English oppression, and Irish resistance, English misgovernment and Irish rebellion, from the day when Dermot gave his daughter in marriage to Strongbow, to the day when Smith O'Brien dodged the policeman in the kitchen-garden; the third dating from the era so lately inaugurated, when Irishmen and Irishwomen vied with each other in doing honour to the lady who is their Queen and ours. The first we just glance at with a smile of incredulity, the second we are glad to pass over with a shudder, the third is the epoch at which we would be glad to commence a New History of Ireland. But, of course, with the native Irishman, very different feelings hold sway: he clings with affection to the earliest records of Milesian glories, and lingers fondly over traditions which carry him back to an age contemporaneous with the grandsons of Noah. Such an one is Professor O'Curry; and, though we fear, from his talking of his poor "dependent country," he belongs to the small (we hope) number of his countrymen who mourn over union with that England which welcomes Irishmen amongst her children, and grudges them not the highest positions in army, state, and church, yet he is on that very account more likely than another to devote all his powers to the elucidation of her earliest history, and drag forward to the light from the darkest nooks of antiquity whatever there is of long-forgotten or long-neglected annals ere "Ichabod" was the wail of the sons of Ierne. He holds, and it seems to us with reason, that "the history of ancient Erinn is yet entirely unwritten; there is, in fact, no history of Ireland, save in name." And the object of his lectures is to prove his proposition, and to show how the deficiency may be supplied. In the first two lectures he brings forward "evidence of the records and literature of the earlier ages of Erinn, before Christianity; together with a list and some description of the chief among the lost books of more remote times, from which much that is preserved in the ancient MSS. still in existence was copied, with or without additions and explanations." The subject of the third lecture is the extent and character of the various annals still existing in MS. collections. Many subsequent lectures are devoted to a consideration of the annals "nearly in the chronological order of their composition," and an account of them is given in some detail. An entire lecture is taken up in an examination of the "Annals of the Four Masters."

In the following lecture Professor O'Curry passes from the Annals (in the compilation of which two brothers O'Clery were principally engaged) to a description of "the other great works of the O'Clerys, and particularly the *Réim Rioghraidhé*, or Succession of the Kings, and the *Leabhar Gaibéla*, or Book of Invasions." Next we have "an account of the chief books of historical MSS." "which exist in the libraries of Dublin, in Trinity College, and in the Royal Irish Academy, including the *Leabhar na h-Uidhe*, the 'Book of Leinster,' the Book of Ballymote,' the *Leabhar Buidha Lecain*, the 'Book of *Lecain*,' and the 'Book of Lismore';" and there is a brief notice of "the immense collection of Law Tracts, about to be published by the Brehon Law Commission." Then comes a Lecture upon "the great Books of the Genealogies and Pedigrees of the Clanns and Tribes of Erinn, and particularly the splendid work of Duald Mac Firbis;" and "the legal and social importance of these records in ancient times" is explained. We have then a description of those early compilations, called the "Wars of the Danes with the Gaedhils," the History of the Boromean tribute, the "wars of Thomond," and the "Book of Munster." Hereafter follows an account of the mass of Gaedhilic literature which the lecturer classes under the name of the Historic Tales, "beginning with those which record for us the celebrated battles of *Magh Túireadh Chonga* and *Magh Túireadh na Oh-Fomorach*, which took place in the nineteenth century before Christ, according to the chronology of the Four Masters." This part of the subject is concluded by a notice of what the Professor terms "the purely Imaginative Literature (such as the compositions called Fenian Tales and Poems), because in this class of pieces is to be found such a vast amount of detailed information relative to the manners and customs, residences, dress, ornaments, the social life, in short, of the early Gaedhils." The next lectures, to the twentieth included treat of "the remains of the early Christian period," of "the early ecclesiastical MSS.," and of "the so-called prophecies;" the last lecture is entitled, "How the History of Erinn is to be Written." He reduces to three the number of those who are "worthy of mention as having attempted the history of ancient Erinn;" they are Dr. Geoffrey Keating, the Abbé McGeoghegan, and Thomas Moore: the two former he considers may be read without detriment, though it is quite clear, if he have not overrated the importance of his own archæological discoveries, they are worthless, or nearly so, in matters of remote antiquity. Thomas Moore the lecturer forbids his pupils to pay any attention to; the poet understood nothing of the language in which the MS. materials which Professor O'Curry has made the subject of his lectures are written; and how far qualified, even in his own opinion, was the Irish melodist to write a history of his country, may be gathered from the following anecdote:

