

Early Evidence of Sainfoin Cultivation Around Paris

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UNTIL the end of the eighteenth century sainfoin was much the most widely cultivated of the perennial legumes on the northern French Plain. Indeed it was the only one that was at all generally grown as a field crop.¹ It subsequently played its part in the agricultural revolution that was beginning to get under way, although its relative importance declined with the rapid headway made by lucerne and clover. Although it never achieved the popularity on a European scale of these crops, sainfoin played an important part in the agricultural history of the plain; and much of its own history as a crop plan took place there.²

While it is clear that sainfoin was the most important of the 'artificial meadow' plants on the plain under the old agricultural régime, just how important it was remains obscure; and even more so the early phase of its introduction and establishment in farming practice. Considerable evidence has been brought to light for the seventeenth century by recent research, notably from estate records. But no reference of this or any other type to sainfoin cultivation in the region before 1600 appears to have been found hitherto, if the well-known but dubious testimony of Estienne is excepted.³ The following pages are

mainly concerned with three neglected literary sources: the English reformer Samuel Hartlib's *Legacie* (1651), Henry Lyte's English translation of Dodoens' *Herbal* (1578) and Jean Ruel's *De Natura Stirpium* (1536). The first of these helps to fill out the bare bones of the seventeenth-century archival evidence. The latter two, which appear to have escaped the notice of historians, take the story back certainly to the middle of the sixteenth century and very probably to its beginning.

The neglect of the *Legacie* is surprising as it provides the first circumstantial description of the agronomy of sainfoin cultivation in the Paris area (and what appears to be the earliest reference to lucerne). Indeed it is the most valuable document of this nature before Gilbert's *Traité des Prairies Artificielles* (1787). The neglect is the more remarkable as Sir Robert Weston's *Discourse on Flanders Husbandrie*, which Hartlib published at almost the same time and which does the same thing for clover in Belgium, is such a classic text of agricultural history. Hartlib was extremely interested in foreign agricultural techniques that might usefully be introduced into England, and in local ones that deserved to be

¹This is clear from F-H Gilbert's *Traité des Prairies Artificielles*, Paris, 1787, as well as other contemporary descriptive evidence.

²Ministre de l'Agriculture, *Statistique Agricole de la France, Résultats...* 1882, Nancy, 1887, gives the earliest figures for the distribution of the three crops.

³The first reference to sainfoin found by J Jacquart in his detailed study of the Hurepoix (*La Crise Rurale en Ile-de-France*, Paris, 1974, p 329) comes from a lease of 1631. There is a slightly earlier record of an arrêt enforcing the tithe of sainfoin in the parishes of Rosny Roissy Choisy and Vanvre in the immediate neighbourhood of the capital (*Receuil d'Edits etc Rendus en Faveur des Curez et des*

Chanoines, Paris, 1686, Arrest du Conseil d'Estat, 3 April 1682). Otherwise the only evidence so far uncovered antedating 1600 comes from Normandy in a lease of 1586: (A Plaisse, *La Baronnie de Neubourg*, Paris, 1961, p 566). The claim by R Fossier (*La Terre et les hommes en Picardie*, Paris, 1968, 1, p 429) that clover and sainfoin were grown in the area as early as the fourteenth century among the crops generically termed 'Warisons' is based on a misreading of his source, J M Richard, *Thierry D'Hirecon Agriculteur Artésien*, Bibliothèque de l'Ecole des Chartres, no 53, Paris 1892, p 392. Richard cites a definition of the term 'Warison' by the early eighteenth-century writer Maillart that includes clover and sainfoin, but there is nothing to suggest that it included them at the earlier date. For Estienne see note 23.

better known. The *Legacie* is a compendium of such. He had two informants on potential innovations from France, both well qualified by experience, knowledge and curiosity. Robert Child, who had spent some time in the country in the 1630s and later made a second visit, contributed the main body of the *Legacie* with his 'large letter concerning the defects and remedies of English Husbandry', which is in fact mainly about French farming. Another member of the circle, Arnold Boate, who was resident in Paris from 1648 to 1653, provided a commentary upon the latter and on-the-spot answers to queries that had arisen from it, published by Hartlib in successive editions of the *Legacie*.⁴ All these latter concern the cultivation of sainfoin and lucerne. The artificial grasses were of particular interest to Hartlib. He had specifically asked Child for information upon the subject.

