

Six Unknown Letters from Mersenne to Vegelin

The published correspondence of the Minim friar Marin Mersenne (1588–1648) fills seventeen fat volumes, and constitutes one of the most important monuments of seventeenth-century intellectual life.¹ Mersenne's appetite for information in almost every field of learning was extraordinary and unflagging; he corresponded with Italian mathematicians, Dutch and French musicians, Huguenot theologians, English philosophers and scientists, and a wide range of friars, Jesuits, *savants* and country gentlemen. However, the sheer bulk of the modern edition of his correspondence may give a somewhat misleading impression of the quantity of Mersenne's own letters that have survived. A significant proportion of those seventeen volumes consists, in fact, of letters between third parties which mention Mersenne or relate in some way to his own correspondence. For the year 1641, for example, exactly 100 letters are printed: 54 are letters between third parties, 39 are letters to Mersenne, and only seven are letters by him.² The discovery of six hitherto unknown autograph letters by Mersenne – addressed to Philip Ernst Vegelin, and located among the Vegelin papers in the Provincial Archive of Friesland at Leeuwarden – therefore amounts to a significant addition to the corpus of Mersenne's own letters.³

The recipient of these letters was a talented young Dutchman of German origin, who shared some of Mersenne's scientific and musical interests, and had become acquainted with Mersenne personally in Paris. His name is not unknown to Mersenne scholars: one letter from him to Mersenne is contained in the published correspondence, and the Minim friar occasionally referred to him in letters to a mutual acquaintance.⁴ However, almost nothing has been written about him, apart from the brief entry in the *Nieuw nederlandsch biografisch woordenboek*, and virtually no attention has been given to the small but significant role he played as an intellectual intermediary between the Netherlands, France and England.⁵

Philip Ernst Vegelin was born on 10 October 1613; his father, who bore the same name, came from a Protestant family, originally from Fribourg in

Switzerland, which had moved to the Rhineland town of Neustadt, in the Palatinate. (The family name was probably derived from 'Vögelin'; the recipient of these letters normally signed himself 'Vegelin', but sometimes used 'Vegelin' – or, when writing in French, 'Veguelin', to indicate the hard 'g'. In later generations the spelling became fixed as 'Vegelin', which is the form used in this article.) Philip Ernst Vegelin senior served under Gustavus Adolphus, and was rewarded with an estate at Claerbergen, in the southern part of Friesland; the full family name therefore became Vegelin van (or 'de') Claerbergen.⁶

Nothing is known of Philip Ernst Vegelin junior's education or early adulthood until the late 1630s, when he evidently spent some time in Paris: before he visited England in 1639 he was already well acquainted with the French engineer and musical theorist Jean Le Maire. This visionary but secretive inventor had developed a new form of musical notation, using individual symbols for notes of different pitch (instead of placing them on a staff); he also designed a new type of lute, called an 'Almérie' (an anagram of his name).⁷ No doubt it was Vegelin's own passion for music that drew him to Le Maire; it may also be a testimony to his personal charm that this notoriously unforthcoming inventor did apparently share some of his secrets with him. Whether Vegelin had also made the personal acquaintance of Mersenne by this stage is not known, though it does seem likely; he certainly knew of Mersenne's own work as a musical theorist (published in his huge folio volume, the *Harmonie universelle*) – as one of his later comments, noted by Samuel Hartlib and quoted below, makes clear. Nor is it known how long Vegelin spent in Paris at this time. He may have lived with a Mr Bosch (or 'Boosch', or 'Boosc'), a merchant or agent who resided in Paris and who was later described by Mersenne as Vegelin's 'cousin' – a very extensible term in both English and French seventeenth-century usage.⁸

It was probably in early 1639 that Vegelin travelled to England, where he then stayed for several months. In London he came into contact with Samuel Hartlib, the Anglo-German educationalist, reformer and 'intelligencer' whose role as a tireless promoter of correspondence and publications made him in some ways the English counterpart to Mersenne. Vegelin's introduction to Hartlib may have come through another German who was one of Hartlib's closest associates: Theodore Haak, a man of wide-ranging scientific interests who was also the future translator of *Paradise Lost* into German.⁹ What probably brought Vegelin into contact with these two men was his own family connection with the Palatinate: as the address of one of Mersenne's letters to Vegelin (Letter 2, below) shows, Vegelin was later, albeit briefly, a member of the Prince Palatine's court at The Hague. Theodore Haak was himself born in the Lower Palatinate, and in 1632 he had been nominated as an official representative of the exiled Calvinist ministers of the Palatinate (who had fled the territory after its conquest by Habsburg forces in 1621), to liaise with the English civil and ecclesiastical authorities over the collection of money for the exiles. Samuel Hartlib was active too in the collections for

the exiled ministers, and gave grants of money from his own pocket to refugee students from the Palatinate. And a third German in London, a friend of both Hartlib and Haak, was also a supporter of the Palatine cause: Georg Rudolf Weckherlin, the poet and under-secretary of state responsible for Charles I's diplomatic correspondence.¹⁰ Vegelin was, as we shall see, in contact with all of these, and with other members of Hartlib's intellectual circle, such as the young mathematician John Pell; he was also put in touch with some of Hartlib's foreign correspondents, such as the German-Dutch alchemist in Amsterdam, Johann Moriaen.¹¹

The first signs of Vegelin's presence in London come from the second quarter of 1639, when Samuel Hartlib noted the following information in his 'Ephemerides' from conversations he had with the young Dutch-German (whom he called 'Vogelin' or 'Vogelinus'): 'John de Mare ... A Frenchman at Paris a free vniversal philosopher and transcendent Mathematician especially in Musicis having invented also new instruments. Hee hase many things ready to be printed which he offereth to Vogelinus. Is preferred before Mersenne in his harmonical and other learned abilities. Vogelinus.' And again: 'Hase admirable didacticas in Linguis, Musicis, Arithmetis, Geometricis, Astronomicis, ex novis principiis. Hee hase also made a wonderful Instrument Musicum which surpasses all Lutes, which hee purposes to send to our king (and others). It costs 200. Guldens. Vegelin.'¹² Some time before 21 July 1639 Vegelin wrote a letter to Johann Moriaen, containing praise of both Le Maire in Paris and Theodore Haak in London. Summarizing its contents, Moriaen noted that Vegelin was acting as some sort of agent for Le Maire: 'I am no less keen to see the publication of the said Le Maire's new inventions, especially in the field of arithmetic, as Mr Vogelin assures me that he has a commission on their behalf.'¹³

Whether Vegelin had any more concrete success in his promotion of Le Maire in England remains doubtful; and, in any case, within a few weeks of Moriaen's writing those words, Vegelin had left England for good. On 15/25 August a friend in Paris wrote to him, saying that he had just received the letter Vegelin had sent him from Harwich – then, as now, a departure point for the Netherlands – on 5 August, and complaining that 'vostre si profond silence mesmes apres vostre arriuée en Hollande a fort estonné tous vos amys.' This correspondent also referred to an agent of the Queen of Bohemia (the widowed mother of the Prince Palatine), a M. Berckringer, who had recently left Paris, and who had been hoping to visit Vegelin in London *en route*.¹⁴ Possibly Vegelin had business of his own to attend to at the Palatine court in The Hague; or perhaps his return to the Netherlands was merely to revisit his family. By the beginning of November 1639, at any rate, he had returned to Paris: Mersenne referred to a recent conversation with him in a letter of 1 November to Theodore Haak, and there is also a letter written from a friend at The Hague on 7 November 1639, addressed to 'Monsieur Veglin à Paris'.¹⁵

Vegelin now spent at least a year in the French capital, and it was during this period that he had his closest contacts with Marin Mersenne. He is referred to quite frequently in Mersenne's correspondence with Haak during the period from November 1639 to May 1640, as the performer of a variety of services and tasks: informing Mersenne of Pell's authorship of the anonymously published *Idea of Mathematics*, sending Haak a copy of Bernard Palissy's *Discours admirable de la nature des eaux et fontaines*, translating for Mersenne an English book sent by Haak (Henry Gellibrand's *A Discourse Mathematical on the Variation of the Magneticall Needle*), transmitting payment to Haak for another book, and sending various French books to Haak on Mersenne's behalf.¹⁶ He also helped to convey some traffic in the other direction: in March 1640 Vegelin brought Mersenne a gift from Haak, a box containing optical lenses of some sort.¹⁷ Apparently Mersenne depended heavily on Vegelin for his contacts with Haak; indeed, it seems likely that it was thanks to the young Dutch-German that the two men had been brought into contact at all, since the first letter from Mersenne to Haak was written just after Vegelin's return to Paris.¹⁸

If this conclusion is correct, then Vegelin deserves the credit for having brought together two of the most active intellectual networks of seventeenth-century Europe: the circles of Samuel Hartlib and Marin Mersenne. Surprisingly, there had been no direct contact between Mersenne and any of the core members of Hartlib's circle up till this moment. (The first appearance of Mersenne's name in Hartlib's own papers was only in the first quarter of 1639, when he jotted down that Mersenne was 'a great Promoter of truly Mathematical wits with whom Mr Pell also should keep Correspondency'.¹⁹ Quite possibly this information too was derived from Vegelin.) The connection thus apparently established by Vegelin opened, for Mersenne, a new and important avenue into English intellectual life. Through Haak, Mersenne was able to enquire about other English writers, such as Thomas White and Thomas Hobbes.²⁰ And it was initially via Haak that Mersenne entered into direct contact with the talented young mathematician John Pell, whose first letter to Mersenne is dated 21 November /1 December 1639.²¹ Mersenne sometimes sent letters or documents – with Vegelin's help – for Haak and Pell together: on 12 May 1640, for example, he mentioned in a letter to Haak that 'J'ay un ou deux excellents traitez de Geometrie la plus raffinée, mais parce qu'ils sont un peu longs à descrire, je prieray M. V(egilin) de prendre la peine de les transcrire pour vous les envoyer; et puis vous en ferez part à Mr Pell.'²² And Vegelin occasionally sent his own direct communications to Haak – adding, for example, a personal note (in English) to the end of one of the letters that Mersenne had entrusted to him.²³

Otherwise, however, we know almost nothing about how Vegelin spent his time in Paris. No doubt he kept up his contacts with other friends; there is one brief entry in Georg Rudolf Weckherlin's notebook recording his own correspondence, which mentions three items sent to Paris on 11–12 December

1639. 'I stayd at home. And did write to Mons. Augier, and to Monsieur Lehlin. Withall I sent some German Bücher & meine Psalmen dominus Voegelin.'²⁴ But apart from this, all that can be deduced about Vegelin's activities in Paris is what emerges from the newly discovered letters to him from Mersenne. Evidently he discussed with the Minim friar new discoveries and publications in the areas of pure and applied mathematics: Mersenne would later send him (or offer to send, or recommend) works on geometry, algebra, perspective, sun-dials and navigation. (There are also a few references to theological books, but one senses that these may have been of more interest to Mersenne than to Vegelin.) He took an interest in the 'magic of perspective' – meaning, probably, the art of anamorphosis, in which distorted images, formed on the basis of an exaggerated perspective, are resolved with the help of mirrors or special viewing-points – and commissioned at least one picture of this sort, which Mersenne later helped to acquire for him. And he continued to devote himself to music; indeed, his interest here must have been unusually intense, as he commissioned, before his departure from Paris, the manufacture of one of the most advanced and expensive musical instruments yet devised – the 'Archiviole'.