> The first volume of his history was published in the year 1835, and in the year 1839, during one of his last visits to the land of his birth, he, in company with his old and attached friend, Dr. Petrie, favoured me with quite an unexpected visit at the Royal Irish Academy, then in Grafton-street. I was at that period employed on the ordinance survey of Ireland; and, at the time of his visit, happened to have before me, on my desk, the books of Ballymote and Lecain, the "Leabhar Breac," the Annals of the Four Masters, and many other ancient books, for historical research and reference. I had never before seen Moore; and, after a brief introduction and explanation of the nature of my occupation by Dr. Petrie, and seeing the formidable array of so many dark and time-worn volumes by which I was surrounded, he looked a little disconcerted, but after a while plucked up courage to open the Book of Ballymote, and ask what it was. Dr. Petrie and myself then entered into a short explanation of the history and character of the books then present, as well as of ancient Gaedhilic documents in general. Moore listened with great attention, alternately scanning the books and myself; and then asked me, in a serious tone, if I understood them, and how I had learned to do so. Having satisfied him upon these points, he turned to Dr. Petrie, and said, "Petrie, these huge tomes could not have been written by fools or for any foolish purpose. I never knew anything about them before, and I had no right to have undertaken the History of Ireland."

Three volumes of his history had been before this time published, and it is quite possible that it was the new light which appeared to have broken in upon him on this occasion, that deterred him from putting his fourth and last volume to press until after several years; it is believed he was only compelled to do so at last by his publishers in 1846.

The way in which Professor O'Curry would have the would-be historian of Ireland address himself to his task involves Herculean labour, but is undoubtedly the correct way; and it is in these words that he recommends it:

> The only valuable, the only complete and rich history, then, the only worthy, the only truly intelligible history of ancient Erinn, must be written upon the basis of the Annals, of which I have given you some account, and, above all, upon the basis of the last and most complete of the annals, those of the Four Masters. From O'Donovan's richly-noted edition of this great work the student can indeed learn almost all the chief part of that history; but, as I before explained to you, even these annals, and especially the earlier portion of them, are extremely dry and meagre; so that to arrive at anything like an intelligible history of those early times, we are forced to search elsewhere for assistance. The lights and shades, the details of such a history, the minute circumstances,—not only those which explain historical events, but those equally or even more important descriptions, in which the habits and manners, the social ideas and cultivation, the very life of the actors in those events, are recorded for us,—all these things must be brought out in their proper places in order to transform the meagre skeleton supplied by the mere annals into a full and real history. And it is out of all the other materials which have been spoken of in these lectures that these details are to be gathered, for the purpose of filling in the outline drawn by the Four Masters.
>
> All these various materials must, however, first be submitted to the closest analysis, to the most careful comparison one with another, and to the most minute critical investigation, assisted by the light supplied by the languages and histories, as well as the antiquities, and what is known of the life, of other Celtic nations—of all the contemporary nations, indeed, with whom our forefathers were ever likely to have come in contact.

There is no occasion for us to remark that those lectures are not in "the Protestant interest"—that might be at once concluded from the position held by the lecturer; but we will just append a few sentences from which it will appear that the Professor does not lose an opportunity of impeaching the credibility of his Protestant brethren:

> The Milesian history is pretty generally known, and has been much canvassed by the writers of the last 150 years. But although several writers have been bold enough not only to question, but even to reject altogether, the fact of this Spanish colonisation of Erinn, nevertheless not one has ever ventured upon assigning any other origin to the peculiarly constituted race of the Gaedhal, at least none founded on anything more than mere conjecture, and that of the weakest kind.
>
> It is impossible not to remark that the writers of this class have been chiefly, if not exclusively, Protestant; writers of a party who have ever been singularly ready to lay hold of the most trivial incidents which they can dress up to give colour to their denial that the ancestry and Christianity of ancient Erinn had been derived from Western Europe. It would have been much to the credit of some of these writers had they confined themselves to fair discussion and a candid examination of such facts and authorities as came before them, and had they decided honestly on the evidences alone which they furnish, particularly as the historic question concerning the coming of the Gaedhils themselves from Spain, and their religion from Rome, is really a matter of no importance whatever in the discussions of the present day, except as regards mere ethnological inquiry and as regards the veracity of our ancient traditions and writings. But for writers and investigators of this class, a single dubious sentence, or a single immaterial contradiction, is enough, if only ingenuity can in any way twist it into a contradiction of the whole scope and tenor of history, spread over one or any number of volumes. It is then magnified into a mountain of truth, and all the rest set at nought, or coolly passed over.

