

Science.

Religion as an aid to Science.

We assign to the fundamental truths of natural and revealed religion an essential office in scientific reasoning. They are of service, however, rather in teaching us how to ask, than how to answer, questions. They show us in what direction the truth lies. They furnish us with tests by which we may discriminate between the probable and the untenable, and may thus, even when in doubt or error, be redeemed from absurdity. They define limits within which correct theories must be found,—conditions which a hypothesis must satisfy in order to proffer valid claims upon our acceptance. By these means, the labour of inquiry is greatly abridged, and the progress of discovery greatly expedited. The routes of scientific research are not parallel, but cross and recross each other at frequent intervals; and there are three separate lines of investigation, at whose common points of intersection are found the fundamental truths of the physical universe.

On one of these routes the finger-post of design points the way. With inadequate views of the divine attributes, we should rest satisfied with the salient facts and *prima facie* aspects of nature, and should readily admit the existence of purposeless and objectless forms and arrangements. The obliquity of the ecliptic would have been observed without being accounted for. Animals and plants would have been entered by name in the growing Fauna or Flora of the naturalist, without any attempt to assign them their place or office in the economy of creation. Human anatomy or physiology might have been complete in its details, and yet as to its *rationale*, have remained in primeval rudeness. But the same mental process, which recognizes the wisdom of the Creator, dictates the axiom that nothing is made in vain, that all things exist for their several offices and subserve their respective ends. Science then no longer confines itself to the completion of its catalogue of existences and phenomena; but suspends the collection of facts to make entries on the parallel column of purposes and adaptations.

The second route is indicated by the divine benevolence. Under any system but that of Christian theism, science would make only few and casual aggressions upon the domain of apparent evil. Malignant would seem as probable as beneficent ends; and, where the immediate and conspicuous effect was disastrous, the law of design would suggest inquiry simply as to the adaptations and contrivances with reference to that disastrous result. Thus, the volcano, the earthquake, the thunder-bolt, would be investigated only as to their resources of destruction, their desolating forces, their potency as ministers of divine wrath and vengeance. But love strikes a new key-note in the harmonies of science. The Christian philosopher grapples with the seeming fiend, till he can strip off the mask that hides an angel's countenance. The fearful energies of nature are forced into the alembic, and tortured by successive tests, till they betray their benignant secret, and are exalted to their due place among beneficent agencies. The volcano thus becomes a safety-valve, the lightning a swift-winged messenger of health.

The third of these routes has over its gateway the inscription God is one. Polytheistic science contented itself with thinly-peopled groups and imperfect classifications. It traced resemblances of the lowest order, but hardly possessed the idea of analogy. Class was deemed distinct from class; the several kingdoms of nature were regarded as mutually independent; and sameness of plan in different departments was not so much as dreamed of. Analogy is but a comprehensive name for the filaments of divine oneness, which form the warp with which the ever-varying woof of creation is interwoven. Every argument from analogy is an enthymeme of which the unity of God is the suppressed member. Analogy indeed proves nothing; but it always points in the direction of the truth, suggests probabilities, solves doubts, affiliates insulated facts, and urges on the discovery of more extended inductions, higher generalizations, laws of simpler expression and wider embrace. It carries into the circuits of the stars the force that detaches the apple from its stem. It traces the commingling of the world-elements in the manipulations of the laboratory. It brings into the same system the elephant and the ant, the banyan that shelters an army and the speck of mold on the crumbling wall. Impa-

tient of differences and numbers, it even blends, harmonizes, unites; nor can it lay down its ministry till it has inscribed on the entire creation the same clear record of the divine unity that stands on the page of revelation. Design, benevolence, unity,—these have become the watchwords of science, the conditions of probability, the germs of theories, the ultimate elements of human knowledge. But potent as these ideas are as the implements of discovery and means of progress, their office is not construction but verification. They do not tell us what we shall find on inquiry, but only where, and on what conditions we shall find it. They furnish not the terms of available *a priori* reasoning; but only enable us to substantiate our inductions of facts, and to pass step-wise, by observation and experiment, from lower to higher orders of truths.—*North American Review*.

Important Geographical Discovery.

At a late meeting of the Royal Geographical Society in London, it was announced that Rev. D. Livingstone, of the London Missionary Society, had discovered another large lake in South Africa, about 200 miles north of Lake Ngami, which he had recently made known to the world. This new lake contains several large islands, and is connected with Ngami by a rapid stream called Teage. At the date of the last advices, Mr. Livingstone was proceeding northward. If he carries out his plan of exploration, some important questions in African geography will be solved.

Eminent Scientific Shoemakers.

