



Fig. I Colonel Wilson-Patten's Spanish Plough.

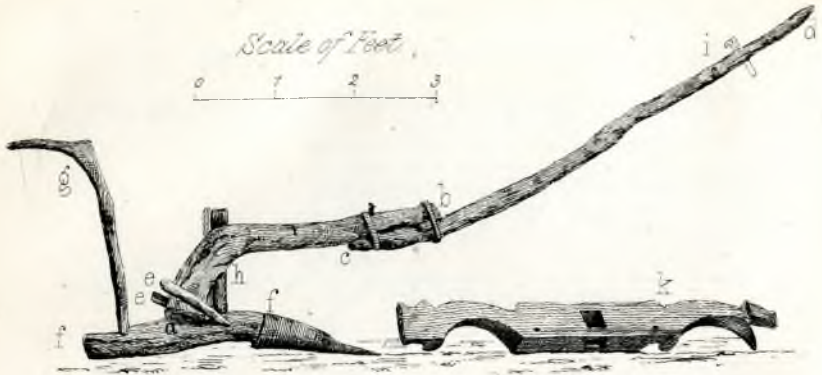


Fig. II Dr Martyn's Italian Plough.

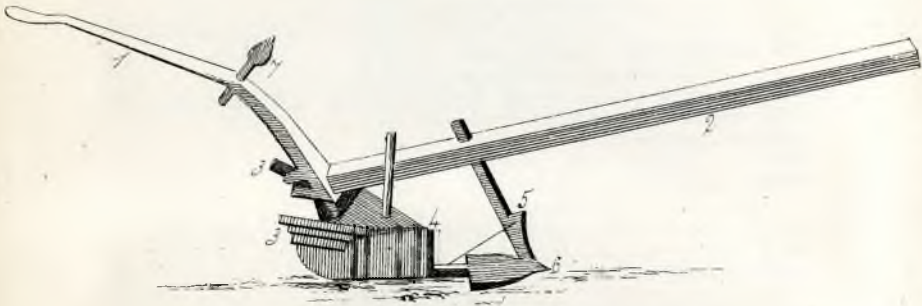
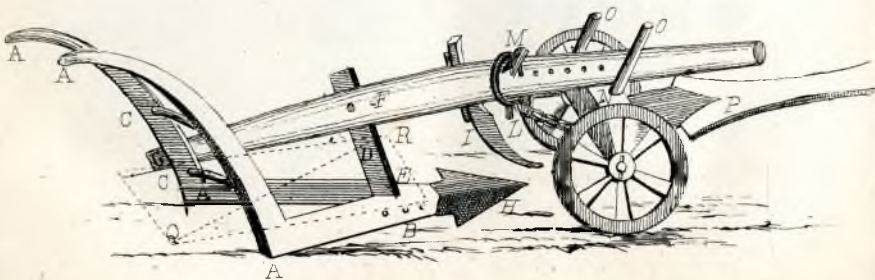


Fig. III Sir Daniel Molyneux's Mantuan Plough.



TRANSACTIONS.

ON VIRGIL'S PLOUGH,

AS ILLUSTRATED BY A RUDE IMPLEMENT IN MODERN USE
IN SPAIN.

By John Fitchett Marsh.

[The following is the substance of some *viva voce* observations, made in exhibiting the Plough at a meeting of the Society, on the 4th December, 1862, when Mr. Marsh was requested to put them into the form of a paper.]

The curiously rude plough here exhibited, and which forms Fig. 1 in our page of illustrations, was seen by Colonel Wilson-Patten in actual use in the South of Spain, while he was in command of the 3rd Regiment of Lancashire Militia, in garrison at Gibraltar, during the Crimean War. It was one of fifteen ploughs of similar construction at work on one of the largest farms in the district. Rightly regarding it as a curiosity—knowing that words would fail to give his friends at home an adequate idea of the rudeness of the implements in use by Spanish farmers—and probably desirous of pointing a moral as to the means by which England has attained her present agricultural position, he purchased the plough, and had his prize conveyed on horseback to the fortress of Gibraltar. He exhibited it at the Annual Meeting of the Manchester and Liverpool Agricultural Society, held at Warrington in 1857,

jocularly asserting his claim to the prize (if there had been one) for the worst agricultural implement there exhibited; and afterwards presented it to the Warrington Museum and Library, whence it is brought for the inspection of the Historic Society on the present occasion.

The mode of use is apparent from examination of the plough. The pole is suspended by straps from a hole in the centre of the heavy yoke, borne by two oxen. The yoke presses against a wooden pin (marked *i* on our sketch), which, being placed in one or other of four mortice-shaped holes in the pole, practically lengthens or shortens it, so as to increase or diminish the angle made with the ground by the share, and the consequent depth of the furrow. The pole forms a continuation of what we may describe, for want of a technical term for any corresponding part in the modern English implement, as the Trunk or Body of the plough, and is firmly spliced to it with two stout hoops of iron, tightened with wedges. Two holes in the yoke probably serve for the passage through it of a cord to be used as reins.