At the same time, we are bound to admit that when such a history as Professor O'Curry would like to see appears, the Protestant porcupine will throw out quills of suspicion, and Protestant lecturers will raise a hue and cry against it. When we find Protestant and Catholic agreeing upon a historico-religious fact, we shall allow our weaned child to play on the hole of the asp, and momentarily expect the millennium.

We must not omit to mention valuable adjuncts in the shape of an appendix, containing beautifully-executed fac-similes from ancient MSS., and a copious index.

SCIENCE.

The Past and Present Life of the Globe; being a Sketch in Outline of the World's Life-system. By DAVID PAGE, F.G.S. Edinburgh: Blackwood. 1861. 8vo. pp. 256.

The Three Barriers: Notes on Mr. Darwin's "Origin of Species." By "G. R." Edinburgh: Blackwood. 1861. 8vo. pp. 180.

Footprints of the Creator: or, the Asterolepis of Stromness. By HUGH MILLER. (Second Edition.) Edinburgh: A. and C. Black. 1861. pp. 422.

THE TRANSMUTATION HYPOTHESIS has been so frequently discussed in these pages, that we have refrained from returning to it until compelled by the accumulation of three special treatises, all written by Scotchmen, and all regarding this subject from a similar point of view. If we do not concur with them altogether, it is from no lack of sympathy with their main purpose; nor shall we

be more ready to embrace the "Darwinian heresy" because many of the objections raised to it may be deemed futile.

The Celtic mind rarely entertains any question unless there is infused into it a certain amount of the religious element; and, in this case, the real question involved is, whether the world is governed entirely by natural laws; or, whether these "natural laws" are subject to the constant management and control of a superintending Providence. The possibility of such interference without any apparent violation of the ordinary course of affairs is skilfully represented in Bulwer's "Zanoni," and we must be dull indeed if we advance far in life yet fail to perceive the existence of this influence; both dull and soulless if we refuse to recognise it even within the limits of our own experience.

Mr. Page was formerly connected with the firm of W. and R. Chambers, and acquired his first notoriety by revelations respecting the authorship of the "Vestiges;" he still speaks of that unhappy publication as "standing bastardised by the moral cowardice that shrinks from avowing its paternity." He is now well known as a successful writer of educational books on geology, a circumstance which strongly exhibits the dearth of literary talent among the *hammerers* of the south. The present work is a little too ambitious—a little too much like an attempt to improve upon Professor Phillips's "Life on the Earth." It is "designed," we are told, "for the general reader," and its "style is somewhat more rhetorical than befits the exactitudes of science," which sounds like a warning to expect "fine writing," and have a dictionary at hand. Unfortunately no dictionary would explain the peculiar phraseology of our author, and the unusual sense in which some words are used. We have been a good deal puzzled by such expressions as "dealing with a prescient plan;" "assimilating extinct forms of past life;" "homologating an affirmation;" "laws and orders;" "the lapse of vast *epochs* of time." With Mr. Page "a perfect fossil is a chapter in the world's history," and "a fragment of pottery will throw a flood of light;" *era* means a great many years. "Elimination" is a favourite word, apparently used by mistake for *evolution*. In the dictionary it means *a putting over the threshold*, or out of doors; and is used scientifically to express, *e. g.*, the removal of anything from the system; the getting rid of the sources of error, &c. But never in the sense of *development*, like the "elimination of primal patterns," or "the elimination of a simple cell."

The illustrations, if not original or first-rate, have the merit of being differently compounded from those previously in use, and which every cadet and undergraduate knows by heart. Some of them are exceedingly funny: witness the vision of saurians "tempesting the ocean," with an ill-regulated *Pterodactylus* overhead; the ghosts of extinct cochins; and the "witless" trilobite making impossible contortions in the attempt to look graceful. There is a *spider*, like what children draw, with antennæ, and any number of joints in its legs; and an *Echinus* which has become hairy by reason of frequent copying. We believe that good original figures teach more than fine writing; we know that they cost far more pains to prepare.