This was a keyboard instrument, similar in outward appearance to a spinet or harpsichord, in which the strings, instead of being plucked, were stroked by something equivalent to a bow – in this case, a belt of leather or parchment held by two rotating spools. The idea was to enable a single player to produce polyphonic textures of continuous string sound, as if in command of a whole consort of viols. The first known sketch of such an instrument was by Leonardo da Vinci; the first one to be made was apparently the 'Geigenwerk' produced by the Nuremberg instrument-maker Hans Haiden in 1575, in which the strings were activated by rosined wheels, as in a hurdy-gurdy. Thanks to published descriptions of Haiden's instrument in works by Vincenzo Galilei (1581) and Michael Praetorius (1620), sufficient interest in the instrument had developed in France to stimulate work along the same lines by Parisian instrument-makers in the 1630s.²⁵ Mersenne discussed the instrument in his correspondence with Giovanni Battista Doni in 1635, and mentioned it several times in his *Harmonie universelle*, published in the following year – indeed, it was Mersenne who, in the Preface to that work, coined the name 'Archiviole' for it. He also singled out a Parisian instrument-maker, Pierre Hubaut or Hubault, for special praise, saying that while his book had been in the press Hubaut had perfected the design of his 'archet sans fin'.²⁶

An anonymous letter from Paris, dated 8 January 1640 and preserved among the Hartlib papers, gives a detailed – and glowing – description of the Parisian version. After discussing briefly the 'Almérie' of Jean Le Maire, the writer continues:

Next unto it I account the other musicall Instrument lately brought to perfection in this Citty called the Archivioll it hath violl strings inclosed in a Case like a paire

of virginalls, but of equall bredth throughout. The strings lie upon 16 Bridges The bow wch is only of Rough leather goes continually round with 2 wheels which are at each end of the Instrument & are moved by the foote like a Turner The Jackes are just at the nearest end of the Keyes It looks like an Ordinary Paire of Virginalls but when it is tuned there is heard a vast difference especially when any grave or spirituall matter is plaied there on they that can play on the Virginalls may play this also the effect is admirable & it is impossible that in this kind any thing more excellent or delightfull should bee framed it having been in hand these 200 yeares It goes farr Sweeter and melodius then a consort of the best 5 Violls de Gambas. The Inventur or master of it has a great mind to come into England when he has made another of the foresaid Instruments which cannot be done soe soone.²⁷

Acting perhaps on this information, Haak made further inquiries about the instrument in one of his letters to Mersenne, adding a comment about the ‘Geigenwerk’ of Hans Haiden. The friar replied on 20 March 1640:

Pour ce que vous dites de l’epinette à viole en Allemagne, elle alloit avec des roues, et non avec un archet. Quand vous verrez celle du sérénissime Roy d’Angleterre, vous serez ravy de contentem^t; un Ange ne peut, ce me semble, p(ro)céder plus simplement et gentiment; et tout homme qui verra cet instrument le confessa tel que je vous le dis. L’inventeur se nomme Pierre Hubault.²⁸

Hubaut’s plan to send an Archiviole to King Charles never bore fruit; the instrument would not be heard in England until 1664. As Henry Oldenburg explained in a letter to Robert Boyle on 13 October of that year, ‘There was about that time [sc. 1643] made one of ym, to be presented to ye late king, but ye Troubles intervening diverted ye Musick, and left ye Instrument imperfect; wch now is brought again to light, and by My Ld. Breretons care and expences made perfect.’²⁹ A public demonstration of Brereton’s instrument was made on 5 October 1664, when Samuel Pepys and various other luminaries – ‘all the Gresham College and a great deal of noble company’ – met to hear ‘the new instrument ... called the Arched Viall’. (Pepys, however, was not impressed, recording that it sounded ‘so basely and harshly, that it will never do’.)³⁰ Possibly Brereton’s knowledge of the instrument had come only from published sources such as Mersenne’s book, with the addition of any details that Haak had been able to furnish him from his own correspondence with Mersenne. But it is also conceivable that William Brereton, who had studied at Breda under John Pell in the late 1640s, had gained some knowledge (perhaps via Pell at that time, or later via Hartlib) of Vegelin’s own Archiviole, which was probably one of only two such instruments in the Netherlands. The first to arrive there was the one ordered by Vegelin and referred to in Mersenne’s letters to him: this Archiviole, although presumably commissioned by Vegelin for his own use, was presented by him in the spring of 1642 to Constantijn Huygens, for reasons which will become apparent below.³¹ Some time thereafter, Vegelin apparently ordered a second instrument for himself: in February 1646 he wrote from Leeuwarden to

Samuel Hartlib, saying that his 'Parisische Archiviole' had finally been brought to Friesland (at huge expense), and that he was now commissioning improvements to it from two local organ-builders.³²

When Vegelin himself had left Paris is not at all clear. On 16 November 1640 Mersenne mentioned in one of his letters to Haak that Vegelin and his cousin, Mr Bosch, had gone to Holland; by 13 December Bosch was back in Paris, acting as an intermediary between Haak and Mersenne, but it is not known whether Vegelin had come back with him.³³ All references to Vegelin up to that point in Mersenne's correspondence had been in his letters to Haak, and since that letter of 13 December is the last surviving one sent from Mersenne to Haak, it is perhaps not surprising that the references to Vegelin also cease from that moment.³⁴ Vegelin may have left Paris for good by mid-November 1640; on the other hand, if he returned to Paris, he may have stayed there until September of the following year.

All that can be known with certainty is that Vegelin had moved to The Hague by the second half of September 1641 at the latest. Having made contact there with Mersenne's friend Constantijn Huygens (the distinguished poet and diplomat, who had served since 1625 as Secretary to the Prince of Orange), Vegelin wrote to Georg Rudolf Weckherlin in England; and on 23 September /3 October 1641 Weckherlin sent a reply to 'Monsieur Veguelin &c A la Haye', enclosing a letter of compliments to Huygens which began: 'Le Sieur Veguelin, mon patriote, me semble avoir fait deux beaux coups d'une seule pierre, en m'advertissant qu'il vous auroit pleu vous souvenir & enquerir de moy.'³⁵

Significantly, Weckherlin also begged Huygens to 'advancer & employer [Vegelin] en quelque service prez de Vous'.³⁶ As the address of one of Mersenne's letters to Vegelin (Letter 2, below) shows, Vegelin was still – or had been until recently – attached to the court of the Prince Palatine; but he was evidently looking for new employment. Perhaps he hoped that Huygens would find him a post at the Prince of Orange's court. Huygens, however, had a better idea: he persuaded Willem Frederik of Nassau, the Stadhouder of Friesland (Vegelin's own home territory) to take him on as a secretary. The first sign of such employment is a document in Vegelin's hand, preserved among the Stadhouder's official papers, dated The Hague, 21 November 1641.³⁷ By 15 December Huygens was able to write to Mersenne that 'Le bon Veglinus commence à prendre racine où je l'ay planté' – an especially charming metaphor, coming as it does from one of the greatest gardeners of his age.³⁸ Vegelin moved to the Stadhouder's court in Leeuwarden some time before 10 January 1642; on that date he wrote his second letter to Huygens from that town (the first has not survived).³⁹ He was soon heavily engaged in his official duties: from early February onwards his handwriting is a constant presence in the Stadhouder's correspondence. (Most documents were written in Leeuwarden, but he also made occasional visits to The Hague on the Stadhouder's business.)⁴⁰ Vegelin was to spend the rest of his life in the

service of the Nassau family, becoming ‘hoofmeester’ (court chamberlain) first to the Stadhouder and then, after the latter’s death, to his widow Albertina Agnes. In 1643 he married a rich young widow, and with their own subsequent offspring they founded what was to become one of the leading land-owning families of Friesland.⁴¹

Since Vegelin owed his good fortune to the intervention of Constantijn Huygens, it is not surprising that, besides presenting him with his Archiviole, he also took special pains to keep up a correspondence with him. Ten letters from Vegelin to Huygens survive, all written between January and October 1642.⁴² There is also one hitherto unknown letter from Huygens to Vegelin, preserved among Vegelin’s papers, written from The Hague and dated 6 February 1642.⁴³ Naturally enough, as Mersenne (a friend of Huygens since 1630) had apparently played a part in bringing the two men together, Vegelin was keen to emphasize his willingness to be of service to the *Minim* friar.⁴⁴ In his first surviving letter to Huygens (10 January 1642) he wrote that ‘Le Père Mers. me pousse continuellement de luy faire part de quelques nouvelles inuentions de ce pays-cy’, and mentioned that he had sent Mersenne some magnets which he had received from Ratisbon. But, as he gloomily observed, ‘Ces arriereboutiques du Monde sont vuides de telles et autres curiositez.’⁴⁵ A month later he was complaining to Huygens that he had heard nothing from their mutual friend: ‘Le Père Mersenne ne sonne mot.’⁴⁶ But on 8 March Mersenne did write a letter, which must have reached Vegelin eventually (Letter 4, below); and it was probably in reply to this that Vegelin penned, on 4/14 April 1642, what appears to be the only one of his letters to Mersenne that has survived. Here he repeated his gloomy remark about the intellectual backwardness of Friesland: ‘il ne se trouue rien en ces arriereboutiques du monde.’ He did promise, nevertheless, to obtain some magnets from a merchant who traded in the far north; he also sent Mersenne a list of published works by Nicolaus Vedelius, Professor of Theology at Franeker, and he offered to send a book by the Frisian astronomer J. P. Holwarda, *Πανσεληνος εκλειπτικη διαυγαζουσα, id est dissertatio astronomica* (Franeker, 1640).⁴⁷ Whether this volume was actually sent is not known; but Mersenne’s next letter, written in September 1642 (Letter 5, below) shows that Vegelin did send one other book – possibly a work of moral theology by the German Jesuit Jeremias Drexel.⁴⁸ The following letter from Mersenne, dated 22 January 1644 (Letter 6, below), appears to be part of an on-going correspondence; it may be presumed that Vegelin replied to it, but no further evidence has survived of contacts between these two men in the few years that remained before Mersenne’s death in 1648.⁴⁹