When I first saw the implement in the Agricultural show yard, it occurred to me that a more careful study of it might throw light on the description of a Roman plough, contained in the well known passage in Virgil's *Georgics*. Its appearance indicates that it has undergone little improvement since the time of Virgil; and of all the nations of Europe, probably none has retained in so great a degree as Spain the manners, dress, language, and implements of ancient Rome; of which I will not stop to point out examples.* My conjecture was more than realized by subsequent examination.

* An illustration appropriate to our subject is mentioned by Colonel Wilson-Patten, who, at the same farm where the plough was purchased, saw the process of threshing corn by trampling it under horses' hoofs. The treading out of the corn by oxen is a process of which we have very early record. The use of horses for the purpose is not so familiar; but it is alluded to by Virgil, who, in mentioning the practice of reducing the condition of mares intended for breeding, (*Geor.* iii., 132), says:—

The subject was not new to me; for the passage had been impressed on my memory by the fact that it was given me at school as an exercise, in which I was required to furnish from it an intelligible account of the construction and details of Virgil's Plough. Whether my respected master really expected me to make anything of it—whether it was a practical joke—or whether (as I have since thought probable) it was a *bona fide* experiment to ascertain how far Virgil's description was calculated to convey any definite ideas to a mind of, I think I may say, fair schoolboy intelligence, I never knew. The result was a hopeless failure. But better late than never; and now, after a lapse of nearly thirty years, I present before another audience, as critical—and less formidable only because I am better prepared to meet it—my long delayed exercise on VIRGIL'S PLOUGH.

The passage commences at l. 169 of the 1st Georgic:—

“Continuo in sylvis magnâ vi flexa domatur

“In BURIM, et curvi formam accipit ulmus aratri :

“Huic a stirpe pedes TEMO protentus in octo :

“Binæ AURES, *duplici* aptantur DENTALIA DORSO.

“Cæditur et tilia ante JUGO levis, altaque fagus

“STIVÆ, quæ cursus a tergo torqueat imo.”

I have adopted some emendations in the last line, for reasons which I will shortly notice; but let me first give a translation, as literal as may be, and leaving the technical terms untranslated for the present, so as not to prejudge the questions as to their respective meanings. The passage will then read thus:—

“From the first, while in the woods, an elm, bent with

“Sæpe etiam cursu quatiant, et sole fatigant,

“Cum graviter tunsis gemit area frugibus, et cum

“Surgentem ad Zephyrum palæa jactantur inanes.”

Pliny also (xviii., 30), says:—“Messis ipsa alibi tribulis in areâ, alibi equarum gressibus exteritur, alibi perticis flagellatur;” and Columella (ii., 21), says:—“Si competit ut areâ teratur frumentum, nihil dubium est quin equis melius quam bubus ea res conficiatur.”

“great force, is subdued into the ‘*Buris*,’ and receives the form of the curved plough. Extending from this to a length of eight feet from the base [root] is the ‘*Temo*.’ A pair of ‘*Aures*’ and ‘*Dentalia*’ are fitted to the ‘*Duplex Dorsum*’ [not as some would read it, *with a* ‘*Duplex Dorsum*’]. The light linden is also cut down beforehand for the ‘*Jugum*,’ and the tall beech for the ‘*Stiva*,’ which is to turn the course from the bottom of the hinder part.”

The first emendation which I have adopted is the reading of “*Altaque fagus Stivæ*,” instead of “*Altaque fagus, Stivaque* ;” and my authority is the edition of the Georgics by Dr. Martyn, the Professor of Botany at Cambridge, which first appeared in the year 1741. “The grammatical structure of this passage,” he says, “does not seem very clear. *Cæditur* is made to agree with *tilia*, *fagus* and *stiva*. We may say *tilia cæditur* and *fagus cæditur* ; but to say at the same time *stiva cæditur* seems to be absurd ; for this makes the staff a tree, by coupling it with lime and beech. Besides, *que* and *quæ*, coming close together (*stivaque que currus*), offend the ear ; and I believe there is not another instance of their coming thus together anywhere in Virgil.” Heyne, in what I suppose we must consider the standard modern edition of Virgil, speaks approvingly of the emendation, though he does not quite sanction the arguments in favor of it ; and in fact seems to impute to Dr. Martyn a want of scholarship, in not recognising the poetical figure which would justify the use of *stiva* for the wood of which it was made. But, by way of criticism on the critic, we may observe that the question is whether in this place, and in this collocation of words, Virgil would so have used it—first naming the light linden to be cut down for the *Jugum* ; then mentioning the tall beech, without alluding to the purpose to which it was to be applied ; and then the *Stiva*, without saying of what it was to be made. These considerations, and the

comparison of the jarring sound and halting sense of the received version with the neat antithesis of the one proposed—the light linden for the *Jugum*, and the tall beech for the *Stiva*—make the correction so obvious to my mind, that I am surprised it has not met with universal acceptance. Moreover the error, if error it be, is easily accounted for. The final letter of “*stivæ*” would be readily mistaken in manuscript for “*q*,” the usual contraction for the final “*que*.” Even in early printed books it was not usual to print the “*que*” in full, or, if in full, to distinguish between the pronoun and conjunction, both of which were printed “*que*”; and the Bodleian manuscript has “*stiva que currus*.”

