Pa. 434 Pag. 413
69	B146	-	146x104	8-13	18,446/447 25, 424/425	duijts Pa. 446 Pag. 425

<u>Nr.</u>	<u>Let.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>
70	R1	-	140x173	1-7	19,2/3 26,2/3	pag: 3 pag: 3
71	R2	f	305x166	1-6	19,14/15 26,14/15	pag: 15 pag: 15
72	R3	f	219x165	1-11	19,24/25 26,24/25	pag: 25 pag: 25
73	R5	-	143x73	1-5	19,46/47 26,46/47	pa: 47 pa: 47
74	R11	-	141x172	1-5	19,100/101 26,100/101	pag: 100 pag: 100
75	R11	f	274x172	6-13	19,102/103 26,102/103	pa: 102 6/ pa: 102
76	R12	f	182x171	1-7	19,112/113 26,114/115	pag: 113 pag: 114
77	R15	f	186x172	1-4	19,144/145 26,144/145	pag: 144 pag: 144
78	R16	-	101x161	1-3	19,150/151 26,150/151	pag: 151 7/ pag: 151
79	R19	-	142x171	1-5	19,178/179 26,176/177	pag: 178 pag: 176
80	R24	-	135x155	1-4	19,214/215 26,214/215	pag: 215 8/ pag: 215
81	R25	-	140x171	1-5	19,222/223 26,222/223	pag: 223 pag: 223
82	R25	-	140x172	6-9	19,227/228 26,226/227	p: 228 p: 226
83	R26	f	157x172	1-6	19,238/239 26,234/235	pag: 238 pag: 234
84	R26	-	116x165	7-10	19,244/245 26,240/241	pag: 244 pag: 240
85	R26	-	126-170	11-14	19,246/247 26,242/243	pag: 247 pag: 243
86	R28	-	142x172	1-6	19,266/267 26,260/261	pag: 267 pag: 260

<u>Mr.</u>	<u>Lett.</u>	<u>Fold.</u>	<u>Size</u>	<u>Figs.</u>	<u>Issue</u>	<u>Legends</u>	
87	R28	-	140x172	7-10	19,270/271 26,266/267	pag: 271 pag: 266	
88	R28	-	140x172	11-15	19,274/275 26,270/271	pag: 275 pag: 270	<u>9/</u>
89	R28	-	140x171	16-18	19,278/279 26,274/275	pag: 279 pag: 274	
90	R30	-	114x160	1-3	19,300/301 26,294/295	pag: 300 pag: 294	
91	R32	f	162x172	1-5	19,316/317 26,312/313	pag: 317 pag: 312	
92	R33	-	138x171	1-3	19,326/327 26,318/319	pag: 326 pag: 318	
93	R34	f	163x171	1-4	19,338/339 26,330/331	pa: 338 pa: 330	
94	R34	-	131x160	5-8	19,340/341 26,332/333	pag: 341 pag: 332	
95	R34	-	138x172	9-11	19,344/345 26,334/335	pag: 344 pag: 334	<u>10/</u>
96	R36	-	137x172	1-2	19,366/367 26,356/357	pag: 366 pag: 356	<u>11/</u>
97	R37	f	178x191	1-2	19,372/373 26,362/363	pag: 373 pag: 363	<u>12/</u>
R98	R41	f	230x171	1-5	19,400/401 26,390/391	pa: 401 pa: 390	
99	R43	-	138x102	1-5	19,420/421 26,408/409	pag: 420 pag: 408	
100	R44	-	138x64	1-5	19,438/439 26,424/425	pag: 438 pag: 424	

Notes to Table III.

- 1/ There are two figures with the number 6.
- 2/ The figure 193 is changed in ink into 307.
- 3/ The "6" is reproduced in mirror image.
- 4/ There are two figures with the number 5.
- 5/ The figure 74 is changed in ink into 92.
- 6/ There is a "2", right side up, outside the border.
- 7/ There is a "3", upside down, outside the border.
- 8/ There is a "4", upside down, outside the border.
- 9/ There is a "6", upside down, outside the border.
- 10/ There is a "7", upside down, outside the border.
- 11/ There is a "8", upside down, outside the border.
- 12/ There is a "5", upside down, outside the border.

TABLE IV.

PLATES, ILLUSTRATED IN THE "COLLECTED LETTERS".

<u>Nr.</u>	<u>Letter</u>	<u>Collected Letters</u>
1	B29	<u>3</u> , VIII
2	B29	<u>3</u> , XVI, XX, XXII
3	B30	<u>3</u> , XXVII
3a	B33	<u>3</u> , XXXVIII
3b	B42	<u>4</u> XXVII
3c	B43	<u>5</u> , I
3d	B43	<u>5</u> , II
3e	B43	<u>5</u> , II
3f	B43	<u>5</u> , IV
4	B45	<u>5</u> , XVIII
5	B46	<u>5</u> , XXI
6	B51	<u>6</u> , VIII
6a	B53	<u>6</u> , XIV
7	B54	<u>6</u> , XVII, XVIII, XXIX
8	B55	<u>6</u> , XXII
9	B55	<u>6</u> , XXIV, XXV
10	B55	<u>6</u> , XXVI, XXVIII, XXIX
10a	B56	<u>6</u> , XXX
11	B57	<u>7</u> , I
12	B58	<u>7</u> , IV
13	B59	<u>7</u> , VIII
14	B60	<u>7</u> , X
15	B61	<u>7</u> , XI
16	B64	<u>7</u> , XVI
17	B64	<u>7</u> , XX, XXI
18	B65	<u>8</u> , I, II
19	B66	<u>8</u> , IV, V
20	B67	<u>8</u> , IV
20a	B69	<u>8</u> , VII
20b	B70	<u>8</u> , X

BIBLIOGRAPHY OF THE OLD DUTCH EDITIONS OF LEEUWENHOEK'S LETTERS.

Number 1.

ONDERVINDINGEN/ en/ BESCHOUWINGEN/ Der onsigtbare geschapene waarheden,/ Vervat in verscheydene Brieven, geschreven/ aan de/ Wijt-beroemde Koninklijke Societeit/ in/ ENGELAND.

(Experiments and considerations on the invisible created truths, contained in several letters, written to the world-famous Royal Society in England).

Leyden, Daniel van Gaesbeeck, 1684.

Collation: 17 signatures of 2 leaves each, having the format (A, A2). The signature names are: none, +, A -- B, *a -- *e, Aa -- Hh.

Contents.

Title page,	p. (1)
Blank,	p. (2)
ANTONI VAN LEEUWENHOEK (dedication),	p. (3)
Blank,	p. (4)
MYN HEER (address to Leeuwenhoek),	pp. (5-8)
Letter (B32) Ills. pp. 3 (two), 6	pp. 1-8
Letter (B39) Ills. pp. 3, 10, 12, 14	pp. 1-19
Letter (B33) Ills. pp. 6, 18, 19, 21 (two), 22, 25, 29	pp. 1-32

Remarks. This is Dobell nr. 1. Dobell is wrong in assigning letter B39 to his nr. 2 (our nr. 4). This is evident from many facts, the most convincing perhaps being the fact that van Gaesbeeck mentions these three letters as published in his first publication in the preface to our nr. 2 (Dobell nr. 3). Letter B32 has the signature names A -- B, letter B39 has the signature names *a -- *e while letter B33 has the signature names Aa -- Hh. Letter B39 has on the last page the catch word: "d' Heer", which the other two letters do not have, hence this letter B39 was certainly not the last one in the series. The order given is the most probable.

Number 1a.

ONDERVINDINGEN/ En/ BESCHOUWINGEN/ Der onsigtbare geschapene
waarheden,/ Vervat in verscheydene Brieven, geschreven/ Aan de/
Wyt-beroemde Koninglyke Societeit/ In/ ENGELAND.

(Experiments and considerations on the invisible created truths,
contained in several letters, written to the world-famous Royal
Society in England).

Den tweeden Druk.

Delft, Henrik van Kroonevelt, 1694.

Collation: 8 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are A -- H, the last signature
has only two leaves.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter (B32)	Ills. pp. 5 (two), 8	pp. 3-10
Letter (B39)	Ills. pp. 13, 20, 22, 23	pp. 11-28
Letter (B33)	Ills. pp. 34, 46, 47, 49 (two), 50, 53, 57	pp. 29-60

Remarks. This issue was unknown to Dobell.

62

Number 2.

ONDERVINDINGEN/ en/ BESCHOUWINGEN/ Der onsigbare geschapene waarheden,/ Waar in gehandelt wert/ Vande Schobbens inde Mond, de Lasarie, de Jeuking'/ 't Kind met vis-schobbens, 't binnenste der/ Darmen, en de beweging derselve, als/ mede het Vet dat inde selve gevonden/ wert.

(Experiments and considerations of the invisible created truths, in which are discussed the scales in the mouth, leprosy, itch, the child with the fish-scales, the inside of the intestines and their movement and also the fat which is found in the intestines).

Leyden, Daniel van Gaesbeeck, 1684.

Collation: 7 signatures of 2 leaves each, having the format (A, A2). The signature names are: none, A -- F.

Contents.

Title page,	p. (1)
Blank,	p. (2)
DEN DRUKKER AAN DEN LEESER,	pp.(3-4)
Letter (B40) Ills. pp. 2, 11, 13, 17, 19, 20, 21	pp. 1-24

Remarks. This is Dobell nr. 3. The preface is dated 24 July 1684.

Number 2a.

ANTONI van LEEUWENHOEKS/ 40^{ste}. MISSIVE,/ Geschreven aan de HEER/
FRANCOIS ASTON/ Secretaris van de Koninklijke Socie-/ teyt tot
Londen./ Handelende/ Van de Schobbens inde Mond, af-schilferende
Huid,/ Laserie, Jukking, Vis-Schobbens aan een Kind,/ Voedsel,
Asijn, wind in de Darmen, beweginge/ van deselve, en 't Vet in de
Darmen.

(The 40th letter of Antoni van Leeuwenhoek, written to Mr. Francis
Aston, Secretary of the Royal Society in London, dealing with the
scales in the mouth, scaling of the skin, leprosy, itch, fish scales
on a child, mucus of the intestines, circulation of the blood, food,
vinagar, flatulence, movement of the intestines and the fat which is
found in the intestines).

No place, publisher or date.

Collation: 3 signatures of 4 leaves each, having the format
(a, A2, A3, bl.). The signature names are: A -- C.

Contents.

Letter B40. Ills. (pp. 2, 11, 13, 17, 19, 20, 22 pp. 1-24

Remarks. This is Dobell nr. 3a. This issue does not have a title
page. Page 19 is misnumbered 91. From the kind of paper, watermark
and the type one would guess that this issue was printed by Henrik
van Kroonevelt in Delft, probably around 1698.

64
Number 3.

ONDERVINDINGEN/ en/ BESCHOUWINGEN/ Der onsigbare geschapene waarheden,/ Waar in gehandeld werd/ Over het maaxsel van 't Humor Cristallinus, so van/ verscheydene dieren, vogelen ende visschen, het/ draadagtig wesen dat in 't oog voor komt, de/ vogtigheyd op het Hoorn-vlies, het/ maaxsel van een klein bloed aderken,/ ende de opperste huyt van een/ swarte Morinne.

(Experiments and considerations of the invisible created truths, in which are discussed the structure of the crystalline body of the eye of several animals, birds and fishes, the fibrous substance which occurs in the eye, the liquid on the cornea, the structure of a small blood vessel and of the outer skin of a black Negress).

Leyden, Daniel van Gaesbeeck, 1684.

Collation: one leaf and 7 signatures of 2 leaves each, having the format (A, A2). The signature names are: a -- g. Signature g consists of only one leaf.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B41), Ills. pp. 5, 6, 8, 12, 14	pp. 1-26

Remarks. This is Dobell nr. 4. The place of this issue in the chronological order is established by the preface to nr. 2.

Number 3a.

A. van LEEUWENHOEKS/ 41^{ste}. MISSIVE,/ Geschreven aen de Koninklijke Societeit/ tot Londen,/ Waer in verhandeld werd,/ Over het maaxsel van 't Humor Cristallinus, so van/ verscheyde dieren, vogelen ende visschen, het/ draadagtig wesen dat in 't oog voorkomd, de/ vogtigheid op het Hoorn-vlies, het/ maaxsel van een klein bloed aderken,/ ende de opperste huyd van een/ swarte Morinne.

(The 41st letter of A. van Leeuwenhoek, written to the Royal Society of London, dealing with the structure of the crystalline body of the eye of several animals, birds and fishes, the fibrous substance which occurs in the eye, the structure of a small blood vessel and the outer skin of a Negress).

Delft, Henrik van Kroonevelt, 1698.

Collation: one leaf, 3 signatures of 4 leaves each, having the format (A, A2, A3, bl.) and one leaf. The signature names are A -- C. The last leaf has the signature mark D.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter B41,	Ills. pp. 5, 6, 8, 12, 14	pp. 1-26

Remarks. This is Dobell nr. 17.

66
Number 4.

ONDERVINDINGEN/ en/ BESCHOUWINGEN/ Der onsigbare geschapene waarheden,/ Waar in gehandeld werd/ Vande Eyerstok, ende derselver ingebeelde eyeren, dat een Mensch/ uyt een Dierken voort komt, vande samen stremminge, Saden in/ een Boom, hoe een Dierken in 't Saad van een Haan, Cappeljaau etc./ 't Vlees uyt de borst en Poten van een Vloy, Testicul, Respiratie, en/ Wormkens uyt de eyeren van de Vloy, Vlees uyt de Poten van Vliegen,/ Sal-volatile Oliosum met Bloed vermengd, geen gistinge in 't Bloed/ ende de makinge van hetselfde.

(Experiments and considerations of the invisible created truths, in which are discussed the ovary and the supposed eggs therein, that a human develops from a little animal, coagulation, seeds from a tree, the animals in the seed of a cock and a codfish etc., the flesh from the breast and the legs of a flea, the testicles, respiration and the little worms from the eggs of fleas, the flesh from the legs of flies, the mixture of Sal volatile oliosum with blood and the composition of blood).

Leyden, Daniel van Gaesbeeck, 1684.

Collation: one leaf and 5 signatures of 2 leaves each, having the format (A, A2) and one leaf. The signature names are: A -- E. The last leaf has no name.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B37), Ills. pp. 9, 11, 14, 15	pp. 1-21
Blank,	p. (22)

Remarks. This is Dobell nr. 2. Letter B37 is not dated in this issue, the date is 22 Jan. 1683.

Number 4a.

ANTONY van LEEUWENHOEKS/ 37^{ste}. MISSIVE,/ Geschreeven aan de HEER/
CRISTOPHER WREN./ Knight Surv. Gen. President van de Konink-/
lijke Societeit tot Londen.

(The 37th letter of Antoni van Leeuwenhoek, written to Christopher
Wren, Knight, Surveyor General and President of the Royal Society
of London.)

No place, publisher or date.

Collation: two signatures of 4 leaves each, having the format
(A, A2, A3, bl.) and one signature of 2 leaves, having the format
(A, A2). The signature names are: A -- C.

Contents.

Letter B37, Ills. pp. 9, 11, 14, 15

pp. 1-20.

Remarks. This is Dobell nr. 2a. This issue does not have a title
page. From the kind of paper, water mark and the type one would
guess that this issue was printed by Henrik van Kroonevelt in Delft,
probably around the year 1698.

Number 5.

ONTLEDINGEN/ EN/ ONTDEKKINGEN/ VAN DE ONSIGTBARE/ VERBORGENTHEDEN;/ Vervat in verscheyde BRIEVEN,/ Geschreven/ Aan de Wyd-vermaarde Koninklijke Wetenschap-soekende/ Societeyt tot Londen in ENGELAND. (Dissections and discoveries of the invisible secrets, contained in several letters, written to the world-famous Royal Scientific Society of London in England).

Leyden, Cornelis Boutesteyn, 1685.

Collation: 11 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are: A -- L, with J skipped.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter (B38), Ills. pp. 6, 10, 13, 16, 17		pp. 3-24
Letter (B42), Ills. pp. 43, 49		pp. 25-50
Letter (B43), Ills. pp. 52, 56, 65, 69, 71, 72, 81, 83, 86, 88, 91		pp. 51-94

Remarks. This is Dobell nr. 5. Letter B38 is printed on signatures A -- C, allowing this letter to be bound separately from the others. Together with signature J, pagenumbers 73-78 are also skipped, but without loss of text.

Note! In other copies, the pagination is restored, hence the last page is numbered 88. This changes the specification of letter B43 into:

Letter (B43), Ills. pp. 52, 56, 65, 69, 71, 72, 75, 77, 80, 82, 85		pp. 51-88
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Number 5a.

ONTLEDINGEN/ EN/ ONTDEKKINGEN/ Van de ONSIGTBARE/ VERBORGENTHEDEN;/ Vervat in verscheide BRIEVEN,/ Geschreven/ Aan de Wyd-vermaarde Koninglijke Wetenschap-soekende/ Societeyt tot Londen in ENGELAND. (Dissections and discoveries of the invisible secrets, contained in several letters, written to the world-famous Royal Scientific Society of London in England).

Leyden, Cornelis Boutesteyn, 1691.

Collation: 11 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are: A -- L, with J skipped.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter (B38),	Ills. pp. 6, 10, 16, 17	pp. 3-24
Letter (B42),	Ills. pp. 43, 49	pp. 25-50
Letter (B43),	Ills. pp. 52, 56, 65, 69, 71, 72, 75 77, 80, 82, 85	pp. 51-88

Remarks. This is Dobell nr. 5a. Dobell stated that he had not seen this issue.

Number 5b.

ONTLEDINGEN/ EN/ ONTDEKKINGEN/ Van de ONSIGTBARE/ VERBORGENTHEDEN/
Vervat in verscheide BRIEVEN,/ Geschreven/ Aan de Wijd-vermaarde
Koninklijke Wetenschap-soekende/ Societeit tot Londen in Engeland.
(Dissections and discoveries of the invisible secrets, contained
is several letters, written to the world-famous Royal Scientific
Society of London in England).

Leyden, Cornelis Boutesteyn, 1698.

Collation: 11 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: A -- L, with J skipped.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter B38, Ills. pp. 6, 10, 13, 16, 17		pp. 3-24
Letter B42, Ills. pp. 43, 49		pp. 25-50
Letter B43, Ills. pp. 52, 56, 65, 69, 71, 72, 75, 77, 80, 82, 85		pp. 51-88

Remarks. This is Dobell nr. 5b. The spelling variants in the titles
of the numbers 5, 5a and 5b and some misprints are:

	5	5a	5b
Title p., line 6	verscheyde	verscheide	verscheide
Title p., line 8	Wyd-vermaarde	Wyd-vermaarde	Wijd-vermaarde
Title p., line 8	Koninklijke	Koninglijke	Koninklijke
Title p., line 9	Societeyt	Societeyt	Societeit
Page 4, line 23	kuyt	kruyt	kuyt
Page 18, line 25	imagineer	magineer	imagineer
Page 22, line 16	schrijven	schijven	schrijven
Page 61, line 23	yder	ider	yder
Page 61, line 66	yder,	ider	yder
Page 83, line 14	trappen	tarppen	trappen

Number 6.