Despite the burden of his official duties, however, Vegelin did keep up some of his intellectual interests for many years thereafter. His surviving correspondence includes items from the German theologian, mathematician and linguist (and Professor at Groningen University) Matthias Pasor (one letter, 18 July 1655), from the theologian Samuel Desmarets (two letters, undated,

and copies of two documents by him), from the famous learned lady of Utrecht, Anna Maria van Schurman (two letters, 23 June 1667 and 22 April 1668), from the mathematician Jakob Bernoulli (one letter, undated, about lenses), and from Constantijn Huygens's brilliant son, Christiaan (four letters, dated 1684–90, including a long discussion of telescopes).⁵⁰ One particularly assiduous correspondent was the German Jesuit scientist Gaspar Schott, whose role in seventeenth-century intellectual history might be summed up as that of Sancho Panza to Athanasius Kircher's Don Quixote: Vegelin's papers include twenty letters from Schott, written between 1 July 1661 and 5 November 1664.⁵¹ During that period Schott was preparing one of his scientific compilations, *Technica curiosa*: in it, he included numerous flattering references to Vegelin, whom he described as a 'patron of letters and of writers'. He mentioned one letter he had received from Vegelin, which included a discussion of the origins of arithmetical notation and comments on Pascal's multiplying machine; he presented in a diagram Vegelin's own method of calculating the height of buildings from their shadows; and he noted also that Vegelin had sent him a catalogue of experiments carried out at the Royal Society in London, as well as Boyle's *Nova experimenta physico-mechanica* and copies of all Boyle's English works. Through Vegelin, he said, he had sent a letter to Boyle; unfortunately he had received nothing in response, except for a polite acknowledgement.⁵²

On the strength of these comments by Schott, Cornelis de Waard supposed that Vegelin was himself in correspondence with Robert Boyle; but there is no direct evidence to support this claim.⁵³ What Vegelin's papers suggest, rather, is that he had just one active correspondent in London, who no doubt supplied him with copies of Boyle's works and offered to forward a letter to the British scientist. This correspondent was Theodore Haak. Two letters from Haak to Vegelin survive from the year 1662; in one of them, Haak describes to his old friend the setting up of the Royal Society. There is also a letter sent by Haak in 1675 to Dr Rumpf, physician to the Prince of Orange at The Hague.⁵⁴ It is thus comforting to know that these two extremely long-lived friends – Haak, who died aged 85 in 1690, and Vegelin, who died aged 79 in 1693 – had not lost touch. For it was probably thanks to Haak that Vegelin had not only got to know Samuel Hartlib but also had such frequent contact in Paris with Marin Mersenne; and it was thanks to Mersenne that Vegelin had not only obtained, probably, the introduction to Constantijn Huygens which changed his life, but also received the exceptional stimulus of exposure to an unceasingly inquiring mind – as these six letters from Mersenne to Vegelin help to show.

The Letters

Textual note: Mersenne's hand is notoriously difficult – tiny, crabbed and irregular. (Sir Charles Cavendish, who found it indecipherable, once passed

on a letter he had received from Mersenne to John Pell with the comment: ‘I desire you will doe me the favoure to write it oute and send it to me, for I confess his hande is an Arabicke character to me.’⁵⁵ A few readings here are uncertain; these have been enclosed in square brackets, with an italicized question mark. All superscripts have been brought down, and all contractions expanded (except for those used in Mersenne’s signature, where they stand for ‘Frère Marin Mersenne, Minime’). Otherwise, however, the orthography (and punctuation) is reproduced unaltered here; this includes some quasi-phonetic spellings, such as ‘face’ for ‘fasse’ and ‘quaisse’ for ‘caisse’. Underlinings in the original are presented here in italics. The letters are numbered here in their chronological order; this is not the order in which they appear in the folder of manuscripts at Leeuwarden, where the sequence (using this numbering) is 1, 4, 2, 6, 5, 3.

*Letter 1: between November 1639 and December 1640*⁵⁶

Monsieur

vous estes assureé que depuis maintenant qu’il est cinq heures, Jusques à demy aprez minuit, & par consequent à 4 heures du soir ie vous attendray, & donneray quelque chose pour Monsieur Haac⁵⁷

Recommandez moy à votre Cousin Monsieur Boosc⁵⁸

Je suis

votre treshumble seruiteur F M Mersenne. M

*Letter 2: between September and early November 1641*⁵⁹

Monsieur

dez auant vostre lettre que je viens de receuoir i’auois fait venir icy le Sieur Hubaut⁶⁰ il y a 3 ou 4 iours, affin qu’il me rendist raison de vostre Instrument, & où il en est, mais ie sceu qu’il n’y a encore que le Coffre fait, & m’assura qu’il y alloit trauailler tout à bien, ayant esté empesché jusques à present à faire des Pompes Il a trouué vne Gentille Inuention qu’il aioûtera à votre Instrument, ascauoir vne espece de monocorde par le moyen duquel chacun sera capable d’accorder l’instrument, c’est à dire L’Archiviole, quand elle sera desaccordée, de sorte qu’au lieu de perdre à l’attente vous gagnerez de la commodité & des nouvelles Inuentions. J’ay consideré votre papier pour la subtilité de l’escriture sans papier & sans encre, mais parceque ie ne voy rien qui ne soit corruptible de toutes les choses qu’un homme peut porter avec soy, ie ne peux deuiner, car de dire que ses cheueux ou autres poils de son corps, ou des lettres formées sur la peau de sa teste sur laquelle les cheueux cachent tout, s’il n’est rasé, & mesme qu’il ne paroist rien sur la peau, si on ne la frote ou laue de quelque Ingredient, ie ne croy pas que ce soit cela.⁶¹

Pour la memoire artificielle qui sert a dire 1022 mots barbares, l’histoire

nous apprend que plusieurs l'ont icy pratiqué, & ce qu'on tient de feu le Cardinal du Peron est encore plus prodigieux.⁶² Pour la langue latine Monsieur le Maire qui a appris 2 petits garçons les 3 langues en vn an, ascauoir le latin, le grec & l'hebreu, est encore plus prodigieux, ie les Interogé desirant ex abrupto, qu'ils me dissent en hebreu & en grec *ie beniray Dieu*, ils me le dirent soudain, & ie le leur fis escrire, que il me semble que ie vous ay mandé.⁶³

Si vous escriuez à Monsieur Pell à Londres, vous luy pouuez mander que ie m'estonne de ne receuoir plus de ses lettres.⁶⁴

Nous auons icy vn Medecin de Lyon, qui fait merueille pour guerir des fieures quartans. & vn Gentilhomme qui avec 8 gouttes d'une huyle mise en de l'eau guerist aussi toutes sortes de fieures, & affin que ie ne vous face point languir, est de l'huyle de vitriol le meilleur qu'on puisse trouuer. Quant il court la peste la fieure le saisit au soir, & prenant de cela aprez souper, il ne s'en sent point le lendemain.

Je viens d'apprendre que le Père Bourdin fait vendre ses Mathematiques vn liure de figures,⁶⁵ si tost que i'en scauray le prix, ie vous en enuoyeray vn, si vous le desirez, ou mesme deux, l'vn pour vous, & l'autre dont vous obligerez Monsieur Huygens.

Tavernier a aussi Imprimé vn liure d'Horlogerie fait par vn père fueillant & vn liure de Perspectiue, si vous les desirez vous me le mandez⁶⁶

Ce Monsieur Bodinus est vn braue homme d'auoir trouué de si rares Inuentions. ie prise bien fort sa Chronologie si courte & si aysée, semblablement qu'il enseigne si aysment le latin & l'hebreu il faut qu'il ayt vn grand esprit.⁶⁷

Je ne vous parle point de la grande Machine volante de 28 pieds en quarré, qui peut porter vne mille liures Jusques à ce que ie l'aye vû voler dans l'air, que promet & asseure son auteur & Ingenieur qui est icy. & qui dit n'ignorer rien de toute la nature & de l'art.⁶⁸

Le Dominus francois Charbreux⁶⁹ se porte bien, il m'escrit qu'il s'attend que vous luy enuoyez quelque petite pierre d'aymant par moy, affin que ie la luy porte. Il y a fort long temps que Je ne le suis allé voir. Je suis bien ayse que votre Cour doiuie estre bien tost de [retour?], Resiouissez vous, & remarquez tousiours quelque chose de rare selon vostre genie & coustume pour nous en faire part de quelqu'une. Je voudrois que le Sieur le Maire eust donné son Alphabet ou maniere pour pouuoir escrire aux Chinois, & a toutes les nations du monde, sans aucun truchement, & sans qu'il falle que celuy qui doit lire, en ayt esté aduertit.⁷⁰ Mais il n'y a pas moyen de le luy faire donner, Jusques à ce qu'il ayt le contentement de Joindre les Mers.⁷¹

Je solliciteray Hubaut tant que ie pourray, & mesme depuis qu'il me trompe, ie feray vn voyage chez luy pour voir où il y est, Car vous scauez que les Ouuriers & Artisans sont les plus grands menteurs du monde, & qu'ils promettent souuent cent fois auant que de liurer, à raison de la multitude de besognes & d'affaires qu'ils embrassent. N'oubliez pas de saluer le Gentilhomme d'Amsterdam⁷² de ma part, & me croyez s'il vous plaist tousiours

vostre treshumble seruiteur F M Mersenne M.

[*postscript:*] J'ay enuoyé depuis peu de beaux Airs à Monsieur Huygiens, qui a le goust aussi delicat en [musicien?] qu'aucun homme du monde. & qui excelle en langues en poesie, en arts en sciences & en tout.