The next emendation is not so obvious. It is the reading of “*cursus*” for “*currus*” in the same line. For this, also, the authority is a note in Martyn’s *Georgics*, quoting Mr. B— (*gy. Benson*), who says:—“I do not know whether any edition justifies the alteration I have made of *currus* to *cursus*. The reason of my doing it is because *cursus* is intelligible, and explains the use of the handle or plough-staff; *cursus torqueat imos*—the handle serves to keep the plough up, which otherwise would run too deep in the ground. Mr. Dryden, finding this passage difficult to explain, has left it quite out of his translation. All that the commentators have said concerning *currus* in this place is very perplexed.” Dr. Martyn adds that “the poet is thought by some to mean a wheel-plough by the word *currus*, which is derived from *curro*, to run; and Servius informs us that in Virgil’s country the ploughs run upon wheels. We have wheel-ploughs in many parts of England.” Heyne summarily rejects this emendation, on the ground that “*aratrum non currit, nec cursum aratri quisquam facile dixerit*,” but whatever objection to “*cursus*” arises out of its radical meaning surely applies equally to “*currus*.” It matters little for our purpose which reading is adopted; but

we must not allow the supporters of the usually received reading to argue in a circle, by explaining "currus" from its analogy to a carriage, because of its running on wheels, and then contending, from Virgil's use of the word "currus," that he is speaking of a wheeled plough. If his plough had had wheels, so important a feature would have been far more pointedly alluded to; and while two lines out of six were devoted to the *Buris*, the wheels would not have been left to an inference. Neither does it seem probable, from historical evidence, that the wheeled plough was in use in Virgil's time and country. Pliny, in xviii, 18, of his Natural History, which was written more than a century after the Georgics, after speaking of the broad share, with cutting edges and sharp point, as having been invented not long since in Rhætia, mentions the addition of two small wheels as peculiar to the Gauls.

If the reading of "cursus" be adopted, and in that event only, I would propose, with all the diffidence becoming the suggestion of a conjectural emendation unsupported by authority, the alteration of "imos" to "imo," so as to make the adjective agree with "tergo." If we can suppose the line so corrupt as to require two emendations, we need have little scruple in admitting a third. If my new reading be rejected, we must translate the concluding words of the passage, "to turn the course, at the bottom, from behind."

Martyn's translation—in which, however, he has not adopted the emendations he recommends in the text—is as follows:—
 "In the first place the elm is forcibly bent in the woods into
 "a plough-tail, and receives the form of the crooked plough.
 "To the end of this are joined a beam, eight feet in length,
 "two earth-boards and share-beams, with a double back.
 "The light lime tree also is cut down beforehand for the yoke,
 "and the tall beech, and the staff, to turn the bottom of the
 "carriage behind." To illustrate this description he has a plate (copied in fig. 2 of our illustrations), which he thus

introduces:—"I have here inserted the figure of a modern Italian plough, which seems to differ but little from that which Virgil has described. It seems to have no *Stiva*, distinct from the *Buris*; and it has a coulter, which Virgil does not mention: and indeed Pliny, who describes the coulter, seems to speak as if it was not in all ploughs." In his plate, the various parts of which I have numbered for convenience of reference, he makes 1 the *Buris*, 2 the *Temo*, 3, 3, the *Aures*, 4 the *Dentale*, 5 the *Culter*, and 6 the *Vomer*, the two latter not being mentioned, at least by name, in the passage of Virgil under discussion. According to his own view of the subject (in which I must not be understood as concurring) Dr. Martyn is scarcely correct in saying there is no *Stiva*; as the staff, numbered 7 in our figure, answers, or would assist in answering, Virgil's description of its office.

The same plate in Martyn's *Georgics* contains a second figure of a plough, copied in our fig. 3, and of which he writes:—"After my notes on this passage were printed, I had the favour of a letter from Sir Daniel Molyneux, Bart., dated from Rome, July 27th, 1737, with a drawing and description of the plough which is now used about Mantua and Venice. There is a plough used in many parts of England which differs very little from this; but yet I believe it will be no small satisfaction to my readers to find an exact account of the very plough now employed in cultivating the lands in Virgil's own country. The two timbers marked A are each made of one piece of wood, and are fastened together with three wooden pins at B. C, C are two transverse pieces, which serve to hold the handles together at the back. D is a piece of wood fastened to the left handle, or *Sinistrella*, at E, and to the beam F. F is the beam, or *Pertica*, which is fastened to the left handle, at G. H is the plough-share, into which the *Dentale*, or share-beam, seems to be inserted. I is the coulter, being