Ontdekkingen en Ontledingen/ VAN/ SOUT-FIGUREN/ Van verscheyden
SOUTEN: Van Levendige/ DIERKENS in de/ MANNELYKE SADEN/ de
BAARMOEDER ingestort; ende van de/ VOORT-TELINGE./ Vervat in
twee Brieven, geschreven aan de Wijt-vermaarde Koninglijke/
Wetenschap-soekende Societeyt tot Londen in ENGELANDT.

(Discoveries and dissections of the shape of various salts, of
the living animals in the male sperm, introduced into the uterus,
and of procreation. Contained in two letters, written to the world
famous Royal Scientific Society of London in England).

Leyden, Cornelis Boutesteyn, 1685.

Collation: 10 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: A -- K, with J skipped.
Signature B actually consists of two leaves (B, B2) and one folded
sheet (B3, bl.). Signature K consists of two leaves.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter (B44), Ills. pp. 4, 7, 8, 9, 10, 12, 13, 16, 18,		
	20, 24, 25, 29, 32, 35, 37, 38	pp. 3-39
Blank,		p. (40)
Letter (B45), Ills. pp. 48/49(4), 56, 65		pp. 41-76

Remarks. This is Dobell nr. 6

Number 6a.

Ontdekkingen en Ontledingen/ VAN/ SOUT-FIGUREN/ Van verscheiden
SOUTEN: Van Levendige DIERKENS in de/ MANNELYKE SADEN/ de
BAARMOEDER ingestort; ende van de/ VOORT-TEELINGE./ Vervat in
twee Brieven, geschreven aan de Wijt-vermaarde Koninglijke We-/
tenschap-soekende Societeit tot Londen in ENGELAND.

(Discoveries and dissections of the shapes of various salts,
of the living animals in the male sperm, introduced into the uterus,
and of procreation).

Den Tweeden druk, met een Register vermeerdert.

Leyden, Cornelis Boutesteyn, 1696.

Collation: 10 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are A -- K, with J skipped.
Signature K consists of two leaves.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B44), Ills. pp. 4, 7, 8, 9, 10, 12, 13, 16, 18, 20, 24, 25, 29, 32, 35, 37, 38	pp. 3-39
Blank,	p. (40)
Letter (B46), Ills. pp. 48/49(4), 56, 65	pp. 41-76

Remarks. This is Dobell nr. 6a. The second letter, numbered B46
is actually letter B45, dated 13 July 1685. Page 16 is mispaginated
36. I did not find the register; this is probably nr. 15 (see there).

Number 7.

Ontledingen en Ontdekkingen/ Van het Begin der/ PLANTEN/ In de ZADEN van/ BOOMEN:/ Waar uit bewesen werd;/ Dat yder Boom of Plant zijn rol voor Manneken en Wijfken spelen/ moet. Als mede dat Dieren van verscheiden aard met malkanderen/ verzamelende, noodzakelijk moeten Schepsels voortbrengen, die/ noch na de Vader noch na de Moeder en gelijken. enz./ Vervat in twee BRIEVEN,/ Geschreven aan de Wijd-vermaarde Koninglijke Wetenschap-soe-/ kende Societeit tot Londen in ENGELAND.

(Dissections and discoveries on the origin of plants in the seeds of trees, in which it is demonstrated that each tree has to play the role of male and female. Also that animals of different kinds, after copulation, must necessarily produce offspring which resembles neither the father nor the mother. Contained in two letters, written to the world famous Royal Scientific Society of London in England).

Leyden, Cornelis Boutesteyn, 1685.

Collation: 10 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are: A -- K, with J skipped. The signature marks C3 and K3 have been omitted.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B46), Ill. pp. 4/5(5), 5, 7, 8, 9, 10, 15, 16, 17, 18, 25, 27(two)	pp. 3-32
Letter (B47), Ill. pp. 35, 37, 39, 40, 42, 43, 44, 46, 47, 63, 65, 69, 72, 75	pp. 33-78
Blanks,	pp. (79-80)

Remarks. This is Dobell nr. 7.

Number 7a.

Ontledingen en Ontdekkingen/ Van het Begin der/ PLANTEN/ In de ZADEN van/ BOOMEN:/ Waar uit bewezen werd;/ Dat yder Boom of Plant zijn rol voor Manneken en Wijfken speelen/ moet. Als mede dat Dieren van verscheiden aard met malkanderen/ verzamelende, noodzakelijk moeten Schepsels voortbrengen, die/ noch na de Vader noch na de Moeder en gelijken. enz./ Vervat in twee BRIEVEN,/ Geschreven aan de Wijd-vermaarde Koninglijke Wetenschap-soe-/ kende Societeit tot Londen in ENGELAND.

(Dissections and discoveries on the origin of plants in the seeds of trees, in which it is demonstrated that each tree has to play the role of male and female. Also that animals of different kinds, after copulation, must necessarily produce offspring which resembles neither the father nor the mother. Contained in two letters, written to the world famous Roylea Scientific Society of London in England).

Leyden, Cornelis Boutesteyn, 1697.

Collation: 10 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are: A -- K, with J. skipped. Signature K has only two leaves.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B46), Ill. pp. 4/5(5), 5, 7, 8, 9, 10, 15, 16, 17, 18, 25, 27(two)	pp. 3-32
Letter (B47), Ill. pp. 35, 37, 39, 40, 42, 43, 44, 46, 47, 63, 65, 69, 72, 75	pp. 33-77

Remarks. This is Dobell nr. 7a. Page 13 is mispaginated 15, page number 32 has been skipped.

Number 8.

ONTLEDINGEN en ONTDEKKINGEN/ Van levende DIERKENS in de TEEL-DEELEN/
Van verscheyde/ DIEREN, VOGELN en VISSCHEN;/ Van het/ HOUT/
Met derselver menigvuldige VAATEN;/ Van HAIR, VLEES en VIS;/
Als mede van de groote menigte der DIERKENS/ in de EXCREMENTEN./
Vervat in verscheyde Brieven, Geschreven aan(sic) de Wyt-
vermaarde Koninglijke Wetenschap-zoekende Societeit, tot Londen/
in ENGELAND.

(Dissections and discoveries of the living animals in the organs
of generation of various animals, birds and fishes. About wood
and its many vessels. About hair, flesh and fish and also about
the great number on animals in excrements. Contained in several
letters, written to the world famous Royal Scientific Society of
London in England).

Leyden, Cornelis Boutestey,, 1686.

Collation. 10 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: A -- E, aa -- ee.
Signature ee consists of three leaves only and does not have the
mark ee2.

Contents.

Frontispice A, state I,	p. (1)
Blank,	p. (2)
Title page,	p. (3)
Blank,	p. (4)
Letter (B28), Ill. p. 9	pp. 5-16
Letter (B29), Ill. pp. 18/19(1), 26/27(2)	pp. 17-32
Letter (B30), Ill. 34/35(3)	pp. 33-38
Letter (B31), Ill. p. 40	pp. 38-40
Letter (B34), Ill. p. 3	pp. 1-15
Letter (B35), Ill. pp. 19, 20, 23, 26, 28	pp. 16-29
Letter (B36),	pp. 30-35
Blank,	p. (36)

Remarks. This is Dobell nr. 8. The frontispice is part of the
first signature and is therefore firmly associated with this issue.
This issue contains the lowest numbered letters (B28-30) and would

thus be the first in a bound collection. In all issues, a new letter always starts on a new page, but letter B31 is an exception to this and is therefore easily overlooked. The letters B28-31 are printed on signatures A -- E, the letters B34-36 on signatures aa -- ee, thus making separating these groups of letters and the binding of them separately, easy.

Number 8a.

ONTLEDINGEN en ONTDEKKINGEN/ Van levende DIERKENS in de TEEL-DEELEN/
Van verscheide/ DIEREN, VOGELN en VISSCHEN;/ Van het/ HOUT/
Met derselver meenigvuldige VAATEN;/ Van HAIR, VLEES, en VIS;/
Als mede van de groote meenigte der DIERKENS/ in de EXCREMENTEN./
Vervat in verscheide Brieven, geschreven aan de Wijt-
vermaarde Koninglijke Wetens-/ chap-zoekende Societeit, tot Londen
in ENGELAND.

(Dissections and discoveries of the living animals in the organs
of generation of various animals, birds and fishes. About wood
and its many vessels. About hair, flesh and fish and also about
the great number on animals in excrements. Contained in several
letters, written to the world famous Royal Scientific Society of
London in England).

Leyden, Cornelis Boutesteyn, 1696

Collation: 10 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are A --E and aa -- ee.
Signature marks B2 and dd3 were omitted; signature ee consists of
two leaves and does not have mark ee2.

Contents.

Frontispice A, state III,	p. (1)
Blank,	p. (2)
Title page,	p. (3)
Blank,	p. (4)
Letter B28, Ill. p. 9	pp. 5-16
Letter B29, Ill. pp. 18/19(1), 26/27(2)	pp. 17-32
Letter B30, Ill. pp. 34/35(3)	pp. 33-38
Letter B31, Ill. p. 40	pp. 38-40
Letter B34, Ill. p. 3	pp. 1-15
Letter B35, Ill. pp. 19, 20, 23, 26, 28	pp. 16-29
Letter B36,	pp. 30-35
Blank,	p. (36)

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Remarks. This is Dobell nr. 8a. Page 27 is mispaginated 33. The frontispice is again printed on signature A and the letters are again printed in two groups, the group B28-31 on signatures A -- E and the group B34-36 on the signatures aa -- ee, enabling to bind these two groups at different places in a collection.

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Number 9.

Ontledingen en Ontdekkingen/ Van de CINNABER naturalis,/ En
BUS-POEDER;/ Van het maaksel van/ BEEN en HUYD;/ Van de/
GALNOOT, KASTANIE en OKKERNOOT;/ Van de voortteeling van eenige
ZADEN,/ Vergeliken by de Voortteeling van/ GARNAAD, KRABBE en
KREEFT;/ Waar in de deugdszaamheid van het EYKEN-HOUT/ bestaat,
en hoe het te kennen is./ Vervat in verscheide Brieven, Geschreven
aan de Wyd-vermaarde Koninglyke/ Wetenschap-zoekende Societeit
tot Londen.

(Dissections and discoveries on natural cinnabar and gunpowder,
on the structure of bone and skin, on galls, chestnut and walnuts,
on the generation of some seeds, compared with the generation of
shrimps, crabs and lobsters and why oak wood is so resistant and
how to recognize it. Contained in several letters, written to the
world famous Royal Scientific Society of London).

Leyden, Cornelis Boutesteyn, 1686.

Collation: 14 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are A -- O, with J skipped.
The signature marks K3, L3 and O3 were omitted.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B48), Ills. pp. 4,9,11	pp. 3-24
Letter (B49), Ills. pp. 33, 43	pp. 25-44
Letter (B50), Ills. pp. 54, 58, 60, 61, 62, 63	pp. 45-65
Letter (B51), Ills. pp. 66/67(6), 69, 71, 72, 79	pp. 66-86
Letter (B52), Ills. pp. 95, 98, 103, 107	pp. 87-(110)
Blanks,	pp. (111-112)

Remarks. This is Dobell nr. 9. Page 51 (sign. mark G2) is mispaginated
37.

Number 9a.

Ontledingen en Ontdekkingen/ Van de CINNABER Naturalis/ En
BUS-POEDER;/ Van het maaksel van/ BEEN en HUJD;/ Van de/
GALNOOT, KASTANIE en OKKERNOOT;/ Van de voortteeling van eenige
ZADEN,/ Vergeleeken by de Voortteeling van/ GARNAAD, KRABBE en
KREEFT;/ Waar in de deugdszaamheid van het EYKEN-HOUT/ bestaat,
en hoe het te kennen is./ Vervat in verscheide Brieven, Geschreven
aan de Wijd-vermaarde/ Koninglijke Wetenschap-zoekende Societeyt
tot Londen.

(Dissections and discoveries on natural cinnabar and gun powder,
on the structure of bone and skin, on galls, chestnut and walnuts,
on the generation of some seeds, compared with the generation of
shrimps, crabs and lobsters and why oak wood is so resistant and
how to recognize it. Contained in several letters, written to the
world famous Royal Scientific Society of London).

Leyden, Joh. Arnold Langerak, 1713.

Collation: 14 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are A -- O, with J skipped.
Signature mark L3 is omitted. The plate was probably printed on
the last leaf of signature O.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B48), Ills. pp. 4, 9, 11	pp. 3-24
Letter (B49), Ills. pp. 33, 43.	pp. 25-44
Letter (B50), Ills. pp. 54, 58, 60, 61, 62, 63	pp. 45-65
Letter (B51), Ills. pp. 66/67(6), 69, 71, 72, 79	pp. 66-86
Letter (B52), Ills. pp. 95, 98, 103, 107	pp. 87-(110)

Remarks. This is Dobell nr. 9a.

Number 10.

VERVOLG/ Der/ BRIEVEN,/ Geschreven aan de Wytvermaarde/
Koninglijke Societeit in Londen.

(Continuation of the letters, written to the world famous Royal
Society of London).

Leyden, Cornelis Boutesteyn, 1687.

Collation: 21 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are +, A -- V, with J and U
skipped. Signature V has only two leaves: V, bl.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Den Drukker tot den Leser en Boekbinder,	p. (3)
Register der Saaken in de voorgaande Brieven bevat,	pp. (4-8)
Letter (B53), Ill. pp. 4, 7, 13	pp. 1-16
Letter B54, Ill. p. 18/19(7)	pp. 17-26
Letter B55, Ills. pp. 28/29(8), 30/31(9), 38/39(10)	pp. 27-52
Letter B56, Ill. p. 61	pp. 53-72
Letter B57, Ill. p. 84/85(11)	pp. 73-95
Letter B58, Ill. p. 98/99(12)	pp. 96-114
Letter B59, Ill. p. 128/129(13)	pp. 115-140
Letter B60, Ill. p. 154/155(14)	pp. 141-155
Blank,	p. (156)

Remarks. This is Dobell nr. 10. Dobell is wrong in stating that the
portrait of Leeuwenhoek belongs in this issue; it belongs in nr. 12.
Page 147 is misnumbered 14.

There are issues, dated 1688. Dobell gave this issue the number 10a.
However, the issues, dated 1687 and 1688 are printed from the same
galley, even the title page (with the exception of the date) and all
typographical errors are the same in both issues. Only the mispa-
gination has been restored. Therefore, I do not recognize the 1688
issue as a separate issue.

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With this issue the publisher, Boutesteyn, tried to bring some order in the haphazard publication of Leeuwenhoek's letters as had been done until this date. Therefore, he published a list of all Leeuwenhoek letters, published to date (in nr. 1 to 9). In this list, he gives of each letter the number, the date, the name of the publisher who issued the letter and a short resumé. This list establishes the number of the letters, not numbered in previous issues. Letters B1 to B27 are not listed here; they were never released for publication in Holland by Leeuwenhoek.

Number 10a.

VERVOLG/ Der/ BRIEVEN,/ Geschreven aan de Wytvermaarde/
Koninglijke Societeit in Londen.

(Continuation of the letters, written to the world famous Royal
Society of London).

Leyden, Cornelis Boutesteyn, 1704.

Collation: 21 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are +, A -- V, with J and U
skipped. Signature V has only two leaves: V, bl.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Den Drukker tot den Leeser en Boekbinder,	p. (3)
Register der Saaken in de voorgaande Brieven bevat,	pp. (4-8)
Letter (B53), Ills. pp. 4, 7, 13	pp. 1-16
Letter B54, Ill. p. 18/19(7)	pp. 17-26
Letter B55, Ills. pp. 28/29(8), 30/31(9), 38/39(10)	pp. 27-52
Letter B56, Ill. p. 61	pp. 53-72
Letter B57, Ill. p. 84/85(11)	pp. 73-95
Letter B58, Ill. p. 98/99(12)	pp. 96-114
Letter B59, Ill. p. 128/129(13)	pp. 115-140
Letter B60, Ill. p. 152/153(14)	pp. 141-155
Blank,	p. (156)

Remarks. This is Dobell nr.10b. Page 154 is mispaginated 152.

Number 11.

Den waaragtigen/ Omloop des Bloeds/ Als mede dat/ de ARTERIEN
en VENAE/ gecontinueerde BLOED-VATEN zijn;/ Klaar voor de oogen
gesteld./ Verhandelt in een BRIEF, geschreven aan de/ Koninglijke
Societeit tot Londen.

(The true circulation of the blood and that the arteries and veins
are connected blood vessels, clearly shown. Treated in a letter,
written to the Royal Society of London).

Delft, Andries Voorstad, 1688.

Collation: 4 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are A.---D..

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter B65, Ill. p. 8/9(18)	pp. 1-30

Remarks. This is Dobell nr. 11. It is an advance copy of letter B65,
which was again printed in Nr. 12, which follows. It is probable
that the title page was printed on the last leaf of the last signa-
ture; this would explain why this title page is found after letter
B65 in a collection which contains Nr. 12 if the title page had
not been removed by the binder.

Number 12.

NATUURS/ Verborgentheden Ontdekt:/ Zijnde een Tweede VERVOLG der/
BRIEVEN,/ Geschreven aan de/ Koninglijke Societeit tot Londen.
(Nature's secrets discovered, being a second continuation of the
letters, written to the Royal Society of London).

Delft, Andries Voorstad, 1689.

Collation: 24 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: Aa -- Nn, followed by
a signature with the marks Mm*, A2, bl., bl., after which signatures
with the names Nn*, Oo -- Yy follow. Signature names J, Jj, Uu and Ww
have been skipped; signature Yy has only two leaves.

Contents.

Title page,	p. (1)
Table of contents,	p. (2)
Blank,	p. (3)
Portrait of Leeuwenhoek, state I,	p. (4)
Letter B61, Ill. p. 160/161(15)	Pp. 157-186
Letter B62, Ill. p. 188	pp. 187-203
Letter B63, Ill. p. 207	pp. 204-236
Letter B64, Ills. pp. 240/241(16), 252/253(17)	pp. 237-260
Letter B65, Ill. p. 276/277(18)	pp. 269-298
Blanks,	unnumb.
Letter B66, Ill. p. 306/307(19)	pp. 299-323
Letter B67, Ill. p. 334/335(20)	pp. 324-350

Remarks. This is Dobell nr. 12. The title page and the portrait are
printed on one sheet which shows that the portrait belongs in this
issue. This sheet was not listed in the collation above. In this
issue, the pagination of nr. 10 is continued, showing that it was the
intention that this issue should be bound behind nr. 10. The odd
signature with the marks Mm, A2, bl., bl. has also an odd pagination.
The pagination should start at 261, but instead starts with 269 after
which follows 2, 3, 272, 273, 6, 7, 276. Thereafter the pagination

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continues normally on the following signatures. It is obvious that the same galleys were used to print nr. 11 and letter B65 in this issue. The page numbers 1, 4, 5 and 8 were replaced by the numbers 269, 272, 273 and 276 and the correct signature name Mm was inserted. But the galley for the other side of the sheet was not altered. All signatures in this issue have the page heading: "Tweede vervolg der brieven"; but nr. 11 had de page heading: "Van den Ommeloop des Bloeds", which was not changed when the galleys were used for nr. 12 either.

