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A table of contents for *Bibliotheca Sacra* can be found here:

https://biblicalstudies.org.uk/articles_bib-sacra_01.php

ARTICLE III.

NATURAL REALISM; OR, FAITH, THE BASIS OF SCIENCE
AND RELIGION.

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I. FAITH THE BASIS OF SCIENCE.

NOTHING is more common to-day than the confident assertion that truth is one, and so universal, immutable, and incapable of self-conflict or contradiction. But, notwithstanding this grand assertion, nothing is more common than to see the champions of truth in one department of knowledge contending bitterly with their co-laborers in other departments. There are extremists in science and in religion — bigoted scientists and bigoted religionists — men with irreligious bias and men with scientific bias. The first seem anxious to expel God from the universe, and the other to make God in their own image. The antagonism, or the supposed antagonism, between science and religion, shows itself in some religionists by their jealousy of science, and in some scientists in their supercilious attitude towards religion. The one party makes difference from itself the measure of irreligion, while the other party makes a corresponding difference to be the measure of absurdity and superstition. The old "odium theologicum" is no longer without a rival. It has a later-born, but a stronger brother, in the rampant and unendurable odium scientificum. The older wanes and grows mellow and mild before the younger. Theologians, as a class, now show themselves most tolerant — more than tolerant, even very friendly, towards science; while many scientific men show themselves most intolerant towards religion. Mr. Mivart, who is both a theologian and a scientist, tries to show that the most advanced scientific theories are not at variance with Christianity. But Mr. Huxley, who is only a

scientist, pursues him with bitterness. He seems determined that there shall be no reconciliation, and boldly enters upon biblical theology to show that there can be none. Mr. Tyndall, too, more recently, has turned theologian, and tried to clarify the ideas of prayer which Christians generally hold. He tells them that prayer is a potency which he would like to see devoted to practical objects, instead of wasted upon the air — that it may really strengthen the heart to meet life's losses and thus indirectly promote physical well-being, as the digging of Aesop's orchard brought a treasure of fertility greater than the treasure sought.¹ Utter disregard of the Christian idea of prayer, and contempt for those who believe in spiritual realities, as much as he believes in material realities, characterizes this discharge of the "odium scientificum."

Such scientific dogmatism, as well as a like theological dogmatism, only shows the bias that the exclusive pursuit of any one study, or exclusive work in any one department of knowledge, gives to any one. When the mind becomes accustomed to receive only a certain kind of truth, it is deadened to the perception and appreciation of other truth. Through disuse, the faculties which are given for the perception of other truth are lost, wrapped up in a napkin and hid. Then the knowledge which is obtained through one or more of the faculties, being partial, unrelated and uncorrected by its relation to other knowledge, is one-sided and untrue. Such a mind looks at everything through the distorted lenses of its special faculties, and thus sees only its specialty in everything. Thus the rules and measures of our special studies become the only rules which we use to measure every other sphere of truth. The kingdom of grace is seen only as the kingdom of nature. Everything is referred to our one-sided selves, as the centre and circumference of the universe, and measured by our own personal, provincial, or professional dogmas. The one who gives his exclusive attention to science is thereby disqualified to judge

¹ Littell's Living Age, No. 1483.

of matters of religion, just as much as the one who devotes his whole attention to religion is unfitted to judge of matters of science. They each bring to the study of the other's sphere the faculties which are fitted for the study of their own sphere. The study of nature has never been with religionists what it should be. They have ever been absorbed in the supernatural realm, and have ever used their supernatural or moral and spiritual faculties, while they have regarded the external universe as the mere theatre for the moral drama of the alienation and reunion of God and man. And the tragic element in their relations to those who study the natural world as it should be studied has always consisted in their identifying their religion with some crude interpretation of nature which is soon shown to be false. But scientific men, whose work is confined to the natural world and to the use of the faculties fitted to grasp it, have likewise been one-sided, and regarded the supernatural world only as a decent disguise for their remaining ignorance of the natural world. The tragic element, with them, is the continual *manifestation* of that spiritual power, which they deny because they cannot discover it with their senses, their understanding, or with their telescopes and microscopes. Thus each is led to undervalue or discredit the truths in the other's department, not because these truths are abhorrent to pure and whole reason, but because they are so different from their chronic and professional conception of the order of things. They startle their imagination, but are not therefore repugnant to their reason. It is for this reason that the modern scientific conception of the method of the universe so startles the exclusively religious mind, and that the Christian belief seems so unreasonable and superstitious to the exclusively scientific mind. But there are men, on both sides, who thoroughly understand and appreciate the labors of each other. President McCosh is a fair representative of the modern theologian, who not only appreciates scientific results, but is himself a co-laborer with the foremost scientists. And the late Professor Faraday well represents the modern Christian scientist.