“ a piece of iron, square in the body, which is fixed in the
 “ beam and bending in the lower part, and having an edge to
 “ cut the weeds. L is an iron chain, fastened at one end to
 “ the plough-pillow, or *Mesolo*, N, and at the other to the
 “ beam, by an iron hammer, M, the handle of which serves
 “ for a pin ; and the more forward you place the hammer, the
 “ deeper the share goes into the ground ” [an arrangement very
 similar to that above pointed out in Colonel Wilson-Patten’s
 Spanish plough]. “ o, o are two pieces of wood, fastened to
 “ the pillow, which serve to keep the beam in the middle.
 “ P is the pole, or *Timonzella*, to which the oxen are yoked,
 “ and is of no certain length. Q, R (with prickt lines) is a
 “ strong plank, which is fastened to D and to the left handle.
 “ This, being placed sloping, serves to turn up the earth and
 “ make the furrow wider. This part, therefore, is the earth-
 “ board, or *Auris*, of Virgil, of which he says there should be
 “ two ; but in this plough there seems to be but one. I do
 “ not question but that the Mantuan plough was in Virgil’s
 “ time more simple than that here described ; but let us
 “ compare a little the poet’s description with that here before
 “ us. Let the left handle A, A, be supposed to be the *Buris*,
 “ the right handle A, A, to be the *Stiva*, and A E, A B, to
 “ be the two *Dentalia*. Here then we see the crooked *Buris*,
 “ to form which an elm was bent as it grew. Near the bottom
 “ of this, *huic a stirpe*, we see the pole is inserted, which
 “ probably was continued to the length of eight feet, and had
 “ the oxen yoked to it without the intervention of the *Timon-*
 “ *zella*. The two handles may very well be supposed to be
 “ meant by the double back, to which the two share-beams are
 “ joined. Upon this supposition we must make some altera-
 “ tion in interpreting the two verses, ‘ *Huic a stirpe*,’ &c.
 “ ‘ From the bottom of this a beam is protended, eight feet in
 “ ‘ length, and two earth-boards and share-beams are fitted to
 “ ‘ the double back.’ The wheels were probably fixed imme-

"diately to the beam, and shew the propriety of the word "*currus*, as is already observed in the note on ver. 174."

Both one and the other of the two descriptions just given are to my apprehension extremely unsatisfactory; but I have thought it fair to quote them, and to copy the plates by which they are illustrated, for the sake of comparison with the views I am going to express. I would for the same reason have given extracts from the article "*ARATRUM*," in Dr. Smith's Dictionary of Greek and Roman Antiquities; but it is unnecessary to quote at length a work which is in every one's hands, and to which we naturally turn as the latest and best authority. Suffice it to say, that the writer of that article, Mr. Yates, like his predecessors, treats the *Buris* as meaning the *Plough-tail*, the upper end of which being held by the ploughman, the lower part, below its junction with the *Pole* was used to hold the *Share-beam*, to which three continuous and most essential parts Virgil adds the *Earth-boards* and the *Handle*.*

The interpretation of the word *BURIS* has presented the principal difficulty. It occurs nowhere else in Latin literature; and the word *Bura*, in a single passage in Varro (i. 19), is the only authority for anything like it. Servius, whose

* Since my paper was ready for the press, I have had my attention called to an extensive series of illustrations of ancient ploughs in Loudon's Encyclopædia of Agriculture. He mentions the Abbe Rozier, who wrote in 1796, as identifying the Roman plough with that in use in the South of France, of which an illustration is given, strongly resembling our Spanish specimen, but without the projections *e, e*, and having the handle composed of two pieces; but no comparison of details is given. On the authority of Dickson's Husbandry of the Ancients, 2 vols. 8vo., Edin., 1778, he considers the nearest approach to Virgil's plough to be one in use in Valentia, of which also he gives an illustration. It bears some little resemblance to the implement before us, though differing considerably both in construction and details; but the attempt to connect its various parts with Virgil's description is still more unsatisfactory than those quoted in the text. Another illustration of a plough used in Castile and other provinces of Spain is worth comparing; but it has rather the appearance of a conventional representation, copied from some piece of sculpture, than of a drawing from an actual object. All of these have the parts which I have called the Trunk and the Pole distinct from each other. They are either spliced together, as in our specimen, with iron hoops, or with cords.

commentary is contained in the Variorum Edition of 1529, now on the table, and has furnished materials for a large proportion of the notes of subsequent editors, derives it from *βοῦς οὐρά*, which has been treated as justifying and suggesting the translation of *Plough-tail*; but I would submit that a plough-tail and a cow-tail are very different things; and whatever inference is to be drawn from this derivation is in favor of the *Buris* representing that portion which, in our Spanish plough, occupies the same position in relation to the body of the implement as the tail does in relation to the animal, namely the lowest and hindmost part of the *Dorsum*, bending downwards like a tail. In short, I interpret it as meaning that part of the plough which, in our illustration, is marked *a, b*.* Possibly it might derive its name from its being that part nearest to the tails of the oxen in ploughing; or may we not, abandoning *βοῦς οὐρά* altogether, derive it conjecturally from *βοῦς* and *ἄρῶν*, or rather from their roots, which are common to the Greek and Latin languages? The editor of the Medicean Codex (now on the table) prints "*Imburim*." Whether anything turns on this—whether it is possible that Virgil may have coined an adverb from the word *Bura*—I leave to more skilled philologists to decide. For our present purpose, I am content to accept *Buris* as a noun, and to translate it by some English equivalent which shall be consistent with the description given of it by Virgil. It is contrary to the natural course of thought that a person describing a complex implement should begin with a subsidiary portion of it, such as the handle; and it is most unlikely that