Nummer 12a.

NATUURS/ Verborgentheden Ontdekt:/ Zijnde een Tweede VERVOLG der/
BRIEVEN,/ Geschreven aan de Koninklijke Societeit tot Londen.

(Nature's secrets discovered, being a second continuation of the
letters, written to the Royal Society of London).

Den tweeden Druk.

Delft, Henrik van Kroonevelt, 1697.

Collation: 24 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: A -- Z, with J, U and W
skipped. For signature mark K, Kk is used, signature mark Z3 was
omitted.

Contents.

Blanks,	pp. (1-2)
Title page,	p. (3)
Table of contents,	p. (4)
Letter B61, Ill. p. 160/161(15)	pp. 157-185
Letter B62, Ill. p. 188	pp. 186-203
Letter B63, Ill. p. 207	pp. 204-236
Letter B64, Ills. pp. 240/241(16), 252/253(17)	pp. 237-260
Letter B65, Ill. p. 276/277(18)	pp. 261-290
Letter B66, Ill. p. 306/307(19)	pp. 299-323
Letter B67, Ill. p. 334/335(20)	pp. 324-350
Blanks,	pp. (351-353)

Remarks. This is Dobell nr. 12a. Page 265 is mispaginated 263; page
numbers 291-298 have been skipped. From the make-up of this issue
follows that this issue never has the portrait of Leeuwenhoek.

Number 13.

DERDE VERVOLG/ DER/ BRIEVEN,/ Geschreven aan de/ KONINGLIJKE
SOCIETEIT/ Tot LONDEN.

(Third continuation of the letters, written to the Royal Society
of London).

Delft, Henrik van Kroonevelt, 1693.

Collation: 24 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: +, Aaa -- Zzz, with
Jjj, Uuu and Www skipped. The last signature has only three leaves.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Dedication to Queen Mary of England	pp. (3-8)
Letter B68,	pp. 351-361
Letter B69, Ill. p. 366	pp. 362-374
Letter B70, Ill. p. 377	pp. 375-395
Letter B71, Ill. p. 400/401(21)	pp. 396-429
Letter R.Waller to Leeuwenhoek, Ill. p. 432/433(22)	pp. 430-433
Letter B72, Ill. p. 434/435(23)	pp. 434-453
Letter B73, Ill. p. 468/469(24)	pp. 454-474
Letter B74, Ill. p. 478/479(25)	pp. 475-507
Letter B75, Ill. p. 512/513(26)	pp. 508-531
Blank,	p. (532)

Remarks. This is Dobell nr. 13. In this issue, the pagination of
nr. 12 is continued.

Number 14.

VIERDE VERVOLG/ Der/ BRIEVEN,/ Geschreven aan de Wytvermaarde Ko-/
ninklijke Societeyt in Londen./ Handelende onder andere van de
Voortteeling van/ de Vloon. Van de Worm den Hemelt. Van de Myt./
Van 't Natuurlijk Vuur. Van het Sweet dat in een uure tyds/ uyt de
hand werd gestooten. Van de Doofheid. Van de/ Wormen in de ingewanden
der Visschen, en hoe die in de/ Kinderen komen. Van de soogenaamde
ingebeelde Eyer-/ nesten der Vrouwelyke Dieren. Van't Vlees van de
Tonge,/ en 't Hert. Van de ontleding en voortteeling van de Mossel./
Als mede dat 'er geen levende Schepsels uit bederf konnen/
voortkomen, enz.

(Fourth continuation of the letters, written to the world famous
Royal Society of London. Dealing, among others with the propagation
of the fleas, the worm which is called Hemelt, mites, natural fire,
and the sweat which is ejected from a hand in the time of one hour.
Of deafness and of the worms which are found in the intestines of
fishes and how these worms get into the children. Of the so-called
and only imagined egg-nests of female animals. Of the flesh of the
tongue and the heart. On the dissection and propagation of the mussel.
And in addition, that no living creatures can be generated in
decaying matter).

Delft, Henrik van Krooneveld, 1694.

Collation: One leaf and 25 signatures of 4 leaves each, having the
format (A, A2, A3, bl.). The signature names are Aaaa -- Zzzz, with
Jjjj, Uuuu and Wwww skipped.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter B76, Ill. p. 542/543(27)		pp. 533-572
Letter B77, Ill. p. 576/577(28)		pp. 573-606
Letter B78,		pp. 607-619
Letter B79, Ill. p. 626/627(29)		pp. 620-631

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Letter B80, Ill. p. 634/635(30)	pp. 632-652
Letter B81,	pp. 653-673
Letter B82, Ill. p. 676/677(31)	pp. 674-690
Letter B83, Ill. p. 704/705(32)	pp. 691-730
Blanks,	pp. (731-732)

Remarks. Dit is Dobell nr. 14. In this issue, the pagination of nr. 13 has been continued. The continuous pagination of the issues 10, 12, 13 and 14 indicates that these numbers were intended to be bound together, as they often are, and hence that the issues 1 to 9 were also intended to be bound together.

Number 15.

REGISTER/ (Verstreckende te gelijk voor een kort Inhoud)/ Van alle de WERKEN van de/ HEER/ ANTONI van LEEUWENHOEK./ Verdeel in twee deelen:/ Daar van het eene de stoffe die in de tien eerste Tra-ctaten begrepen is; En het andere die van/ de vier vervolgen der Brieven aanwijst./ Door een Beminnaar der Natuurlijke-wetenschappen/'t samensteld.

(Index, also serving as a compendium of all the works of Mr. Antoni van Leeuwenhoek, divided in two parts of which the first indexes the subject matter, contained in the first ten tracts, while the second indexes the subject matter of the four continuations. Compiled by a lover of the natural sciences).

Leyden, Cornelis Boutesteyn, 1695.

Collation: 9 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are A -- E, signature E having only one leaf, followed by A -- D, signature marks D2 and D3 were omitted.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Bescheiden Leeser,	pp. (3-4)
Eerste Register,	pp. 5-34
Tweede Register,	pp. 1-29
Blanks,	pp. (30-32)

Remarks. Not in Dobell's list. Although this issue was not written by Leeuwenhoek, it was compiled by "a lover of nature", it is given a place in this bibliography because it is found in many collections of Leeuwenhoek's letters.

The first index covers issues 1 to 9 (not 10 as the title page says), the second one covers the issues 10 and 12 to 14. These are the issues which have the word "Vervolg" in their titles. Her is again an indi-

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cation that it was intended that issues 1 to 9 be bound together, followed by this index and that issues 10 and 12 to 14 be likewise bound together and followed by the second index. Starting with nr. 16, the issues have their own index.

Number 16.

VIJFDE VERVOLG/ DER/ BRIEVEN,/ Geschreven aan verscheide/ HOGE
STANDSPERSONEN/ EN/ GELEERDE LUIJDEN.

(Fifth continuation of the letters, written to several persons of
high standing and erudition).

Delft, Henrik van Krooneveld, 1696.

Collation: 23 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: *, A -- Y, with J, U and
W skipped. Signature Y has only two leaves.

Contents.

Frontispice B, state I,	p. (1)
Explanation of the frontispice by P.Rabus,	p. (2)
Title page,	p. (3)
Blank,	p. (4)
Dedication to F.A.van Reede,	pp. (5-7)
Poem by P.Rabus,	p. (8)
Letter B84,	pp. 1-4
Letter B85,	pp. 5-13
Letter B86, Ill. p. 20/21(33)	pp. 14-21
Letter B87,	pp. 22-30
Letter B88, Ill. p. 44/45(34)	pp. 31-58
Letter B89, Ill. p. 62/63(35)	pp. 59-74
Letter B90, Ill. p. 92/93(36)	pp. 75-101
Letter B91, Ill. p. 106/107(37)	pp. 102-113
Letter B92,	pp. 114-120
Letter B93, Ill. p. 122/123(38)	pp. 121-127
Letter B94	Pp. 128-135
Letter B95, Ill. p. 150/151(39)	pp. 136-155
Letter B96,	pp. 156-172
Index,	pp. (173-181)
Blank,	p. (182)

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Remarks. This is Dobell nr. 15. Page 123 is apparently a cancel,
it is pasted in.

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Number 17.

SESDE VERVOLG/ DER/ BRIEVEN,/ Geschreven aan verscheide/ HOOGE
STANDSPERSONEN / EN/ GELEERDE LUIJDEN.

(Sixth continuation of the letters, written to several persons of
high standing and erudition).

Delft, Henrik van Krooneveld, 1697.

Collation: 24 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: none (2 leaves), Aa -- Zz,
with Jj, Uu and Ww skipped. Signature mark E3 instead of Ee3, signature
marks Rr3, Ss3 and Yy3 omitted.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Poem by P.Rabus,	pp. (3-4)
Letter B97,	pp. 173-186
Letter B98, Ill. p. 204/205(40)	pp. 187-217
Blank,	p. (218)
Letter B99, Ills. pp. 224/225(41), 236/237(42)	pp. 219-249
Blank,	p. (250)
Letter B100,	pp. 251-260
Letter B101, Ill. 278/279(43)	pp. 261-268
Letter B102, Ill. p. 278/279(44)	pp. 269-285
Letter B103,	pp. 186-291
Letter B104,	pp. 292-302
Letter B105,	pp. 303-312
Letter B106,	pp. 313-333
Letter B107,	pp. 334-342
Index,	pp. (343-351)
Errata,	p. (352)
Blank,	pp. (353-354)

Remarks. This is Dobell nr. 16. The blanks which precede and follow

letter B99 may indicate that this letter was also printed separately, as letter B65 had been. The leaf, numbered 249-(250) is pasted in, which also may point to the fact that letter B99 may have been treated separately. However, no such separate print has come to my attention.

Number 18.

SEVENDE VERVOLG/ DER/ BRIEVEN,/ Waar in gehandelt werd, van veele/
Opmerkens en verwonderens-waardige/ NATUURS-GEHEIMEN,/ Vervat in
Veertig Brieven, waarvan de meeste/ geschreven zijn aan de Wijd
Vermaarde/ KONINKLIJKE SOCIETEIT/ in Londen.

(Seventh continuation of the letters, in which are discussed many
remarkable and amazing secrets of nature, contained in forty letters,
most of which were written to the world famous Royal Society of
London).

Delft, Henrik van Krooneveld, 1702.

Collation: One signature of 3 leaves and 59 signatures of 4 leaves
each, having the format (A, A2, A3, bl.). The signature names are:
none, A -- Z, Aa -- Zz, Aaa -- Nnn, with J, U, W, Jj, Uu, Ww and
Jjj skipped.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Poem by T. van der Wilt,	pp. (3-5)
Errata,	p. (6)
Letter B108, Ill. p. 4/5(45)	pp. 1-20
Letter B109,	pp. 21-28
Letter B110,	pp. 29-42
Letter B111, Ill. p. 46/47(46)	pp. 43-52
Letter B112, Ill. p. 56/57(47)	pp. 53-61
Letter B113,	pp. 62-75
Letter B114,	pp. 76-82
Letter B115,	pp. 83-87
Letter B116, Ill. p. 92/93(48)	pp. 88-100
Letter B117,	pp. 101-108
Letter B118,	pp. 109-112
Letter B119, Ill. p. 114/115(49)	pp. 113-126
Letter B120,	pp. 127-140

Letter B121, Ill. p. 148/149(50)	pp. 141-151
Letter B122, Ill. p. 158/159(51)	pp. 152-166
Letter B123, Ill. p. 176/177(52)	pp. 167-180
Letter B124, Ill. p. 184/187(53)	pp. 181-(186)
Letter B125, Ills. pp. 190/191(54), 198/199(55)	pp. 189-206
Letter B126,	pp. 207-221
Letter B127,	p. 222
Letter B128, Ill. p. 230/231(56)	pp. 223-237
Letter B129,	pp. 238-242
Letter B130,	pp. 243-251
Letter B131, Ill. p. 254/255(57)	pp. 252-260
Letter B132,	pp. 261-264
Letter B133,	pp. 265-274
Letter B134, Ills. pp. 286/287(58), 288/289(59)	pp. 275-294
Letter B135, Ill. p. 300/301(60)	pp. 295-307
Letter B136, Ill. p. 310/311(61)	pp. 308-319
Letter B137,	pp. 320-327
Letter B138, Ills. pp. 332/333(62), 334/335(63)	pp. 328-365
Letter B139,	pp. 366-374
Letter B140,	pp. 375-378
Letter B141, Ill. p. 382/383(64)	pp. 379-386
Letter B142, Ill. p. 390/391(65)	pp. 387-394
Letter B143,	pp. 395-399
Letter B144, Ill. p. 406/407(66)	pp. 400-414
Letter B145, Ill. p. 418/419(67)	pp. 415-429
Letter B146, Ills. pp. 434/435(68), 446/447(69)	pp. 430-453
Index,	pp. (454-474)

Remarks. This is Dobell nr. 18. Page numbers 185-186 have been skipped, page 188 is misnumbered 186. The plate which belongs between pp. 92/93 is mislabelled: "duijts Pa. 74" and is therefore sometimes misbound between pp. 74/75.

Number 19.

SEND-BRIEVEN,/ Zoo aan de/ HOOG EDELE HEEREN van de KONINKLYKE/
 SOCIETEIT te LONDEN,/ als aan andere/ AANSIENELYKE en GELEERDE
 LIEDEN,/ Over verscheyde Verborgentheden der Natuure,/ Namentlyk
 over het/ WONDERLYK GESTEL/ VAN/ De Veselen der Spieren in
 veelderley Gedierte; De Pesen en/ derselver Werking; Verscheyde
 Zaden; 't Oog van een Wal-/vis; 't Hair; De Dierkens aan het
 Eende-Kroost; De Hop;/ De Meel-stoffe in de Granen; De Zaad-vaten
 en Dierkens/ in 't Mannelyk zaad; den Cocos-Boom en desselfs Vrugt;/
 De Hersenen; De Zenuwen en derselver Holligheden voor/ het OOG
 ontdekt. Alsmede over de gedaante en wer-/ king van het sal
Polychrestus; Het maaxsel der Eyerschalen;/ Den Aart van onse
 Onsigtbare Doorwaseming; de Kragt/ en werking van den Wortel
Pareira Brava, etc. etc.

(Letters to the distinguished gentlemen of the Royal Society and
 to other distinguished and learned persons, about several secrets
 of nature. Dealing with the remarkable structure of the fibres in
 muscles of many animals, the tendons and their function, several
 seeds, the eye of a whale, hair, the animals in duckweed, hops,
 the floury matter in cereals, the seedvessels and the animals in the
 seed of males, the coconut tree and its fruit, the brain, and the
 nerves of the eye being hollow. Also on the shape and action of sal
polychrestus, the structure of egg shells, the nature of our invisible
 exhalations, the potency and action of the root Pareira brava etc.
 etc.).

Delft, Adriaan Beman, 1718.

Collation: 63 signatures of 4 leaves each, having the format
 (A, A2, A3, bl.). The signature names are: none, **, A -- Z,
 Aa -- Zz, Aaa -- Ppp, with J, U, W, Jj, Uu, Ww. and Jjj skipped.

Contents.

Blank,	p. (1)
Poem by T. van der Wilt,	p. (2)
Frontispice C, state I,	p. (3)

Blank,		p. (4)
Title page,		p. (5)
Blank,		p. (6)
Dedication to Charles III, king of Spain,		pp. (7-10)
Poem by Arnold Hoogvliet,		pp. (11-14)
Poem by Huibert Kz. Poot,		pp. (15-16)
Letter R1,	Ill. p. 2/3(70)	pp. 1-8
Letter R2,	Ill. p. 14/15(71)	pp. 9-22
Letter R3,	Ill. p. 24/25(72)	pp. 23-37
Letter R4,		pp. 38-43
Letter R5,	Ill. p. 46/47(73)	pp. 44-55
Letter R6,		pp. 56-62
Letter R7,		pp. 63-69
Letter R8,		pp. 70-82
Letter R9,		pp. 83-93
Letter R10,		pp. 94-96
Letter R11,	Ills. pp. 100/101(74), 102/103(75)	pp. 97-110
Letter R12,	Ill. p. 112/113(76)	pp. 111-123
Letter R13,		pp. 124-126
Letter R14,		pp. 127-133
Letter R15,	Ill. p. 144/145(77)	pp. 134-148
Letter R16,	Ill. p. 150/151(78)	pp. 149-155
Letter R17,		pp. 156-164
Letter R18,		pp. 165-171
Letter R19,	Ill. p. 178/179(79)	pp. 172-184
Letter R20,		pp. 185-192
Letter R21,		pp. 193-197
Letter R22,		pp. 198-206
Letter R23,		pp. 207-212
Letter R24,	Ill. p. 214/215(80)	pp. 213-219
Letter R25,	Ills. pp. 222/223(81), 227/228(82)	pp. 220-232
Letter R26,	Ills. pp. 238/239(83), 244/245(84), 246/247(85)	pp. 233-253
Letter R27,		pp. 254-257
Letter R28,	Ills. pp. 266/267(86), 271/272(87), 274/275(88), 278/279(89)	pp. 258-283
Letter R29,		pp. 284-291

Letter R30,	Ill. p. 300/301(90)	pp. 292-305
Letter R31,		pp. 306-313
Letter R32,	Ill. p. 316/317(91)	pp. 314-323
Letter R33,	Ill. p. 326/327(92)	pp. 324-334
Letter R34,	Ills. pp. 338/339(93), 340/341(94) 344/345(95)	pp. 335-347
Letter R35,		pp. 348-356
Letter R36,	Ill. p. 366/367(96)	pp. 357-368
Letter R37,	Ill. p. 372/373(97)	pp. 369-376
Letter R38,		pp. 377-382
Letter R39,		pp. 383-388
Letter R40,		pp. 389-396
Letter R41,	Ill. p. 400/401(98)	pp. 397-405
Letter R42,		pp. 406-414
Letter R43,	Ill. p. 420/421(99)	pp. 415-429
Letter R44,	Ill. p. 438/439(100)	pp. 430-445
Letter R45,		pp. 446-450
Letter R46,		pp. 451-460
Index,		pp. (461-488)
Errata,		p. (488)

Remarks. This is Dobell nr. 19. Page number 266 was skipped, page number 232 occurs twice in succession, thus restoring the pagination. The last two lines of the errata are pasted in.

Latin editions.

A note on the numbers 20 and 21.

The text portion of nr. 20 contains one group of letters, B43, B42 and B38. Nr. 21 contains the same group of letters and has in addition a second group, containing the letters B28, B29, B30, B31, B34, B35, B36, B46, B47, B44, B45, B48, B49, B50, B51 and B52, in this order.

Of these two groups, there exist variants, which can be recognized as follows.

First group.

- A. Pages consecutively numbered 3-78. Line 4 of page 3 ends with "cultu mihi".
- B. Pages numbered 1-58. There are actually 64 pages; the number 58 is arrived at because page 57 is misnumbered 49, which mispagnation is carried on to page 61 which is misnumbered 53, page 62 is mispaginated 56, which mispagnation is carried on to page 64, which has the number 58. Line 4 of page 1 ends with "cultu mihi".
- C. Pages consecutively numbered 1-64. Line 4 of page 1 ends with "cultu mihi".
- D. Pages consecutively numbered 1-64. Line 4 of page 1 ends with "mihi prose".