'According to your desires I have sent you what I have observed in France, about the sowing of a seed called commonly Saint Foine', Child begins his letter. 'France although it be supposed to want the fewest things of any province in Europe; yet it hath no small want of hay, especially about Paris: which hath necessitated them to sowe their dry and barren lands with this seed. Their manner of sowing it is done most commonly thus: when they intend to let their corn-lands lie; because they be out of heart, or not situate in place convenient for manuring; then they sow that land with oats and these seeds together. . . .' The ley, which is not usually mown or grazed the first season, lasts seven years, giving one cut. 'Then they usually break it up, and sow it with corn till it be out of heart, and then sow it with sain foin as formerly: for it doth not impoverish the soil as annual plants do, but the roots of this plant being great and sweet . . . do rot, being turned up by the plough and enrich the land.'

Besides its value as a fertilizer, Child noted a further quality of sainfoin. 'When the other grasses and plants are destroyed by the parching heat of the sun . . . this flourisheth very much, having very great root and deep in the ground, and not easily exsiccated.' It is particularly suited to light chalky soils: 'dry and barren land is most proper for it as moist rich land for the great Trefoile (although it will grow indifferently well on all lands)'.

After making certain recommendations on the preparation of the ley for the benefit of English farmers thinking of introducing sainfoin, Child adds almost as an after-thought: 'There is at Paris likewise another sort of fodder which they call *La Lucerne*, which is not inferior but rather preferred before this Saint Foin, for dry and barren grounds: which hath lately been brought thither, and is managed as the former.'⁵ Lucerne was evidently much less familiar to Child than sainfoin. He knew little about it and got its soil requirements wrong. But his bare reference excited interest in England and a desire for more information. It was essentially with providing this that Arnold Boate was concerned in the letters that he sent from Paris in 1651–53. He had little to add about sainfoin except that he had 'seen it grow here about Paris in several places, in rich fat grounds, and those both high and dry and others low and marshy'.

Boate corrected Child as to the right land for lucerne. It needed, so a gentleman upon whose estate it was grown informed him after inquiring of his farmer, a 'rich ground, somewhat loose and light, so as a stiffe clay, and such other tough grounds are no waies for it . . . not over-dry nor over-moist but in a mean'. The description is close but not identical to that of de Serres, with whose *Théâtre* Boate was familiar; and the same is true of other agronomic details about lucerne that he gives, that for example 'naturally it doth not love dung', which if used must be very well rotted and applied early, that it is

⁴For Hartlib's circle see C Webster, *The Great Insaturation*, London, 1975. For Child, in particular, G L Kittredge, 'Dr Robert Child', *Colonial Society of Mass Publications*, XXI. The third (1655) edition of *Samuel Hartlib His Legacie* is the complete one.

⁵Hartlib, *op cit*, pp 1–4.

sown in a cover of oats (de Serres recommending a mixture of oats, barley and vetches).

The agronomy of lucerne is not the same however under northern skies as in de Serres's *Midi*, a difference reflected at several points in what Boate reports. The ley is sown down in April, not March as de Serres says. It normally lasts 10–12 rather than 12–15 years. 'In this climate it useth to be cut but twice a year' — by Gilbert's time it gave three cuts — while 'in hot countries (Provence Languedock and Spaine) it doth five or six times . . .' A further point of difference is more interesting. De Serres recommends that the land destined for lucerne should be prepared as for an ordinary meadow, 'labouré' pars plusieurs et reiterées fois durant seize mois', carefully cleared of stones, and enclosed. It seems clear that the *luzernière* as he envisaged it was set apart from the arable proper, and occupied the kind of privileged 'garden-type' site, to which perennial legume cultivation remained generally confined during the *ancien régime* in Europe (both North and South) until its great extension at the end of the eighteenth century. Boate, on the other hand, reports only three cultivations as necessary for lucerne, one in October followed by two in spring. This suggests that it may already have been integrated into the three-field arable cycle in the neighbourhood of Paris, and that it was sown in oats on the (more carefully prepared) Spring-field in the way that was later to become standard practice on the northern French Plain.⁶

There are similar differences in what de Serres and Child have to say about the agronomy of sainfoin. The former states that it is best grown in closes on carefully prepared soil in which case it should give three cuts. He notes (somewhat surprisingly) that the ley

lasts only four years after which the land will bear fine crops of grain for the same period; and he recommends the farmer to pursue this kind of convertible rotation. He and Child are in agreement on the soil suited to sainfoin and on its beneficial effect upon following crops. 'Vient gaiment en terre maigre', he writes: 'et y laisse certaine vertue engraisante à l'utilité des blès qui en suite y sont semés. . .'⁷

