John Ruskin, ‘The Work of Iron’, from *The Two Paths* (1859).

**Key themes: environment, ecology, science, architecture**

**Key locations: Tunbridge Wells**

**Possible activities: walks to the common and the pantiles in Tunbridge Wells; walks inspired by the text’s interest in iron in the landscape.**

**Some notes to assist your reading**

This extract has been chosen for a number of reasons, mostly because it’s a magical piece of writing and a great example of one of the things that Ruskin did best: surprising and challenging us by asking us to consider things we’ve never thought about before, or to think about them in entirely new ways. ‘The Work of Iron’ challenges his audience to re-think their attitudes and become careful observers of the world around them by paying close attention to something humble and often ignored: ‘Rusty iron’, he insists, is *not* ‘spoiled iron’. On the contrary, ‘iron rusted is Living; but when pure or polished, Dead’. By explaining why this is the case, he opens up a world of environmental engagement that comes from his deep love of nature and his acute ability to *see and to communicate*. His account of the vast importance of rust in the earth’s history and landscapes, in human lives, and in arts, crafts, and architecture, is an incredible imaginative space that reveals the world in distinctly ecological terms. Iron, he tells us, does not exist in isolation, but is part of a vibrant, dynamic, ever-changing, and precious community of living organisms, non-human environments and elements, and the weather. By asking his audience to pay attention to ‘the most insignificant pebble’ underfoot and the rusty iron so ubiquitous in everyday Victorian life, he invites them to transform themselves, their understanding of the world, *and* their place in it. Part of the message he wants to transmit is that we should value rust’s many environmental services, rather than seeking to simply exploit iron for its many practical uses. Section 144 of the lecture offers a grim presentiment of the disastrous environmental consequences of the breakdown of rust’s ecological order – and can perhaps be read as a warning about Victorian industrial capitalism simply carrying on its terrible path.

Where does ‘The Work of Iron’ fit within Ruskin’s career? Written at a time when Ruskin’s fame was long-established by *The Stones of Venice* (1851-3) and the yet-to-be completed *Modern Painters* (1843-60), it represents his attempts to take his message directly out into the world through public lectures. Following on from *Lectures on Architecture and Painting* (1853) and *A Joy For Ever* (1857), *The Two Paths* demonstrate Ruskin’s ever-broadening gaze at this stage of his life. While still fascinated by art and architecture, he was increasingly drawn to social and political issues, a focus that would soon be announced in dramatic and controversial fashion with the publication of *Unto This Last* in 1860. Life became much more difficult for Ruskin after 1870, as his personal life and health worsened and he became much more pessimistic about his ability to persuade people of the importance of his messages.

‘The Work of Iron’, addressed to a Tunbridge Wells audience, begins by recounting Ruskin’s childhood experiences of the town’s wells and amazing common. He apologises for not talking about art, as they probably expected him to have done, but signals that his unexpected subject will be even more interesting. We hope that you will agree. The lecture is divided into three parts – the work of iron, respectively, in nature, art, and policy. The extract is taken only from the first section, but it is rewarding to focus on this alone – and if you wish to read on, you can access the whole lecture in [Volume 16](file:///C:\Users\frostm\Documents\Ruskin\CW\CW%2016.pdf) of the *Library Edition of John Ruskin’s Works* (just type in 452 into the number box at the top to get straight to the start of the lecture). The [Reading Groups] webpages contain lots of other links and suggestions for further reading if we have whetted your interest. Now it’s time to imagine sitting down one February evening in Tunbridge Wells to listen to the inimical lecturer.