Second group.

- E. Pages numbered 1-258. There are actually 260 pages, the number 258 is arrived at because pages 231-232 occur twice, the mispagnation is carried on to the end. Page 199 is mispaginated 991. Line 3 of page 1 ends with "aselli majo-".
- F. Pages numbered 1-258. Mispagnation as under E, but mispagnation on page 199 has been corrected. Line 3 of page 1 ends with "aselli majoris la-".
- G. Pages numbered consecutively 1-260. Line 3 of page 1 ends with "aselli ma-".

Of some, and perhaps all, of these groups there exist variants which distinguish themselves by additional misprints and mispagnations; what is mentioned above are the essential features by which to recognize the several variants.

In the issues, I have examined, the several groups are found as given in the table below.

<u>Number</u>	<u>Group</u>	<u>Year</u>	<u>Publisher</u>
20	A	1685	Boutesteyn
21	A,E	1687	Boutesteyn
21a	B,E	1696	Boutesteyn
21b	C,F	1708	Boutesteyn
21c	C,F	1722	Langerak
21d	D,G	1722	Langerak

However, from Dobell's bibliography one may draw the conclusion that group B is already found in some of the 1687 issues, hence this group was probably printed in that year. This, and the fact that groups C and F are found in the Boutesteyn publication of 1708 and in the Langerak publication of 1722 as well, shows that remnants of printed sheets were used up in later publications and that Langerak used up the stock of Boutesteyn (who died in 1713). Hence it is possible that behind a certain title page different groups are found than mentioned in the descriptions of number 21.

Number 20 (provisional).

Anatomia et Contemplatio Nonnullorum Naturae invisibilium
Secretorum Comprehensorum Epistolis Quibusdam Scriptis ad
Illustre Inclytæ Societatis Regiæ Londinensis Collegium.

(Dissections and discoveries of the invisible secrets, contained
is several letters, written to the world famous Royal Scientific
Society of London).

Lugdunum Batavorum, Cornelis Boutesteyn, 1685.

Collation: 10 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: A -- K, with J skipped.
Signature K consists of only 3 leaves.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B43), Ills. pp. 4, 8, 15, 19, 20, 22, 24, 26, 28, 30, 32	pp. 3-35
Letter (B42), Ills. pp. 53, 58	pp. 36-59
Blank,	p. (60)
Letter (B38), Ills. pp. 64, 67, 69, 72, 73	pp. 61-78

Remarks. This is Dobell nr. 21, it contains the translation of
nr. 5. This issue contains group A only. The first letter is
actually not dated, Leeuwenhoek says in the beginning of the letter
that his last letter was dated 25 July 1684 and this date may be
taken inadvertently for the date of the letter. The true date is
5 Jan. 1685. This issue was obviously a pilot project, to test
whether there would be a market for a latin translation of
Leeuwenhoek's letters.

Number 21 (var.a).

ANATOMIA/ Seu interioria/ RERUM,/ Cum Animatarum tum Inanimarum [sic] ,/
Ope & nebeneficio [sic] exquisitissimorum/ MICROSCOPIORUM/ Detecta,
variisque experimentis demonstrata,/ UNA CUM/ Discursu & ulteriore
dilucidatione/ EPISTOLIS quibusdam ad Celeberrimum, quod/ Ser^{mi} Magnae
Britanniae REGIS auspicio Londini/ floret, Philosophorum Collegium
datis/ comprehensa ab/ ANTONIO à LEEUWENHOEK,/ Ejusdem Regiae Socie-
tatis Symmyste.

(Dissections or the innermost things which are either animated or
inanimated, discovered through the power of most excellent microscopes
and shown by means of various experiments, all discussed and brought to
light in letters to the Philosophical College which flourishes in
London under the auspices of His Excellency the King of Great Britain,
written by Antoni van Leeuwenhoek, a member of this Royal Society).

LUGDUNI BATAVORUM/ Apud CORNELIUM BOUTESTEYN, Bibliopolam./
M.D.C.LXXXVII [1687].

Remarks. This is Dobell nr. 22. Since I have not seen this copy, no
description is presented. It has two typographical errors in the
title page; "inanimarum" for "inanimatarum" and "nebeneficio" for "beneficio".
The title page is corrected in Dobell nr. 23. Since these two are obvious-
ly the same issues, they are given the same number and distinguished
as nr. 21 (var.a) and nr. 21 (var.b).

Dobell's description of this issue is not very clear, but from his
notes, one would guess that the copy he used contained groups B and E.
Hence freshly printed sheets were used in the make-up of this copy (see
note on preceding pages). The contents of this volume probably was
as follows: pp. (1-8) as in nr. 21 (var.b), pp. 1-58 as in nr. 21a
and pp. 1-258 as in nr. 21 (var.b).

Number 21a.

ANATOMIA/ seu interiora/ RERUM,/ cum Animatarum tum Inanimatarum,/ Ope & beneficio exquisitissimorum/ MICROSCOPIORUM/ Detecta, variisque experimentis demonstrata,/ UNA CUM/ Discursu & ulteriore dilucidatione/ EPISTOLIS quibusdam ad Celeberrimum, quod/ Ser^{mi} Magnae Brittanniae REGIS auspicio Londini/ floret, Philosophorum Collegium datis.

(Dissections or the innermost things which are either animated or inanimated, discovered through the power of most excellent microscopes and shown by means of various experiments, discussed in letters, written to the widely known Royal Philosophical College which flourishes in London).

Lugdunum Batavorum, Cornelis Boutesteyn, 1687.

Collation: 44 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are: *, A --K, Aa -- Zz, Aaa -- Kkk, with J, Jj, Uu, Ww, and Jjj skipped. Signature K consists of only 3 leaves, signature Kkk of only 2 leaves.

Contents.

Frontispice A, state II,	p. (1)
Blank,	p. (2)
Title page,	p. (3)
Dedication to James II of England,	pp. (4-8)
Letter (B43), Ills. pp. 4, 8, 15, 19, 20, 22, 24, 26, 28, 30, 32	pp. 3-35
Blank,	p. (36)
Letter (B42), Ills. pp. 53, 58	pp. 37-59
Blank,	p. (60)
Letter (B38), Ills. pp. 64, 67, 69, 72, 73	pp. 61-78
Letter (B28), Ill. p. 4	pp. 1-11
Letter (B29), Ills. pp. 12/13(1), 20/21(2)	pp. 12-24
Letter (B30), Ill. p. 26/27(3)	pp. 25-29
Letter (B31), Ill. p. 31	pp. 29-31
Letter (B34), Ill. p. 34	pp. 31-42

Letter (B35),	Ills. pp. 45, 46, 49, 51, 53	pp. 43-53
Letter (B36),		pp. 54-57
Letter (B46),	Ills. pp. 58/59(5), 60, 61, 62, 63, 64, 68, 69, 70, 71, 76, 78	pp. 58-81
Letter (B47),	Ills. pp. 83, 86, 87, 88, 90, 91, 92, 93, 94, 107, 109, 111, 114, 117	pp. 82-118
Letter (B44),	Ills. pp. 120, 122, 123, 124, 125, 126, 127, 130, 132, 133, 136, 137, 141, 143, 145, 147, 148	pp. 119-148
Letter (B45),	Ills. pp. 154/155(4), 161, 168	pp. 149-177
Letter (B48),	Ills. pp. 179, 183, 184	pp. 178-194
Letter (B49),	Ills. pp. 201, 209	pp. 194-209
Letter (B50),	Ills. pp. 217, 220, 221, 223, 224(two)	pp. 210-226
Letter (B51),	Ills. pp. 228/229(6), 230, 231, 235	pp. 227-240
Letter (B52),	Ills. pp. 247, 249, 253, 254	pp. 241-258

Remarks. This is Dobell nr. 23; it is the translation of the numbers 5, 8, 7, 6 and 9, in this order. This issue contains groups A and E. In the copy on which this description is based, in group E, page 199 is not numbered at all, page 192 is mispaginated 2, while page 235 is mispaginated 225.

Number 21b.

ARCANA NATURAE/ Ope & beneficio exquisitissimorum/ MICROSCOPIORUM/
Detecta, variisque experimentis demonstrata,/ UNA CUM/ Discursu
& ulteriori dilucidatione;/ EPISTOLIS suis ad Cereberrium, quod
Ser^{mi} Magnae Brittanniae/ REGIS auspicio Londini floret, Philosophorum
Col-/ legium.

(Secrets of nature, discovered through the power of most excellent
microscopes and shown by means of various experiments, discussed
in letters to the widely known Royal Philosophical College which
flourishes in London).

Lugdunum Batavorum, Cornelis Boutesteyn, 1696.

Collation: 1 leaf, and 42 signatures of 4 leaves each, having the
format (A, A2, A3, bl.). The signature names are: *, A --H, Aa -- Zz,
Aaa -- Kkk, with Jj, Uu, Ww and Jjj skipped. Signature mark * is
given as *2, Xx3 is given as X3, signature Kkk contains only two
leaves.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Lectori <u>philodeamoni</u> S.P.D. Typographus,	pp. (3-4)
Praemonitio ad lectorem,	
Index rerum epistoli,	pp. (5-10)
Letter (B43), Ills. pp. 2/3(3c), 5, 10/11(3d), 14, 14/15(3e), 16/17(3f), 18, 19, 21, 23, 25	pp. 1-28
Letter (B42), Ills. pp. 43, 46/47(3b)	pp. 29-48
Letter (B38), Ills. pp. 51, 54, 56, 50, 51	pp. 49-58
Letter (B28), Ill. p. 4	pp. 1-11
Letter (B29), Ills. pp. 12/13(1), 20/21(2)	pp. 12-24
Letter (B30), Ill. p. 26/27(3)	pp. 25-29
Letter (B31), Ill. p. 31	pp. 29-31
Letter (B34), Ill. p. 34	pp. 32-42
Letter (B35), Ills. pp. 45, 46, 49, 51, 53	pp. 43-53

Letter (B36),		pp. 54-57
Letter (B46),	Ills. pp. 58/59(5), 60, 61, 62, 63, 64, 68, 69, 70, 71, 76, 78	pp. 58-81
Letter (B47),	Ills. pp. 83, 86, 87, 88, 90, 91, 92, 93, 94, 107, 109, 111, 114, 117	pp. 82-118
Letter (B46),	Ills. pp. 120, 122, 123, 124, 125, 126, 127, 130, 132, 133, 136, 137, 141, 143, 145, 147, 148	pp. 119-148
Letter (B45),	Ills. pp. 154/155(4), 161, 168	pp. 149-177
Letter (B48),	Ills. pp. 179, 183, 184	pp. 178-194
Letter (B49),	Ills. pp. 201, 209	pp. 194-209
Letter (B50),	Ills. pp. 217, 220, 221, 223, 224(two)	pp. 210-226
Letter (B51),	Ills. pp. 228/229(6), 230, 231, 235	pp. 227-240
Letter (B52),	Ills. pp. 247, 249, 253, 256	pp. 241-258

Remarks. This issue was unknown to Dobell, it contains the translation of the numbers 5, 8, 7, 6 and 9, in this order. This issue contains groups B and E, which correspond, as far as mispagnations are concerned, exactly to the description, given at the start of this section. The word philodeamoni is printed in greek characters.

Number 21b.

ARCANA NATURAE,/ Ope & beneficio exquisitissimorum/ MICROSCOPIORUM./
Detecta, variisque experimentis demonstrata,/ UNA CUM/ Discursu &
ulteriori dilucidatione;/ EPISTOLIS suis ad Celeberrimum, quod Ser^{mi}
Magnae Brittanniae/ REGIS auspicio Londini floret, Philosophorum Col-/
legium datis, comprehensa, ab/ ANTONIO à LEEUWENHOEK,/ Ejusdem
Regiae Societatis Symmyste.

(Secrets of nature, discovered through the power of most excellent
microscopes and shown by means of various experiments, all discussed
and brought to light in letters to the Philosophical College which
flourishes in London under the auspices of His Excellency the King
of Great Britain, written by Antoni van Leeuwenhoek, a member of
this Royal Society).

Editio tertia.

Lugduni Batavorum,/ Apud CORNELIUM BOUTESTEIN, CIO.IOC.CCVIII (1708).

Collation: 42 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: none, A -- H, Aa -- Zz,
Aaa -- Kkk, with Jj, Uu, Ww and Jjj skipped.

Contents.

Frontispice A, state III.	p. (1)
Blank,	p. (2)
Title page,	p. (3)
Blank,	p. (4)
Lectori philotheamoni S.P.D. Typographus;	p. (5)
Praemonitio ad Lectorem; Index Rerum Epistolis partis prioris contentarum; Index Rerum Epistolis partis alterae contentarum,	pp. (6-8)
Letter (B43), Ills. pp. 6/7(3c), 5, 10/11(3d), 14, 14/15(3e), 16/17(3f), 18, 19, 21, 23, 25	pp. 1-28
Letter (B42), Ills. pp. 43, 46/47(3b)	pp. 29-48

Letter (B38),	Ills. pp. 51, 54, 56, 58, 59	pp. 49-64
Letter (B28),	Ill. p. 4	pp. 1-11
Letter (B29),	Ills. pp. 12/13(1), 20-21(2)	pp. 12-24
Letter (B30),	Ill. p. 26/27(3)	pp. 25-29
Letter (B31),		pp. 29-31
Letter (B34),	Ill. p. 34	pp. 32-42
Letter (B35),	Ills. pp. 45, 46, 49, 51, 53	pp. 43-53
Letter (B36),		pp. 54-57
Letter (B46),	Ills. pp. 58/59(5), 60, 61, 62, 63, 64, 68, 69, 70, 76, 78	pp. 58-81
Letter (B47),	Ills. pp. 83, 86, 87, 88, 90, 91, 92, 93, 94, 107, 109, 111, 114, 117	pp. 82-118
Letter (B44),	Ills. pp. 120, 122, 123, 124, 125, 126, 127, 130, 132, 133, 136, 137, 141, 143, 145, 147, 148	pp. 119-148
Letter (B45),	Ills. pp. 154/155(4), 161, 168	pp. 149-177
Letter (B48),	Ills. pp. 179, 183, 184	pp. 178-194
Letter (B49),	Ills. pp. 201, 209	pp. 194-209
Letter (B50),	Ills. pp. 217, 220, 221, 223, 224 (two)	pp. 210-226
Letter (B51),	Ills. pp. 228/229(6), 230, 231, 233, 235	pp. 227-240
Letter (B52),	Ills. pp. 247, 249, 253, 256	pp. 241-258

Remarks. This issue was not mentioned by Dobell; it contains the translation of the numbers 5, 8, 7, 6 and 9, in this order. The roman year numeral is in error; it should be CIO.IO.CCVIII. The period, placed by the typographer in the numeral however shows clearly that the year 1708 was intended to be given. This issue contains groups C and F. On page 31 in group F there is a blank space, where an illustration was forgotten to be inserted. Page 187 in group F is mispaginated 887 and page 233 is mispaginated 231, which mispagination is carried until the end. The word philotheamoni is printed in greek characters.

Number 21c.

OPERA OMNIA,/ Seu/ ARCANA NATURAE,/ Ope/ EXACTISSIMORUM
MICROSCOPIORUM/ Detecta, experimentis variis comprobata,/
EPISTOLIS,/ Ad varios illustres Viros,/ UT ET/ Ad integram, quae
Londini floret, sapientiam Societatem/ cujus Membrum est, datis.
(Complete works, or the secrets of nature discovered by means
of exact microscopes and checked by various experiments. In letters
to various gentlemen and to the membership of the Society of
Scholars, which flourishes in London, of which (the author) is a
member).

Lugdunum Batavorum, Joh. Arnold. Langerak, 1722.

Collation: one leaf, 46 signatures of 4 leaves each, having the
format (A, A2, A3, bl.). The signature names are: *, **, A -- H,
Aa -- Zz, Aaa -- Nnn, with Jj, Uu, Ww and Jjj skipped. Signature
** lacks the first leaf, signature Kkk has only two leaves.

Contents.

Blank,	p. (1)
Frontispice A, state IV,	p. (2)
Title page,	p. (1)
Blank,	p. (2)
Poem by J.G.Kerkherdere,	pp. 3-8
Notice of the printer,	pp. (9-10)
Index,	pp. (11-14)
Letter (B43), Ills. pp. 2/3(3c), 5, 10/11(3d), 14, 14/15(3e), 16/17(3f), 18, 19, 21, 23, 25	pp. 1-28
Letter (B42), Ills. pp. 43, 46/47(3b)	pp. 29-48
Letter (B38), Ills. pp. 51, 54, 56, 58, 59	pp. 49-64
Letter (B28), Ill. p. 4	pp. 1-11
Letter (B29), Ills. pp. 12/13(1), 20/21(2)	pp. 12-24
Letter (B30), Ill. p. 26/27(3)	pp. 25-29
Letter (B31), Ill. p. 31	pp. 29-31
Letter (B34), Ill. p. 34	pp. 32-42

Letter (B35),	Ills. pp. 45, 46, 49, 51, 53	pp. 43-53
Letter (B36),		pp. 54-57
Letter (B46),	Ills. pp. 58/59(5), 60, 61, 62, 63, 64, 68, 69, 70, 71, 76, 78	pp. 58-81
Letter (B47),	Ills. pp. 83, 86, 87, 88, 90, 91, 92, 93, 94, 107, 109, 111, 114, 117	pp. 82-118
Letter (B44),	Ills. pp. 120, 122, 123, 124, 125, 126, 127, 130, 132, 133, 136, 137, 141, 143, 145, 147, 148	pp. 119-148
Letter (B45),	Ills. pp. 154/155(4), 161, 168	pp. 149-177
Letter (B48),	Ills. pp. 179, 183, 184	pp. 178-194
Letter (B49),	Ills. pp. 201, 209	pp. 194-209
Letter (B50),	Ills. pp. 217, 220, 221, 223, 224(two)	pp. 210-226
Letter (B51),	Ills. pp. 228/229(6), 230, 231, 233, 235	pp. 227-240
Letter (B52),	Ills. pp. 247, 249, 253, 256	pp. 241-258
(Issue nr. 22b is supposed to be bound here)		
Index triplex rerum praecellentium		pp. 449-(472)

Remarks. This issue or the next one is Dobell nr. 23a; Dobell knew only one of the two. It contains the translation of the numbers 5, 8, 7, 6 and 9, in this order. It contains the groups C and F. The title page to this issue is actually a title page to the collected letters, a special title page for this issue does not exist. This is the only title page in any Leeuwenhoek edition which is partly printed in red. The missing leaf marked * probably had the frontispice and was moved to the front of the book.

Number 21d.

OPERA OMNIA,/ Seu/ ARCANA NATURAE,/ Ope/ EXACTISSIMORUM
MICROSCOPIORUM/ Detecta, experimentis variis comprobata,/
EPISTOLIS,/ Ad varios illustres Viros,/ UT ET/ ad integram, quae
Londini floret, sapientiam Societatem/ cujus Membrum est, datis.
(Complete works, or the secrets of nature discovered by means
of exact microscopes and checked by various experiments. In letters
to various gentlemen and to the membership of the Society of
Scholars, which flourishes in London, of which (the author) is a
member).