[*addressed:*] A Monsieur

Monsieur Veglin Gentilhomme du Prince Palatin

A la Haye

soit donnée au Lion d'or

chez Monsieur Bosch rüe des Blancsmanteaux

Letter 3: 20 November 1641

Monsieur

ie suis bien ayse des merueilles que fait Monsieur Bodin⁷³ en enseignant la Jeunesse, notre monsieur le Maire ne veut rien dire de ses secrets & n'est nullement communicatif comme vous scauez bien, de quoy ie me fasche bien fort, car à quoy dieu nous donne il des lumieres si ce n'est pour les Impartir aux autres. Monsieur Hubaut me vient de venir voir & m'a promis de ne desister point de trauailler à votre Instrument, dont la quaisse est faite. J'ay veu sa bonne volonté, car il s'est offert de rendre les 50 escus qu'il a dauancé, si vous vous ennuyez trop. C'est que plusieurs l'employent à des pompes nouvelles qu'il fait. Je [vigileray?] bien tost de vous faire faire les figures a facettes comme la nostre,⁷⁴ & prendray le meilleur marché que ie pourray, comme i'ay fait aux perspectiues que vous auez receues. Je suis bien ayse que Monsieur Radeau⁷⁵ est arriué en Hollande. On a Imprimé Volkelij Institutum de Religione à Amsterdam,⁷⁶ ce pourra estre vn des liures que vous m'enuoyez par luy avec l'autre que vous nommez s'il se trouue & ce que vous Jugerez à propos. Je vous prie de me recommander au braue gentilhomme d'Amsterdam votre amy Je suis bien ayse qu'il ne manque point de pierre de Noruege car comme vous dites elles sont spongieuses & ne valent rien, comme il est arriué à celle que vous m'enuoyastes & a vne toute semblable que Monsieur Huygens m'enuoya aussy.⁷⁷ Si vous le voyez, présentez luy mes baisemains. Et quand vous scauez les 6 regles ou quelque chose de plus particulier des methodes de Monsieur Bodinus, vous m'en ferez part [escriuez?] si Monsieur des Cartes est encore prez de Leyden, & s'il n'est point malade, car il y a long temps que ie n'en entende point de nouvelles⁷⁸ Je vous ay desia escrit que i'ay baillé le beau liure du Père Bourdin⁷⁹ à Monsieur Bosch pour vous l'enuoyer, ce qu'il aura fait à la première commodité

Je ne scache maintenant rien de nouvelles. Monsieur Grotius a fait vn beau liure sur les euangiles Imprimé à Amsterdam lequel ie n'ay point encore⁸⁰

Je demeure tousiours de plus en plus

vostre treshumble seruiteur F M Mersenne M

de Paris

Ce 20 Nouembre 1641.

[*postscript:*] Vous avez encore icy vne Lettre avec la vôtre à rendre à Monsieur de Mondevis Gentilhomme ordinaire de Monsieur le Prince d'Orange fils de Monsieur Riuet, il peut vous seruir à leur Cour.⁸¹

Letter 4: 8 March 1642

Monsieur

ie vous enuoye à ce voyage les Airs à boire les plus nouveaux, qui commencent au 39 feuillet, par *Ca, qu'on nous aporte nos armes*, les précédant vne à dancier.⁸² Vous me direz s'ils vous auront bien fait boire, & s'ils vous ont agré, Je vous donne aussi vn liure nouveau qui est le Secretaire pour bien escrire des lettres.⁸³ Monsieur Boosch l'enuoyra par la premiere occasion. on en fait estat pour bien toucher en francois. Je n'ay point encore receu nouvelle de vos pieres, ni Liures.⁸⁴ Monsieur Boosc a la grande harmonie pour vous l'enuoyer.⁸⁵ Je ne scache rien de nouveau sinon que le Père Bourdin a reduit l'usage du compas de proportion à vn morceau de [passement?]. Resiouissez vous, & nous faites part de ce qui sera de nouveau, tandis que ie demeure tousiours

votre treshumble seruiteur F M Mersenne M

Ce 8e de Mars 1642

Letter 5: 13 September 1642

Enfin Monsieur ie viens de receuoir les 2 pieres d'aymant, & le seul liure Joseph,⁸⁶ & nul autre, de sorte qu'il faut qu'ils soient perdus, ou egarez.

Mais vous ne vous estes pas souenu de ce que Je vous auois dit, ascauoir que ie ne voulois point de pieres armées, mais seulement desarmées, parceque les armées trompent, & ne vallent rien.

Or pour connoistre si vne pierre est bonne, il faut que sans armure elle leue du fer aussi pesant comme elle est. De sorte que les vostres ne vallent rien faute d'en auoir fait bonne & legitime experiences Car quand elles sont armées, elles doiuent leuer dix, ou 12 fois leur pesanteur de fer.⁸⁷

Mais ie ne laisse pas de vous y auoir obligation, à cause de vostre bonne volonté.

Au reste J'ay enuoyé Il y a long temps à Monsieur Huygens le grand Liure de Mathematique Intitulé *Apiaria*,⁸⁸ & les 5 Liures des Nouveaux Airs de Boësset,⁸⁹ & à vous aussi, mais votre Cousin Monsieur Boosch a attendu Jusques à present vne bonne voye pour vous les enuoyer.

Or puis que vous avez choisi le portrait du Roy, ie m'en vais vous faire faire Ce que vous desirez pour raur vos amis par la Magie de la Perspectiue.⁹⁰

Monsieur Huygens me vient d'escire que les pluyes & les eaux vous persecutent dont ie m'estonne, vû que nous auons icy vn si beau temps.

Resiouissez vous & n'engendrez point trop de melancholie,

Asseurez [vivement?] Monsieur Huigens de ma part que ie luy enuoyray La Tablature pour le luth des Aires de Baësset si tost qu'elle sera faite & Imprimée. Et s'il se rencontre quelque chose de gentil pour luy, ie vous le feray tenir pour l'obliger tousiours.

Il aura maintenant receu le gros liure d'Italie sans doute,⁹¹ Car ie le luy ay enuoyé il y a long temps, mais on en va Imprimer vn bien subtil & mathématique qui sera Clauis Geometriae & Algebrae,⁹² si ie suis icy quand il sera Imprimé, ie vous l'enuoyray. Le Père Bourdin demeure President à leur College⁹³ Il grossira son liure de figures l'anné qui vient à mon aduis, ou bien fera Imprimer vn petit Euclide en francois plus aysé que l'ordinaire,⁹⁴ ne vous souciez de rien, vous aurez tout avec le temps. J'attendray au prochain voyage à escire à Monsieur Huygens dites luy que J'ay baillé a ce voyage a Monsieur son Ambassadeur 2 liures admirables pour le resiouir, avec vne mienne lettre.⁹⁵ Je scay que ledit Ambassadeur prendra la première commodité pour les luy enuoyer Si Je les eusse encore ici pardeuant moy, ie les eusse baillés à Mr Boosch pour les mettre en vostre balot, mais il y a 4 ou 5 iours qu'ils soient empaquetez & portez chez l'Ambassadeur, ils sont in 40. Il y aduance la Cause du flux & reflux de la Mer, lequel est Cause du mouement de la tere.⁹⁶

Nous attendons le Courier de la prise de Perpignan, peut estre viendra il auant que ceste lettre parte de la poste.⁹⁷

Tousiours votre treshumble seruiteur
M Mersenne M

Ce 13 Septembre à 8 ou 9 heures du matin.

[*postscript:*] On croit que Monsieur de Fiat, dit le grand, aura auiourduy la teste tranchée à Lion pour les brouillements que Vous auez avec.⁹⁸

[*addressed:*] A Monsieur

Monsieur Veglin Gentilhomme
au Camp de l'armée Hollandaise

Letter 6: 22 January 1644

Monsieur,

i'ay esté bien ayse d'entendre par vos derniers que vous estiez en bonne santé, & tousiours ayant les belles choses, sur lesquelles ie vous diray que les liures les plus curieux Imprimez depuis que ie n'auois pas ce me semble receu de vos nouuelles, sont. Le Livre in folio de l'Hydrografie du Père fournier Jesuiste,⁹⁹ lequel i'ay enuoyé à Monsieur de Zuyelichen¹⁰⁰ Ce Liure

est de 8 livres pour le prix, ou 9 tout au plus, & contient tout ce que vous scauriez vous Imaginer des Nauires, de la nauigation, des armées nauales, Arcenaux, longitude, flux & reflux, proprietez de l'aymant, enfin *Omnia*, sans exception: si vous ne l'auiez pas encore, vous deuez le faire voler à vous. Et puis il y a Clauis Geometriae in 4o d'un autre Jesuiste nommé de Billy;¹⁰¹ il resout quantité de problemes par l'analyse de l'algebre, dont il donne vn traité.

Le liure du docteur Arnaud de la frequente Communion in 4o est de cent sols, & fait icy bien du bruit, parceque les Jesuistes se bandent contre, & le Père Petau a fait vn autre volume pareil contre, qui se vendra bien tost, aprez 3 gros volumes en beau latin de la theologie Positiue.¹⁰² Vous pourrez aussi bien tost auoir vn des traites de L'Hydraulique Pneumatique, Ballistique & Mechanique¹⁰³ voyla tout ce que ie scais excepté vn gros volume d'Astronomie que fait Imprimer Monsieur Bouillaud auteur du Philolaüs, Imprimé chez Blauu à Amsterdam, mais ce liure ne sera Imprimé à mon aduis que sur la fin de ceste année.¹⁰⁴

Il y a 2 qui ont fait excellemment des Passions de l'ame estants vn Jesuiste nommé Le Moyne, & vn Père de Loratoire nommé Senaut.¹⁰⁵

Si vous desirez quelqu'un desdites Liures i'auray soin de les acheter & bailler à votre Cousin Mr Bosch, pour vous les faire tenir. Vous scauez que ie suis tout à votre seruice, c'est pourquoy vsez de moy comme de

vostre treshumble seruiteur Mersenne M

Ce 22 de l'an 1644

[*addressed:*] A Monsieur
Monsieur Veglin
Recommandée à Monsieur Bosch
Rüe des Blancsmanteaux,
Au Lion d'or.