**LECTURE V**

**THE WORK OF IRON, IN NATURE, ART, AND POLICY**

*A Lecture delivered at Tunbridge Wells, February 16th, 1858*

140. WHEN first I heard that you wished me to address you this evening, it was a matter of some doubt with me whether I could find any subject that would possess any sufficient interest for you to justify my bringing you out of your comfortable houses on a winter’s night. When I venture to speak about my own special business of art, it is almost always before students of art, among whom I may sometimes permit myself to be dull, if I can feel that I am useful: but a mere talk about art, especially without examples to refer to (and I have been unable to prepare any careful illustrations for this lecture), is seldom of much interest to a general audience. As I was considering what you might best bear with me in speaking about, there came naturally into my mind a subject connected with the origin and present prosperity

of the town you live in; and, it seemed to me, in the outbranchings of it, capable of a very general interest. When, long ago (I am afraid to think how long), Tunbridge Wells was my Switzerland, and I used to be brought down here in the summer, a sufficiently active child, rejoicing in the hope of clambering sandstone cliffs of stupendous height above the common, there used sometimes, as, I suppose, there are in the lives of all children at the Wells, to be dark days in my life—days of condemnation to the pantiles and band—under which calamities my only consolation used to be in watching, at every turn in my walk, the welling forth of the spring over the orange rim of its marble basin. The memory of the clear water, sparkling over its saffron stain, came back to me as the strongest image connected with the place; and it struck me that you might not be unwilling, to-night, to think a little over the full significance of that saffron stain, and of the power, in other ways and other functions, of the steely element to which so many here owe returning strength and life;—chief as it has been always, and is yet more and more markedly so day by day, among the precious gifts of the earth.

141. The subject is, of course, too wide to be more than suggestively treated; and even my suggestions must be few, and drawn chiefly from my own fields of work; nevertheless, I think I shall have time to indicate some courses of thought which you

may afterwards follow out for yourselves if they interest you; and so I will not shrink from the full scope of the subject which I have announced to you—the functions of Iron, in Nature, Art, and Policy.

142. Without more preface, I will take up the first head.

I. IRON IN NATURE.—You all probably know that the ochreous stain, which, perhaps, is often thought to spoil the basin of your spring, is iron in a state of rust: and when you see rusty iron in other places you generally think, not only that it

spoils the places it stains, but that it is spoiled itself—that rusty iron is spoiled iron.

143. For most of our uses it generally is so; and because we cannot use a rusty knife or razor so well as a polished one, we suppose it to be a great defect in iron that it is subject to rust. But not at all. On the contrary, the most perfect and useful state of it is that ochreous stain; and therefore it is endowed with so ready a disposition to get itself into that state. It is not a fault in the iron, but a virtue, to be so fond of getting rusted, for in that condition it fulfils its most important functions in the universe, and most kindly duties to mankind. Nay, in a certain sense, and almost a literal one, we may say that iron rusted is Living; but when pure or polished, Dead. You all probably know that in the mixed air we breathe, the part of it essentially needful to us is called oxygen; and that this substance is to all animals, in the most accurate sense of the word, ―breath of life. The nervous power of life is a different thing; but the supporting element of the breath, without which the blood, and therefore the life, cannot be nourished, is this oxygen. Now it is this very same air which the iron breathes when it gets rusty. It takes the oxygen from the atmosphere as eagerly as we do, though it uses it differently. The iron keeps all that it gets; we, and other animals,

part with it again; but the metal absolutely keeps what it has once received of this aërial gift; and the ochreous dust which we so much despise is, in fact, just so much nobler than pure iron, in so far as it is *iron and the air*. Nobler, and more useful—for,

indeed, as I shall be able to show you presently—the main service of this metal, and of all other metals, to us, is not in making knives, and scissors, and pokers, and pans, but in making the ground we feed from, and nearly all the substances first needful to our existence. For these are all nothing but metals and oxygen—metals with breath put into them. Sand, lime, clay, and the rest of the earths—potash and soda, and the rest of the alkalies—are all of them metals which have undergone this, so to speak, vital change, and have been rendered fit for the service of man by permanent unity with the purest air which he himself breathes. There is only one metal which does not rust readily; and that in its influence on Man hitherto, has caused Death rather than Life; it will not be put to its right use till it is made a pavement of, and so trodden under foot.