Linnæus, the founder of the science of botany, was apprenticed to a shoemaker in Sweden; but, afterward taken notice of, in consequence of his ability was sent to college.—David Pareus the elder, who was afterwards a celebrated professor of theology at Heideburg, was at one time apprenticed to a shoemaker.—Joseph Prendell, who died some time since at Gray's-buildings, London, and who was a profound and scientific scholar, pursued through life the trade of a shoemaker.—Hans Sachs, one of the most famous of the early poets, was the son of a tailor, and afterwards served an apprenticeship to a shoemaker.—Benedict Baddopin, one of the most learned men of the sixteenth century, was a shoemaker, as was likewise his father. He wrote a treatise on the shoe-making of the ancients, which he traced up to the time of Adam himself.—To these may be added those ornaments of literature, Holcroft, the author of *The Critic*, and Gifford the founder, and for so many years the editor of the *Quarterly Review*, one of the most profound scholars and elegant writers of the age; and Bloomfield, the author of *The Farmer's Boy* and other poems—all of whom were shoemakers, and the pride and admiration of the world.—John Brand the secretary of the Antiquarian Society of London, and author of several learned works, was originally a shoemaker, but fortunately found means to complete his studies at Oxford University.

Recipe for a Cold.

The following recipe for a cold we can say is truly worth the price of this paper for many years. It was prescribed for us when we were suffering from a cough that seemed as if we were on the brink of consumption; no cessation nor rest, day or night. We took it, and were cured in three days.

The woman who gave the recipe has reared a large family in Oneida county; has seen hundreds suffering from colds and consumption; and she assures us that, in thirty years' experience with the prescription of the ablest physicians, and the experience of her friends before her, she has never heard of or used any other remedy better than this for colds of every condition; even when on the borders of that scourge of man, consumption.

Recipe.—One tablespoonful of malasses;—two teaspoonfuls castor oil; one dr. paregoric; one dr. spirits camphor. Mix and take often.—*Nottingham Farmer*.

Cure for Sprains or Bruises.

Take two ounces of cast-steel soap, half-pint alcohol or spirits of wine, mix them together, then add half pint beef gall; put it into a bottle and stop it tight. The older it is, the better.—Bathe the parts affected with it, and you will find immediate relief.

The most useful lesson in the school of life is that which teaches us to be content.

The Farm.

The True System of Farming.

Trying to do too much, is a common error into which the farmer often falls. His great eagerness in striving to be rich, is doubtless the cause of his error. He is ambitious and energetic, and forms his plans on a large scale, too often, perhaps, without counting the cost. He buys a large farm and wants to be called a "large farmer," without understanding or considering the true elements that constitute a real farmer. He fancies the greatness of that profession, as is too often the common estimate, to be in proportion to the number of acres, not, to say cultivated, but embraced within the boundaries of his domain. The fact is now being spread abroad, that a large farm does not make a man either rich, contented or happy, but on the contrary, the reverse of all these, unless well tilled, when his labor is rewarded by ample crops and fair success in the various departments in which he is engaged. No farmer can realize the full benefits of his profession without adopting a thorough system of culture. His success, commensurate to his wishes, always depends upon the manner in which he prepares his grounds, plants his seed, and rears his stock. Neither of these departments, which may be considered the cardinal ones of his profession, will take care of themselves. The soil may be rich, but it needs culture. His seed may be sown, but it should be in due time, and always on soil well prepared and of a suitable quality for the production of the crop desired. His stock must be constantly cared for—it derives its thrift from the soil, and sends again to that soil the sustenance it requires; but this is not done in a loose or hap-hazard way. The farmer's care is required, and all his better judgment must be exercised in keeping up this system of reciprocal benefits that may be realized by every intelligent and industrious farmer.

Thorough cultivation and systematic attention to all parts of his business is indispensable to a good degree of success. The very corner stone to this whole system of farming, is to do what you do thoroughly—nature will not be cheated, and never gives full returns to the half way work that is practised by vastly too many calling themselves farmers. If the land has been worn, the extent of that exhaustion and the food required, must be first considered. When ascertained, the full measure of these requirements must be given, to bring out full returns. If the farmer has but a small stock, and consequently but a small amount of manure to replenish his land, it is obvious that but a small farm can be supplied with it; and good judgment at once dictates that to cultivate properly a large farm, artificial fertilizers must be used if good crops are obtained. And so with the labor, two men cannot suitably till one hundred acres of land, when the labor of two men and perhaps four, might be profitably employed on seventy-five acres.