* Vossius, in his *Etymologicon Ling. Lat.*, fo., Amst., 1662, after quoting this passage of Virgil, s. v. *Bura*, writes:—"Satis hinc liquet esse imam temonis partem, cui aptatur dentale, uti dentali vomer prefigitur" (which exactly corresponds with the views I have expressed, though I had not consulted the *Etymologicon* until I was preparing my manuscript for the printer); and after giving various derivations, some of which it must be confessed are rather wild, he adds:—"Onomasticon vetus *Buram* interpretatur ἐχέρλη. Sed in Glossis "Cyrilli ἐχέρλη vertitur *Stiva* quæ a *Bura* differt. Etiam in Glossis legas *Buris*, "βυμός; atqui βυμός, *Temo*: buris autem non temo, sed ima ejus pars."

Virgil would have occupied just one-third of the passage in the description, or have described such careful and laborious preparation of it, if after all it had been little more than a stake, such as, but for the dignity of poetry, he might have directed his Agricola to cut out of the nearest hedge. Such at least is the character of the handle, or plough-tail, in the specimen before us; but I must not beg the question, by assuming, at this stage of the enquiry, its identity with Virgil's plough. According to the poet's express words, the *Buris* was something, the curvature of which formed the characteristic feature of the plough itself—"curvi formam accipit ulmus aratri;" and the very passage in Servius, from which the commentators have extracted his etymology of *Bura* or *Buris*, renders "*In burim*" by "*In curvaturam*;" "*nam buris est curvamentum aratri, dictum quasi βοὸς οὐρὰ*" "*quod sit in similitudinem caudæ bovis.*" I propose then to translate it by some such term as I have adopted in describing Colonel Wilson-Patten's plough—the TRUNK or BODY. Its weight would no doubt vary according to the strength or lightness of the soil on which it was to be used. In Virgil's plough it was, I should think, much more massive than in the specimen before us, unless large allowance is to be made for poetical diction in such phrases as "*inflexi grave robur aratri,*" &c.

That TEMO is the POLE admits of no question. According to the translation I have given, the length of eight feet (the Roman foot differing very little from our own) is to be measured from the point of the *Temo* to the *stirps*, or foot, of the *Buris*.

The BINÆ AURES, commentators are agreed in translating *two earth boards*; for a passage in Palladius (i. 43), describing their use, which was to enlarge the furrow already made by the *vomer*, and pointing out the distinction between *aratra aurita* and *simplicia*, had left no room for doubt. But why

should earth-boards be called *Aures*? If, in English, they had been called *Ears*, we should perhaps have been told that the word presented no difficulty—that “to ear” (A.S. *erian*), is a good old English word for “to plough”—that the *earth* is that which is eared—and that the *ears*, the part being taken for the whole, are the instrument with which it is eared, or ploughed. But we should have been following a false scent; and I only make this passing allusion to the word as an illustration of the uncertainty of conjectural etymology as a guide, unless due attention be paid to the history of words; and to observe the coincidence between the Latin word *Aures* and the old English verb. If it be again asked why were the earth-boards called *Aures*? our Spanish plough, “*arrectis auribus adstans*,” shall answer the question; for no one, after looking at the projections marked *e, e* in our figure, will doubt the propriety of the term, or hesitate to give to it the literal translation of A PAIR OF EARS.

The DENTALIA have sadly puzzled commentators. Dr. Martyn supposes the word to mean a sharebeam with two legs, one of which was fastened to the bottom of the tail, and the other nailed to the beam; and that these two legs were the *Duplex Dorsum*; but he admits that it is not very clear why the *Dentalia* are said to have a double back. A similar explanation is given in the article in Smith’s Dictionary of Antiquities, where it is stated as probable that “as the *Dentalia*, that is the two share-beams, which Virgil supposes, “were in the form of the Greek letter Λ , which he describes “by *duplici dorso*, the *Buris* was fastened to the left share-beam, and the *Stiva* to the right.” The explanation I would suggest is that the plural form *Dentalia* (differing from *Dentale*, which we should have translated share-beam, from *Dens*, which would have indicated a single tooth, and from *Dentes*, which would have implied two or more) was intended to comprise the compound apparatus for cutting the furrow,

including what we should now call the share and share-beam, and perhaps might even include the coulter, if Virgil's plough was intended to have one; and this would account for his making no special mention of the *vomer*, which was an undoubtedly essential feature. In a similar manner we speak of "cart-gears," as a term comprising various objects, none of which could properly be spoken of in the singular as "a gear;" and perhaps *tooth-* or *share-gear* would not be an inappropriate rendering of *Dentalia*, according to my idea of it. I have however translated it *SHARE-APPARATUS*, by which we must understand that part of our Spanish plough marked *f.f.* in the figure, including the *Vomer*, or iron beak, with which it terminates.