When we have penetrated Mr. Page's rhetoric, and arrived at his facts and opinions, we shall find that while teaching others he has still much to learn. In his Zoological Table it is curious to note the *Lepidosiren* and blind-worm given as examples of "Apodal Batrachia;" and the *rhyncholite* (or fossil mandible of the *Nautilus*), treated as a *genus* of predaceous cephalopods. The "*Cimoliornis*, or bird of the chalk," here still survives, though it was known to be a Pterodactyl in 1854, according to Morris. Mr. Page tells us that he is almost "altogether ignorant of the fresh-water areas of the older epochs." We, therefore, recommend him to visit Scarborough, with "Phillip's Geology of the Yorkshire Coast" under his arm. Between the esplanade and the "Mermaid's Haunt," he will find picturesque cliffs of river-sandstone of the Oolitic age; and though he will not succeed in disinterring pearly river mussels (because *nacre* is a substance never preserved in sand), yet he will find many layers of bivalve shells indicated by blackened outlines, set up, apparently, as they lived in their ancient bed. Further on, at Gristhorpe, when the tide is out, he may walk over the plant-beds from which Mr. Bean obtained his famous collection of fossil ferns, now divided between York and the British Museum. Or, turning in the opposite direction, he will find the beach at Scalby encumbered with masses of fissile yellow stone, and every stroke of the hammer will reveal fresh surfaces painted, as if in sepia, with fan-shaped leaves, resembling those of the graceful broad-leaved pine (*Salisburia*), of which there is one we have often paused to admire in the middle of the interminable street of Brentford. By prolonging his walk to Haiburn Wyke, Mr. Page may combine instruction with amusement, for it is the most charming place for a pic-nic, and there he may see the giant *Equiseta* petrified as they grew, still upright in the rock. To obtain a good exhibition of the flora preserved in the "freshwater areas" of the *Trias*, Mr. Page must visit Russia; but there are places in Warwickshire where fossil plant-beds of peculiar kind exist.

It is somewhat surprising to find one who considers himself an "advanced" geologist, and sneers at English professors, labouring under the delusion that the Oolitic fauna and flora extended simultaneously over the whole world, and ceased or changed at the same time, giving place to the Cretaceous. He cannot understand that there are portions of the world to which the Oolitic phase never extended, and that there may be portions where it still lingers, never having been displaced by any newer *régime*. As he is a progressionist, it should be satisfactory to him to reflect that the existing inhabitants of every country are superior in rank and intelligence (though not in bulk) to any pre-existing fauna known to us by fossil remains in the same area; not even excepting the region of the great extinct apes, for there also we find the oldest relics of man.

Mr. Page thinks "science can scarcely corroborate" the belief that extinctions have taken place in "the few thousand of years of man's experience;" but, without repeating the many well-known and striking cases among animals, we may cite the following passage in Dr. Hooker's "Antartic Botany:" "During the interval that elapsed between two visits which I paid to St. Helena, one very peculiar native plant, *Acalypha rubra*, had disappeared, and two other handsome shrubby species of *Melhania*, with particularly showy flowers, had very recently become extinct; whilst the existence of some *Wahlenbergiæ*, of a *Physalis*, and a few of the peculiar arborescent *Compositæ*, though thus far prolonged, is held upon a very precarious tenure."

Before he pens another rhapsody about the tropics, Mr. Page would do well to consider Dr. Livingstone's remark, that "tropical climates seem unfavourable for the full development of either animals or man" (ii. pp. 564); and also Mr. Darwin's description of the Galapagos, where he says, "We may conclude that the usual gaudy colouring of the intertropical productions is not related either to the heat or light of those zones, but to some other cause." For the character of the natural productions of a region depends more on its geological age than even upon "the existence of conditions generally favourable to life."