Boate did not confine his services to providing information. He also sent samples of both sainfoin and lucerne seed across the Channel for English amateurs with Hartlib apparently acting as intermediary. Lucerne seed from the *Midi* was commercially available in Paris if somewhat irregularly. (It had been quoted since 1634 on the Carpentras market.⁸) In a letter of 22 March 1653, Boate remarks that as many as three different varieties could be obtained from 'a merchant who dealeth much in oranges and lemons and other Provence wares'. But in later letters he complains of the difficulty of finding seed. 'The new lucerne seeds from Provence and 'Dauphiné are not yet arrived', he writes in one, and in another: 'some weeks since to my knowledge there was but one shop in town that had any, which was the cause that the price was doubled' (from 8 to 16 sous). It is significant however that from what Boate says local farmers were already producing their own seed.

What the Swiss eighteenth-century agricultural writer L'Harpe called 'A

⁶Boate's letters from which these citations are drawn are in Hartlib, *op cit*, pp 109–18 and 200–05. O de Serres, *Le Théâtre d'Agriculture*, ed Paris, 1804, pp 514–18. According to eighteenth-century descriptions the usual practice was to plough the Spring field only once.

⁷De Serres, *op cit*, pp 518–19. In this context the description of sainfoin cultivation by the Lyon botanist Jacques d'Aléchamps deserves citation as it is the earliest account of the agronomy of the crop. In his *Historia Generalis Plantarum*, first published in 1587 but apparently written some twenty years before he has this to say about 'sparse' (*esparcette*) as he calls it, as grown by farmers around Die (Dauphiné), which de Serres too notes as specializing in the crop. It is sown 'là où il n'y a pas d'abondance de près, ès lieux aspres et pierreux'. It gives three cuts; and grows so abundantly that 'combien que le terroir soit extrêmement maigre néanmoins on droit que c'est un bon pré . . . elle aime principalement les lieux secs et sablonneux'. The citation is from the French translation on 1615, I, pp 411–13.

⁸E Le Roy Ladurie, *Les Paysans de Languedoc*, Paris, 1966, pp 68–9.

confusion not easily to be got over . . . in the names given to the several sorts of artificial grasses' was a source of some perplexity to Boate (as it was later in the century of London), in his purchases of seed, and no doubt the conflicting information he had sometimes to sort out.⁹ This is not the place to discuss the contorted history of these names, everyone of which was ambiguous. But a brief word on the problem is in place as it impinges upon the interpretation of our sixteenth-century texts, and what Boate has to say about it provides at least some clarification. The most striking ambiguity was that alluded to by Gilbert when he wrote apropos of lucerne: 'in almost all the books that discuss it, it is found under the name of sainfoin'.¹⁰ He was doubtless thinking in particular of de Serres, who uses the two words interchangeably. At different times and places the term sainfoin was in fact applied to both *O. sat. lam.* and *M. sat. L.* (and possibly to *Tr. prat.*) as was the term *foin de Bourgogne*. The confusion was compounded by, indeed in part perhaps originated from, the earlier botanists (and agricultural writers) whose efforts were directed less towards classifying these plants and establishing a precise nomenclature for them than to answering the question which of them (and so which names) should be identified with the classical *medica*. 'The name of St. Foine is in some parts of France communicated to lucerne', Boate writes, 'although the generality thereof have appropriated the same to another kind of fodder, extremely differing in all manner of ways, viz the *Onobrychis antiquorum*, wherewith *Medica* (that is the true latin name of lucerne) hath nothing in common.'¹¹

Boate's unequivocal statement, which clearly refers to the usage around Paris, is important in that it enables us to be reasonably certain that when sainfoin is mentioned in leases and other records it does in fact refer to *O. sat.*