Indeed, theologians and religious men generally, now, not only acquiesce in, but welcome all the fresh knowledge of the material world which science can give. They have done away with what has always caused the tragic failures of their religious view of the natural world, i.e. the identifying their religion with any theory of the external world. They are ready to welcome every view of the universe that science opens, finding in every view fresh contributions to religion. Whatever may be the method of the universe, there is still the One Cause, who is their God and Father. But if religious men are losing their prejudice, and becoming sympathetic with science, we do not find a like breadth of appreciation and sympathy among scientists who are narrowing their minds by the exclusive use of one set of faculties, and their view of the universe by looking at it only on the material side. If religion no longer opposes science, yet do the students of science oppose religion. They are yet where religious men were when they opposed the Copernican view of the solar system, or any of the later scientific results of the study of the material world. If religious teachers no longer oppose, but aid scientists, yet do scientists oppose and wage warfare against religion. If the antithesis of science and religion is a threadbare subject, as old as the subjects themselves, yet is the relative position of the two somewhat changed to-day, when we see the one calling the other her friend and helpmeet, while it, in turn, discards the friendship. There is still need of keeping this question open to the fullest and freest discussion, in order, at least, to enlarge the breadth of scope and confirm the results of scientific students, as they have already done that for religious men. The day has passed when theologians tried to reconcile every new discovery of science with the teaching of revelation, by warping either science or the Bible to some special interpretation of the two, or by trying to show that the Bible itself taught all these scientific truths. Nor is any confidence put in the reconciliation which satisfied Baden Powell; he affirming that science and religion have no point of contact, no relation

to each other, but belong to wholly separate spheres. The idea of unity and mutual relationship in all the realms of truth has grown beyond anything like that. Nor does the reconciliation which Herbert Spencer gives, in his "First Principles," deserve other than the name of charlatanism. Claiming to distil the "soul of good" out of the thing evil—i.e. religion—he makes it to have no soul, but to be only a striving after the solution of the inscrutable mystery of things. And science, too, he makes to be working at the same problem; thus reconciling science and religion by nescience—the denial of all science. Being elaborately introduced to this reconciliation, how can one restrain laughter! But when we see that the author is serious with us, our smile turns to the look of pity for such word-jugglery. The charitable term "soul of truth in things evil" conciliates us, and leads us to expect something positive; but he shows us only the abyss of the unknowable, the "mystery of the universe," of which science takes the near and visible sides, and religion the deep, invisible, and unknowable depths. Such metaphysical whiffing may daze, but it cannot make clear to any mind a real reconciliation of science and religion. For we all believe in a real reconciliation, but all that such attempts can do is to bring out into distinct vision the scope and the points of antithesis of the two. There remains still the broader and deeper and final reconciliation to be brought about, which will show how all the truths of science may be viewed religiously, and all the truths of religion scientifically.

Something may be done towards this by showing the common basis from which they both start, and the instruments with which they both work, and that they are, in fact, different sides of the grand whole of the universe. Especially, we believe, do those who are devoted exclusively to scientific pursuits, and make only occasional raids upon religion, need to realize that the basis on which they stand, the instruments with which they work, and the subject-matter of their work, are identical with those on the side of religion. The thousand petty discords between them are to be done away by this

sense of community, harmony, and mutual relationship. Nor is it necessary to do away with dogmatism in order to this. Dogmatism is proper in both departments; for it is the true antithesis of scepticism. True dogmatism is not, as Jerrold wittily said, "puppyism come to maturity"; but it is knowledge come to positive perfection, and as such is not only possible, but necessary, alike in science and religion.

Passing by the many points of apparent disagreement between the two, let us only note the points of vital agreement, the things they have in common — basis and instruments.