London

NOEL MALCOLM

Notes

- 1 M. Mersenne, *Correspondance*, ed. C. de Waard, R. Pintard, R. Lenoble, B. Rochot and A. Beaulieu, 17 vols (Paris, 1933–88) [hereafter: MC].
- 2 For the other years covered by the new letters presented here, the figures are as follows. 1639: from Mersenne, 18; to Mersenne, 37; third parties, 33. 1640: from Mersenne, 41; to Mersenne, 75; third parties, 46. 1642: from Mersenne, 16; to Mersenne, 42; third parties, 38. 1643: from Mersenne, 10; to Mersenne, 40; third parties, 38. 1644: from Mersenne, 9; to Mersenne, 20; third parties, 57.
- 3 Rijksarchief in de Provincie Friesland, Leeuwarden [hereafter: RPF], van Eysinga – Vegelin van Claerbergen papers [hereafter: EVC], MS 67, second folder, ‘Brieven van geleerde Liederen’, items 4–9. These papers are currently being re-numbered; the number ‘67’ here is that of the old cataloguing of this family archive, as set out in S. J. Fockema Andreae, *Huis- en familiearchiven van Eysinga – Vegelin van Claerbergen*, Monumenta frisca, Fryske Archyfrige no. 6 (Leeuwarden, 1965) (see p. 11). I wish to thank the RPF for permission to publish these documents, and am especially grateful to the Curator of the Stadhoudersarchief, Dr A. P. van Nienes, for his help during my visit to Leeuwarden.
- 4 Bibliothèque Nationale, Paris [hereafter: BN], MS f. fr., n. a. 6206, fol. 171 (= pp. 332–3), printed in MC, XI, 114–15.
- 5 C. de Waard, ‘Philips Ernst Vegelin’, in *Nieuw nederlandsch biografisch woordenboek*, 10 vols (Leiden, 1911–37), VII, cols 1224–5.
- 6 See *ibid.*, col. 1224, and Fockema Andreae, *Huis- en familiearchiven*, p. 5.
- 7 See A. Cohen, ‘Jean Le Maire and La Musique Almérique’, *Acta musicologica*, 35 (1963), 175–81, and J. R. Knowlson, ‘Jean Le Maire, the Almérie, and the “musique almérique”: A Set of Unpublished Documents’, *Acta musicologica*, 40 (1968), 86–9. A summary of Le Maire’s notation, copied not by Vegelin but by a scribe working for Mersenne, survives among Sir Charles Cavendish’s papers (British Library [hereafter: BL], MS Harl. 6796, fols 175–7r), and is given in photo-reproduction in MC, IX, 565–9.
- 8 See for example Letter 1, here; cf. also MC, IX, 16 (n.).
- 9 On Hartlib see the still classic study by G. H. Turnbull, *Hartlib, Dury and Comenius: Gleanings from Hartlib’s Papers* (London, 1947), esp. pp. 1–126; on Haak see P. R. Barnett, *Theodore Haak, F.R.S. (1605–1690): The First German Translator of Paradise Lost* (The Hague, 1962).
- 10 See Barnett, *Theodore Haak*, pp. 21–8 (Haak, Weckherlin), and O. Grell, *Dutch Calvinists in Early Stuart London: The Dutch Church in Austin Friars, 1603–1642* (Leiden, 1989), pp. 183–4 (Hartlib). On Weckherlin more generally see L. W. Forster, *Georg Rudolf Weckherlin: zur Kenntnis seines Lebens in England*, Basler Studien zur deutschen Sprache und Literatur, 2 (Basel, 1944).
- 11 On Pell see the entry by Agnes Clerke in the *DNB*, and the biographical sketch in F. L. R. Sassen, ‘Levensberichten van de hoogleraren der Illustre School te Breda’, *Jaarboek van de geschied- en oudheidkundige kring van de stad en land van Breda ‘De Oranjeboom’*, 19 (1966), 123–57. On Moriaen see the path-breaking new study by J. T. Young, *Faith, Medical Alchemy and Natural Philosophy: Johann Moriaen, Reformed Intelligencer, and the Hartlib Circle* (Aldershot, 1998) (which, however, makes no mention of Vegelin).
- 12 Hartlib papers, Sheffield University Library, electronic edition (CD-Rom, Ann

- Arbor, Michigan, 1993): Ephemerides, 30/4/11A-B. 'Second quarter' is an approximation: the Ephemerides for 1639 are in four parts, and this is from part 2. Hartlib follows here his usual practice of placing at the end of each note the name of the person from whom the information was derived.
- 13 *Ibid.*, 37/34A, Moriaen to (?), 21 July 1639: 'Nicht weniger verlange ich auch dz des gedachten Le Maire neue Inventiones sonderlichen in Arithmetica an den tag kommen mögen, inmaszen Mr Vegelin mich vertröstet, dz Er daruber Commis-sion habe.'
- 14 RPF, MS EVC 67, first folder, 'Brievan van particuleeren', first item, Lehlin to Vegelin, Paris, 15/25 August 1639: 'Je ne reçeus qu'hyer par l'ordinaire et dans le paquet du Sieur Withrings à Monsieur Augier celle qu'il vous a pleu m'escire de Harwich en datte du 5 de Juillet (que Je crois vous auez pris pour ce moi d'Aoust) ... vostre si profond silence mesmes apres vostre arriüée en Hollande a fort estonné tous vos amys ... Monsieur Berckringer ayant eu ordre de la part de la Reyne de Boheme de s'en retourner a la Haye partit à cet effet de cette ville dimanche dernier prenant la route de Dieppe, en intentions de s'y embarquer auec bonne compagnie pour Hollande, sinon de vous aller voir à Londres.' On Lehlin see below, n. 24. Thomas Withrings was the holder of the 'postmastership for foreign parts': see the *Calendar of State Papers, Domestic: 1638–39* (London, 1871), p. 199, and *Calendar of State Papers, Domestic: 1640–41* (London, 1882), p. 453. This M. Berckringer is probably to be identified with Daniel Berckringer, who was originally from the Upper Palatinate (F. Lucä (ed.), *Der Chronist Friedrich Lucä: ein Zeit- und Sittenbild aus der zweiten Hälfte des siebenzehnten Jahrhunderts* (Frankfurt am Main, 1854), p. 43). He had been tutor to the children of the Prince Palatine (according to Burmann) and/or court chamberlain (according to Jöcher), and had been appointed, on the recommendation of the Queen of Bohemia, Professor of 'practical philosophy' at Utrecht in 1640: see C. Burmann, *Traiectum eruditum, virorum doctrina inlustrum, qui in urbe Trajecto ... habitarunt* (Utrecht, 1738), pp. 24–5, and C. G. Jöcher, *Allgemeines Gelehrten-Lexicon*, 4 vols (Leipzig, 1750–51), I, cols 984–5.
- 15 MC, VIII, 580; RPF, MS EVC 67, first folder, 'Brievan van particuleeren', second item, J. F. to Vegelin, The Hague, 7 November 1639.
- 16 See MC, VIII, 580, 684, 690, 693; IX, 16, 112, 135.
- 17 *Ibid.*, XI, 410 (Mersenne to Haak, 20 March 1640, thanking him for 'l'etuy avec lunettes, que m'a apporté M. Veglin').
- 18 *Ibid.*, VIII, 579–85.
- 19 Hartlib papers, electronic edition, 30/4/5A ('Ephemerides', 1639, part 1).
- 20 MC, XI, 404: 'Vous avez un certain M^r. Hobbes parmy vous, que j'ay veu icy conducteur d'un Seigneur. Si vous le connoissiez, il a des choses bien particulières en Philosophie, aussy bien que M^r. Vitus...'
- 21 *Ibid.*, VIII, 622–32.
- 22 *Ibid.*, 306. 'V(egilin)' is an expansion by the editors of MC of 'V' in the manuscript, in the light of Mersenne's reference in the previous sentence to 'M^r Veglin'. The editors also suggest (p. 310) that one of these items was the treatise on tangents by Jean de Beaugrand of which a copy survives in the BL: MS Harl. 6796, fols 155–61. However, this copy is not in Vegelin's hand.
- 23 MC, VIII, 694 (Mersenne and Vegelin to Haak, 18 December 1639).
- 24 BL, MS Add. 72433, fol. 76v. 'Mons. Augier' was René Augier, the chargé

- d'affaires at the English Embassy in Paris; 'Monsieur Lehlin' (who was already known to Vegelin: see above, n. 14) was Augier's secretary, a German from Ravensburg (possibly Hans Georg Lehlin or Lächlin), who later became secretary to Count Heinrich of Nassau (see Forster, *Weckherlin*, p. 147, n. 21). Weckherlin refers here to manuscript copies of some of his own German versions of the Psalms, later published in his *Gaistliche und weltliche Gedichte* (Amsterdam, 1641): see his *Gedichte*, ed. H. Fischer, 3 vols (Tübingen, 1894–1907), I, 289–419. Forster also records that Weckherlin sent Vegelin his version of the 137th Psalm on 23 April 1640 (*op. cit.*, p. 92).
- 25 See G. Kinsky, 'Hans Haiden, der Erfinder des nürnbergischen Geigenwerks', *Zeitschrift für Musikwissenschaft*, 6 (1923–24), 193–214, and A. Buchner, 'Dvě privilegia císaře Rudolfa II', in *Staletá Praha: sborník Pražského státní památkové péče a ochrany přírody*, 3 (1967), 76–83 (reproducing Praetorius's illustration of the instrument on p. 79).
- 26 MC, V, 410 (Doni to Mersenne, 30 September 1635); Mersenne, *Harmonie universelle contenant la théorie et la pratique de la musique*, 2 vols (Paris, 1636), I, sig. A4r; II, book 4, p. 214, and book 7, p. 60.
- 27 Knowlson, 'Jean Le Maire', p. 89. Knowlson suggests that Vegelin was the author of this letter, and of another which describes the 'Almérie'; but the writer of these letters was clearly making the acquaintance of Le Maire for the first time, whereas Vegelin had known him since at least early 1639.
- 28 MC, XI, 406–7.
- 29 H. Oldenburg, *Correspondence*, ed. A. R. Hall and M. B. Hall, 13 vols (Madison, Wis., and London, 1965–86), II, 251.
- 30 S. Pepys, *Diary*, ed. R. Latham and W. Matthews, 11 vols (London, 1970–83), V, 290. Cf. the briefer description by Evelyn, who attended the same demonstration: *Diary*, ed. E. S. de Beer, 6 vols (Oxford, 1955), III, 378.
- 31 Leiden University Library [hereafter: UBL], MS Huygens 37, Vegelin to Huygens, fifth letter (16 April 1642): 'Enfin l'Archiviole est faite et en chemin, et ie crois que l'auray l'honneur de vous la presenter bientost.'
- 32 Hartlib papers, electronic edition, 47/9/35A. Hartlib's quotation from Vegelin's letter is preceded by the note: 'NB To get the Archi-viole from Mr Vogelin from the Organist in the Low C'.
- 33 MC, XI, 420, 434.
- 34 Four later letters have survived from Haak to Mersenne: a brief note added to a letter from Joachim Hübner on 29 August 1641, and letters dated 5 June 1647, 6 August 1647 and 7/17 June 1648 (MC, X, 731; XV, 247–51, 353–6; XVI, 361–3).
- 35 Weckherlin's letter to Vegelin is in RPF, MS EVC 67, second folder, 'Brieven van geleerde Lieden', second item. His letter to Huygens is Amsterdam University Library [hereafter: UBA], MS 29 Bw. Weckherlin recorded the despatch of these letters in his notebook as follows: '23 [September 1641] Item to Monsieur de Zuylichem & to Monsieur Veguelin and enclosed to Sir Will: Boswel to whome I wrote also' (BL, MS Add. 72433, fol. 86v). Forster notes that Weckherlin had probably met Huygens on the latter's visit to England in 1621 (*Weckherlin*, p. 153, n. 353).
- 36 UBA, MS 29 Bw.
- 37 RPF, Stadhouderslijk archief, MS 30/1, item 4a–b (instructions to the 'Heeren