Hartlib's *Legacie* has been quoted at length because it helps to complete and also to confirm the extremely fragmentary picture of perennial legume cultivation around Paris during the seventeenth century that emerges from recent research based upon the 'direct' evidence of farm records and the like.¹² The evidence of the *Legacie* suggests that whereas lucerne was still a comparative novelty at the mid-century, sainfoin cultivation was already well-established in farming practice. This squares with Jacquart's findings for the Hurepoix, the district immediately to the south of Paris, which led him to give sainfoin a certain relief as a feature of the agricultural scene, even if in terms of the amount of land devoted to the crop it was a modest one. 'Des 1630', he writes, 'le sainfoin n'est plus seulement une curiosité dans un coin de clos, mais il gagne les champs.'¹³ This latter point is an important one. Much of the early evidence of sainfoin points to its being grown in closes, often alternating in rotation with osiers or vines for example. The *Legacie* leaves no doubt however that it also entered as a regularly recurring long ley into the cereal succession on the arable. It did enter into the 'cycle culturel', even if only on a limited scale, a point which Jacquart for reasons which are not clear elsewhere denies.¹⁴

It is noteworthy that all Jacquart's references, the last of which is from 1660, are to sainfoin. It is only in the second half of the

⁹De l'Harpe, 'The Farmer enriched by Artificial Pastures', *Foreign Essays on Agriculture and Arts*, London, 1766, p 310. Robert Morison, the Oxford Professor of Botany, remarked upon the apparently unwitting deception practised by London seedsmen, who sold seed as lucerne which turned out to be sainfoin. *Plantarum Historia Universalis*, II, Oxford, 1680, p 159.

¹⁰F-H Gilbert, *Traité des Prairies Artificielles*, Paris, 1787, p 50.

¹¹Hartlib, op cit, p 250.

¹²See above all J Jacquart, *Crise*, op cit, and for the same district later in the century, M Venard, *Bourgeois et Paysans au Dix-Septième Siècle*, Paris, 1957, pp 83-4. Also P Brunet, *Structures Agraire et Economie Rurale des Plateaux Tertiaires entre Seine et Oise*, Paris, 1960, p 316; and P Goubert, *Beauvais et le Beauvaisis de 1600 à 1750*, Paris, 1960, p 94.

¹³J Jacquart, op cit, p 329.

¹⁴J Jacquart in G Duby and A Wallon, eds, *Histoire de la France Rurale*, II, Paris, 1975, p 226. The author here goes so far as to evoke a 'vogue' for sainfoin after around 1630.

century that lucerne appears in the scanty records so far uncovered, the earliest known reference so far as I am aware being in a lease of 1656, also from the Hurepoix.¹⁵ The *Legacie*, with its evidence of a commerce in seed from Provence, shows that lucerne cultivation had certainly taken root in the Paris area by the mid-century, but the statement that the crop had 'lately been brought thither' suggests that its introduction probably dated to sometime after 1600. The importance of our other two sources is that they show that sainfoin certainly appeared on the scene very much earlier than this.

'They name it in French Saint Foin . . . They use to sow it in meadows about Paris.' So runs the entry under *Onobrychis* — the importance of the specification may be recalled — in Henry Lyte's English translation (1578) of de l'Escluse's French version (1557) of Dodoens' famous *Cruydtboek* (1554).¹⁶ This is the first unequivocal evidence of sainfoin cultivation in the Paris area, and the northern French Plain generally; and indeed of the use of the word with this specific meaning. It is important enough to deserve some comment, particularly as it seems to have escaped the notice of historians. The reference does not appear either in Dodoens or de l'Escluse. How did it come to be in Lyte? The answer is to be found in Lyte's own working copy of de l'Escluse's version preserved in the British Library, which is inscribed on the title page with the quaint conceit, 'Henry Lyte taught me to speak English', and which contains a great number of manuscript emendations and additions, almost all of which are in French.

These for the most part follow the revisions made by Dodoens for the second (1563) edition of his *Cruydtboek*. But some are original, including the reference to sainfoin: 'on la sème aux Prez à l'entour de Paris'.

¹⁵See Venard and Brunet, loc cit. The 1656 lease is cited by M Bertrandy-Lacabane, *Bretigny-sur-Orge*, Versailles, 1886, p 112.

¹⁶H Lyte, *A New Herball or Historie of Plants*, London, 1578, pp 557–8.