Mr. Page's arguments are less valuable, inasmuch as he evidently misunderstands Mr. Darwin's hypothesis in more than one essential respect. He complains that Darwin "fails to show how the operation of a purely physical law should not affect alike every member of a species;" but the law of natural selection would be wholly inoperative without that "chapter of accidents" to which, in default of exact knowledge, we ascribe the origin of "sports" and varieties. Nor is it supposed that the gorilla and chimpanzee are descended from "larger and more manlike forms of monkey." They represent (hypothetically) the younger branches of a great family; and may have improved upon their progenitors as much as Mr. Page has surpassed the Celt-makers. Our "common ancestor" must have departed very long ago, and may have been a quite inferior monkey. But, while condemning Darwinism, Mr. Page admits the possible operation of secondary causes in physical nature, and has no objection to the derivation of Adam from an ape, instead of the "red earth," provided you admit the super-addition of human faculties to be equal to a new creation. At this point he gets into trouble with one of his own witnesses; for M. Agassiz, like Sir B. Brodie and the Rev. J. C. Atkinson, cannot find any essential difference between human and brute nature, and hopes again to meet his four-footed friends in Paradise.

We will not follow Mr. Page into his speculations concerning the future. They cannot be of much consequence. A far more profound acquaintance with the history of the past were but the first qualification for the gift of prophecy.

The best thing in the book, to our thinking, is the speculation concerning a possible alternation of climates, at least in our temperate zone, from the beginning of time. Geologists long since abandoned the notion that "secular refrigeration" had influenced the palæontology of the globe. Mr. Cuming even went so far as to suggest that the strong bucklers of the Old Red Sandstone fishes enabled them to "battle with the ice" in their rivers or seas; and Professor Ramsay attributed the Permian boulder-formations to glacial agency. Mr. Page attempts to show that the Cambrian, Old-red, Permian, Chalk, and Boulder-drift, are the product of cold periods alternating with the formations of more genial cycles. There is something hopeful in this view; for all the secular periods of astronomers are included within reasonable limits, and if we could arrive at anything like an indication of *periodicity* in geological phenomena, there would be an end at once to all the senseless talk about billions of years.

The second work before us, though published anonymously, is known to be the production of the Rev. George Rorison, Episcopalian clergyman of Peterhead. It is stated in the preface to have been three times delivered as a lecture, and is published under the patronage of Bishop Trower, of Glasgow. It is an energetic remonstrance against Mr. Darwin's doctrine; full of eloquence, and good reasoning, and apt quotations. We hope the author is a reader of the CRITIC, for we find expressions respecting the "domestic institutions" of the ants quite in accordance with our own sage reflections when noticing the "Genetic Cycle" of his countryman, Dr. Ogilvie.

The "Three Barriers" are the back-bone, breast, and brain; which the author considers so essentially peculiar to the higher classes of animals as to forbid the possibility of any invertebrate animal from becoming fish or fowl—any oviparous creature from becoming mammalian—any quadruped from relationship with man.

It is quite true that the characters which distinguish the vertebrate animal from the insect or shell-fish are established at a very early period of embryonic development, and no sane naturalist would dream of transmuting one into the other. Suppose all nature to be plastic in your hands, and that you can "build" an oyster, as Mr. Wade talks of "building" an artificial fly. When you have improved your oyster into a whelk or cuttle-fish, and wish to carry the process a step further, you will suddenly find your plan and materials won't admit of it; and that if you want to make a real fish you must go back to the beginning and try a new scheme altogether. The *tunicary* (or

lowest mollusc) and the *lancelet* (or lowest fish) are more alike than any of the higher members of these two great classes. It is, however, not a little singular that the oldest known fish—the only fish of the Silurian system—was originally, and more than once, described as a cuttle-bone (*Pteraspis*), whereas the true cuttle-fish are unknown as fossils of the rocks older than the Lias.

The barrier which divides the oviparous vertebrata from the mammals is not so absolute as Mr. Rorison supposes. Whales do not actually suckle their young, neither does the ornithorhynchus; whereas pigeons perform that process, after a fashion, with more solicitude than is shown by the opossum.

The third barrier is altogether illusory; it has no existence in nature, and has arisen in the imagination of the author from a misapprehension of Professor Owen's classification of mammalian brains. The Professor complains that people "give more force to his generalisations than he himself does, or meant his readers or hearers to give." He confesses that his definitions and divisions are artificial, and that "he can neither see nor conceive of the distinction between the psychical phenomenon of a chimpanzee and a Bosjesman, as being other than a *difference of degree*." Why should Mr. Rorison be so anxious to find a difference between the brain of man and the apes? Does he believe, with Dr. Grant, that the power of thought depends on being "better cerebrated?" That man's moral nature and dreams of immortality arise from a better development of the "bump of adhesiveness?" If not—if he only seeks to establish a physical objection to the claims of "our poor relations"—we fear he has cited a witness whose opinions will prove to be not in harmony with his own.