- Gedeputeerde van Frisland’).
- 38 MC, X, 816. On Huygens’s responsibility for this appointment see also the letter of 20/30 December 1641 to Huygens from Vegelin’s uncle, Johann Burchard Wetzel, given in translation in C. Huygens, *De Briefwisseling*, ed. J. A. Worp, 6 vols (The Hague, 1911–17), III, 259.
- 39 UBA, MS 29 Bn (1): ‘Depuis ma derniere que Je vous escriuis à nostre arriüée en ce lieu ...’.
- 40 RPF, Stadhoudelijk archief, MS 30/1, item 7 (7 February 1642). Cf. numerous Vegelin items in MSS 30/1–30/7 (1642–52). Vegelin was at The Hague in May and November 1642: MS 30/1, items 11, 54.
- 41 De Waard, ‘Philips Ernst Vegelin’, col. 1224; see also M. de Haan Hettema and A. van Halmael, *Stamboek van den Frieschen, vroegeeren en lateren, adel, uit oude en echte bescheiden en aantekeningen*, 3 vols (Leeuwarden, 1846), I, 392, and II, plate 35.
- 42 UBA, MS 29 Bn (1) and (2); UBL, MS Huygens 37 (seven letters). The tenth is a letter from Vegelin to Huygens, in Vegelin’s hand, which survives in the Provinciale Bibliotheek van Friesland at Leeuwarden (MS 1610, no. 50), and has been published in M. H. H. Engels, *Twee brieven en een boekgeschenk van Friezen aan Constantijn Huygens* (Leeuwarden, 1996), pp. 7–8 (I am very grateful to Dr Engels for sending me a copy of his publication). It bears the same date (16 April 1642) as one of the letters in UBL, MS Huygens 37, but differs from it entirely in its contents. Possibly the UBL letter, which is shorter, was written just after it and sent with it by the same carrier; however, the fact that the other letter ended up at Leeuwarden, rather than among the Huygens papers at Leiden, may suggest that – despite the address and seal which it bears – that letter was never sent.
- 43 RPF, MS EVC 67, second folder, ‘Brieven van geleerde Lieden’, unnumbered item. It begins: ‘Je suis tres-ay [*page torn*] d’apprendre la satisfaction que vous auez de la condition où vostre merite vous a mis.’
- 44 For a useful overview of the friendship and correspondence between Huygens and Mersenne, see W. Damen, ‘De briefwisseling tussen Constantijn Huygens en Marin Mersenne’, in H. Bots (ed.), *Constantijn Huygens: zijn plaats in geleerd Europa* (Amsterdam, 1973), 64–76. Unfortunately Damen refers only once to Vegelin, quoting from one of his letters to Huygens but mistakenly attributing the words to Huygens himself (p. 64).
- 45 UBA, MS Bn 29 (1) (10 January 1642). Worp gives the first part of the letter in Dutch (Huygens, *Briefwisseling*, III, 261), and the editors of MC reproduce Worp’s wording, apparently under the impression that it is part of the original text (XI, 17).
- 46 UBL, MS Huygens 37, first letter (printed in Huygens, *Briefwisseling*, III, 268).
- 47 BN, MS f. fr., n. a. 6206, fol. 171 (= pp. 332–3): MC, XI, 114–15.
- 48 See n. 86, below.
- 49 Haak’s last letter to Mersenne, dated 7/17 June 1648, does mention Vegelin’s name when recommending M. Frais, the Prince Palatine’s secretary, as ‘un de mes singuliers amis, comme aussi de Monsieur Vaguelin’ (MC, XVI, 361).
- 50 RPF, MS EVC 67, second folder, ‘Brieven van geleerde Lieden’. There are five letters from Vegelin to Christiaan Huygens in UBL, MS Huygens 45, dated 1683–7: these are printed in C. Huygens, *Oeuvres complètes*, 22 vols (The Hague, 1888–1950), VIII, 442, 482–3; IX, 235–8, 248.

- 51 RPF, MS EVC 67, second folder, 'Brieven van geleerde Liedén'. There is also one letter to Vegelin from Kircher, dated 31 August 1671, written after a visit to Kircher in Rome by Vegelin's son, Ernst Frederik. This is apparently the only letter in this collection to have been noticed by modern scholarship: it is listed by J. Fletcher, 'Athanasius Kircher and his correspondence', in J. Fletcher (ed.), *Athanasius Kircher und seine Beziehungen zum gelehrten Europa seiner Zeit* (Wiesbaden, 1988), 139–78 (here p. 155). Among Kircher's papers one letter survives from Vegelin, dated 5 December 1653: Ponteficia Università Gregoriana, Rome, MS 557, fols 307–8.
- 52 G. Schott, *Technica curiosa* (Würzburg, 1664), pp. 87–8, 180, 181 ('Litterarum ac Litteratorum Fautor'), 540–1, 862, 870.
- 53 De Waard, 'Philips Ernst Vegelin', col. 1224; the claim is repeated in MC, XI, 115 (n.).
- 54 RPF, MS EVC 67, second folder, 'Brieven van geleerde Liedén'. A letter from Haak to Vegelin from London, dated 17/27 October 1662, is quoted by Schott: *Technica curiosa*, pp. 862–3.
- 55 MC, XI, 7–8. I am very grateful to Dr Timothy Raylor for scrutinizing some of my own readings.
- 56 The dating of this letter is assigned to the period when Vegelin is known to have been in Paris, and Mersenne is known to have been communicating with Haak (see above, p. 98). It is possible, of course, that Vegelin remained in Paris between December 1640 and September 1641; so the date could conceivably be extended to that end-point.
- 57 Theodore Haak : see above, at n. 9.
- 58 Nothing is known about Vegelin's cousin Mr Bosch, except that he resided in Paris during this period; from the use Mersenne made of him to receive or send letters, it appears that he worked as a merchant or agent of some sort.
- 59 The dating of this letter could conceivably be brought forward to as early as November 1640, the date after which Vegelin may have been in the Netherlands (see above, p. 101). However, the close connection in subject-matter between this and the following letter (cf. the discussions of Bodinus, and of the Archiviole) strongly suggests that it was written not many weeks before it.
- 60 Little is known about the Parisian instrument-maker Pierre Hubaut, except that he was regarded by Mersenne as having perfected the design of the Archiviole (see above, pp. 99–100). Mersenne also mentioned one of his other achievements: 'Il a semblablement inventé des tuyaux, qui prononcent les cinq voyelles, & est capable d'y adiouster la prononciation des consones, & des syllabes' (*Harmonie universelle*, II, book 7, p. 60).
- 61 In view of the later reference to John Pell in this letter, one possible source for this passage may be suggested. Pell's father-in-law, the schoolmaster Henry Reginalds (or 'Reginolles', or 'Reynolds'), had composed two short works announcing his invention of various methods of secret or rapid communication, 'Architectiones seu inventiones sex' (1603) and 'Macrolexis, seu nuncius volucris' (1625): BL, MSS Add. 4384, fols 67–89 and Lansdowne 684, fols 2–15. One of the methods announced in the former, for example, was a way of transmitting information 'without wrighting, speaking, or sending verbal message' (fol. 75r). Characteristically, Reginalds included in these works only a description of what he could do, not of how it was done. He did, however, impart his secrets to Pell. An extra leaf