Who was responsible for the new French text, more especially the original material (which makes a number of allusions to Paris), and when was it prepared? Almost certainly the answer is: de l'Escluse towards the end of the one protracted stay he ever made in the city in 1560–63. It bears every sign of being the draft for a new French edition of his translation, that for some reason never appeared. It does not include the further changes made by Dodoens in his *Fruementorum . . . Historia* of 1566, for example the entirely new chapter on *medica*, which was based on information and specimens sent by de l'Escluse from Spain the previous year. Conversely the entry under *Onobrychis* in the *Historia* does not take account of the revision identifying the plant with sainfoin. There is little doubt therefore as to authorship and date, which places this earliest reference to sainfoin cultivation about 1560, and makes it the outcome of first-hand observation.¹⁷ De l'Escluse was a sedulous botanist on the ground; and it is tempting to infer from his silence in respect of lucerne and red clover that these plants were not yet grown in the area.¹⁸

On the margin of the entry de l'Escluse has written: *medica Ruellii*. The Parisian physician

¹⁷For de l'Esclusés life see F W Hunger, *Charles de l'Escluse*, I, 1927. Hunger, p 117, states that both the inscription and the annotations in the British Library copy used by Lyte are in de l'Escluse's hand. But this is borne out neither by the illustrations he prints of de l'Escluse's handwriting nor by examples of it that exist in the British Library. The comparison of texts however, which he does not make, leaves little doubt as to the correctness of his attribution.

¹⁸Clover was however already grown in Picardy at this time, as is shown by the following passage, referring specifically to red clover, from de l'Obel's *Kruydtboek* of 1581: 'in the French Low-Country and between Béthune and Amiens this clover grows luxuriantly . . . it is sown on fat land and nothing is better for fattening cattle'. He implies that both red and white varieties were grown, as he goes on to note that the former is more often used as a 'fodder crop for cattle and horses'. The passage, which has also been overlooked by historians, is important as it is for as far as I am aware the earliest evidence of clover cultivation in northern France. It deserves to be set alongside the much quoted comment of de l'Obel's compatriot Dodoens (*Fruementorum . . . Historia*, Antwerp, 1566, p 186) — 'Seritur et in arvis apud Brabantos' — which is one of the few indications of clover cultivation in the Netherlands in the sixteenth century.

Jean Ruel was one of the earliest pioneers of the botanical Renaissance. His book *De Natura Stirpium* was published in 1536. He himself conceived the plant that he describes under the head *medica*, and which he claims is 'commonplace' (*trivialis*) in France, to be one and the same with the *medica* of Pliny and Dioscorides.¹⁹ This was of course lucerne (*M. sat.*) and not sainfoin (*O. sat.*). But at the time that Ruel was writing the attribution had not yet been established. The botanical data on the basis of which it could be made had not yet been collected. It was only during the 1560s and 1570s, with the work of Dodoens, de l'Escluse, de l'Obel and d'Aléchamps, that the major perennial legumes, clover, lucerne, and sainfoin, were described and classified; and the names given to them, *trifolium pratense*, *medica*, and *onobrychis* that were to become established in the botanical language. At the same time it came to be generally agreed that the *medica veterum*, to the title of which clover had also been a candidate, was a variety of the plant known at the time in Provence as lucerne or laouserdo and in Spain as alfafa. Which particular variety — for several were described, evidently the outcome of a natural cross between *M. sat.* and *M. falc.* — remained a matter of dispute. None of this knowledge was available to Ruel, who was almost the first modern — and the very first in France — to discuss the subject. From his treatment it seems clear that he was aware of only one perennial legume used as a fodder crop, and that as the ancients had only described one such he assumed that his plant was the same as theirs.

Did Ruel in fact have in mind *M. sat.*, as the botanical and agronomic details he cites from the classical authors and his comments upon the subsequent history of *medica* up to his own time would lead one to suppose? Or was not the plant that he described rather *O. sat.*, as de l'Escluse evidently thought, and his genealogy mistaken? The question is important because Ruel's text, which does

not appear to have been noticed by historians, provides the earliest literary reference to the cultivation of perennial legumes in France.