Lugdunum Batavorum, Joh. Arnold. Langerak, 1722.

Collation: one leaf and 46 signatures of 4 leaves each, having
the format (A, A2, A3, bl.). The signature names are: *, **, A -- H,
Aa -- Zz, Aaa -- Nnn, with Jj, Uu, Ww and Jjj skipped. Signature
** lacks the first leaf, signature Kkk has only two leaves.

Contents.

Blank,	p. (1)
Frontispice A, State IV,	p. (2)
Title page,	p. (1)
Blank,	p. (2)
Poem by J.G.Kerkherdere,	pp. 3-8
Notice of the printer,	pp. (9-10)
Index,	pp. (11-14)
Letter (B43), Ills. pp. 2/3(3c), 5, 10/11(3d), 14, 14/15(3e), 16/17(3f), 18, 19, 21, 23, 25	pp. 1-28
Letter (B42), Ills. pp. 43, 46/47(3b)	pp. 29-48
Letter (B38), Ills. pp. 51, 54, 56, 58, 59	pp. 49-64
Letter (B28), Ill. p. 4	pp. 1-11
Letter (B29), Ills. pp. 12/13(1), 20/21(2)	pp. 12-24
Letter (B30), Ill. p. 26/27(3)	pp. 25-29
Letter (B31), Ill. p. 31	pp. 29-31
Letter (B34), Ill. p. 34	pp. 32-42

Letter (B35), Ills. pp. 45, 46, 49, 51, 53	pp. 43-53
Letter (B36),	pp. 54-57
Letter (B46), Ills. pp. 58/59(5), 60, 61, 62, 63, 64, 68, 69, 70, 71, 76, 78	pp. 58-81
Letter (B47), Ills. pp. 83, 86, 87, 88, 90, 91, 92, 93, 94, 107, 109, 111, 114, 117	pp. 82-118
Letter (B44), Ills. pp. 120, 122, 123, 124, 125, 126, 127, 130, 132, 133, 136, 137, 141, 143, 145, 147, 148	pp. 119-148
Letter (B45), Ills. pp. 154/155(4), 161, 168	pp. 149-177
Letter (B48), Ills. pp. 179, 183, 184	pp. 178-194
Letter (B49), Ills. pp. 201, 209	pp. 194-209
Letter (B50), Ills. pp. 217, 220, 221, 223, 224(two)	pp. 210-226
Letter (B51), Ills. pp. 228/229(6), 230, 231, 233, 237	pp. 227-242
Letter (B52), Ills. pp. 249, 251, 255, 259 (Issue nr. 22c is supposed to be bound here)	pp. 243-260
Index triplex rerum praecellentium	pp. 449-(472)

Remarks. This issue or the preceding one is Dobell nr. 23a; Dobell knew only one of the two. It contains the translation of the numbers 5, 8, 7, 6 and 9, in this order. It contains groups D and G. The title page to this issue is actually a title page to the collected letters; a special title page for this issue does not exist. It is probable that the type setting for this issue was done later than 1730 and that left over copies of the 1722 title page were user or, alternatively, that the title page was reprinted without change. The pagination of the "Index Triplex", signatures Lll--Nnn, may be explained as follows. This issue contains 64+260 text pages, issue nr. 22c (which is supposed to be inserted as indicated above) contains 124 text pages. Together 448 text pages. If the index, which covers both nr. 21d and 22c, follows the inserted issue, its logical first page number would be 449.

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Number 22.

Continuatio/ EPISTOLARUM,/ Datarum/ Ad longe Celeberrimam Regiam/
Societatem Londinensem.

(Continuation of the letters, written to the world famous Royal
Society of London).

Lugdunum Batavorum, Cornelis Boutesteyn, 1689.

Collation: 17 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are: *, A -- Q, with J skipped.
Signature mark C2 has been omitted; signature Q has only two leaves.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Praemonitio ad lectorem, Index,	pp. (3-8)
Letter (B53), Ills. pp. 3, 6/7(6a), 9	pp. 1-12
Letter (B54), Ill. p. 14/15(7)	pp. 13-19
Letter (B55), Ills. pp. 20/21(8), 22/23(9), 28/29(10)	pp. 20-40
Letter (B56), Ill. p. 46/47(10a)	pp. 41-55
Letter (B57), Ill. p. 66/67(11)	pp. 56-74
Letter (B58), Ill. p. 76/77(12)	pp. 75-90
Letter (B59), Ill. p. 102/103(13)	pp. 91-112
Letter (B60), Ill. p. 122/123(14)	pp. 113-124

Remarks. This is Dobell nr 24, it is a translation of nr. 11.

All letters are unnumbered, however, the letters B54, B55 and B56
were numbered in the type setting; their number has been obliterated
by overpasting.

117
Number 22a.

Continuatio/ EPISTOLARUM,/ Datarum/ Ad longe Celeberrimam Regiam
Socie-/ tatem Londinensem.

(Continuation of the letters, written to the world famous Royal
Society of London).

Lugdunum Batavorum, C. Boutestein, 1696.

Collation: one leaf, 16 signatures of 4 pages each, having the
format (A, A2, A3, bl.). The signature names are: A -- Q, with J
skipped. Signature mark C2 has been omitted, signature Q has only
two leaves.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter (B53), Ills. pp. 3, 6/7(6a), 9	pp. 1-12
Letter B54, Ill. p. 14/15(7)	pp. 13-19
Letter (B55), Ills. pp. 20/21(8), 22/23(9) 28/29(10)	pp. 20-40
Letter (B56), Ill. p. 46/47(10a)	pp. 41-55
Letter (B57), Ill. p. 66/67(11)	pp. 56-74
Letter (B58), Ill. p. 78/79(12)	pp. 75-90
Letter (B59), Ill. p. 108/109(13)	pp. 91-112
Letter (B60), Ill. p. 122/123(14)	pp. 113-124

Remarks. This is Dobell nr. 24a, it is a translation of nr. 11.
Except for letter B54, the letters are unnumbered, however, the
letters B55 and B56 are numbered in the type setting; their
number has been obliterated by overpasting.

Number 22b.

Continuatio/ EPISTOLARUM,/ Datarum/ Ad longe Celeberrimam Regiam/
Societatem Londinensem,/ AB/ ANTONIO de LEEUWENHOEK,/ Ejusdem
Societatis Membro.

(Continuation of the letters, written to the world famous Royal
Society of London by Antoni van Leeuwenhoek, a member of this Society).

Lugduni Batavorum,/ Apud/ Johannem du Vivie,/ Theodorum Haak &
Joh. Arn. Langerack, 1715.

Collation. 17 signatures of 4 leaves each, having the format:
(A, A2, A3, bl.). The signature names are: *, A -- Q, with J skipped.
Signature mark C2 has been omitted; signature Q has only two leaves.

Contents:

Title page,	p. (1)
Blank,	p. (2)
Praemonitio ad Lectorem; Index Rerum Epistolis partis prioris contentarum; Index Rerum Epistolis partis alterae contentarum,	p. (3-5)
Index Rerum Epistolis, Continuationis contentarum,	p. (6-8)
Letter (B53), Ills. pp. 3, 6/7(6a), 9	pp. 1-12
Letter (B54), Ill. p. 14/15(7)	pp. 13-19
Letter (B55), Ills. pp. 20/21(8), 22/23(9), 28/29(10)	pp. 20-40
Letter (B56), Ill. p. 46/47(10a)	pp. 41-55
Letter (B57), Ill. p. 66/67(11)	pp. 56-74
Letter (B58), Ill. p. 76/77(12)	pp. 75-90
Letter (B59), Ill. p. 102/103(13)	pp. 91-112
Letter (B60), Ill. p. 122/123(14)	pp. 113-124

Remarks. This is Dobell nr. 24b, it is a translation of nr. 11.

Number 22c.

Continuatio/ EPISTOLARUM,/ Datarum/ Ad longe Celeberrimam Regiam/
Societatem Londinensem.

(Continuation of the letters, written to the world famous Royal
Society of London).

Lugdunum Batavorum, Joh. Arn. Langerak, 1730.

Collation: 17 signatures of 4 leaves each, having the format
(A, A2, A3, bl.). The signature names are *, A -- Q, with J skipped.
Signature mark C2 has been omitted, signature Q has only two
leaves.

Contents.

Title page,		p. (1)
Blank,		p. (2)
Letter (B53),	Ills. pp. 3, 6/7(6a),9	pp. 1-12
Letter (B54),	Ill. p. 18/19(7)	pp. 13-19
Letter (B55),	Ills. pp. 20/21(8), 23/24(9), 28/29(10)	pp. 20-40
Letter (B56),	Ill. p. 46/47(10a)	pp. 41-55
Letter (B57),	Ill. p. 64/65(11)	pp. 56-74
Letter (B58),	Ill. p. 76/77(12)	pp. 75-90
Letter (B59),	Ill. p. 102/103(13)	pp. 91-112
Letter (B60),	Ill. p. 122/123(14)	pp. 113-124

Remarks. This is Dobell nr. 24c, it is a translation of nr. 11.
Letter B53 has, on p. 12, a repetition of the figure on p. 9.
Apparently, a batch of sheets on which the copper engravings were
being printed before the letterpress was added, went wrong but,
since the cut at the wrong place did not interfere with the letter-
press, the sheets were used anyway.

Number 23.

ARCANA/ NATURAE/ Detecta/ Ab/ ANTONIO van LEEUWENHOEK.
(The secrets of nature discovered, by Antoni van Leeuwenhoek).

Apud Henricum a Krooneveld, 1695.

Collation, 74 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are: none, A -- Z, AA -- ZZ, AAA -- ZZZ, AAAA -- DDDD, with J, U, W, JJ, UU, WW, JJJ, UUU, and WWW skipped. Signature marks TT2 and DDD3 omitted. The first signature has the format (bl., bl., *3, **).

Contents,

Frontispice B, state I,	p. (1)
Imagines in titulo expressas ita explicat Petrus Rabus,	p. (2)
Title page,	p. (3)
Blank,	p. (4)
Dedication to Antonio Magliabechi,	pp. (5-7)
Typographis lectori,	p. (8)
Letter (B32), Ills. pp. 2(two), 4	pp. 1-6
Letter (B33), Ills. pp. 10, 17, 18, 18/19(3a), 20,	
22, 25	pp. 6-27
Letter (B37), Ills. pp. 33, 34, 36, 37	pp. 28-41
Letter (B39), Ills. pp. 42, 47, 49, 50	pp. 41-53
Letter (B40), Ills. pp. 54, 60, 61, 64, 65, 66, 67	pp. 53-69
Letter (B41), Ills. pp. 72, 73, 75, 77, 79	pp. 70-86
Letter B61, Ill. p. 90/91(15)	pp. 87-108
Letter B62, Ill. p. 110/111(15a)	pp. 109-122
Letter B63, Ill. p. 125	pp. 123-146
Letter B64, Ills. pp. 150/151(16), 158/159(17)	pp. 147-164
Letter B65, Ill. p. 170/171(18)	pp. 165-186
Letter B66, Ill. p. 192/193(19)	pp. 187-206
Letter B67, Ill. p. 214/215(20)	pp. 207-228
Letter B68,	pp. 229-236
Letter B69, Ill. p. 240-241(20a)	pp. 237-245
Letter B70, Ill. p. 248/249(20b)	pp. 246-259
Letter B71, Ill. p. 262/263(21)	pp. 260-281

Waller,	Ill. p. 282/283(22)	pp. 282-284
Letter B72,	Ill. p. 286/287(23)	pp. 285-297
Letter B73,	Ill. p. 308/309(24)	pp. 298-311
Letter B74,	Ill. p. 314/315(25)	pp. 312-333
Letter B75,	Ill. p. 336/337(26)	pp. 334-349
Letter B76,	Ill. p. 356/357(27)	pp. 350-375
Letter B77,	Ill. p. 378/379(28)	pp. 376-398
Letter B78,		pp. 399-408
Letter B79,	Ill. p. 414/415(29)	pp. 409-416
Letter B80,	Ill. p. 420/421(30)	pp. 417-430
Letter B81,		pp. 431-444
Letter B82,	Ill. p. 446/447(31)	pp. 445-455
Letter B83,	Ill. p. 464/465(32)	pp. 456-482
Letter B84,		pp. 483-485
Letter B85,		pp. 486-492
Letter B86,	Ill. p. 496/497(33)	pp. 493-498
Letter B87,		pp. 499-505
Letter B88,	Ill. p. 512/513(34)	pp. 506-524
Letter B89,	Ill. p. 528-529(35)	pp. 525-535
Letter B90,	Ill. p. 548/549(36)	pp. 536-554
Letter B91,	Ill. p. 558/559(37)	pp. 555-563
Letter B92,		pp. 564-568
Index Rerum Praecipuarum Hoc Opere contentarum,		pp. (569-581)
Emendanda,		p. (582)
Blanks,		pp. (583-584)

Remarks. This is Dobell Nr. 25, it is a translation of the numbers 1, 2, 3, 4, 12, 13, 14 and letters B84-B92 of number 16. The illustration on p. 66 is pasted in over a blank space. Page 259 is mispaginated 459 and page 450 is mispaginated 456. The issues Dobell nr. 25a and 25b do not exist; they actually are our numbers 21a and 21b. Dobell probably never saw these issues and mentioned them on the strength of an imperfect bibliography by someone else. If so, his error may be explained by the fact that the first two words in the titles of the numbers 21a, 21b, and Dobell 25a, 25b are: Arcana Naturae.

Number 23c.

ARCANA/ NATURAE/ DETECTA

(The secrets of nature discovered).

Lugdunum Batavorum, Joh. Arnold. Langerak, 1722.

Collation: one leaf and 70 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are: *, **, ***, A --Z, Aa -- Zz, Aaa -- Xxx, with J, U, W, Jj, Uu, Ww, Jjj, Uuu and Www skipped. Signature *** consists of only one leaf.

Contents.

Blank,	p. (1)
Frontispice B, state III,	p. (2)
Title page,	p. (1)
Blank,	p. (2)
Index rerum,	pp. (3-16)
Letter (B32), Ills. pp. 2(two), 4	pp. 1-5
Letter (B33), Ills. pp. 10, 16, 17, 18/19(3a) 19, 21	pp. 6-25
Letter (B37), Ills. pp. 30, 32, 33, 34	pp. 26-38
Letter (B39), Ills. pp. 40, 44, 46, 47	pp. 39-49
Letter (B40), Ills. pp. 50, 56, 57, 60, 61, 62, 63	pp. 50-65
Letter (B41), Ills. pp. 68, 69, 71, 73, 75	pp. 66-81
Letter B61, Ill. p. 82/83(15)	pp. 82-100
Letter B62, Ill. p. 103	pp. 101-113
Letter B63, Ill. p. 116	pp. 114-135
Letter B64, Ills. pp. 138/139(16), 146/147(17)	pp. 136-152
Letter B65, Ill. p. 156/157(18)	pp. 153-172
Letter B66, Ill. p. 176/177(19)	pp. 173-190
Letter B67, Ill. p. 198/199(20)	pp. 191-210
Letter B68,	pp. 211-217
Letter B69, Ill. p. 220/221(20a)	pp. 218-225
Letter B70, Ill. p. 228/229(20b)	pp. 226-238
Letter B71, Ill. p. 240/241(21)	pp. 239-258

Waller,	Ill. p. 260/261(22)	pp. 259-261
Letter B72,	Ill. p. 262/263(23)	pp. 262-273
Letter B73,	Ill. p. 282/283(24)	pp. 274-286
Letter B74,	Ill. p. 288-289(25)	pp. 287-306
Letter B75,	Ill. p. 312/313(26)	pp. 307-320
Letter B76,	Ill. p. 326/327(27)	pp. 321-343
Letter B77,	Ill. p. 346/347(28)	pp. 344-363
Letter B78,		pp. 364-372
Letter B79,	Ill. p. 376/377(29)	pp. 373-380
Letter B80,	Ill. p. 385/386(30)	pp. 381-393
Letter B81,		pp. 394-406
Letter B82,	Ill. p. 408/409(31)	pp. 407-416
Letter B83,	Ill. p. 424/425(32)	pp. 417-439
Letter B84,		pp. 440-442
Letter B85,		pp. 443-448
Letter B86,	Ill. p. 452/453(33)	pp. 449-453
Letter B87,		pp. 454-459
Letter B88,	Ill. p. 464/465(34)	pp. 460-476
Letter B89,	Ill. p. 480/481(35)	pp. 477-485
Letter B90,	Ill. p. 496/497(36)	pp. 486-502
Letter B91,	Ill. p. 508/509(37)	pp. 503-510
Letter B92,		pp. 511-515
Index,		pp. (516-538)
Errata,		p. (538)

Remarks. This is Dobell nr. 25c, it is a translation of the numbers 1, 2, 3, 4, 12, 13, 14 and of 16 the letters B84-B92. Page 107 is mispaginated 707. Some copies lack the first leaf and hence the frontispice.

Number 24.

Continuatio/ ARCANORUM/ NATURAE/ DETECTORUM,/ Qua continetur/
Quicquid hactenus ab Auctore lingua Ver-/ nacula editum, & in
linguam Lati-/ nam transusum non fuit.

(Continuation of the discoveries of the secrets of nature, until
now written by the author in his native language and now translated
into latin).

Delphi Batavorum, Henric van Kroonevelt, 1697.

Collation: One leaf and 25 signatures of 4 leaves each, having the
format (A, A2, A3, bl.). The signature names are: A --Z, Aa -- Bb, with
J, U and W skipped.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Letter B93, Ill. p. 2/3(38)	pp. 1-6
Letter B94,	pp. 7-13
Letter B95, Ill. p. 24/25(39)	pp. 14-29
Letter B96,	pp. 30-44
Letter B97,	pp. 45-55
Letter B98, Ill. p. 70/71(40)	pp. 56-82
Letter B99, Ills. pp. 86/87(41), 96/97(42)	pp. 83-109
Letter B100,	pp. 110-119
Letter B101, Ill. p. 124/125(43)	pp. 120-125
Letter B102, Ill. p. 134/135(44)	pp. 126-141
Letter B103,	pp. 142-147
Letter B104,	pp. 148-157
Letter B105,	pp. 158-166
Letter B106,	pp. 167-185
Letter B107,	pp. 186-192
Index	pp. (193-200)

Remarks.This is Dobell nr. 26, it is a translation of letters B93
to B95 in nr. 16 and the entire nr. 17.

125

Number 24a.

CONTINUATIO/ ARCANORUM/ NATURAE/ DETECTORUM.

(Continuation of the discoveries of the secrets of nature).

Lugdunum Batavorum, Joh. Arnold. Langerak, 1722.