- following the 'Architectiones' gives a key to the methods involved (fol. 96v) – which turn out to be disappointingly prosaic (e.g. signalling over long distances by fireworks). Possibly Pell had circulated a description of one of his achievements, with a challenge to others to work out how it might be done.
- 62 Jacques Davy du Perron (1556–1618), ex-Huguenot and successively Bishop of Évreux, Archbishop of Sens and Cardinal, was well known for his prodigious memory; he was also reputed to have learned Greek and Hebrew by himself as a child.
- 63 Mersenne gave a similar account of Le Maire's achievement, saying that he had taught a six-year old boy the three languages in nine months, in a letter to Comenius of 22 November 1640 (MC, X, 265); Charles Sorel later described the boy as eight or nine years old, and said that he had heard him translate from each of the three languages (*De la perfection de l'homme* (Paris, 1655), pp. 346–8, quoted in MC, X, 271).
- 64 John Pell had exchanged letters with Mersenne between November 1639 and May 1640 (see MC, VIII and IX), when the correspondence seems to have broken off. Mersenne sent another letter to Pell (via Haak) on 1 May 1641: this letter (MC, X, 610–11) reached Pell (he noted on the MS: 'Accepi Julij 15/25: BL, MS Add. 4279, fol. 141r), but he appears not to have replied.
- 65 Pierre Bourdin S.J. (1595–1653), mathematician and critic of Descartes, had published his *Prima geometriae elementa nova methodo ac facile demonstrata* in Paris in 1639; a second edition was issued by a different Parisian publisher in 1640.
- 66 Melchior Tavernier was an engraver and printer specializing in plate books, active 1613–43 (see P. Renouard, *Répertoire des imprimeurs parisiens libraires et fondeurs de caractères en exercice à Paris au XVIIe siècle* (Nogent le Roi, 1995), p. 415). The work on sun-dials by a member of the 'Feuillant' order of reformed Cistercians is Pierre de Sainte Marie Madeleine, *Traitté d'horlogiographie contenant plusieurs manieres de construire sur toutes surfaces, toutes sortes de lignes horaires* (published by Tavernier, Paris, 1641). The second work mentioned here is Jacques Alleaume ('Aleaume'), *La Perspective speculative et pratique* (published by Tavernier and François Langlois, Paris, 1643). This posthumous work (Alleaume died in 1627) was prepared for publication by Étienne Migon, but was subject to various delays. As was explained in the lengthy text of the 'Privilège du Roy' at the end of the book (sigs V2–4r), Migon obtained the rights and began having the work printed in 1641, but then decided to have all the plates re-made; hence the further delay of two years before its eventual publication.
- 67 Elias Bodinus, a German educationalist about whom little is known. He was born in Könnern, in Saxony, taught in Lüneburg in 1615, and by 1618 was teaching in Hamburg, where his new methods attracted attention. In 1621 he published there his *Bericht von der Natur und vernunftmessigen Didactica oder Lehr-Kunst*; he also planned a much larger work, entitled *Clavis latinitatis*. But the hostility of other teachers (who accused him of teaching without grammar) drove him out of Hamburg, and he moved to Prussia (W. Toischer, 'Die Didaktik des Elias Bodinus', *Mitteilungen der Gesellschaft für deutsche Erziehungs- und Schulgeschichte*, 9 (1899), 209–28). He was a seminal influence on Comenius: it was the experience of reading his *Bericht* in 1627 that gave Comenius the idea of presenting a teaching method in the vernacular (M. Blekastad, *Menneskens sak: den tsjekkiske tenkeren Comenius i kamp om en universal reform av samfunnslivet* (Oslo, 1977),

- p. 76). By early 1639 Bodinus had moved to Amsterdam; Johann Moriaen met him there in January, and referred in a letter to his ability to teach a ‘Chronologia Universalis’ in half an hour or a few hours (‘in ½ oder wenig stunden’). He also told Moriaen he could teach all the roots of Hebrew words with the use of a few German words, and that he had a technique of artificial memory that would enable people to learn whatever they wanted in law, medicine and theology (Hartlib papers, electronic edition, 37/167A, Moriaen to (?), between 17 and 31 January 1639). Apparently he took up permanent residence in Amsterdam. Comenius met him there in July 1642 and was filled with enthusiasm for his ‘Method’ (which, he said, he wanted to extend to other subject-matters); but by 1656 Comenius had changed his mind completely, dismissing his method for languages as deceptive and worthless (see *Unbekannte Briefe des Comenius und seiner Freunde 1641–1661*, ed. M. Blekastad (Kastellaun, 1976), pp. 18, 31).
- 68 The inventor was Nicolas Desson, sieur d’Aigmont, who came from Rheims: in a letter to Haak of 13 December 1640, Mersenne wrote that the machine was 32 feet square, and that it was claimed that it could fly anywhere carrying eight or ten men (MC, XI, 435). Mersenne was doubtful then, and so too was his correspondent Théodore Deschamps, who discussed further promises to make the machine fly in March 1642 (*ibid.*, 89). Desson’s other inventions had not inspired confidence: while resident in Holland in the 1630s he had produced a spring-operated ship, which immediately sank, giving rise to a new Dutch proverb, ‘It goes forth like Desson’s ship’ (see C. Hart, *The Prehistory of Flight* (Berkeley, Calif., 1985), pp. 131–3). Vegelin seems to have taken a particular interest in Desson: he discussed the design of his ship in his letter to Kircher of 5 December 1653 (Ponteficia Università Gregoriana, Rome, MS 557, fol. 307v).
- 69 Unidentified.
- 70 In a letter to Haak of 20 March 1640 Mersenne had referred, somewhat sceptically, to this claim: ‘Quand nous verrons ce que promet M^r. Le Maire depuis 5 ou 6 ans, nous le croirons, à sçavoir son Idiome, que tous liront et entendront’ (MC, XI, 407). In another letter to Haak in September he gave a more detailed account: ‘Il promet aussi un Alphabet Universel par lequel sans truchement ni aucun advis au prealable l’on escrira au Chinois, et à toute sorte de Nations de manière qu’ils entendront tout ce qu’on leur escrira, et respondront s’ils veulent en mesme caractères’ (*ibid.*, 418–19). In 1644 Le Maire obtained letters patent giving him the right to publish his methods ‘avec privilège’: the inventions listed included ‘Méthode universelle pour traduire les langues’ (*Nouvelle biographie générale*, 46 vols (Paris, 1855–66), XXX, col. 559), but the method itself, whatever it was, remained unpublished.
- 71 Since 1635 Le Maire had been preoccupied with his plan to construct a canal across the south-west of France, thus connecting the Atlantic with the Mediterranean (see MC, V, 216, and X, 264). According to a letter from Johann Moriaen in 1653, Le Maire had tried to raise money for this project by offering to sell the secrets of his linguistic inventions (‘seine Spraach-kunst’) to the King for 200 francs: the offer was not taken up, and so, as Moriaen put it, ‘thereby both projects were brought to a halt’ (‘dardurch ist beydes stecken blieben’) (see Knowlson, ‘Jean Le Maire’, p. 89).
- 72 Unidentified. A possible candidate might be Johann Moriaen, with whom Vegelin

- had corresponded, and who had also taken an interest in Bodinus (see above, nn. 13, 67). But if Vegelin had mentioned his name Mersenne would presumably also have referred to him by name, as he had had personal dealings with Moriaen's son (MC, XI, 420, 424).
- 73 Bodinus: see n. 67.
- 74 This may refer to one of the optical devices of the period, a board covered with parallel rows of angled ridges (triangular in section), with two different pictures painted onto the sides of the rows that faced in different directions, so that the same board, if viewed from a distance with the help of differently placed mirrors, might seem to reveal two different designs or portraits. (For a description of one version of this device, in the collection of Athanasius Kircher, see P. Skippon, 'An Account of a Journey made thro' Part of the Low-Countries, Germany, Italy, and France', in J. Churchill (ed.), *A Collection of Voyages and Travels*, 8 vols (London, 1704–52), VI, 359–736; here p. 673).
- 75 Unidentified.
- 76 J. Volkelius (Johannes Völkel), *De vera religione libri quinque, quibus praefixus est Iohannis Crellii Franci liber de Deo et eius attributis* (n.p., n.d.: printed by Blaeu in Amsterdam in early 1642); 550 copies of this Socinian publication were seized by the municipal authorities and publicly burnt on 20 February 1642 (C. Sepp, *Het staatstoezicht op de godsdienstige letterkunde in de noordelijke Nederlanden* (Leiden, 1891), p. 79). Mersenne was keen to see the work refuted (MC, XI, 117).
- 77 'Pierre de Norvège' does not seem to have been a standard mineralogical term. Possibly Mersenne refers here merely to magnetic loadstones acquired from Norway (Vegelin would later offer to obtain some from a merchant who travelled up the north coast of Norway, to Novaya Zemlya: MC, XI, 114), though these are unlikely to have been described as 'spongy'. More probably, he refers to pieces of soapstone (steatite), a substance mined and worked in Norway since early times (see S. Grieg, R. Kjelling and H. Stigum, *Det norske håndverks historie*, 2 vols (Oslo, 1936), I, 12–14, 241–6, and A. Skjølsvold, *Klebersteinsindustrien i vikingetiden* (Oslo, 1961)). Steatite is a form of talc; in 1661 Boyle referred to experiments conducted by 'a gentleman of eminency' on 'a certain talc he had out of Norway' (*Works*, ed. T. Birch, 5 vols (London, 1744), I, 209).
- 78 Descartes was still living in the château of Endegeest, near Leiden. After a letter of 21 July 1641, Descartes is known to have sent only one letter (undated, but written probably in September) to Mersenne before November. He then wrote on 17 November; that letter presumably reached Mersenne shortly after this letter to Vegelin was sent (see MC, X, 689, 759, 779).
- 79 See above, n. 65.
- 80 Hugo Grotius, *Annotationes in libros evangeliorum* (Amsterdam, 1641).
- 81 Claude Rivet, sieur de Montdevis, was the elder son of the Huguenot theologian (and, since 1630, Professor of Theology at Leiden University) André Rivet, with whom Mersenne was in frequent correspondence. Claude Rivet lived in The Hague, and married the daughter of another professor at Leiden, Franco Burgersdijk, in April 1641 (see MC, X, 70 (n.), and XII, 236).
- 82 The 'chanson pour boire' and the 'air à boire' were popular genres during this period; the terms could be used interchangeably, and the only general difference was that the latter (which gradually superseded the former) was more likely to be