An analysis of Ruel's botanical description provides an answer that if not conclusive is at least highly probable. In parenthesis it may be noted that unlike the later herbals, the *De Natura Stirpium* is not illustrated: had it been so there would be no problem. If some of the characteristics he attributes to the '*Medica* which is sown in our country' are culled verbatim from Pliny and Dioscorides, others are not to be found in these or any other authorities, ancient or modern. They presumably derive from Ruel's own observations; and they are not compatible with *M. sat.* Most critical is the point, which he emphasizes by repetition, that the pod is single-seeded. Further although he quotes Dioscorides's description of the pod as twisted and horn-shaped, he adds that 'the curved outer rim (or opening?) is indented pushing out small points', and he describes it as growing at the 'extreme end of the stem', points which do not apply to lucerne.²⁰

All these characteristics, on the contrary, fit very exactly with sainfoin; and sainfoin moreover is the only cultivated perennial legume that they do fit. Its flowers come much more obviously at the extremity of the stem than those of lucerne. Its pods are single-seeded with 'a semi-circular, usually strongly-toothed dorsal suture'.²¹ There is little doubt therefore that de l'Escluse was correct; and that although Ruel bowed in typical Renaissance fashion to antique authority and created thereby a strange hybrid, the plant that he had direct experience of was *O. sat.* It is very possible that de l'Escluse had confirmation of this from botanical circles in Paris during his sojourn in the city between 1560 and 1563. Moreover Ruel would not have been alone

²⁰The key passage runs in the original: 'In scaporum cacumine breves siliquales prodeunt in corniculorum speciem intortes, denticulato foris inflexu et velut exiguos mucrones exerente, in quibus singulare semen, fere lunatum continetur . . . singulae thecae singulorum seminum sunt capaces . . .'

²¹N T Gill and K C Vear, *Agricultural Botany*, 1969, p 172.

¹⁹J Ruel, *De Natura Stirpium*, Basel, 1537, p 394 ff.

among the earlier generation of Renaissance botanists to have identified *medica* with sainfoin. The entry under the heading in Conrad Gesner's *Catalogus* of 1542 runs: 'a vetch-like plant sown as feed for cattle, growing initially like clover'.²² The comparison with the vetch could hardly apply to any other plant than sainfoin given the similarity of leaf formation, quite distinct from clover or lucerne.

Ruel claimed, as we have seen, that his plant was common. Elsewhere he states that it is grown in 'several parts of France', which appears to be borne out by the fact that he gives three different names for it from the vernacular — *Burgundiense foenum*, *grande treflon* and *foenaccia*. That it was cultivated around Paris is clear, because he cites the last term in distinction from the other two as that used by farmers in his 'sermone patrio'. This could refer to the Soissonnais, where he was born. But it certainly refers to northern France. Estienne, who took over Ruel's description almost verbatim a few years later, glosses the passage: 'de la foigasse, sermone Picardo', which in the linguistic sense appears to mean northern France generally and not just the province.²³ What little is known about Ruel's life suggests in fact that he most

probably derived his information about the crop-plant that he supposed to be *medica* from the vicinity of Paris.²⁴ He was apparently a confirmed stay-at-home, reluctant to follow his employer Francois Premier on the royal progresses; and on the death of his wife he retired to the seclusion of a canonry of Notre Dame, where he wrote the *De Natura Stirpium*.

If our interpretation of the latter is correct, it means that sainfoin was already grown around Paris at the beginning of the sixteenth century.

culminating in the *Praedium Rusticum* (1554), nor Liebaut's French version (*L'Agriculture et Maison Rustique*, 1569), are of any value as evidence here. What they do not transcribe from Ruel, they take from Pliny and Columella. The same is true of their German counterpart Heresbach, who in his description of *medica* or 'Welsche Klee' as he also calls it (*Rei Rusticae*, Cologne, 1570, pp 66–8) also plagiarizes Ruel word for word, adding agronomic information from the classical authorities. The passage has been adduced by W Abel (*Geschichte der deutschen Landwirtschaft*, Stuttgart, 1962, p 154) as evidence that lucerne was already being grown by farmers in the Rhineland, Heresbach's homeland, in the sixteenth century. The inference seems open to question at least. Clearly he had no first hand experience of the plant (whatever it was). When he remarks 'Iam etiam in Germanium transfertur' it seems possible that he had in mind the botanical gardens of herbalists rather than the fields of farmers. The northern herbalists were certainly interested in *medica* at this time. Dodoens and others obtained seeds from the Mediterranean countries, and doubtless sometimes like Turner in England (*Herball*, pt 2, 1562, pp 52–3) experimented with it as a potential crop plant.

²⁴For Ruel's life see C G Gillespie (ed), *Dictionary of Scientific Biography*, New York, 1975.

²²C Gesner, *Catalogus*, Zurich, 1542, p 61.

²³C Estienne, *Pratsum Lacus Arundinetum*, Paris, 1543, p 11. It is worth pointing out that neither Estienne's latin works