The *DORSUM* would have presented no difficulty but for the epithet *duplex*. In order to furnish an explanation, attempts have been made to construe the words as having relation to the *Dentalia*, which it is stated are fitted "with a double back." I have just been instancing one of the modes in which a way was thus sought out of the difficulty; and another is to interpret *duplex dorsum* as that "cujus utrumque eminent latus;" and it has even been attempted to explain it away as meaning only "broad," for which authorities are found, or supposed to be found, in Virgil, Horace and Lucretius. Dr. Smith, in his excellent Latin-English Dictionary, quotes as his authority for what (to speak respectfully) is at least a solitary meaning of the word *Dorsum*, the phrase *Duplex Dorsum Dentalium*, with a reference to this passage, and the translation of "projecting irons." I submit that Virgil neither wrote nor meant *Dorsum dentalium*, but referred to the *Dorsum aratri*; and I understand by the *Dorsum* the entire length from *a* to *d* in the figure of the Spanish plough, aptly termed *dorsum*, from analogy in position to the spinal column of a quadruped, and styled *duplex* because it is compounded of the *Buris* and *Temo* spliced together as in

the specimen before us, and to which the *Aures* and *Dentalia* are fitted. If it be objected that the former are not fitted directly to the *Dorsum*, but only through the medium of the share-beam, we may read *Aures* as agreeing with "sunt" understood, instead of with "aptantur." It is quite possible that in Virgil's time the *Buris*, or *Trunk*, and the beam *f*, which I have treated as part of the *Dentalia*, may have been in one piece, thus furnishing an additional reason for the bending of the growing tree, which would assume a more artificial form than in the object before us—dispensing with the stay shown at *h* in the figure, and which is not mentioned in Virgil, though used by the Greeks and Romans, under the names of *σπάθη* and *fulcrum* (see Smith's Dictionary of Antiquities)—and rendering more appropriate the epithet of *uncus*, elsewhere applied by Virgil to the plough. If this were so, I should include the part in question in the *Dorsum*.

The *JUGUM*, or *YOKE*, needs no explanation. If, in Virgil's time, it was of similar size and proportions to the specimen here exhibited, the lightness by which he characterises the linden would be no small recommendation, both to the proprietor and to the

"Fessos vomerem inversum boves

"Collo trahentes languido,"

observed by Horace. His description is quoted by the writer of the article in Smith's Dictionary of Antiquities, as an authority for the statement that "when the ploughman had finished his day's labour, he turned the instrument upside down; and the oxen went home, dragging its tail and handle over the surface of the ground." This would have been a very unthrifty practice, if the shape of the implement had rendered it possible; and I should rather understand that it was turned both upside down and back to front, so as to suspend it from the *Jugum* by the *Dentale* (see plate inverted), by which means the oxen would carry the heavy part of the plough, while the light end of the *Temo* might

trail on the ground without injury. This arrangement would much enhance the force and beauty of Horace's picture; and is more definitely alluded to in a similar sunset picture by Virgil (Ec. ij, 66):—

“Adspice, aratra *jugo* referunt *suspensa* juveni,

“Et sol crescentes decedens duplicat umbras.”

If I have succeeded in dispelling the notion of the *Buris* being a plough-tail, we are left at liberty to assign the *STIVA* to the HANDLE, or tail, marked *g* in the figure. We speak of the plough-tail, and I believe (by way of contradistinction) of the plough-head also; but may not the former term have been originally, not plough's-tail, but plough-stail, or stele (A. S. stela)?

Our translation then—avoiding rendering the Latin words by the technical terms describing the parts of an English plough, with which they have little analogy, and less resemblance—will read:—

“From the first, while in the woods, an elm, bent with great force is subdued into the TRUNK, *a b*, and receives the form of the curved plough. Extending from this for a length of eight feet from the base, *a*, is the POLE, *c d*. A PAIR OF EARS, *e, e*, and the SHARE APPARATUS, *f, f*, are fitted to the SPLICED BACK, *a d*. The light linden is also cut down beforehand for the YOKE, *k*, and the tall beech for the HANDLE, *g*, which is to turn the course from the bottom of the hinder part.”

I submit that this explanation furnishes an intelligible meaning for every technical term used in the passage—that every word of Virgil's description which has hitherto presented a difficulty has not only been explained, but illustrated by some part of Colonel Wilson-Patten's, or, as we may now call it, the Warrington Museum Plough; and that this rude implement, with very slight allowance for the change of fashion in 1900 years, represents substantially, and in detail, the plough which Virgil intended to describe.