Mr. Rorison has sought to strengthen his argument by "fresh decisions of the most authoritative kind," from two other "living leaders of British science." The first of these, Professor Kelland, being interrogated respecting the "Geometry of the Bee-hive," says, "The terminal prismatic faces of the comb have the remarkable property, that *each* of the solid angles is formed of three equal angles. And I cannot regard this power of selecting equality of angles other than as a simple endowment direct from the Divine mind." Lord Brougham's older story is also quoted: "The bee had been for thousands of years, in all countries, unerringly working according to this fixed rule, not only choosing the same exact angle of 120 degrees for the inclination of the sides of its little room—which every one had for ages before known to be the best possible angle—but also choosing the same exact angles of 110, and 70 degrees for the inclination of the roof, which no one had ever discovered till the eighteenth century." Mr. Conybeare follows in the same strain, but blunders in repeating it: "The bees actually make the *tops and bottoms* of their cells of three *square* planes meeting in a point. Who would dream for an instant of the bee knowing the highest branches of mathematics?" Who indeed! Dear, simple-hearted philosophers! You remind us of the pleasure we experienced when the perception first dawned upon our mind that two and two make four—that they always make four.

We have often admired the exceeding uniformity in size of the bubbles given off (*e.g.*), during the action of acid upon carbonate of lime—how they marshall themselves in lines and become regular hexagons, "choosing the same exact angle of 120 degrees for the inclination of their sides." Still more wonderful are the bubbles of gas in the bottle you have just emptied of Scotch Ale or Dublin Stout; spherical when first evolved, they become twelve-sided through mutual pressure, and, wherever they are equal in size, form *rhombic dodecahedra*, whose hexagonal axes are terminated by "solid angles formed of three equal angles," like the cell of the honey-bee.

In point of fact, the bees have no choice, working as they do in a crowd, and upon a double layer of comb. No solitary bee makes a hexagonal cell, nor would the social bees, unless mutually compelled. Neither are the bottoms of the cells formed of "three planes with equal angles" unless they were constructed simultaneously with other cells at their back. The proof may be seen in the margin of any comb, and in the neighbourhood of the queen cells. The marginal cells are rounded externally, and their bases do not correspond truly, so that they are opposed to one, two, three, or even to portions of four other cells. Therefore, it is not true that the "angles are invariable;" they are only so where they could not be otherwise. We know that a distinguished entomologist took great pains to teach this to Lord Brougham, who consulted him frequently on the subject more than twenty years ago; but the love of the marvellous was too strong, and the old story too pretty to be forsaken. It is probable that to higher intelligences the profoundest of our mathematical problems are as self-evident as the simplest equation is to us; meantime let us be thankful, with Kepler, for any amount of light we can obtain, though our sentiments of wonder should become subdued.

We must not forget the other "leader of science," Sir David Brewster, who is called upon to "provide an effectual antidote" for the statement that "the eye is not perfectly achromatic.". What says Sir David? "It is true that the correction for the aberration of colour is not perfect in the human eye; but *vision* is, notwithstanding, perfect. The uncorrected colour is discovered by looking through the edge of the pupil," &c. What more could Mr. Darwin desire? The eye is declared to be only so far perfect as it would be if produced by the means he has suggested.

We have still to notice the new edition of Hugh Miller's "Footprints," first published in 1849, as a reply to the "Vestiges," and reviewed soon after in the CRITIC (1850, Vol. X., p. 318). It was out of print before the author's death, but it had become still more quickly out of date, owing to the rapid progress of geological discovery; and amidst his multitudinous engagements, with the constant requirements of his newspaper, the "dire hurry of the General Assemblies," and the labour of arranging his new museum, he failed to return to a task which had probably become distasteful.