Collation: one leaf and 25 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are A -- Z, Aa -- Bb, with J, U and W skipped.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Index argumentorum,	pp. (3-10)
Letter B93, Ill. p. 2/3(38)	pp. 1-6
Letter B94,	pp. 7-13
Letter B95, Ill. p. 24/25(39)	pp. 14-29
Letter B96,	pp. 30-44
Letter B97,	pp. 45-55
Letter B98, Ill. p. 70/71(40)	pp. 56-82
Letter B99, Ills. pp. 86/87(41), 96/97(42)	pp. 83-109
Letter B100,	pp. 110-119
Letter B101, Ill. p. 124/125(43)	pp. 120-125
Letter B102, Ill. p. 134/135(46)	pp. 126-141
Letter B103,	pp. 142-147
Letter B104,	pp. 148-157
Letter B105,	pp. 158-166
Letter B106,	pp. 167-185
Letter B107,	pp. 186-192
Index,	pp. (193-200)

Remarks. This is Dobell nr. 24a, it is a translation of the letters B93, B94 and B95 of nr. 16 and the entire nr. 17.

Number 25.

EPISTOLAE AD SOCIETATEM/ REGIAM ANGLICAM,/ ET/ ALIOS ILLUSTRIS
VIROS/ Seu Continuatio mirandorum Arcanorum Natu- rae detectorum,/
Quadragesima Epistolis contentorum,/ Quae ex Belgica in Latinum
Linguam translatae sunt.

(Letters to the Royal Society of England and to other illustrious
persons, or continuation of the discoveries of nature's amazing
secrets. In forty letters, which have been translated from the
dutch into the latin language).

Lugdunum Batavorum, Joh. Arnold. Langerak, 1719.

Collation: one leaf and 57 signatures of 4 leaves each, having the
format (A, A2, A3, bl.). The signature names are: *, **, A -- Z,
Aa -- Zz, Aaa -- Iii, with J, U, W, Jj, Uu and Ww skipped.

Contents.

Blank,	p. (1)
Portrait of Leeuwenhoek, state II,	p. (2)
Title page,	p. (1)
Blank,	p. (2)
Index Rerum,	pp. (3-16)
Letter B108, Ill. p. 4/5(45)	pp. 1-17
Letter B109,	pp. 18-24
Letter B110,	pp. 25-37
Letter B111, Ill. p. 40/41(46)	pp. 38-47
Letter B112, Ill. p. 52/53(47)	pp. 48-56
Letter B113, Ill. p. 68/69(48)	pp. 57-69
Letter B114,	pp. 70-76
Letter B115,	pp. 77-81
Letter B116,	pp. 82-94
Letter B117,	pp. 95-102
Letter B118,	pp. 103-106
Letter B119, Ill. p. 114/115(49)	pp. 107-120
Letter B120,	pp. 121-134
Letter B121, Ill. p. 140/141(50)	pp. 135-145

Letter B122, Ill. p. 150-151(51)	pp. 146-158
Letter B123, Ill. p. 166/167(52)	pp. 159-172
Letter B124, Ill. p. 176/177(53)	pp. 173-178
Letter B125, Ills. pp. 180/181(54), 186/187(55)	pp. 179-194
Letter B126,	pp. 195-210
Letter B127,	pp. 211-212
Letter B128, ill. p. 220/221(56)	pp. 213-225
Letter B129,	pp. 226-230
Letter B130,	pp. 231-239
Letter B131, Ill. p. 242/243(57)	pp. 240-248
Letter B132	pp. 249-253
Letter B133	pp. 254-262
Letter B134, Ills. pp. 274/275(58), 274/275(59)	pp. 263-280
Letter B135, Ill. p. 286/287(60)	pp. 281-292
Letter B136, Ill. p. 298/299(61)	pp. 293-303
Letter B137,	pp. 304-311
Letter B138, Ills. pp. 316/317(62), 334/335(63)	pp. 312-345
Letter B139,	pp. 346-354
Letter B140,	pp. 355-358
Letter B141, Ill. p. 362/363(64)	pp. 359-366
Letter B142, Ill. p. 370/371(65)	pp. 367-374
Letter B143,	pp. 375-379
Letter B144, Ill. p. 386/387(66)	pp. 380-394
Letter B145, Ill. p. 398/399(67)	pp. 395-408
Letter B146, Ills. pp. 412/413(68), 424/425(69)	pp. 409-429
Index,	pp. (430-439)
Blank,	p. (440)

Remarks. This is Dobell nr. 27, it is a translation of nr. 18.

Page 31 is mispaginated 32.

EPISTOLAE/ PHYSIOLOGICAE/ SUPER COMPLURIBUS/ NATURAE ARCANIS;/
Ubi variorum Animalium atque Plantarum fabrica, con-/ formatio,
proprietas atque Operationes, novis &/ hactenus inobservatis
experimentis illustrantur/ & oculis exhibentur; item peciliares
&/ hactenus incognitae rerum quarum-/ dam qualitates explicandur.
(Physiological letters on various secrets of nature; such as
the structure of various animals and plants, their formation,
properties and working, illustrated by new and hitherto unknown
experiments demonstrated before the eye. With the explication of
various properties of things, until now unknown).

Delphi Batavorum, Adriaan Beman, 1719.

Collation: two signatures of two leaves each and 61 signatures,
having the format (A, A2, A3, bl.). The signature names are: none,
none, **, ***, A -- Z, Aa -- Zz, Aaa -- Nnn, with J, U, W, Jj, Uu,
Ww and Jjj skipped.

Contents.

Blank,	P. (1)
Frontispice C, state II,	p. (2)
Title page,	p. (3)
Blank,	p. (4)
Dedication to Charles III of Spain,	pp. (5-8)
Table of contents,	pp. (9-24)
Letter R1, Ill. p. 2/3(70)	pp. 1-8
Letter R2, Ill. p. 14/15(71)	pp. 9-22
Letter R3, Ill. p. 24/25(72)	pp. 23-37
Letter R4,	pp. 38-43
Letter R5, Ill. p. 46/47(73)	pp. 44-54
Letter R6,	pp. 55-62
Letter R7,	pp. 63-70
Letter R8,	pp. 71-83
Letter R9,	pp. 84-94
Letter R10,	pp. 95-97

Letter R11,	Ills. pp. 100/101(74), 102/103(75)	pp. 98-111
Letter R12,	Ill. p. 114/115(76)	pp. 112-124
Letter R13,		pp. 125-127
Letter R14,		pp. 128-134
Letter R15,	Ill. p. 144/145(77)	pp. 135-148
Letter R16,	Ill. p. 150/151(78)	pp. 149-155
Letter R17,		pp. 156-163
Letter R18,		pp. 164-169
Letter R19,	Ill. p. 176/177(79)	pp. 170-182
Letter R20,		pp. 183-190
Letter R21,		pp. 191-195
Letter R22,		pp. 196-205
Letter R23,		pp. 206-211
Letter R24,	Ill. p. 214/215(80)	pp. 212-218
Letter R25,	Ills. pp. 222/223(81), 226/227(82)	pp. 219-229
Letter R26,	Ills. pp. 234/235(83), 240/241(84), 242/243(85)	pp. 230-249
Letter R27,		pp. 250-253
Letter R28,	Ills. pp. 260/261(86), 267/268(87), 270/271(88), 274/275(89)	pp. 254-278
Letter R29,		pp. 279-286
Letter R30,	Ill. p. 294/295(90)	pp. 287-300
Letter R31,		pp. 301-308
Letter R32,	Ill. p. 312/313(91)	pp. 309-317
Letter R33,	Ill. p. 318/319(92)	pp. 318-327
Letter R34,	Ills. pp. 330/331(93), 332/333(94), 334/335(95)	pp. 328-339
Letter R35,		pp. 340-347
Letter R36,	Ill. p. 356/357(96)	pp. 348-359
Letter R37,	Ill. p. 362/363(97)	pp. 360-366
Letter R38,		pp. 367-372
Letter R39,		pp. 373-378
Letter R40,		pp. 379-386
Letter R41,	Ill. p. 390/391(98)	pp. 387-394
Letter R42,		pp. 395-402
Letter R43,	Ill. p. 408/409(99)	pp. 403-416

Letter R44, Ill. p. 424/425(100)

pp. 417-431

Letter R45,

pp. 432-436

Letter R46,

pp. 437-446

Index,

pp. (447-471)

Errata,

p. (472)

Remarks. This is Dobell nr. 28, it is a translation of the letters in nr. 19.

Addendum.

BRIEF/ VAN/ G: BIDLOO,/ AAN/ ANTONY VAN LEEUWENHOEK;/ Wegens de dieren, welke men zomtyds/ in de lever der schapen en ande- / re beesten vind.

(Letter of G. Bidloo to Antoni van Leeuwenhoek about the animals, which sometimes are found in the liver of sheep and other animals).

Delft, Henrik van Kroonevelt, 1698.

Collation: One leaf and 5 signatures of 4 leaves each, having the format (A, A2, A3, bl.). The signature names are A -- E. Signature E has only one leaf.

Contents.

Title page,	p. (1)
Blank,	p. (2)
Text of the letter, Ills. pp. 4, 5, 6, 6/7	pp. 1-34

Remarks. This booklet, although not written by Leeuwenhoek, is mentioned here because it is sometimes found bound in a collection of Leeuwenhoek items. Govert Bidloo (1649-1713) was professor of anatomy and medicine at the university of Leiden. The plate between pp. 6/7 is signed I.Goeree.

COLLECTIONS.

The various issues which have been described in the preceding bibliography are often found bound together in collections. Such collections are hardly ever the same and one seldom finds a complete one.

A complete dutch edition contains one each of the numbers 1-10, 12-14 and 16-19 in a first, second or, in the case of nr. 5, third edition. Number 11, which is only an advance edition of one letter from nr. 12 is hardly ever included, although its title page is sometimes present. If number 15 (the "Register") is present, this may be considered a bonus, one should not require it to recognize a collection as complete.

A complete latin edition contains one each of the numbers 21-26, in either the first or in a later edition.

To give an example of what one might expect in a complete edition, a description of two dutch collections and of one latin collection will be given here.

SET A. This set is in five volumes, in an uniform smooth parchment binding in the ordinary dutch style.

- Vol. I. Frontispice A, state I,
- Nr. 8 (1686), B28-31, 34-36
- Nr. 3 (1684), B41
- Nr. 4 (1684), B37
- Nr. 2 (1684), B40
- Nr. 1 (1684), B32, 39, 33
- Nr. 5a(1691), B38, 42,43
- Nr. 6 (1685), B44,45
- Nr. 7 (1685), B46,47
- Nr. 9 (1696), B48-52.
- Vol. II. Nr. 10(1688), B53-60
- Portrait of Leeuwenhoek, state I
- Nr. 12(1689), B61-67
- Nr. 13(1693), B68-75
- Nr. 14(1694), B76-83

The pages in these four issues continuously numbered 1-730.

<u>Vol. III.</u>	Frontispice B, state I, Nr. 16 (1696), B84-96 Nr. 17 (1697), B97-107	The pages in these two issues continuously numbered 1-432. Each issue with index.
<u>Vol. IV.</u>	Nr. 18 (1702), B108-146	With index.
<u>Vol. V.</u>	Frontispice C, state I, Nr. 19 (1718),	With index.

While binding this set, no attempt was apparently made to place the letters in chronological order. Issue nr. 8 is bound first in vol. I because this issue has the frontispice. This set however reflects the way the several issues were to be distributed over the five volumes; volumes II, III, IV and V all have a continuing pagination which starts with 1. The index for volumes I and II (nr. 15, 1695) is missing. Hence, the issues in volumes I and II were probably assembled between 1691 (nr. 5a) and 1695 (date of the missing index, nr. 15). With the exception of nr. 5, this set contains only first editions.

SET B. This set is in three volumes, in an uniform blind stamped parchment binding with ribbed backs.

<u>Vol. I.</u>	Frontispice A, state III. Nr. 8a (1696), B28-31 Nr. 1a (1694), B32,33 Nr. 8a (1696), B34-36 Nr. 4a (1698?), B37 Nr. 5b (1698), B38 Nr. 1a (1694), B39 Nr. 2a (1698?), B40 Nr. 3a (1698), B41 Nr. 5b (1698), B42,43 Nr. 6b (1696), B44,45 Nr. 7a (1697), B46,47 Nr. 9a (1713), B48-52 Nr. 15 (1695),	With the title page, With the title page, With the title page, With the title page, With the title page, With the title page, With the title page, With the title page and the index for the numbers 1-9.
<u>Vol. II.</u>	Nr.10a (1704), B53-60 Nr.12a (1697), B61-67 Nr. 13 (1693), B68-75 Nr. 14 (1694), B76-83 nr. 15 (1695)	With the title page, With the title page, With the title page, With the title page, Index for nrs. 10-14.

<u>Vol. III.</u>	Frontispice B, State II.	
	Nr. 16 (1696), B84-96	With index,
	Nr. 17 (1697), B96-107	With index,
	Nr. 18 (1702), B108-146	With index,

This set lacks the Beman issue (nr. 19, 1718) and hence frontispice C also. It also lacks the portrait of Leeuwenhoek; this portrait was not issued with nr. 12a, in the dutch editions only with nr. 12. This set contains only second editions (or the third in the case of nr. 5b) of all editions which were ever reprinted. From the dates of the issues one would deduce that the set was assembled after 1713 and perhaps before 1718, the date of the lacking nr. 19; it represents a set such as was for sale later in the eighteenth century. In volume I of this set, the letters have been bound in chronological order, necessitating breaking up some issues.

SET C. This is a latin edition, typical of the set such as was for sale later in the eighteenth century. It consists of four volumes, bound in calf.

<u>Vol. I.</u>	Frontispice A, state IV,	
	Title page to the "Opera Omnia" (and to nr. 21d),	
	Nr. 21d (1722), B28-31, 34-36, 38, 42-52	
	Index triplex,	
	Nr. 22c (1730), B53-60	
<u>Vol. II.</u>	Frontispice B, state III,	
	Nr. 23c (1722), B32, 33, 37, 39-41, 61-92	With index,
	Nr. 24a (1722), B93-107	With index,
<u>Vol. III.</u>	Portrait of Leeuwenhoek, state II,	
	Nr. 25 (1719), B108-146	With index,
<u>Vol. IV.</u>	Nr. 26 (1719), R1-46	With index,

In the above listing, the letters were not placed in the order in which they appear in the volume but, to facilitate checking that all letters are there, in numerical order. This set was obviously assembled after 1730, the date of nr. 22c. Nr. 22c does not follow nr. 21d immediately as was intended. Frontispice C is lacking, this is a flaw; it is found in other copies.

Appendix to Chapter II.

A note on roman dating.

In ancient Rome, the names of the months were as follows:

11	Januarius	29 days
12	Februarius	28 days
1	Martius	31 days
2	Aprilis	29 days
3	Maius	31 days
4	Iunius	29 days
5	Quintilus (or Julius)	31 days
6	Sextiles (of Augustus)	29 days
7	Septembris	29 days
8	Octobris	31 days
9	Novembris	29 days
10	Decembris	29 days

New Years day fell on the first day of March, hence the numbers of the months, given in the list above. New Years day was moved from 1 March to 1 January in the year 153 BC, but in England, this custom was still followed in Leeuwenhoek's day, hence the peculiar dating of some letters of that time e.g. 29 Jan. 1676/77. Note that, starting with the fifth month, the names of the months are derived from their number. The names Julius and Augustus were adopted at a later time. There were three long months, Martius, Maius, Quintilis and Octobris.

The specification of the day of the month was based on three special days, which were named and served as reference days for the specification of the other days.

The first of these was Kalendae, the first day of the month.

The second of these was the Idae, the day of the full moon. This day fell in the long months on the fifteenth and in the short months on the thirteenth, according to our reckoning.

The third of these was the Nonae, which was, as the name indicates, the ninth day before the Idae. Hence, in long months, it fell on the

seventh, in the short months on the fifth day of our reckoning.

The other days were specified by counting backwards from one of these three days. While counting backwards from a given reference day, this day was counted as "one"!.

Hence, we may give the following rules for converting roman dates to gregorian dates, as valid for Leeuwenhoek's time.

I. Dates with reference to the Kalendae. Take the number of days in the preceding month as it is in our modern calendar, add two and subtract the number of the day.

- Examples: Kal. Quint. 16801 July 1680
- XVI Kal. Sept. 167617 August 1676
- IV Kal. Mar. 169227 February 1692 (leap year)
- VIII Kal. Jan. 168625 December 1685 (!)

II. Dates with reference to the Nonae

IIA, Long months, Eight minus the number of the day.

E. g. V Non. Quint. 16813 July 1681

IIB, Short months, Six minus the number of the day.

E. g. III Non. Oct. 16773 October 1677.

III. Dates with reference to the Idae

IIIA, Long months, sixteen minus the number of the day.

E. g. IV Id. Mai. 167812 May 1678

IIIB, Short months, fourteen minus the number of the day.

E. g. VI Id. Dec. 16928 December 1692.

The day before the Nonae or the Idae was never called II Non. or II Id, but instead Pridie, Hence: Prid. Id. Oct. = 14 October, and Prid. Non. Jan. = 4 January.

The day after the Kalendae, Nonae or Idae was sometimes called Postdie, hence Post. Kal. Jan. = 2 January; Post. Non. Sext. = 6 August and Post. Id. Mar. = 16 March.

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CHAPTER III.

THE PUBLISHING HISTORY OF THE LETTERS OF LEEUWENHOEK.

The bibliography which has been presented on the preceding pages throws some light on the history of the Leeuwenhoek publications; this history in turn explains and to some extent clarifies the difficulties which these editions present to the bibliographer. But, before discussing this topic, it is necessary to say something about the publishing trade in Holland during the period of the Republic of the Seven United Provinces (1579-1795).

In those days, censorship of the press was unknown in Holland. On account of this, and on account of the economic climate in general, the book trade of Holland probably surpassed the book trade of any other country. Not only were works by dutch authors and in the dutch language published in great number, books in all conceivable foreign languages, both ancient and modern, flowed from the dutch presses. The publishing business was a "free for all" and piracy, especially of books from foreign presses, was not unknown.

There was however not a complete anarchy. A dutch publisher could protect himself against piracy by his colleagues by applying to the States General for a privilegie, a kind of a patent which granted the publishers the sole right to the publication of the book in question for a period of fifteen years. Such a privilegie was often requested for books of a literary or popular nature, written in the dutch language, rarely for scientific works which were often written in a foreign language or in latin.

The absence of censorship however did not mean that anything could be printed with impunity. Frequently, published books were forbidden by the States General, the Courts of the various provinces and, most frequently, by the magistrate of the various cities. Printed matter, most frequently of a political or libellous nature, which had drawn the wrath of the authorities, was confiscated and the printer (more rarely the author) was fined. Knuttel gives a long list of such for-

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bidden books 1/.

