The Archaeological Journal.

MARCH, 1857.

THE PRACTICAL ADVANTAGES ACCRUING FROM THE STUDY OF ARCHAEOLOGY.[1]

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THIS age boasts of being a practical one. Before a scheme is adopted, the question is constantly heard—"What is the use of it?" Every study, every enterprise, which does not tend more or less directly to increase our wealth, our power, or our personal comforts, is discountenanced. Within certain limits the principle is a good one. Life is too short to spend any part of it in idle speculation. But it may be pushed to too great an extent. If we are not to pursue any course of investigation until we can ascertain what the result will be, an end is put at once to all discovery. The question —"What is the use of it," may have been put to Galileo by the utilitarians of his day, when they observed him watching, with intense earnestness, the swinging of the lamp in the Duomo of Pisa, and he would, in the first instance at least, be compelled to say, "I do not know." How uselessly, to all appearance, was Galvani employed when he made dead frogs kick, and Newton when he blew soap bubbles, and Watt when he boiled water in apothecaries' phials. And yet how stupendous have been the results of these unpretending inquiries. The students of antiquity are peculiarly exposed to the ridicule of the "quick-returns" school. These utilitarians tell us that they have too much to do with the stern realities of life to dream over the events of the past. Men of leisure, they say, may luxuriate in contemplating the graceful form of a Grecian vase, or exercise their imaginations

[1] This Discourse was delivered at the Opening Meeting, at the Meeting of the Institute in Edinburgh, July 22, 1856.

in deciphering a Roman inscription; but men of business have something more important to attend to.

Let us see, however, if the study of antiquities has not some solid, tangible, commercial advantages. In the attempt to show that it has, I shall confine myself to one branch of the subject. I shall not point to the temples of ancient Greece, or to the ecclesiastical structures of the Middle Ages in our own island—buildings which the ablest architects of the present day do not think it beneath them to imitate—but will direct attention to the Roman division of the great field cultivated by the Archaeological Institute and other kindred societies.

If any one had said to the Prime Minister of England when he declared war against Russia, "My Lord, let me advise you, before you take a single step in the prosecution of this momentous enterprise, to spend at least one week in the study of Roman antiquities,"—what would have been thought of him? And what would have been thought of the Minister who, in time of such pressing emergency, should forsake the Cabinet Council, and neglect his despatches, while he took a journey to the north to examine walls of Hadrian and Antoninus? What would have been thought of him? And yet, if we look into it, the suggestion is not so ridiculous as at first sight it appears. Supposing the Minister had come into Northumberland, and had placed himself under the guidance of our local society, what could we have shown him there that would have aided him in directing the warlike energies of this great nation? The first thing probably that we would have done would have been to have shown him the Watling Street, and some other lines of Roman road which there exist in a state of considerable perfection. After we had "walked" his Lordship for some miles over the stones that were laid in their present bed nearly eighteen hundred years ago, we would have said to him, "You see here the practice of the Romans. In advancing upon an enemy they uniformly made the construction of a road keep pace with the progress of the army. This they did, not from cowardly motives, but in order to keep up the communication with their reserves in the rear, that their supplies might be duly forwarded; and that, in the case of sudden disaster, they might make good their retreat. Here you see how Agricola acted, when, in the year 80, he marched against the Cale-