144. Is there not something striking in this fact, considered largely as one of the types, or lessons, furnished by the inanimate creation? Here you have your hard, bright, cold, lifeless metal—good enough for swords and scissors—but not for food. You think, perhaps, that your iron is wonderfully useful in a pure form, but how would you like the world, if all your meadows, instead of grass, grew nothing but iron wire—if all your arable ground, instead of being made of sand and clay, were suddenly turned into flat surfaces of steel—if the whole earth, instead of its green and glowing sphere, rich with forest and flower, showed nothing but the image of the vast furnace of a ghastly engine—a globe of black, lifeless, excoriated metal? It would be that,—probably it was once that; but assuredly it would be, were it not that all the

substance of which it is made sucks and breathes the brilliancy of the atmosphere; and, as it breathes, softening from its merciless hardness, it falls into fruitful and beneficent dust; gathering itself again into the earths from which we feed, and the

stones with which we build;—into the rocks that frame the mountains, and the sands that bind the sea.

145. Hence, it is impossible for you to take up the most insignificant pebble at your feet, without being able to read, if you like, this curious lesson in it. You look upon it at first as if it were earth only. Nay, it answers, ―I am not earth—I am earth and

air in one; part of that blue heaven which you love, and long for, is already in me; it is all my life—without it I should be nothing, and able for nothing; I could not minister to you, nor nourish you—I should be a cruel and helpless thing; but, because there is, according to my need and place in creation, a kind of soul in me, I have become capable of good, and helpful in the circles of vitality.

146. Thus far the same interest attaches to all the earths, and all the metals of which they are made; but a deeper interest and larger beneficence belong to that ochreous earth of iron which stains the marble of your springs. It stains much besides that marble. It stains the great earth wheresoever you can see it, far and wide—it is the colouring substance appointed to colour the globe for the sight, as well as subdue it to the service of man. You have just seen your hills covered with snow, and, perhaps, have enjoyed, at first, the contrast of their fair white with the dark blocks of pine woods; but have you ever considered how you would like them always white—not pure white, but dirty white—the white of thaw, with all the chill of snow in it, but none of its brightness? That is what the colour of the earth would be without its iron; that would be its colour, not here or there only, but in all places, and at all times. Follow out that idea till you get it in some detail. Think first of your pretty gravel walks in your gardens, and fine, like plots of sunshine between the yellow flower-beds; fancy them all suddenly turned to the colour of ashes. That is what they would be without iron ochre. Think of your winding walks over the common, as warm to the eye as they are dry to the foot, and imagine them all laid down suddenly with gray cinders. Then pass beyond the common into the country, and pause at the first

ploughed field that you see sweeping up the hill sides in the sun, with its deep brown furrows, and wealth of ridges all a-glow, heaved aside by the ploughshare, like deep folds of a mantle of russet velvet—fancy it all changed suddenly into grisly furrows in a field of mud. That is what it would be without iron. Pass on, in fancy, over hill and dale, till you reach the bending line of the sea shore; go down upon its breezy beach—watch the white foam flashing among the amber of it, and all the blue sea

embayed in belts of gold: then fancy those circlets of far sweeping shore suddenly put into mounds of mourning—all those golden sands turned into gray slime; the fairies no more able to call to each other, ―Come unto these yellow sands; but,―Come unto these drab sands. That is what they would be, without iron.

147. Iron is in some sort, therefore, the sunshine and light of landscape, so far as that light depends on the ground; but it is a source of another kind of sunshine, quite as important to us in the way we live at present—sunshine, not of landscape, but of

dwelling-place.