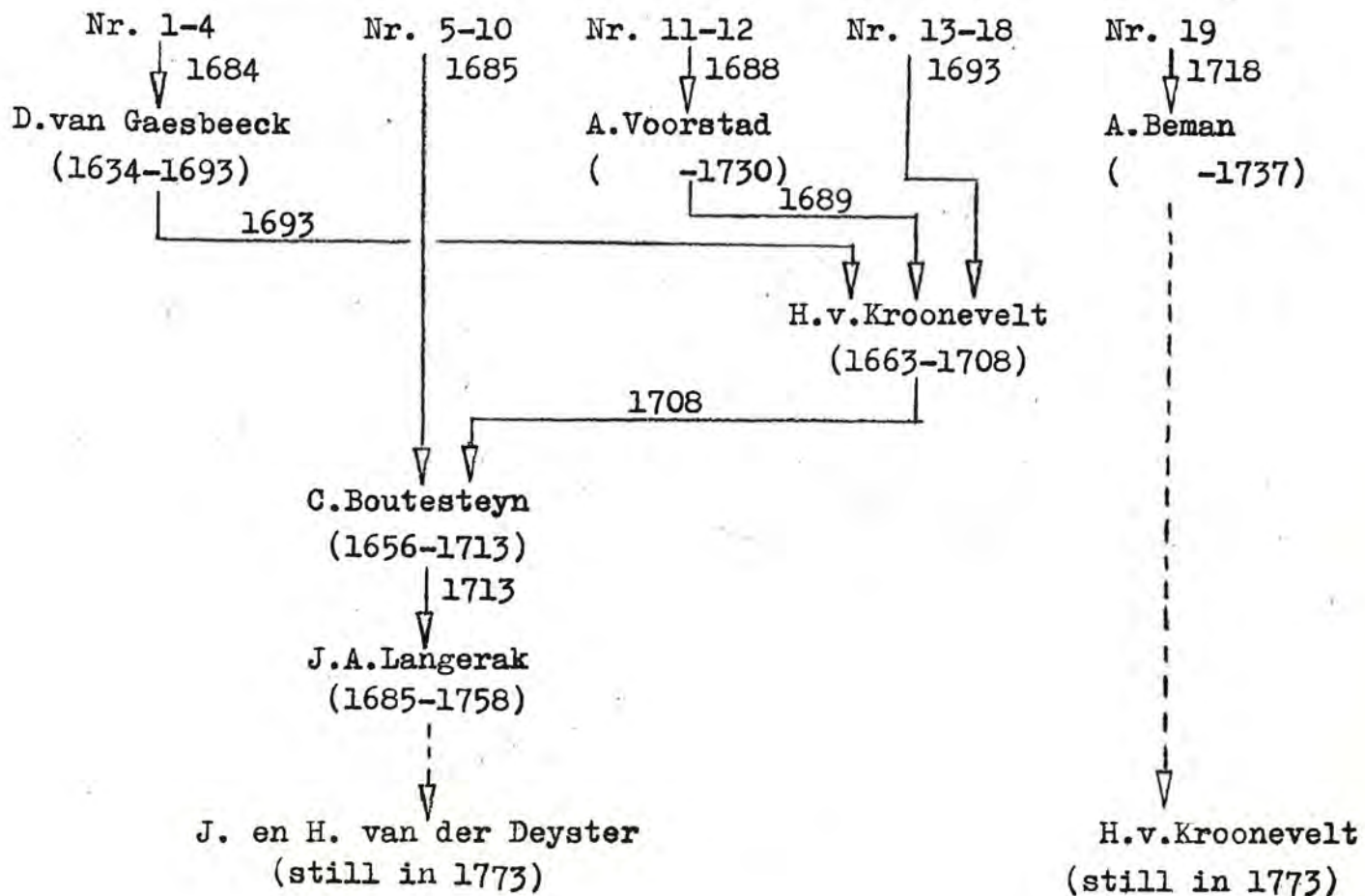
Hence the publisher, who was usually also the printer, had a kind of moral proprietary right to the books he published, although this right was weakly based if not protected by a still valid privilegie, but he did have the responsibility for the contents of the book. The sum total of everything, associated with the ownership of the right to a book was, in those days, called the copy of the book. In addition to the right to the book, moral or protected by law, the copy consisted of the stock of unsold volumes, the stock of unbound sheets, and the woodcuts or the copper plates for the illustrations 2/. It often happened that the copy of a book was sold or otherwise transferred to another owner; such a transfer included everything, mentioned above as belonging to the copy. The new owner would usually paste his imprint over the imprint of the former owner or print an entirely new title page. If he printed an entirely new edition, he would use the woodcuts or copper plates of the previous owner of the copy. For a pirated edition, new plates had to be made for the illustrations.

In the book shops, books were seldom sold as bound volumes, the book came in signatures which were only loosely stitched together and provided with a paper cover. The buyer of the book had the book bound, usually in a way which matched the bindings of the other books in his library. The book dealer was often also book binder and often even had a small printingshop in addition. Books remained in print for an incredibly long time; it was often possible to buy books, printed a century or longer ago, new in the book shop. This explains why books from this period will be found, bound in styles, covering a long time span.

The bibliography of the Leeuwenhoek books enables to prepare a chart, showing the flow of the copy of the various issues from one owner to the other. This chart has the manuscripts of Leeuwenhoek as input, this input is represented by the numbers of the first editions of the dutch publications. This chart is presented on the following page.

This chart shows that the copy of nearly all Leeuwenhoek books ulti-

The flow of the copy of Leeuwenhoek's letters.



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mately came into the hands of J.A.Langerak in Leiden. Only of Nr. 19, the Send-Brieven, did Langerak never obtain the copy; this explains why a "complete collection" sometimes lacks this volume. At various points in time, different groups of publishers had to be contacted by a book dealer to assemble a complete set for his customer; an analysis of a complete set will often indicate the approximate time, the set was assembled.

During the early years of Leeuwenhoek's microscopical activity, manuscript copies of his letters to the Royal Society must have been circulating in Holland, for in 1684 there appeared a small quarto volume (nr. 1): Experiments and considerations of the invisible created truths, contained in several letters, written to the world-famous Royal Society in England 3/, dedicated to Leeuwenhoek by its publisher, Daniel van Gaesbeeck. In a preface, dated 1 January 1684, van Gaesbeeck gave the story of this publication:

Since the entire world is speaking of the invention, enabling to behold the invisible and hidden truths, which has been made by Your Excellency, and since many books, printed in other countries and in foreign languages deal with them, I had a burning desire to see them for myself. To satisfy this desire, Mr. Cornelius van 's Gravesande, Member of the Council of Forty and schepen of the city of Delft brought me to you, where I could behold God's miraculous mysteries, by means of Your Excellency's artful and praiseworthy invention through Your Excellency's gracious goodness. I discovered that the foreign books, which circulate in the world, differ not a little in meaning, accuracy and dignity [from the truth, as shown by you] , and in addition that our own countrymen cannot enjoy in their own language those sciences which are already known to neighboring nations in their own language. Therefore, not resting before I obtained something of what you have already communicated to the world, the letters, published here, were given to me by a gentleman whom not only I, but the entire world has to thank, which letters were sent by Your Excellency to your worthy fellows of the Eminent College of the Royal Society in England. I considered these letters, in which such remarkable miracles can

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be seen, worthy to be communicated in their own language, to my fellow countrymen, through the help of the already mentioned gentleman, by means of my printing press, with illustrations by the artistic hand of the engraver Abraham de Blois of Delft, since they are a cornerstone on which all philosophical and penetrating minds should build and clarify their science.

Now I lay my deed and zeal again at Your Excellency's feet, hoping that this daring exploit will be excused by you and not taken amiss; that these, Your Excellency's firstlings (which have been offered in an english, french or occasionally in latin disguise, and have thereby lost much of their identity and lustre, and which now see the light for the first time in their own country) will not be declined by you, but recognized and accepted as the fruit and making of your own brain and that thereby you will be moved to communicate not only your future observations, but also those which Your Excellency (as I have been advised) has been sending already for ten years to the Most Excellent College in England, to the satisfaction of our own philosophers, and not withhold this precious treasure from your fellow countrymen. Therefore I hope that the Lord God will bless your researches more and more forever 4/.

To say it a little more concisely, van Gaesbeeck had printed the three letters of Leeuwenhoek (B32, B33 and B39) without his permission and he hoped that this would not displease Leeuwenhoek but, on the contrary, he hoped that Leeuwenhoek would supply other letters for further publications.

It appears that Leeuwenhoek approved of the enterprise for, about one half year later, a second booklet appeared (nr. 2), also entitled Experiments and considerations etc., but now with a summary of the contents added. This booklet also has a preface of the publisher, dated 24 July 1684, this time addressed to the reader:

My zeal has been overwhelmed by the proverb: "'t minste werd gesien, 't meeste blijft verhoolen 5/" with a miraculous desire to behold the invisible created truths of real matter, as shown to the world

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by means of the magnifying apparatus, invented in this perfection by that clever gentleman Antoni van Leeuwenhoek, to the glory of the city of Delft. Which invention obliged the Royal Scientific College of London to accept His Excellency as a worthy confrater and present his discoveries in their Philosophical Transactions (be it in mutilated form), which in turn moved the learned gentlemen, who meet in Leipzig, to make His Excellency better known by publishing some of his discoveries in the Acta Eruditorum (although often badly translated). Many french and latin writings mention his discoveries but show that the meaning and essence of this gentleman [Leeuwenhoek] is badly understood. Accordingly, many distinguished and learned gentlemen entreated this gentleman to make some [of his discoveries] known in the language of our country. Therefore a distinguished gentleman recently gave me some [of these records of observations] to satisfy my zeal, which I communicated to the world by means of my printing press and dedicated to their inventor Antoni van Leeuwenhoek. [Here follows a brief excerpt of letters B32, B33 and B39] . At the request of several learned and world-famous gentlemen, His Excellency has finally been persuaded to hand me some [of his letters] to communicate to the world by means of my printing press and has, in addition, presented me with an account, addressed to Mr. F. Aston, secretary to the Royal Society in London: [follows brief excerpt of letter B41] . And finally, he has promised me, to satisfy the gentlemen who search for knowledge a letter, dealing with [follows brief excerpt of letter B29] . Hoping to obtain the favor of His Excellency through the mediation of several venerable gentlemen, and obtain more material from His Excellency, to deserve the pleasure and satisfaction of the virtuosi, use [reader] this to your advantage and fare well.

Hence, through the intercession of "learned and world-famous" gentlemen, Leeuwenhoek had given van Gaesbeeck several letters, thus affixing the seal of his approval to the enterprise. Van Gaesbeeck published letter B37 in this volume (nr. 2) and in the same year, letter B40 in nr. 3 and letter B41 in nr. 4.

Van Gaesbeeck published six letters in total, all in the year 1684. The titles of these publications all start with the phrase: Experiments and considerations of the invisible created truths, contained in several letters, written to the world famous Royal Society in England; in the numbers 2,3 and 4 a brief summary of the letter concerned is added to the title. His title pages are adorned with a curious vignette, which shows what looks like a gallows, but actually is a light-beacon, standing on a promontory while in the distance two islands are seen, each with a phare, the sun rising behind one of them. The vignette has the motto: Intelligentibus (Let us know). Van Gaesbeeck was aware of the fact that he had not published the letters in chronological order, therefore he numbered the pages of each of them separately and printed each letter on an individual signature, thus enabling a future binder to bind the letters in chronological order. Although well meant, this was the start of the bibliographical difficulties of these editions.

Daniel van Gaesbeeck (1634-1693) was a publisher from Leiden, who had been admitted there as a printer in 1676. He probably printed mainly dissertations; in 1686 he obtained permission to publish a journal, the: Ordinaris Courantier der Stadt Leyden (The official journal of the city of Leiden). He must have been a small operator; he printed on sheets of two leaves only, which probably indicates that he had only a small press. All his illustrations were printed in the text, a laborious process, since this way each sheet had to be handled twice; time was apparently not essential to him. His newspaper publishing venture lasted less than one half year; he probably had to give it up for lack of capital; newspaper publishing was an expensive business.

We do not know why van Gaesbeeck stopped publishing Leeuwenhoek's letters. At the time he was still comparatively young, 50 years, and he was still active as a publisher afterwards. Perhaps he had lost the confidence of Leeuwenhoek. The letter B29, which he had been promised according to his preface of 24 July 1684, was actually published by his successor. The reason for giving up the venture probably was that he had overprinted. A second edition of nr. 1 was not needed until 1694, a second edition of nr. 4 only in 1698 while the supply of sheets of the numbers 2 and 3 probably lasted to at least this year also. Consequently, he may have had too much money tied up in unbound sheets and had to relinquish the copy to a more affluent competitor.

This was Cornelis Boutesteyn (1656-1713), who had been admitted as a book seller in Leiden in the year 1679. He published five issues (nr. 5 to nr. 9) of Leeuwenhoek's letters during the following two years, 1685 and 1686. These five issues, together with the four, published by van Gaesbeeck are usually bound together in one volume. For this volume, Boutesteyn had a handsome frontispice made by amico sui (his friend) 6/ Romeyn de Hooghe (1645-1708). De Hooghe was a very well known etcher and book illustrator who lived in Amsterdam and Haarlem. The titles of Boutesteyn's issues, nr. 5-9, all start with the phrase: Dissections and discoveries, or: Discoveries and dissections, which phrase is followed by a brief extract of the contents of the issue. Boutesteyn's publications also have an interesting vignette on their title pages, showing a castle, rising on a steep rocky island with a windmill and another castle on the horizon. This vignette is surrounded by the motto: Structa super lapidem qui ruet ista domus (Built on a rock, what will make this house collapse?), an obvious reference to Matt. VII, 24. Unlike the vignette of van Gaesbeeck, the vignette of Boutesteyn is found in two states, a larger and a smaller one in the Leeuwenhoek editions and there are still other states in other editions, witness to the fact that Boutesteyn was operating on a larger scale. His signatures and those of his successors as publishers of Leeuwenhoek's letters, all have four leaves.

Boutesteyn maintained the same publishing policy, van Gaesbeeck had started. In issues nr. 5-9, he tried to group the letters in chronological order and only such groups were continuously paginated, thus preserving the possibility of binding the letters in chronological order. He continued the practice of printing the illustrations in the text, with the exception of a few large figures, which are printed on folding plates.

It would appear that Boutesteyn initially printed smaller editions than van Gaesbeeck. The first of Boutesteyn's editions, nr. 5, needed a second edition already in 1691 and a third edition in 1698; this is the only dutch edition which went through three editions. Of the other Boutesteyn editions, nr. 6 was reprinted in 1696, nr. 7 in 1697,

nr. 8 in 1696 and nr. 9 in 1713. But for the last one, all these editions needed second printings at a time, three of the four van Gaesbeeck editions were still in print.

The last of Boutesteyn's dutch editions (nr. 10) initiated a new phrasing of the title page, he simply named it: Continuation of the letters etc. This phrasing was used until the publication of the Seventh continuation. With this publication, Boutesteyn made another effort to bring some order into the publishing venture. He preceded this volume with a list, which gave of each letter, published before, the number, the date, the name of the publisher and a short summary. He must have received the numbers from Leeuwenhoek himself, for they start with the number 28; Boutesteyn could not possibly have known that Leeuwenhoek had already sent 27 letters to the Royal Society, since not all of them had been published in the Transactions; one of them even never reached the Society 7/. Boutesteyn explained his intention with the following notice "from the printer to the reader and book binder":

Since the letters, written by this author, have been printed by two different book sellers and not in the chronological order in which they were written, and since he has had many complaints about this, because many persons do not know which letters of this author have been published and how they must be bound in the correct order, he has considered it oportune to add the following index to this book.

In his publications, Boutesteyn initially followed van Gaesbeeck's example of printing the illustrations in the text, but soon he started to collect several figures, belonging to the same letter, on one sheet which was bound as a plate.

It was also Boutesteyn, who started the series of latin translations. In the same year as his first dutch publication (nr. 5, 1685), he published a latin edition thereof. This was clearly a pilot project, to discover whether there was a market for a latin edition. This booklet must have met with a favorable reception for, two years later, in

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1687, he published a latin translation of all the dutch issues he had printed until that date, viz. the numbers 5 to 9. He must have had his problems with these early latin editions, witness the fact that the 1687 edition has two whopping printing errors, and that on the title page! In 1689, he published a latin translation of his last dutch publication, the Continuation, which is nr. 22. This volume also has the list of all previous letters.

Although he continued to publish second editions of his ^{dutch} publications, the numbers 5 to 10 and the latin ones, the numbers 21 and 22, the letters, contained in the numbers 5 to 10 were the only ones, he received from Leeuwenhoek himself; his association with Leeuwenhoek lasted only two years, 1686-1688.

The reason why Leeuwenhoek changed publisher in 1688 is unclear; it is difficult to see why Leeuwenhoek would be dissatisfied with Boute-steyn, it cannot have been the quality of his work. We may however offer the following conjecture. In 1688, Leeuwenhoek made one of his most important discoveries. The doctrine of the circulation of the blood, originated by W. Harvey in 1628, still lacked one feature: the connection between the veins and arterias, which had been postulated by many authors but which never had been seen. This connection was first observed by Leeuwenhoek in the tails of tadpoles and soon thereafter in the tails of several kinds of fishes. He realised that this was an important discovery and wanted it published as soon as possible. Therefore, he approached a printer from Delft, Andries Voorstad (-1730), who published this letter (B65, dated 7 Sept. 1688) as a booklet of 30 pages (nr. 11). It is of interest to observe that the gentlemen of the Royal Society apparently did not share Leeuwenhoek's feeling that an important discovery had been made; they never printed the letter in the Transactions. It is possible that Boutesteyn felt hurt that he had not been given this letter for publication and this may have led to an estrangement. However, this is only conjecture.

Be this as it may, in the next year, 1689, Andries Voorstad published the Second Continuation in dutch (nr. 12). Voorstad came to Delft from Amsterdam, he settled in Delft in 1678. When he published Leeuwen-

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hoek's book, he probably already lived in the house: "De Zeven Starren" (the Seven Stars) which was located near the City Hall, hence close to the place where Leeuwenhoek worked and also close to Leeuwenhoek's dwelling. He was known as a bookbinder and later as a book seller; he apparently published little. He was however the one, who commissioned the beautiful portrait of Leeuwenhoek, which graces his publication.

Voorstad published only the above mentioned numbers 11 and 12; again it is not possible to explain why he did not continue the venture; in his case it is not even possible to guess at the reason. He must have sold or transferred the copy of his edition to Henrik van Kroonevelt (1663-1708), also a printer from Delft. Van Kroonevelt was born in Delft and spent his entire life in that city. As a printer and publisher, he was of more importance than Voorstad, he was, among others, the printer of the city documents. He lived on the corner of the Nieuwstraat and the Hyppolytusbuurt and was hence a next door neighbor of Leeuwenhoek. Van Kroonevelt published Continuations of Leeuwenhoek's letters from the Third Continuation to the Seventh Continuation (nrs. 13, 14, 16-18). He also published latin translations of all his own dutch publications, as well as of the letters which had been published in dutch by van Gaesbeeck and by Voorstad. For the Fifth Continuation, he had a frontispice made, this is van der Schaak's frontispice B.

It is possible that, in this period, Boutesteyn tried to regain the publishing right of Leeuwenhoek's letters, at any rate, it appears that he had not lost interest in the venture in 1695, for in that year he published a comprehensive index to all letters of Leeuwenhoek which had been published until that date, that is, including the Fourth Continuation. This index hence not only covered his own publications, but also those of van Gaesbeeck, Voorstad and van Kroonevelt. He arranged the index in two parts, of which the first covered the numbers 1 to 9 and the second one the numbers 10 and 12 to 14; again indicating how, in his opinion the several issues should be bound.