donians. He made roads. Be sure that in directing the energies of the modern Caledonians amongst others, against the Russians, you impress upon them the necessity of making roads. Let this be one of the first things to be attended to." Unfortunately, however, the Prime Minister of that day was too busy to study antiquities. It was not until after our army had suffered the severest calamities, that a road was made from Balaklava to the camp. Again, we should probably after this have taken him to some of our Roman stations on the wall, and shown him the care with which a Roman army was entrenched when it rested even for a night. At Borcovicus we would have furnished him with proofs for believing that, when the army sat down there to build the wall, the first thing they did was to erect the thick stone walls of their own camp, and to rear the stone barracks which were to form their own habitations. We should have confirmed this opinion by referring him to the sculptures on Trajan's column, which represent the soldiers employed in the Dacian campaign as being very extensively employed in building stone dwellings. We should then have pressed upon his Lordship the necessity of securing strong and warm habitations for the army, the moment they had reached the ground which they were to occupy even for a moderate length of time. But what is the use of studying antiquities? what is the use of profiting by the experience of past ages? So at least some have thought, for though the frames of our soldiery are not more hardy than were those of the Romans, they were exposed on the heights of Sebastopol in a way that a Roman army never would have been. Further, we would probably have drawn his attention very particularly to the Roman method of heating their apartments by hypocausts; and we would have suggested to him the adoption of a similar method of enabling the army to endure the rigours of a Crimean winter. When fuel is scarce, what more effectual or economical way can be employed than by making the heated air to pass beneath the floors of the rooms? —one small fire will, in this way, heat whole suites of apartments. But there was not time to study antiquities, and our army was left to bear up against the extreme rigours of winter as best they could. As to the commissariat of the Roman army, our stations on the lines of Hadrian and Antoninus do not teach us much, but the instructive coil

around the column of Trajan makes up for the deficiency. We would have called attention to the important fact that foremost in the preparations which Trajan is there represented as making for his campaign in Dacia, is the laying in of a store of hay for his horses. There the hay-stacks stand to this day. Doubtless, if the horses were cared for, the men would not be neglected. We would have said to him, "My Lord, let your commissariat be complete to the most unimportant article—be sure that you have hay for your horses." But no · our rulers had no time to throw away upon the study of antiquities, and our noble horses were left on the heights above Sebastopol at a temperature not much above zero, to eat one another's manes and tails. Perhaps by this time it will appear that the idea of even a Prime Minister paying a little attention to antiquities is not very absurd. If the evils to which I have referred had been avoided by the adoption of the experience of the Romans, as taught us by the monuments which they have left us, half-a-year's income-tax would have been saved to this country, and this surely even utilitarians will consider is a thing of real importance.

But to turn to the lessons which antiquity gives us for our improvement in the arts of peace. The Romans were great builders. Many of the works which have come down to our day, are remarkable for their magnitude and their durability. How vast a structure is the Coliseum at Rome—how very remarkably do the lofty walls of Richborough and Pevensey hang together. One cause of the durability of their erections is the excellence of the mortar which they employed. If we had studied their method of making and using it, our buildings would not have the tendency to fall to pieces which they have. I have been informed that, when the Durham County Prisons had been built at very great expense, a gentleman requested to be locked up in one of the cells, and to be furnished with a piece of an iron hoop. In the course of an hour he liberated himself, and joined his friends as they were sitting down to dinner. This he could not have done if the mortar had possessed a proper degree of tenacity. The necessities of our present railway system have compelled our engineers to pay attention to the subject of mortar, and in all our great works a material is now used as good as that which was prepared by the Romans; but a study of antiquities would probably have caused the revival of this

important part of the craft of a builder to have been earlier effected.

When the station of Hunnum on the wall of Hadrian was being pulled to pieces some years ago, an eminent architect in Newcastle, Mr. Dobson, carefully examined the buildings which it contained. He noticed with considerable interest the mode in which the flues were brought up the sides of the walls from the hypocausts below. The hint was not lost upon him. He was at the time engaged in building a house in a damp situation, and he was anxious to devise some means of preventing the wet forcing itself through the walls. He at once resolved to substitute a thin brick wall instead of the ordinary wooden stoothing on the inside of the main stone wall, leaving a small space between them, but tying them together at intervals. The plan answered admirably, and he has adopted it ever since. He named it to Mr. Smirke, who also adopted it. Some people cannot understand what is the use of studying antiquities, but if their bones creak with rheumatic pains, they will perhaps comprehend the usefulness of any means that can be devised of preventing the incursion of the malady.