148. In these days of swift locomotion I may doubtless assume that most of my audience have been somewhere out of England—have been in Scotland, or France, or Switzerland. Whatever may have been their impression, on returning to their own country, of its superiority or inferiority in other respects, they cannot but have felt one thing about it—the comfortable look of its towns and villages. Foreign towns are often very picturesque, very beautiful, but they never have quite that look of warm self-sufficiency and wholesome quiet with which our villages nestle themselves down among the green fields. If you will take the trouble to examine into the sources of this

impression, you will find that by far the greater part of that warm and satisfactory appearance depends upon the rich scarlet colour of the bricks and tiles. It does not belong to the neat building—very neat building has an uncomfortable rather than a

comfortable look—but it depends on the *warm* building; our villages are dressed in red tiles as our old women are in red cloaks; and it does not matter how warm the cloaks, or how bent and bowed the roof may be, so long as there are no holes in either one or the other, and the sobered but unextinguishable colour still glows in the shadow of the hood, and burns among the green mosses of the gable. And what do you suppose dyes your tiles of cottage roof? You don’t paint them. It is Nature who puts all that lovely vermilion into the clay for you; and all that lovely vermilion is this oxide of iron. Think, therefore, what your streets of towns would become—ugly enough, indeed, already, some of them, but still comfortable-looking—if instead of that warm brick red, the houses became all pepper-and-salt colour. Fancy your country villages changing from that homely scarlet of theirs which, in its sweet suggestion of laborious peace, is as honourable as the soldier’s scarlet of laborious

battle—suppose all those cottage roofs, I say, turned at once into the colour of unbaked clay, the colour of street gutters in rainy weather. That’s what they would be without iron.

149. There is, however, yet another effect of colour in our English country towns which, perhaps, you may not all yourselves have noticed, but for which you must take the word of a sketcher. They are not so often merely warm scarlet as they are warm purple;—a more beautiful colour still: and they owe this colour to a mingling with the vermilion of the deep grayish or purple hue of our fine Welsh slates on the more respectable roofs, made more blue still by the colour of intervening atmosphere. If you examine one of these Welsh slates freshly broken, you will find its purple colour clear and vivid; and although never strikingly so after it has been long exposed to weather, it always retains enough of the tint to give rich harmonies of distant purple in opposition to the green of our woods and fields. Whatever brightness or power there is in the hue is entirely owing to the oxide of iron. Without it the slates would either be pale stone colour, or cold gray, or black.

150. Thus far we have only been considering the use and pleasantness of iron in the common earth of clay. But there are three kinds of earth which, in mixed mass and prevalent quantity, form the world. Those are, in common language, the earths of clay, of lime, and of flint. Many other elements are mingled with these in sparing quantities; but the great frame and substance of the earth is made of these three, so that wherever you stand on solid ground, in any country of the globe, the thing that is mainly under your feet will be either clay, limestone, or some condition of the earth of flint, mingled with both.

151. These being what we have usually to deal with, Nature seems to have set herself to make these three substances as interesting to us, and as beautiful for us, as she

can. The clay, being a soft and changeable substance, she doesn’t take much pains about, as we have seen, till it is baked; she brings the colour into it only when it receives a permanent form. But the limestone and flint she paints, in her own way, in

their native state: and her object in painting them seems to be much the same as in her painting of flowers; to draw us, careless and idle human creatures, to watch her a little, and see what she is about—that being on the whole good for us,—her children.

For Nature is always carrying on very strange work with this limestone and flint of hers: laying down beds of them at the bottom of the sea; building islands out of the sea; filling chinks and veins in mountains with curious treasures; petrifying mosses, and trees, and shells; in fact, carrying on all sorts of business, subterranean or submarine, which it would be highly desirable for us, who profit and live by it, to notice as it goes on.

And apparently to lead us to do this, she makes picture-books for us of limestone and flint; and tempts us, like foolish children as we are, to read her books by the pretty colours in them. The pretty colours in her limestone-books form those variegated marbles which all mankind have taken delight to polish and build with from the beginning of time; and the pretty colours in her flint-books form those agates, jaspers, cornelians, bloodstones, onyxes, cairngorms, chrysoprases, which men have in like manner taken delight to cut, and polish, and make ornaments of, from the beginning of time; and yet so much of babies are they, and so fond of looking at the pictures instead of reading the book, that I question whether, after six thousand

years of cutting and polishing, there are above two or three people out of any given hundred who know, or care to know, how a bit of agate or a bit of marble was made, or painted.