After the publication of the Seventh Continuation in 1702, Leeuwenhoek

did not release letters for publication for a long time. It has been stated that he was displeased or discouraged by adverse comments on his work; it is however not clear of which nature these comments may have been or by whom. He continued to send letters to the Royal Society, hence he certainly was not idle. It is possible that the death of Henrik van Kroonevelt in 1708 is the reason; Leeuwenhoek may not have known of another publisher to whom he wanted to trust his work.

After the death of van Kroonevelt, Boutesteyn acquired the copy, hence all of Leeuwenhoek's publications, both in the dutch and in the latin languages were now in the hands of Boutesteyn in Leiden. Boutesteyn enjoyed this monopoly for only five years; after his death in 1713, the copy of all of Leeuwenhoek's works came in the hands of Johan Arnold Langerak of Leiden. Langerak (1685-1758) was without doubt the largest of all publishers who had busied themselves with the publication of Leeuwenhoek's works. He was, for example, the publisher of the second edition of Caspar Commelin's Flora Malabarica (1718, the first was: Leiden, F.Haaringh, 1696), and of many editions of the books on physics by W.J. 's Gravesande and the Explicatio Tabulum Anatomicum B. Eustachii. These were expensive books and it required considerable capital to lay them on the press. Langerak did not print new Leeuwenhoek material; he must have had the blessing of Leeuwenhoek however, for in one of his latin editions, he published the latin poem of Kerkherdere, which had accompanied the silver medal from Louvain, which poem Leeuwenhoek alone can have given him.

From 1702 until 1718, no letters were added to the published collections, but in the latter year, Leeuwenhoek entrusted a collection of letters to the publisher Adriaan Beman (-1737) from Delft. This collection is known as the: Send-Brieven (nr. 19). Since it was hoped that Leeuwenhoek would release at some time, the letters belonging to the interim period, Beman started a new numbering for the letters in his edition; he used roman numerals. He also commissioned a handsome frontispice with an inset medaillon portrait of Leeuwenhoek, engraved by the well known artist Jan Goeree.

Unlike the cases of Boutesteyn and Voorstad, in which we do not know

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whether or not Leeuwenhoek was displeased with them, we do know that Leeuwenhoek was very much displeased with Beman. In his holograph will 8/ of 17 November 1721, he called Beman a "schelm" (rogue, villain) and, although he deleted this word, he did not delete his firm instruction that Beman never should be given the opportunity to print more of his letters.

As already stated, Langerak acquired the copy of all Leeuwenhoek's letters in about 1713, he however never acquired the right to the collection of letters which had been published by Beman. Hence a buyer of a "complete set" had to obtain them from two different suppliers. This is probably the reason why the Send-Brieven or their latin counterpart are often missing from a collection.

The works of Leeuwenhoek were still in print in the year 1773; in that year they are listed in van Abkoude and Arrenberg's Catalog 9/ of dutch books as follows:

- A. van Leeuwenhoek, alle zijne natuurkundige werken, 4 deelen,
1696, Leiden, J. en H. van der Deyster, 17 guilders.
- A. van Leeuwenhoek, Zendbrieven, zoo aan de Hoogedele Heeren van
de Koninglijke Societeit to Londen als aan andere geleerde
lieden over verscheyden verborgentheden der Natuur, met platen,
1718, Delft, H. van Kroonevelt, 2 guilders, 10 st.

Hence, the copy of "all the physical works" was, at that time in the hands of the publishers J. and H. van der Deyster from Leiden, but the Send-Brieven (the title given is almost identical to the one of nr. 19 of the bibliography; van Abkoude and Arrenberg were not always accurate in the reporting of titles) were at that time in the hands of Henrik van Kroonevelt, a grandson of the former publisher of Antoni's letters. At that time, the cost of an unbound complete set was about twenty guilders. This was a considerable sum; for sake of comparison it will be mentioned that Jan Swammerdam's Bijbel der Natuur, a large folio with many plates, was priced at 30 guilders in this catalog and at 40 guilders on "large paper".

The letters, never released for publication in Holland by Leeuwenhoek

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had actually been prepared for the press, the plates for them had been cut and a latin translation had been made. These were the letters, of which Leeuwenhoek had ordered in his will of 17 November 1721 that they should not fall into the hands of Beman. After Leeuwenhoek's death in 1723, they probably remained under the custody of his daughter Maria, his only surviving child, who never married. They turned up again, after the death of Maria in 1745, in a notice in the sales catalog of her father's microscopes 10/ which had remained under her custody, in the following notice:

In the estate of the late miss Maria van Leeuwenhoek some post-humous manuscripts of letters by her father, Mr. Anth: van Leeuwenhoek were found, which letters have been written by his Excellency during his life time and which are arranged in a neat order, ready to be published as a continuation of his preceding letters. All illustrations to these letters have already been engraved in copper plates while a latin translation of these letters is available also. Any person who is willing to buy this work, to publish it as a continuation to his previously published letters, may address himself to the executors of this estate.

There obviously were no takers; these letters were never published and the manuscripts appear to have vanished. And so had Leeuwenhoek's fame. For about one and a half century after his death, his name or work was hardly mentioned in the literature; the revival of interest in him started with the celebration of the second anniversary of his discovery of infusoria, Delft, September 1875. Since that time, interest in Leeuwenhoek steadily increased and one would wish now that someone had published the Eighth Continuation.

In addition to shedding some light on the publishing story of Leeuwenhoek's letters, the bibliography also allows us to say something about subjects, related to the publishing venture; the identity of the translators of the letters into latin and the identity of the engravers of the illustrations. Related to the latter subject is the question of the identity of Leeuwenhoek's draftsman.

Leeuwenhoek knew only his own, dutch, language and hence he needed help in handling material in foreign languages. With latin, there was no great problem; there were plenty of people who knew this language perfectly in Delft. It may seem surprising that he had trouble in finding out the contents of the Transactions which were sent to him regularly. In those days, there were many more englishmen who knew the dutch language than dutchmen who knew the english language. In Delft, there was only one person who knew some english, but his skill was not sufficient to be of great help to Leeuwenhoek in understanding the scientific language of the Transactions.

For the dissemination of his ideas, translation of his letters into latin was essential at the time. In a foot note to one of his early letters to the Royal Society ll/, Leeuwenhoek offered to add a latin translation to his letters, but this offer must have been declined. Indeed, there were several fellows who were perfectly able to translate Leeuwenhoek's letters.

Hence, besides some fragmentary translations in continental journals, the letters appeared "in their roman dress" for the first time in the old editions from Leiden. Considering the fact that Leeuwenhoek's letters were written over a period of some fifty years, it is clear that there must have been more than one translator. We offer here the conjecture that the way that latin translations were dated indicates that there have been three translators in succession. The three ways of dating the letters were: 1) not at all, 2) gregorian (that is, the modern way) and 3) roman. If we place the several latin editions in chronological order of publication, we obtain the following picture:

<u>Publisher</u>	<u>Latin ed.</u>	<u>Corresponding</u>		<u>Dating</u>
		<u>Dutch ed.</u>		
Boutesteyn	20,21	5-9		not dated
Boutesteyn	22	10		gregorian
v.Kroonevelt	23-24	1-4, 12-14, 16, 17		roman
Langerak	25	18		roman
Beman	26	19		gregorian

The first letters which were translated were not dated at all, this was perhaps an effort to eliminate the problem of the correct sequence of the letters. These letters, and the following which were dated the gregorian way, were published by Boutesteyn in Leiden. We may assume that these translations were from the same hand and that Boutesteyn had arranged for the translation. If so, the translator probably lived in Leiden.

The roman dates are found in the letters, published by van Kroonevelt and by Langerak. The use of this type of dating is admittedly more scholarly, one might however also call it pedantic. The translator of these letters will probably be found in Delft, where van Kroonevelt lived. The translation, published in Langerak's issue has this type of dating also; this translation was probably already made when the copy of Leeuwenhoek's works was transferred to Langerak.

The last issue of Leeuwenhoek's letters, the one published by Beman, has gregorian dating again. In this case, the identity of the translator is known. He mentioned it in a note in a book on Delft and its surroundings:

Although I, as already mentioned, do not mention the scholars of our time [in this book] , and do not actually know much about them, I should not fail to mention mister Antoni van Leeuwenhoek. Not that it is a great honor for him to be mentioned in this book among the learned citizens of Delft; he is so world famous and his writings and discoveries have brought such glamor to his name in the eyes of important as well an less important people, that he does not need my praise. But I think it is a honor for this book that it can show off the name of such a man, the prince of naturalists.

I will not mention here his many letters about the secrets of nature or even summarise their contents. The virtuosi, who are at least somewhat familiar with the contemplation of Nature's Secrets, have studied his works closely and know more about it than I could possibly say about it.

I must add that he was not only born in Delft, but that he comes from an old Delft family and counts, besides the Leeuwenhoeks, even the Matenesses among his ancestors 12/.

Hence I was honored that he chose me to translate his last letters, which were published in the year 1719, into the latin tongue. In addition, I translated a large number of other letters, which have not yet been published and of which I wish, on behalf of the lovers of nature that they will presently be given to the public 13/.

This book was originally written in latin by an anonymous author. His name is known however, he was the roman catholic priest of Leiden, Hugo van Heussen. The person who translated this book into the dutch language also preferred not to be known, he hid himself under the initials H.V.R. His name was Hugo van Rijn; he is thus the transator of the letters, published by Beman as well as the letters which turned up in the estate of Maria van Leeuwenhoek and which were never published. Antoni van Leeuwenhoek mentioned in his will that he had paid 170 guilders for this translation; he did not however mention the name of the translator. Knowing that Leeuwenhoek paid for the translation of the letters, published by Beman, it may not be considered impossible that he paid for the translation of the letters, published by Kroonevelt also. Here we think of the Dutch Reformed pastor Petrus Gribius (1651-1739). His father has been pastor of the English Church in Middelburg and, as a student, he had made a trip to Oxford, Cambridge and other places in England. Hence he might have helped Leeuwenhoek in deciphering the Transactions. He came to Delft in 1681. He wrote the letter to the Royal Society which announced the death of Leeuwenhoek in 1723, a letter in a very swollen style, exactly as one would expect of a person, giving dates in the roman style.

But for the frontispices and the portrait, none of the illustrations

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in the old Leeuwenhoek editions is signed. The first Leeuwenhoek publisher, Daniel van Gaesbeeck, mentioned the name of his engraver in his preface. It was Abraham de Blois, from Delft. One might ask why a publisher from Leiden, a world publishing center, where there was certainly no shortage of engravers, went to Delft to have his cuts made. The explanation probably is the following. It will be remembered that van Gaesbeeck had not received the first three letters he published from Leeuwenhoek himself; they had been given him by "a distinguished gentleman". It is probable that these letters did not have the illustrations with them; the first letter Leeuwenhoek wrote to the Royal Society did not have illustrations either, they had to ask for them. If so, van Gaesbeeck would have to obtain the illustrations from either Leeuwenhoek himself, which was precluded by the surreptitious nature of his venture, or from the draftsman of Leeuwenhoek.

It is, at this point, necessary to say something about the drawings which accompanied Leeuwenhoek's letters. In order to be specific, we will look at some drawings which accompanied letter B33, dated 12 November 1680 and addressed to Robert Hooke. This letter was published in number 3 of the Philosophical Collections of Robert Hooke in english translation, the original dutch version was published in van Gaesbeeck's nr. 1; the letter was further published in the modern edition Alle de Brieven, vol. 3, pp. 278-343 and plate XXXVIII.

We will more specifically look at two figures in this letter; fig. 3, which shows the copulation of cockchafers and fig. 4, showing the copulation of dragon flies. On the plate in Alle de Brieven, the actual drawings which Leeuwenhoek sent to the Royal Society are reproduced. According to the caption to these figures on the plate, these are red-chalk drawings, made by Leeuwenhoek himself. However, in one of his early letters to the Royal Society 14/, Leeuwenhoek said that he could not draw; a curious statement for a man, so dexterous with his hands! However, references to draftsmen who worked for him are so numerous that we have to believe him. Indeed, in the text of the letter under consideration, Leeuwenhoek says of the drawing which shows the copulation of the cockchafers that he had het laten afteykenen: he had the drawing made. Likewise, of the drawing of the

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copulating dragon flies he said ik heb deselve mede laten afteykenen: I had the drawings for these made also. It must be admitted that he says of figure 2 of this letter that he had drawn the object the same size as it appeared to him under the microscope, but this is a very simple drawing. Hence we may conclude that Leeuwenhoek made simple sketches himself, some of them appear in the margine of his autograph letters, but that he had someone to make the more complicated drawings for him, someone who also executed the drawings in red-chalk if they had to be submitted. We may add that red-chalk is not the medium in which one would expect a microscopist to work; it is however a perfectly natural medium for an artist.

The illustrations in the Philosophical Collections are clearly copied from the red-chalk drawing, Leeuwenhoek sent, the figures are reversed however. The engraver in the Collections even copied the style of the lettering of the original.

The illustrations in van Gaesbeeck's publication, which he stated to have been made by de Blois, are also an exact copy of the original in London; there hence must have been another copy of this drawing in Delft. Here also, the lettering of the drawing has been copied. The lettering, particularly the word: "fig." which occurs in almost every illustration in Leeuwenhoek's letters and often more than once in an illustration, is always the same, a graceful, but simple style. The same style is found in the illustrations of all of van Gaesbeeck's editions, of those of Boutesteyn and in those of Voorstad. Hence we may assume that de Blois illustrated all these volumes and, from the similarity in the lettering of the drawings, Leeuwenhoek sent to the Royal Society and in the engravings, we may surmise that de Blois was Leeuwenhoek's draftsman also. In addition, it will be noticed that the engravings, now attributed to de Blois are also the ones, which were not bordered.

The likelihood that Leeuwenhoek's draftsman and his engraver were one and the same is supported by the following quotation from a letter of 1684:

Since this is something new [that eels have scales] , especially

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in the eyes of the jews (since they have up to this date been ignorant of this fact, so that this delicious fish is unclean and distasteful to them 15/), I have taken a scale from the stomach of an eel, where the smallest ones are found, and ordered an engraver to draw it exactly as he saw it through the microscope. But while he was busy on this task, he said that he could cut it in a plate in the same time as he could draw it; therefore I ordered him to cut it in a plate, of which I inclose a print 16/.

It is not known in which year Abraham de Blois was born in Delft; he is known to have worked there as an engraver from 1679 until 1686. His activity as engraver for Leeuwenhoek's works allows to enlarge this time span to 1673 until 1689. In 1691, he is reported to work in Amsterdam, where he died in 1717. The report that he worked in Amsterdam in 1691 agrees very well with the last activity as Leeuwenhoek illustrator in Delft in 1689; he must have moved between these two years.

In the editions of van Kroonevelt, we meet another engraver. His plates are all bordered and his "fig.s" are much more fancyful and intricate. In addition, if this word occurs more than once in a plate, the curlicues of his lettering are all different. Those of de Blois were always the same. We do not know the identity of this engraver. It cannot have been Jeremias van Schaak, who made frontispice B in 1696, for the activity of the unknown engraver starts in 1693 and van Schaak came to Delft in 1695. The plates in Beman's edition were made by this unknown engraver also.

Of van Schaak, not much is known; he is reported to have been an engraver and a draftsman; he also designed medals.

In Boitet's Description of Delft 17/, a notice is found on the Delft painter Thomas van der Wilt (1659-1733). He had been encouraged to take up painting by the engraver Jan Goeree and he studied under the Delft painter Johannes Verkolje. He is mainly known as a portrait painter; he painted, among others, the anatomical lesson of Dr. van Bleyswijck (1727). He also was of some local fame as a poet; his

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dedicatory poems graced the Seventh Continuation and the Send-Brieven. He had a son, Willem van der Wilt (c. 1692-1729) who was trained in the art of drawing by his father. Boitet states that Willem van der Wilt made most of the plates in the works of Leeuwenhoek:

Van hem zijn ook meest alle de platen in het vermaarde werk van den Heer Leeuwenhoek, door vergrootglazen wonderlijk na het leven geteekend 18/.

There is some slight possibility that Boitet referred to the father here; the sentence is a little obscure but, if he indeed was speaking of the son, it is certain that he only referred to him as a draftsman, for the activity of the engraver starts in 1693, at a time Willem was hardly born. It is however possible that Willem served Leeuwenhoek as a draftsman in later years.

Engraving must have been a lucrative business in those days; in his will, Leeuwenhoek stated that he had paid 500 guilders for the ten copper plates which accompanied the unpublished letters.

It must be admitted that the printed works do not reveal all we would like to know about the persons who worked so closely with Leeuwenhoek; archival research will perhaps fill the gaps some day.

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Foot notes for Chapter III.

- 1/ W.P.C.Knuttel, Verboden boeken in de republiek der vereenigde Nederlanden, 's Gravenhage, M.Nijhoff, 1914.
- 2/ Hence, the meaning of the dutch word is different from the meaning the english word copy has in, for example: "copy right", where it refers to the act of reproduction only.
- 3/ In this narrative, the english translation of the various titles will be used in most cases, the numbers refer to the bibliography.
- 4/ This, and following translations are by the author.
- 5/ Apparently a contemporary dutch proverb, roughly translated: "Few things are seen, most things remain hidden".
- 6/ It is actually not clear whether this "amico sui" refers to Boutesteyn or to Leeuwenhoek.
- 7/ This letter, B27, dated 21 February 1679. See: Petra Beydals, Leeuwenhoek-brief N^o 27 en andere gegevens, Bijdr. tot de Gesch. der Geneeskunde, 13, 31-36, 1933.
- 8/ Petra Beydals, Twee testamenten van Antoni van Leeuwenhoek, Bijdr. tot de Gesch. der Geneeskunde, 13, 67-79, 1933.
- 9/ J.van Abkoude en R.Arrenberg, Naamregister van de bekendste en meest in gebruik zijnde nederduitsche boeken etc., Rotterdam, R.Arrenberg, 1773.
- 10/ Catalogus van het vermaarde Cabinet van vergrootglazen nagelaten door wijlen den heer Anthony van Leeuwenhoek. Delft, Reinier Boitet, 1747.
- 11/ Letter to H.Oldenburgh, dated 23 March 1677.
- 12/ In chapter I, some remarks on Leeuwenhoek's ancestors were already made. No link between the families van Leeuwenhoek and van Matenesse are known to me.
- 13/ (H. van Heussen), Oudheden en Gestichten van Delft en Delftland, mitsgaders van 's Gravenhage ... etc. Uit het latijn vertaald en met aantekeningen opgehelderd door H.V.R. Leiden, Christiaan Vermey, 1720. See p. 241.
- 14/ Letter to H.Oldenburgh, dated 15 August 1673.

15/ "These are the things that breed in the waters, and which it is lawful to eat. All that hath fins and scales, as well in the sea, as in the rivers, and in the pools, you shall eat. But whatsoever hath not fins and scales, of those things that move and live in the waters, shall be an abomination to you". Lev. 11, 9-10. Also in Deut. 14, 9-10.

16/ Letter B42, to Fr. Aston, dated 25 July 1684.

17/ (R.Boitet), Beschrijving der Stadt Delft, Delft, R. Boitet, 1729.

18/ Boitet, p. 791. From his hand are also most of the plates in the famous work of Mr. van Leeuwenhoek, drawnⁿ marvellously after life with the help of microscopes.