After this country had suffered two or three times from that dreadful scourge the Asiatic cholera, our rulers were taught the necessity of attending to the sewerage of towns, and of prohibiting intramural interments. If they had studied antiquities, and had profited by the experience of the Romans, that dreadful infliction, so far as it is dependent upon second causes, might, in a great measure, have been avoided. The Roman station, the interior arrangements of which I have had the best opportunity of examining, is Bremenium, the modern High Rochester. It is situated in a bleak and desolate region of Northumberland, which even now fills the heart of a townsman with horror. It is the most advanced post in England, and must necessarily have been one of great danger. Notwithstanding the necessity of constructing the fortress as hastily as possible, a complete system of drainage was adopted before the foundation of a single dwelling had been laid. Extensive excavations have lately been made here; first, by the Duke of Northumberland, and afterwards by the Newcastle Society under his Grace's generous encouragement. We found that the station had been rebuilt on two or three different occa-

sions; but below the lowest foundation were carefully-constructed channels, some, as we supposed, for carrying off the waste water, others for introducing the pure stream. I need not refer to the Cloaca Maxima at Rome.

With reference to extramural interments, we have abundant evidence in the stations in the north of England to show that the law of the twelve tables upon this subject were strictly observed in barbarous Britain in the second century, whatever may have been the case in more enlightened times.

I come now to minor matters. In forming a brick arch with bricks of the usual form, the workman must be careful to put a larger proportion of mortar on the outer rim of the circle than the inner, and the wooden framework used in its construction must be retained in its place until the mortar solidifies. If bricks be made with sides radiating from a centre, as the ordinary stone voussoirs of a bridge do, they can be laid in their bed quickly, and without claiming any extraordinary care, and the work will stand any amount of pressure as soon as the arch is turned. Only a year or two have passed since it occurred to our builders to have bricks made of this construction. If they had studied antiquities, they would have observed barrel drains in our Roman stations, formed of wedge-shaped bricks, and we might long ago have had the benefit of the contrivance.

Once more;—no one asks, what is the use of the culinary art. Some articles of interest taken from the ruins of Pompeii have lately been added to the Duke of Northumberland's collection at Alnwick Castle. I am informed that when the master cook was introduced into the museum, he was struck with the admirable practical form of some cooking utensils. I have here a sketch of a sort of gravy strainer, which he pronounced better than any he had. The peculiarity of it consists in its rim being turned slightly inwards, so that it can be slightly shaken over the joint, without the risk of any of the unstrained gravy coming over the edge.

I have now done.—I have selected a few facts for the satisfaction of a very numerous class of persons, who make too indiscriminate a use of the question, *cui bono?* Perhaps I ought to apologise to the instructed antiquary for the low ground I have taken,—for having attempted to view his exalted science from so homely a position. I am well

aware that I might have taken a very different stand. Archaeology is the handmaid of history. It supplies many of the facts with which the historian deals. The documentary materials available for the compilation of the early history of Britain are exceedingly scanty. When we have exhausted the brief narratives of Cæsar and Tacitus, we have little on which we can rely. For a knowledge of some of the mighty movements that occurred during the long period that elapsed between the arrival of Cæsar and the departure of the Romans, we are entirely dependent upon the spade and the pickaxe. Again, as confirmatory of documentary history, how invaluable are the researches of the archaeologist. We have had a most striking illustration of this recently in the ruins of Nineveh and Babylon.

But, still to confine myself to Romano-British ground, let me give you one example. Tacitus tells us that at the battle of the Grampians Agricola ordered three Batavian cohorts and two Tungrian to close with the enemy, and bring them to a hand-to-hand engagement. At Falkirk, I lately saw an altar dedicated to Hercules by a body of Tungrians. In a broken stone, also, found on the line of Graham's Dyke, I think I recognise a dedication by a cohort of Batavians. At all events, upon the line of Hadrian's Wall we have several slabs and altars bearing the name of Batavian and Tungrian troops. Now, who can fail to perceive the vitality with which such discoveries invest the pages of the chronicler? But archaeology is not simply valuable as a purveyor of facts and evidences for the use of the historian. It elevates the mind of man; it enlarges his soul; it divests us of a part of our selfishness; it lifts us out of the rut of our every-day life; it makes our hearts beat in sympathy with those who cannot repay us even the "tribute of a sigh;" it educes affections which bless us and tend to make us blessings to all around, but which are apt to be dried up by too long and too intimate an acquaintance with the market-place and the exchange. I trust that these few homely statements may serve to show that a due investigation of the creditor and debtor side of the account will give a considerable balance in favour of Archaeology.