152. How it was made, may not be always very easy to say; but with what it was painted there is no manner of question. All those beautiful violet veinings and variegations of the marbles of Sicily and Spain, the glowing orange and amber colours of those of Siena, the deep russet of the Rosso antico, and the blood-colour of all the precious jaspers that enrich the temples of Italy; and, finally, all the lovely transitions of tint in the pebbles of Scotland and the Rhine, which form, though not the most precious, by far the most interesting portion of our modern jewellers’ work;—all these are painted by Nature with this one material only, variously proportioned and applied—the oxide of iron that stains your Tunbridge springs.

153. But this is not all, nor the best part of the work of iron. Its service in producing these beautiful stones is only rendered to rich people, who can afford to quarry and polish them. But Nature paints for all the world, poor and rich together; and while,

therefore, she thus adorns the innermost rocks of her hills, to tempt your investigation, or indulge your luxury,—she paints, far more carefully, the outsides of the hills, which are for the eyes of the shepherd and the ploughman. I spoke just now of the effect in the roofs of our villages of their purple slates; but if the slates are beautiful even in their flat and formal rows on house-roofs, much more are they beautiful on the rugged crests and flanks of their native mountains. Have you ever considered, in speaking as we do so often of distant blue hills, what it is that makes them blue? To a certain extent it is distance; but distance alone will not do it. Many hills look white, however distant. That lovely dark purple colour of our Welsh and Highland hills is owing, not to their distance merely, but to their rocks. Some of

their rocks are, indeed, too dark to be beautiful, being black or ashy gray; owing to imperfect and porous structure. But when you see this dark colour dashed with russet and blue, and coming out in masses among the green ferns, so purple that you can

hardly tell at first whether it is rock or heather, then you must thank your old Tunbridge friend, the oxide of iron.

154. But this is not all. It is necessary for the beauty of hill scenery that Nature should colour not only her soft rocks, but her hard ones; and she colours them with the same thing, only more beautifully. Perhaps you have wondered at my use of the word ―purple, so often of stones; but the Greeks, and still more the Romans, who had profound respect for purple, used it of stone long ago. You have all heard of ―porphyry as among the most precious of the harder massive stones. The colour which gave it that noble name, as well as that which gives the flush to all the rosy granite of Egypt—yes, and to the rosiest summits of the Alps themselves—is still owing to the same substance—your humble oxide of iron.

155. And last of all:

A nobler colour than all these—the noblest colour ever seen on this earth—one which belongs to a strength greater than that of the Egyptian granite, and to a beauty greater than that of the sunset or the rose—is still mysteriously connected with the

presence of this dark iron. I believe it is not ascertained on what the crimson of blood actually depends; but the colour is connected, of course, with its vitality, and that vitality with the existence of iron as one of its substantial elements.

156. Is it not strange to find this stern and strong metal mingled so delicately in our human life that we cannot even blush without its help? Think of it, my fair and gentle hearers; how terrible the alternative—sometimes you have actually no choice but to be brazen-faced, or iron-faced!

157. In this slight review of some of the functions of the metal, you observe that I confine myself strictly to its operations as a colouring element. I should only confuse your conception of the facts if I endeavoured to describe its uses as a substantial

element, either in strengthening rocks or influencing vegetation by the decomposition of rocks. I have not, therefore, even glanced at any of the more serious uses of the metal in the economy of nature. But what I wish you to carry clearly away with you is the remembrance that in all these uses the metal would be nothing without the air. The pure metal has no power, and never occurs in nature at all, except in meteoric

stones, whose fall no one can account for, and which are useless after they have fallen: in the necessary work of the world, the iron is invariably joined with the oxygen, and would be capable of no service or beauty whatever without it.