A. The one power which makes science, as well as religion, possible by giving them both their subject-matter and their methods, is *faith*. We use faith here in its most generic sense, as distinguished from the specific faiths or dogmas of either department. It is a faith broad enough to include reliance upon all the faculties of our mind, upon the reality of the external world, and upon all the revelations that God makes to the soul. It is the general instinct of trust in inner and outer realities, which makes us *natural realists* from childhood up till we become *infidel* to some part of this trust. It is confidence in, reliance upon, the truthfulness of ourselves and of things about us. It is the belief in the laws of belief which God has implanted in us. It embraces confidence in our senses as corrected by our understanding, and in our understanding as corrected by the fundamental intuitions of reason. It is trust in the reality of all objects of knowledge, and in the instruments or faculties by which we apprehend and know them. We rely upon the truthfulness of both objects and instruments. If we mistrust that our faculties are incapable or deceptive, we at once do away with the possibility of any knowledge, and can only doubt everything, and then doubt our very doubt. We can have not only no basis for either science or religion, but also no basis for either belief or scepticism. We fall at once into the abyss of know-nothingism in which Pyrrho and the other sceptics found themselves. They held that a person could know

nothing, not even that he knew nothing.¹ The great world, themselves, and God became only a "perhaps." There are signs of a like absolute Pyrrhonism to-day; and many scientists, like Herbert Spencer, who are loudest in their boast of the positive philosophy, make this very scepticism the basis on which to rest their science. But when this is put as the basis of anything—of revelation, with Mr. Mansel, as well as of Science—one thing is as good and true and beautiful as another, and all true dogmatism is at an end. Unless we trust our senses, we have no outward world to begin with. Unless we trust the understanding, we have no method of systematizing and interpreting the outer world. Unless we trust the reason and conscience,—the pure and practical reason of Kant,—we have no possibility of religion or revelation. Faith, therefore, in our God-given faculties, lies at the very basis of all knowledge, human and divine, and whoever tries to shake their authority, or our faith in them, is, in fact, an *infidel*, in the philosophical sense of the word, be he the champion of science or of revelation. When the idealist Berkeley says "there is no matter," we say, "It is no matter what he says." When the materialist Büchner says "there is no mind," we say, "Never mind what he says." We call them both infidel to correlated realities which every natural realist and every child, who is naturally a natural realist, believes. And when Lord Macaulay jeeringly asks, "Who are the wisest and the best, and whose opinion is to decide that?" we say that he is infidel to the universal, impersonal reason, which is in every man, and which declares that there are such realities as the wisest and best. We repeat ourselves when we say that all such mistrust is infidel,—disbelieving in the truth of ourselves,—and does away with the only possible basis of any kind of knowledge. We begin our knowledge with propositions of

¹ "In order to avoid everything like positive assertion those old sceptics had recourse to a variety of artifices, and availed themselves of doubtful modes of expression, such as, 'it is possible;' 'it may be so;' 'perhaps;' 'I assert nothing;' cautiously subjoining to this last, 'not even that I assert nothing.'"—Schwegler's *Hist. of Phil.*, p. 149.

perception. We correct and connect these propositions by the propositions of the understanding. But we do not stop with the manifold finite relations which the understanding gives us ; we carry these up into the absolute being, through the reason which discerns the inner unity and the fundamental and absolute relations of them all. The senses need the correction of the understanding, and that the correction of the reason. Then we have the criterion for judging who and what are the wisest and best ; that is, providing we trust in these faculties — which bridge — which carry us over from the finite and contingent to the infinite and the absolute. It is this trust which starts us, and carries us up through all the stages of our knowledge, and which bears us up when we have reached the summit. In its beginning, this trust or faith is what one of our most beautiful thinkers¹ has called good faith.

The child comes into the world without the slightest scepticism as to the reality of things about him, and their relations to him, and the instincts of activity which are already awakened in him. Life is earnest and life is real to him. To use the illustration of Professor Everett, the infant has an instinct to suck, and without knowing the provision nature has made for its nourishment, it simply sucks, in good faith, anything that is put in its mouth, trying to suck the nourishment it feels the need of, until at last it finds its instinct satisfied with its mother's breast. It lives by faith in this instinct, which is a crude, but a true, type of the