This is the great error in farming. Two men strive to do what four can hardly do, and thus thousands of acres are run over, half tilled, and producing half crops. The land is run over till worn out, sustaining year after year the unnatural tax, till its energies are entirely exhausted and it fails to yield even a feeble crop, because its life is worn out. Much of the soil in Virginia and other Southern States is a type of this. Thousands of acres are lying entirely useless and exhausted, and will ever remain so, till the fast elements of its power are returned to it. This process is fast going on in many of the *Western States*. The soil is treated like an inexhaustible mine; the tillers crying give, give, give! till in a few years it will have nothing to give. The boast of the West is, large farms and large fields of grain; plow, sow, and reap, is the business of western farmers, drawing out the very life of the soil, and sending away in the heavy exports that are constantly going onward, without returning to the soil the food it requires to make it productive.

The light that is being spread abroad on this subject is beginning to correct this practice to some extent, but in most instances very little is returned to the soil to keep it alive, till after several years of continual cropping, it manifests signs of exhaustion, and ultimate barrenness. When tillers of the soil understand their true interests, they will cultivate no more land than they can do well. Fifty acres of land for tillage, brought to a high state of cultivation, pays better than one hundred run over in the way that many do.—*Jefferson Farmer*.

Straw as a Covering.

Clean straw is an excellent covering for many things; thousands of sea-kale in frames of under hoops have no other blanching material; and how clean they grow in it! Rhubarb, in winter forcing an early spring, grows beautifully pinky. It is well known that early spring frosts destroy rhubarb; but if a six inch layer of straw is put on every crown, as the heads put up, they raise the straw with them, and it not only gives the stalks a better colour, and makes them less "stringy," but it keeps the leaves from growing too large. No wind will blow it off, nor will the most intense frosts injure the plants. Straw should not be looked upon as a mere litter; it is as good as a frame upon a large scale. What sort of eatable strawberries would we have without straw? In summer, every crop, such as gooseberries, currants, and many other things, should have the protection of straw which keeps the sun from drying up the surface, and the surface roots, damp and cool, while all the weeds are kept down.—Market gardeners use it for their frames; it matters not whether for cucumbers, melons or potatoes, straw is their covering, and their crops are more secure than when protected by a thin mat. But some may object to the use of straw, on account of the litter it makes in a garden; but if any of those who object to its use for this reason will just take a peep into Covent Garden market at any season, they cannot fail to be struck with the quality of the produce, in the raising of which straw plays an important part. Straw is also the best of all manure for a strong retentive soil, when it is dug in fresh, as it decays and leaves innumerable worm-like holes, which act as drains for the roots.—*Gardener's Chronicle*.

Protection of Manure.

There can be no doubt that the free and constant exposure of manure to the action of the atmosphere, greatly deteriorates and lessens its value; and that providing a protection for it while remaining in the yards, or before its removal to the land to which it is to be applied, we should save sufficient to remunerate us amply for the cost which such a structure capable of fully subserving this important purpose would necessarily involve. The proper location of sheds intended for this use, is on the side of the barn, in the vicinity of that portion used as a "tie-up," in order that the excrements of the animals may be removed to it every morning, and without even a temporary exposure to the air.

The back or rear wall of the structure, should be so formed as to admit of its being opened to facilitate the removal of the contents, and to effect with which the greatest convenience and despatch, the entire wall should be suspended on stout hinges, in such a way as to be swung up, and retained in that position till the work of removal is accomplished.

A structure subserving this purpose, and which will last for several years, may be erected for a few dollars, doubtless—yet I would not advise any one to spend half or two-thirds the amount requisite for the construction of a first rate permanent fabric, in putting up a cheap one which will but partially meet the necessities of the case, and be ready for repairs, or tumble into ruins, almost as soon as it is up. It should ever be an object with the farmer to do well and thoroughly whatever he attempts. The old adage—"Work well done, is twice done," conveys an important lesson, to which it would be well for farmers to attend, and especially in providing those permanent fixtures and conveniences which necessarily involve the expenditure of time and cash. The economy of manure is beginning to be contemplated as a subject of much practical importance by the farming classes generally and we trust the day is rapidly advancing, and is even now by no means distant, when judicious and efficient measures will be adopted universally for the protection of that article upon the assistance of which the farmer relies for the profit of his soil and crops. When it is reflected that in the present condition of our agriculture, little can be accomplished without manure, it will certainly be thought a matter of no trivial or insignificant consequence so to manage and economize the contents of the stercorary as to ensure the availability of all its wealth. With a sufficiency of manure, we may laugh at the sterility of nature: but without it we can virtually establish little or nothing.

In the manure shed the farmer has an assistant of the most valuable kind and which involves but comparatively slight expense.—*N. E. Cultivator*.