When the foregoing observations were made, and even when they were subsequently committed to paper, I had not thought it necessary to examine the passage in Hesiod, in which the several parts of a plough are mentioned—my object not being to write a general dissertation on ancient ploughs, but to identify the Spanish implement with that described in the first *Georgic*. I have since been led, in consequence of the passage being cited in Martyn's Notes, to look into it more carefully, and am glad to find that our plough throws light on Hesiod's description, as well as Virgil's. In the *Ἔργα καὶ ἡμέραι*, after reminding the husbandman at the proper season to cut timber for various specified purposes, the Ascræan Tusser proceeds, at l. 425, as printed in the edition of Schrevelius, 8vo., Lug. Bat., 1658 :—

“Φέρειν δε γύην, ὅτ' ἂν εὕρησ,
 “Ἐἰς οἶκον, κατ' ὄρος διζήμενος, ἢ κατ' ἄρουραν,
 “Πρίνινον. ὅς γαρ βουσὶν ἀροῦν ὀχυρώτατος ἐστίν,
 “Ἐὗτ' ἂν Αθηναίης δμῶος ἐν ἐλύματι πήξας,
 “Γόμφουσιων πελάσας προσαρήρεται ἰστοβοῆϊ.
 “Δοιὰ δε θέσθαι ἄροτρα, πονησάμενος κατὰ οἶκον,
 “Ἀυτογύον, καὶ πηκτόν. ἐπεὶ πολὺ λῶϊον ὄντω.
 “Ἐχ' ἕτερον γ' ἄξαις, ἕτερον γ' ἐπὶ βουσί βάλαιο.
 “Δάφνης δ' ἢ πελέης ἀκώτατοι ἰστοβοῆς,
 “Δρυὸς ἔλυμα, πρίνου* γύην.”

Which, reserving as before the interpretation of technical terms, I propose to translate as follows :—

“And bring to the house, whenever you find it, seeking it
 “on hill or plain, an *Plex γύης*; for this is the strongest for
 “oxen to plough with, when the servant of the Athenian
 “goddess, fixing it into an *ἔλυμα*, joining them with nails,
 “shall have fitted it to an *ἰστοβοεὺς*. But lay by two ploughs,
 “having prepared them at home—one *with a natural*
 “*γύης (αὐτογύον)*, and a *constructed one (πηκτόν)*—since this is
 “much the better plan. If you should break one, you can

* Sic—but prosody requires the reading of *γύην πρίνου*. See Liddell and Scott, s. v. *πρίνος*.

“put the other to the oxen. Laurel or Elm is the most durable for the *ιστοβοεύς*, Oak for the *ἔλυμα*, Ilex for “the *γύης*.”

Such are the three parts of Hesiod's plough, of which Dr. Martyn says that all interpret the *γύης* as the *Dentale*, and that it is fastened to the plough-tail, and at the same time nailed to the pole. If this could be established, as the *ιστοβοεύς*, from its etymology (*ιστος*, a mast, and *βοῦς* an ox), can be no other than the pole, the *ἔλυμα* would be left to represent the *Stiva*. I was at first inclined to accept this view, according to which the *γύης*, answering to the Share-beam, *f, f*, in our figure of the Spanish plough, is first described, as being the effective part, and (in construction) the basis of the plough; to which were attached, on the one hand, the means of draught, namely the *ιστοβοεύς* (corresponding with the *Dorsum*, *a* to *d*, but consisting of one piece instead of being compounded of the *Buris* and *Temo*), and on the other, the means of guiding it, namely, the *ἔλυμα* or *Stiva*, *g*. In this condition, it would be an *ἄροτρον πηκτόν*, or constructed plough, which, though considered in Hesiod's time too gimcrack an affair to be trusted, without having a good old fashioned *ἀντογόνον* at hand to supply its place in the event of the more scientific implement breaking down, was certainly more primitive than Virgil's. It would be easy to trace the steps by which both it and the various other known forms derived their origin from the primitive type, namely a young tree, the trunk of which would form the pole; a branch making a somewhat acute angle with it, the Share-beam; and another projecting on the contrary side, the handle. This would form the anchor-shaped plough, of which an illustration is given in Smith's Dictionary of Antiquities, and which, in a more or less conventional form, is common in pictorial illustration. The inconvenient position of the upper branch, forming the handle, would naturally suggest the substitution of an artificial

handle, directed backwards instead of forwards, which gives us at once the Mysian plough, delineated by Sir Charles Fellows, and copied in Smith's Dictionary, as well as the hooked form which was alluded to in discussing the word *Dorsum*, and that of which a specimen, engraved from a brass figure in the Jesuits' College at Rome, is contained in Warton's *Virgil*, 4 vols. 8vo. London, 1753. The latter is accompanied by an attempt, in a note by Spence which it is not worth while to discuss, to connect its parts with Virgil's description. If, on the other hand, a piece of timber were met with, curved so as to form a handle and share-beam in one piece, it would want only the pole, with which to connect it with the yoke, in order to assume the form described in Hobhouse's "*Albania*," i, 140, also quoted in Smith's Dictionary, and that shewn in one of the plates to Stanhope's *Olympia*.