¹ Prof. Charles Carroll Everett, in his "Science of Thought; a System of Logic," p. 122. We do not use the epithet "beautiful" loosely or unknowingly. It expresses the character of his expressed thoughts and the impression they make on the reader. His book is a free manifestation of living thought, which is never arbitrary, hasty, or imperfect, but is always real in its manifoldness, and at unity with itself in all its variety. Hence its beauty. We desire to acknowledge our indebtedness to his "Science of Thought" for the leading idea of this essay. If we lead any to the book itself, which we consider the greatest book on Philosophy that has ever appeared in this country, we shall feel that our work has not been fruitless. He makes Thought to be the one reality in the inner and the outer world, and the movements of this *living* Thought to be the forms of a living Logic.

instincts and of the faith in them, by means of which we gain all our knowledge. It is the good faith of the child in all its growing and developed instincts that is the foundation and procuring means of all its subsequent knowledge of the world, of itself, and of God, in all the ways in which he reveals himself. Everything is correlated, the world of mind with the world of matter; the instincts of the soul with corresponding realities.

“Nothing walks with aimless feet.”

Every true instinct has its appropriate, answering, corresponding, reality. The tendril of the vine has its support. The wings of the meanest insect imply the existence of air in which to fly, and the hunger of the most ephemeral creature implies an answering food. Nor can it be that the wings of the mind of man and the hunger of his soul, have not their corresponding realities, but are only given him to mislead — hollow mockeries. The plant, the bird, the beast, trust their instincts and use them, and thus live. And man lives in no other way. He trusts his faculties and the truths they give him of the outer and the inner world, and thus gains all his knowledge. Believe, that you may know, is the categorical imperative to science as well as to religion. This natural good faith makes us natural realists in every department of knowledge, instead of idealists, materialists, or sceptics. The world is real, the soul is, and God is, real. Holy scripture says that faith is substance. By virtue of the consubstantiality of the outer and the inner worlds it is the only substance; and that out of which, and by means of which, we weave all our knowledge. The larger our faith the more copious our supply of substance, of realities; for it is the receptive power of the soul that takes in all truth, by virtue of its consubstantiality with all truth. “Faith is only another name for the intuitions of the reason; science is only the reducing all the material of faith to conformity with the fundamental principles of the reason.”¹ Take away this faith and the consubstantial inner and outer worlds disappear.

¹ “The Science of Thought,” p. 184.

Take away the soul of things and the body goes too. Take away the "Sartor," of Carlyle and there is no one to do the "Resartus" part, nor anything to do it with. Hence, too, we must make our knowledge or science universal, and not restrict it to physical science. In its true signification, science embraces all the realities known by the mind of man. It can be limited only by realities to be known, and by the power of the mind to know them. If faith reaches out and grasps, and declares the reality of God and the soul, then our science must embrace them too. If there is any reality in the powers of the mind, there must be a psychology. If there is any reality in religious truths, there must be a science of religion, a theology. The sweep of science must be as broad as the realm of faith, without which there can be no science, but only nescience.

α. If now we look at the relation of physical science to this faith we shall find that, in the first place, it receives all its materials from it.¹ The only guarantee we have of the existence of an external and real world is our intuitive faith in our perception of it through the senses. Without this faith there can be no grounds for the belief in the external world, at least for the belief that we know it as it exists. The history of philosophy shows how, without this faith, we are driven into idealism, which, as Mr. G. H. Lewes says, "paves the way to that scepticism which, gulf-like, yawns at the terminal road of all consistent metaphysics." The most

¹ President M. B. Anderson, of the University of Rochester, says, in his unpublished Lectures on Metaphysics, that "all science involves the perception by the mind: First, of facts and events, and the holding of them in memory; Second, the discovery by the mind of likeness and unlikeness among them; Third, the classification of those that are similar with each other; Fourth, the inference, by the mind, that what is true in time and space of some, will be true of all; Fifth, the discovery that these facts and events form a system or plan which presupposes a mind adequate to its production and continuity," and that "science is the classified knowledge of this plan." This is a fair representation of the method of physical science, and we wish only to show that the various steps of it are trustworthy and answer to realities, — that faith underlies them all, and conducts them to what Professor Everett calls the first proposition of the reason, that of truth, which really inspires the whole process.