Since the work was written he had learned that the Old Red Sandstone of Cromarty and Caithness, "prolific of fish," was not so old as the "gray tilestones" of Forfar and Kincardine;" the "Middle Devonian" was older than the "Lower Devonian;" and thus the inferences founded upon the supposed succession of life required to be reversed. An extraordinary fatality also attended upon all the reported discoveries of fossil fish in the Silurian strata; the spines of sharks proved to be tails of shrimps, portions of trilobites, and even of zoophytes; and the palatal teeth were traced to the carboniferous limestone. The very title of the book had a narrow escape; for the genus *Asterolepis*, originally proposed by Eichwald, was found to embrace two distinct forms; and while Agassiz gave the name *Chelonichthys* to the gigantic remains found in Russia, Hugh Miller himself bestowed the appropriate epithet of "Pterichthys" on the smaller species, which has become so famous through his writings.

After Hugh Miller's death, the prospects of a new edition became still worse. The "Vestiges" had ceased to be a scientific bugbear, and a new phantom arisen in their place. The "Footprints" could not be transmuted into a reply to Mr. Darwin's "Origin of Species;" but they had acquired an historical reputation, and were still in demand. By the judicious advice of Sir Philip Egerton they have been reprinted with no alterations of moment in the original text, but the results of recent discovery are given in notes.

The title-page announces a "Memoir by Louis Agassiz," but the biographical fragment which follows is at first in the very words of Sir David Brewster's memoir in the *North British Review*, and then merges in a critique of this particular book, dated at the end "Cambridge, 1850." This is followed by a preface written by Mrs. Miller, who has made herself fully conversant with all the difficulties of the case, and not only makes good the argument of the "Footprints" where it had broken down, but also vigorously assaults Mr. Darwin, whom she confesses to find more difficult to understand than the "Vestiges." We cordially agree with Mrs. Miller, that "natural selection" tends to maintain the distinctness and permanence of species; but we must venture to doubt whether Dr. M'Cosh (whoever he may be) "could find"—even in his own person—"an example of one species being created solely for the benefit of another."

This is not the place to bear testimony to the genius of Hugh Miller, or demonstrate the value of his labours. But he was the first who ever made scientific truths acceptable to his religious countrymen; and we trust the influence of his life and writings will long continue, and stir up new votaries to become champions, and, if need be, even martyrs in the cause.

We have also received: *Spinal Debility: its Prevention, Pathology, and Cure, in relation to Curvatures, Paralysis, Epilepsy, and Various Deformities.* By Edward Tuson, F.R.C.S. (London: John W. Davies. Edinburgh: Maclachan and Co.)

VOYAGES AND TRAVELS.

The Medical Missionary in China: a Narrative of Twenty Years Experience. By WILLIAM LOCKHART, F.R.C.S., F.R.G.S., of the London Missionary Society. London: Hurst and Blackett. 8vo. pp. 404.

MR. LOCKHART went out to China as a medical missionary, and this gave him the opportunity of doing some good for the soul while he was endeavouring to do good to the body; yet Mr. Lockhart advises that, in all cases, the spiritual missionary and the secular should never be united in one person. Mr. Lockhart has had twenty years' experience of China, and it cannot be denied that he has largely profited by his opportunities, and that, although he presents us with many things respecting the Chinese with which we were already acquainted, he tells us many other things which are quite new to us. Perhaps our best plan will be to give a few extracts from Mr. Lockhart. In the following extract he is writing, as a medical man, of the Humane Society of Shanghai. When persons fall overboard from junks in the river, boats are sent to rescue them; but the treatment of the apparently drowned, is not the treatment they would receive on the banks of the Serpentine:

> One of the plans for restoring suspended animation is to place the patient on his back, and then to invert a large iron boiler (commonly used for cooking rice) over the abdomen. This, they say, "because of the connexion between the empty space and the distended abdomen of the patient, causes the ejection of the water by the nose." Another plan is "to suspend the patient by the feet from the shoulders of a man standing erect, at the same time stopping the anus by a dossil of cotton to prevent the evacuation of the bowels, which would be fatal. This will soon be followed by the flowing of water from the mouth, and the patient's life will thus be spared."

Semi-barbarians are often more cruel in their punishments than utter savages. They bring more ingenuity to bear upon torture. Thus:

> Great criminals, burglars, pirates, and such like offenders, are often cruelly dealt with. Though the magistrate may not authorise their decapitation, he can inflict a severe torture, sometimes fatal in its effect. After the criminal has been beaten, he is tied to a low cross with arms extended, and kneeling on a