Modern scholarship, however, is not so unanimous as represented by Dr. Martyn in interpreting *γύης* as *Dentale*; and there is no lack of authority for Mr. Yates's conclusion that *γύης* was equivalent to *Buris*, *Bura*; and *ἔλυμα* to *Dens*, *Dentale*; or indeed for any possible or impossible combination of the Greek and Latin terms, the interpretation of which has been influenced by the mistaken notion as to the form and meaning of *Buris*. Etymology does not offer us much assistance. *Γύης*, which also means a certain superficial measure of land, is generally, but I think unsatisfactorily, derived from *γαῖα*, or *γῆ*. May it not be derived from the same root as *γύαλον*, a hollow, the connecting idea being a hollow or furrow, formed by the plough-share in marking the boundaries of lands and cities? The latter use of the plough is so familiar as to have given rise to one of the conjectural etymologies given by Vossius for *Buris*, and alluded to in a note on a previous page, namely, by transposition of letters, from *urbis*. According to either one or other derivation we obtain no suggestion as to its meaning, except that it formed the principal feature of the implement. If *ἔλυμα* or *ἐλυμα* be derived

from ἔλω, Damm's Lexicon, by Duncan, edited by Rost (4to. Lips. 1831), translates the verb by *curvo, proclino*; and illustrates it from Il. ψ. 393, ῥυμὸς ἐπὶ γαῖαν ἐλίσθη, *Temo in terram provolutus et protrusus est*, which even more accurately describes the position of our *Stiva*, curving downward from the hand towards the ground, than that of a chariot pole thrown to the ground by the breaking of the yoke. If, on the other hand, it be from αἰρέω (root, ἔλω; see Liddell and Scott, s. v. αἰρέω), *to take with the hand*, a handle is again the natural meaning of the word. To notice all the authorities I have consulted would be to exceed any reasonable limit of space. Those who wish to pursue the subject further will find ample information (s. v. Γύης and Ἐλυμα) in that vast storehouse of critical learning—Stephani Thesaurus Græcæ Linguæ—the third edition of which (Paris, 8 vols. fol.) is just on the point of completion. The result of the body of criticism there collected is the somewhat unsatisfactory one, that after rendering γύης *dentale*, it is stated that “locum habet nonnisi “in aratris ἀτρογύοις, minime in πηκτοῖς, in quibus γύης est “buris, *dentale ἔλυμα* ;” and the authorities as to ἔλυμα are summed up by saying—“unde, intelligitur ἔλυμα dici modo “*dentale modo buram*, utrumque non, ut Butt. Lex. II. “164, opinabatur, quod terram feriat sed quod terram versus “inclinetur”—a conclusion too like that of the young astronomer who thought to avoid committing himself on the knotty question whether the earth revolves round the sun or the sun round the earth, by answering “sometimes one and sometimes “the other.”

A classical friend, on whose judgment I have great reliance, suggests an interpretation, which tends to make the opposing theories somewhat less irreconcilable. He would read γύης as equivalent to *Buris*, in the sense in which I have interpreted the Latin word—*ιστροβοεύς* to *Temo*,—and ἔλυμα to *Dentale*—thus bringing us round to the translations adopted by Mr. Yates, but with a widely different meaning from that with

which he has used them. According to this reading, the handle is either wholly unmentioned in the passage before us (the word ἐχέτλη being elsewhere used by Hesiod to express it), or it is to be considered as forming (either as an outgrowing branch, or as a prolongation backwards in a curve), a part of the share-beam—approximating in that respect to Hobhouse and Stanhope's forms. I incline to the latter view for the etymological reasons above given. It is possible, then, that the distinction between the ἄροτρον πηκτόν, and ἀντογόνον may have been that the one had, and the other had not, the "*duplex dorsum*" of Virgil's plough; and our fig. 1 would serve as an illustration to Hesiod, except that an ἔλυμα in the form just suggested should be substituted for the *Dentale*, *ff*, and the *Stiva*, *g*. This idea receives strong support from a note of the Scholiast on Apollonius, quoted in Stephani Thesaurus, which, in describing the ἄροτρον πηκτόν, says:—"Ἐλυμα δέ ἐστιν ἐν ᾧ ὁ ὄνυς ἐντίθεται. Τὸ δέ ἀπὸ τοῦ ἐλύματος ξύλον ἐπὶ τοὺς βόας τεῖνον γύης καλεῖται, τὸ δέ ἀπὸ τοῦ γύου ἰστοβοεὺς."—"The ἔλυμα is that in which the share "is inserted: the timber extending from the ἔλυμα towards "the oxen is called the γύης; that from the γύης the "ἰστοβοεὺς."

I fear I have wandered too far from my original object in discussing the Greek terms; but I cannot resist the temptation to quote an authority on the Latin ones in Pasor's Index to Hesiod, containing a description, which only wanted a drawing of the Warrington Museum Plough as an illustration, to make it the most intelligible account of the Latin names I have anywhere met with. S.v. ἀντογόνον he says:—"Est "pars aratri quod vocatur *Dentale*: est lignum cui *Vomer* "includitur. *Vomer* est qui terram scindit et liras ducit: "*Stiva* vero est aratri manica." It is only fair, however, after quoting Pasor as an authority, to add that he translates ἔλυμα *temo*, and ἰστοβοεὺς *stiva*, in which I trust I have given ample reason for not agreeing with him.