elementary metaphysics will teach us that we each carry our external world in our own brain. The first analysis of our perception will resolve it into simple sensation, and show us that the song of the brook, the music of the cataract, the bright colors of earth, air, and sky, and all that in them is, are but the creations and inhabitants of our own mind. Given, but simple sensation, and the mind creates its earth and heaven, after its own image. But of the thing producing the sensations we know nothing. Even this unknown substance is analyzed away, and we are left within ourselves and entirely by ourselves. This result of the rigorous analysis of perception which Bishop Berkeley made, Hume declared to be unanswerable, and there is nothing but the irresistible faith of mankind in sense-perception that can answer it. Kant's rigorous analysis of knowledge, in which he tried to meet the scepticism of Hume, did no more than restore the unknown and unknowable external something, which caused the mind to form ideas. The "thing in itself," he asserted could never be known. The world, as we believe it to exist, is a delusion, just as the rainbow is a delusion. We have no right to predicate realities corresponding to our apprehension and conception of things. But the common sense, or faith of mankind declares the correspondence of the two worlds—the subjective and the objective. The idealist and the positivist concur in denying our knowledge of the external world, but the natural realist who exercises the good faith of the soul, meets them both and asserts the truth of the mind's conceptions and convictions. He does not believe that it exists in the crude form in which the senses picture it to him, but he accepts the corrections which his understanding makes, and the unity and reality which his reason gives him. Moreover, he accepts the reality and truthfulness of *this* world for no other reason than that his connatural good faith commands and compels him to do it. He cannot demonstrate its reality, yet he is more assured of it than any demonstration could make him. We are all, naturally and practically, natural realists. The raging fire and the threatening flood are no

subjective or unknowable things to us. We at once give objective reality to an approaching danger, and hasten to remove ourselves from it. We live and move and have our being in a world of realities, which, so far as demonstration is concerned, can be more easily demonstrated unreal than real. But our good faith is stronger than demonstration, and gives us the real world.¹ It pierces through the ghostly "Ding an sich" of the Kantian idealist, and blows away the impotent veil of obscurity from the positivist's "awful nothing"; it changes the "perhaps" of the sceptic into a positive "yes," and reveals the world of realities, which we believe in, and take up and formulate into the systematic whole of science. It is this world of realities that faith gives, that science takes for her subject-matter. Her votaries may deny in theory the reality of this subject-matter, and call it merely phenomenal, yet do they work upon it as real, and call it the only thing of which we can have positive knowledge.

b. We take another step when we ask how science grasps her subject-matter, and how she elaborates and systematizes it. How does she build her grand temple and ordain her ministering hierarchy, when she has the materials given her? Where does she get the power to formulate what are called "laws of nature"? Objects of sense make up by far the least portion of her magnificent structure. They are only the standing timber, the unformed rock, the unmixed mortar, the unspread colors — the raw, loose, formless material. Facts of observation are totally insufficient to build a single pillar, to give a single law of nature. To give this, observation would have to be universal and eternal, covering all space and time — the here and the there, the past and

¹ Campbell in his *Philosophy of Rhetoric*, Chap. v. Part 10, has an interesting section on the dependence of even mathematical demonstration upon our faith in our memory. In Geometry we must trust the conviction of the mind as to the truth of the preceding demonstrations and axioms. The mathematical process generally consists of a series of axioms and equations. The truth of each one is perceived as we proceed. But the process is gradual. And it is solely by faith in our memory that we can have any conviction of certainty at the end of the process, or at any of the intermediate steps.

the future as well as the present—for this is just what a “law of nature” covers. Far beyond any possible human experience these laws stretch and rule. Science does not, and cannot, stop with experimental knowledge. Experience, as her builder, would be like an ant as the architect of St. Peter’s. The law of gravitation, e.g. is far more than an epitomized expression of facts. It has thought, the universal and absolute element in the mind of man, underlying it, just as St. Peter’s is permeated, shaped, and sustained, by the thought of its architect. The Cathedral was thought out before it was embodied in stone, and the law of gravitation was in the mind of Newton before he found it in the external world. And so it is throughout the whole structure of science. There is thought beneath it all, permeating, shaping, and sustaining it. Objects of sense are not its corner-stones, its arches, or pinnacles. Nor does this universe which science knows and tells of, rest on outward foundations. The visible, material supports which satisfied the infantile conceptions of early cosmogonists have all been taken away. The Hindoo elephant and tortoise no longer support the earth, nor is it rock all the way down, as the more artless Mrs. Partington would have it. The Hebrew firmament no longer holds the stars in their settings, nor are the shoulders of Atlas strong enough to understand and uphold the earth. There is now no visible point of support in all the material universe, not even a medium for it to float in. Yet science grasps the whole eternally moving universe with its methods and holds it by its laws, and thus it stands as eternally firm in its foundations as it moves rapidly through space. Unsupported, it is yet not without support. It is self-poised and self-supported as it swims, or floats, or stands, in the eternal years of God and in the thought of man. The faith out of which, and by means of which, it builds itself is its only support.