- for two or three voices. (See the articles by J. H. Baron, 'Air à boire' and 'Chanson pour boire' in *The New Grove Dictionary of Music and Musicians*, ed. S. Sadie, 20 vols (London, 1980), I, 182–3, and III, 147–8.) The Ballard family published two sets of *Livres de chansons pour danser et pour boire*, the first in 21 vols (Paris, 1627–62); Mersenne refers here to one volume from that series, *II. Livre des chansons à danser et à boire*, by the composer and viol-player Jean Boyer (Paris, 1642: BN, Département de la Musique, pressmark Rés. 289). This is a collection of two-part songs, with the parts printed on facing pages and each opening numbered on the right-hand page. The first 'chanson à boire', a rowdy drinking song, starts on opening 39: 'Ca, qu'on nous apporte nos armes, / Apprestez-vous braues gendarmes, / Pour bien combater à coups de main ...' Constantijn Huygens apparently possessed many of the Ballard volumes: the sale catalogue of his library included '*Chansons pour Danser, & pour boire, 11 vol.*' (W. P. van Stockum (ed.), *Catalogus der Bibliotheek van Constantyn Huygens verkocht op de groote zaal van het Hof te 's-Gravenhage 1688* (The Hague, 1903), p. [62]).
- 83 Possibly Jean Puget de la Serre, *Le Secretaire à la mode, ou methode facile d'escrire selon le temps diuerses lettres de compliment, amoureuses & morales* (Paris, 1640); this work could hardly have been described as 'new' in 1642, but perhaps Mersenne knew only a more recent printing of it.
- 84 On 10/20 January 1642 Vegelin had written to Constantijn Huygens that he had sent Mersenne 'deux pierres d'aymant qu'on m'a enuoyées de Ratisbonne' (UBA, MS 29 Bn (1)). The books cannot be identified, with the possible exception of the work by Drexel described below (n. 86).
- 85 This may refer to Mersenne's own work, *Harmonie universelle*.
- 86 This may refer to Jeremias Drexel ('Hieremias Drexelius'), *Ioseph Aegypti prorex descriptus et morali doctrina illustratus* (Antwerp, 1641), which tells the story of Joseph in Egypt and draws moral lessons from its various episodes. Drexel (1581–1638) was a German Jesuit, and Court Preacher to the Elector of Bavaria; this posthumous work was first published in Munich in 1640, by his colleagues at the Jesuit College in that city (see Jöcher, *Gelehrten-Lexicon*, II, cols 218–19, and J. Backer and C. Sommervogel, *Bibliothèque de la Compagnie de Jésus: première partie, bibliographie*, 2nd edn, 10 vols (Brussels, 1890–1909), III, cols 181–205). For comments on the popularity of Drexel's works in Protestant as well as Catholic countries, see J. M. Blom, 'A German Jesuit and his Anglican Readers: The Case of Jeremias Drexelius (1581–1638)', in *Studies in Seventeenth-Century English Literature, History and Bibliography: Festschrift for Professor T. A. Birrell on the Occasion of his Sixtieth Birthday*, ed. G. A. M. Janssens and F. G. A. M. Aarts (Amsterdam, 1984), 41–51.
- 87 Mersenne had previously discussed the issue of the relative strengths of unarmed and armed magnets in his correspondence with Haak: see *MC*, XI, 403–4, 414.
- 88 Mario Bettini, *Apiaria universae philosophiae mathematicae*, 2 vols (Bologna, 1642): a major compilation by one of the leading Jesuit mathematicians in Italy. The work evidently did reach Huygens: it is listed in the catalogue of the sale of his library (van Stockum (ed.), *Catalogus*, p. 22).
- 89 Antoine de Boësset (c.1585–1643), famous for his 'airs de cour', was the leading composer at the French court in the early seventeenth century. His ninth book of *Airs* was published in 1642. Some were later intablatured for lute, in a series of publications under the title *Airs de cour mis en tablature de luth par A. Boësset*

- (Paris, 1620–43): see M. Cauchie, ‘La Dynastie des Boësset’, *Bulletin de la Société Française de Musicologie*, 4, no. 6 (March 1920), 13–26, and A. B. Caswell, ‘Antoine de Boësset’, *The New Grove*, II, 843. Mersenne had previously organized, via Huygens, a compositional contest between de Boësset and the Dutch composer Johan Albert Ban, and had been quick to declare de Boësset the winner (see W. J. A. Jonkbloet and J. P. N. Land (eds), *Correspondance et oeuvre musicale de Constantin Huygens* (Leiden, 1882), and *MC*, X, *passim*).
- 90 This probably refers to an anamorphic portrait of the King, that is, one drawn in an exaggerated perspective, where the rectification of the image is performed by viewing it from a special angle or with a mirror (for example, a cylindrical mirror of highly polished metal). Mersenne’s friend and colleague Jean-François Nicéron (1613–46) was a specialist in this field; he described the techniques in his *La Perspective curieuse* (Paris, 1638), and Vegelin would have had the opportunity to inspect several of his cylindrical anamorphoses in the library of Mersenne’s convent in Paris (*ibid.*, p. 87). Rulers were popular subjects for such anamorphic portraits: the English collector William Cartwright had one of Louis XIII (G. Waterfield (ed.), *Mr Cartwright’s Pictures: A Seventeenth Century Collection* (London, 1988), p. 21), and the Danish scientist Ole Worm had one of Richelieu (H. D. Schepelern (ed.), *Musaeum Wormianum: dets forudsætninger og tilblivelse* (Odense, 1971), p. 346).
- 91 Bettini, *Apiaria* (see above, n. 88).
- 92 The Jesuit mathematician Jacques de Billy (1602–79) published his *Nova geometriae clavis algebra* at Paris in late 1643: Mersenne announced that he had just obtained a copy in a letter of 1 March 1644 (*MC*, XIII, 35).
- 93 The Collège de Clermont, the Jesuit college in Paris.
- 94 Bourdin, *L’Introduction à la mathématique* (Paris, 1643).
- 95 This referred to two copies (one for Huygens, the other for Descartes) of Thomas White’s *De mundo dialogi tres* (Paris, 1642): see *MC*, XI, 288, 299. Mersenne had taken a special interest in White’s work, and would later study the long refutation of it written by Thomas Hobbes in the winter of 1642–43: see T. Hobbes, *Critique du De mundo de Thomas White*, ed. J. Jacquot and H. W. Jones (Paris, 1973), esp. pp. 33–53, 92–3.
- 96 White’s *De mundo* (see n. 95) discusses many topics in natural science and cosmology, but special attention is paid to the problem of tides and the motion of the earth in the second dialogue (pp. 127–263). White argues that the rotation of the earth is caused by the action of a permanent East–West wind on the world’s oceans. Mersenne had sent Huygens an extract, on this topic, from the manuscript of White’s work earlier in the year: see *MC*, XI, 22. (The extract is in The Royal Library, The Hague, Huygens MS 47; a transcript is in the Schleswig-Holsteinische Landesbibliothek, Kiel, MS Cb 15 (Brockdorff Nachlass), box 33, item 41, where it is wrongly identified as a work by Thomas Hobbes.)
- 97 After the Catalan revolt against Spain in 1640, the Estates General of Catalonia (which included the province of Roussillon) had invited Louis XIII to unite their territory with France. The French campaign began in June 1641, and was concentrated for more than a year on the siege of Perpignan. The Spanish garrison of that city finally capitulated on 9 September 1642 (see P. Vidal, *Histoire de la ville de Perpignan depuis les origines jusqu’au Traité des Pyrénées* (Paris, 1897), pp. 600–21).

- 98 Henri Coiffier de Ruzé, marquis de Cinq-Mars (1620–42), was the son of Antoine Coiffier, marquis d'Effiat (d. 1632): the father's title was inherited by Henri's elder brother, Martin, but Henri also commonly signed himself Henri d'Effiat (hence Mersenne's 'de Fiat'). A handsome young man, Henri became a favourite of Louis XIII, and was known by the soubriquet 'Monsieur le Grand' – an abbreviation of his title in the royal household, 'le grand écuyer'. In early 1642 he joined a conspiracy to replace the King with his brother, Gaston d'Orléans: a secret agreement was made between the conspirators and the Spanish (with whom France was at war). The plot was discovered; Cinq-Mars was arrested, taken to Lyon, tried, and beheaded on the Place des Terreaux in that city on 12 September 1642 (see L. d'Haucour, *Conspiration de Cinq-Mars d'après des documents inédits* (1642) (Paris, 1902), esp. pp. 94–7). Mersenne's idea that Cinq-Mars had conspired with the Dutch is puzzling; one of the conditions put forward by Spain and accepted by the conspirators was in fact that France would renounce its alliance with Protestant states such as Holland and Sweden. Possibly Mersenne had in mind the involvement of some Huguenots in the plot.
- 99 Georges Fournier, *Hydrographie, contenant la théorie et la pratique de toutes les parties de la navigation* (Paris, 1643).
- 100 Constantijn Huygens ('Zuylichem' was the name of his family estate).
- 101 See above, n. 92.
- 102 Antoine Arnauld's *De la Fréquente Communion* (Paris, 1643), which argued in favour of careful spiritual preparation for Communion and challenged the contemporary Catholic practice of granting instant absolution for sins, was quickly recognized as one of the chief statements of the Jansenist position. Despite (or, indeed, because of) its endorsement by numerous senior clerics, it was fiercely attacked by many Catholic writers: these included the Jesuits Jacques Nouet (*Sermons contre le livre d'Arnauld* (Paris, 1643)), Jérôme Séguin (*Sommaire de la théologie du Sieur Arnauld, extrait du livre de la fréquente communion* (n.p., n.d.: Paris, 1643, according to Backer and Sommervogel, *Bibliothèque*, VII, col. 1098)), and Denis Petau (*De la Pénitence publique et de la préparation à la communion* (Paris, 1644)). Petau (1583–1652) was a talented and industrious writer on theology and chronology; the imminent publication of the first three volumes of his *Theologica dogmata* had been announced by Mersenne as early as 3 November 1640 (MC, X, 201), and again on 1 June 1642 (MC, XI, 162), but they did not in fact go on sale until early 1644 (see MC, XII, 636 (n.)).
- 103 Mersenne refers here to his own compilation, *Cogitata physico-mathematica, in quibus tam naturae quam artis effectus admirandi certissimis demonstrationibus explicantur* (Paris, 1644).
- 104 The astronomer Ismaël Boulliau (1605–94) had established his reputation with his 'Philolaus', *Philolai sive dissertationis de vero systemate mundi libri IV* (published by Willem and Johan Blaeu, Amsterdam, 1639); the new work referred to here was *Astronomia philolaica, opus novum, in quo motus planetarum per novam ac veram hypothesim demonstrantur* (published by Simon Piget, Paris, 1645). Mersenne had been expecting the appearance of this new book since at least October 1643 (MC, XII, 339), but the work was not consigned to the printer until the end of 1644 (H. J. M. Nellen, *Ismaël Boulliau (1605–1694): astronome, épistolier, nouvelliste et intermédiaire scientifique* (Amsterdam, 1994), p. 123).

105 P. Le Moyne, *Les Peintures morales, ou les passions sont représentées par des tableaux* (Paris, 1640), and *Les Peintures morales, seconde partie de la doctrine des passions* (Paris, 1643); Jean-François Senault, *De l'Usage des passions* (Paris, 1641: five editions published by the end of 1643).

Address for correspondence

Dr Noel Malcolm, 6A Huntingdon Street, London N1 1BU, UK.