But how does science do this? How is the great world of scientific thought built out of the raw materials which faith gives? How is the passage made from the sensible, material,

and what some call the real microcosm about it, to the infinite and eternal macrocosm? How can it claim to have knowledge of what it has not seen or heard or felt? How can it assert anything of the future—that the sun will rise tomorrow, that water will always run down hill? How does it rise to its grand and dogmatic assertion of the correlation of forces, and the unity of the universe? Again he is building on faith, and by faith, and with faith. Besides giving the scientist his external world, faith gives him his methods and instruments for elaborating and systematizing it. It is only faith in our thought and in our laws of thought that gives him his plan and his instruments for drawing together the vast mass of unrelated materials, for constructing the organic universe, which shall be made up of all these manifold chaotic elements. The temple of science has to be thought out in the mind of man before it can be constructed from the raw materials. We put our thought under facts, and the structure rises. We trust in the truthfulness of our thought and the structure stands, and stands only because we do thus trust. We believe that the relations, connections, and organic unity which the mind throws over phenomena, and which are the necessary laws of thought to the mind looking at nature, are also the necessary conditions of being in nature; that nature is really built according to them. Neither the idealist nor the positivist believes this, that the world without us corresponds to our thought of it, or to the world within, or that they are at heart the same. Kant demonstrated that these laws of the mind are necessary, and the thought unavoidable, but he denied the possibility of our knowing whether they are conditions of the existence of nature or not. Time and space, in which we see the world and know events, are subjective, regulative ideas. So, too, with the propositions of the understanding, as to quantity, quality, relation, and modality, and the propositions of the pure reason, the second of which,—“the affirmation of the unity of the outward world,”—is the architect and the goal of physical science. These he declared to be only *a priori* and necessary conditions of consciousness,

from which we have no right to argue to any corresponding external reality.

We can understand this theory, though our good-faith will not allow us to accept it. But we cannot understand those who arrogate to themselves the title of positivists. Calling psychology an illusion, and rudely bowing out of existence the reality of mind, they yet claim for the functions of their own brains the power to disprove all that has hitherto been accepted as truth, and to build up a grand system of positive knowledge. We do not reject the knowledge they bring, but we do not understand how *they* can bring it, who must regard themselves, as they regard men generally, as only a mass of nerve-substance, whose only functions are physiological. The truth is that they bow mind out, and smuggle it in again to do all their work, and they trust the results which this mind reaches, else their positive science dissolves into airy nothingness, and themselves, if there are any selves, are toppled from the pinnacle on which they stand. Ask them the question, how came you to such a height, how stand you there, and how have you raised the hierarchy of sciences? and they must either say it was by the power of that mind which we have so wrongly denied, or they must say with the old sceptics, it is all only a great "perhaps." They have no ground for affirming anything, even the truth of the simplest facts, for what are they (we cannot say who) that they should affirm or deny anything, when they have denied the knowing mind of man? What is it in them that thinks phenomena into correlation and system; that forces nature to yield her secrets to them; that discovers laws of nature and classifies all knowledge? What is it in them that spreads out hypotheses which exactly overlie and embrace all knowledge; that rises from knowledge about a few things to laws about all things? What, in a word, is the process, and what the trustworthiness of the process, by which they reach their science? If they do not recognize the presence and the agency of the human mind, and the trustworthiness of its deliverances, all their science

is a baseless mirage, and worth not so much as the system of the universe that an intelligent mole might have pass through his brain.

But they do exercise the natural good faith in some of its references. That they get their subject-matter in this way, we have seen. So, too, we find them, however strenuously they may deny it, getting their method and instruments in the same way. Passing by the corrections which they allow the understanding to make upon the revelations of the senses, such as relate to the size, form, color, and relations of phenomena, in which they use all the categories which Kant showed belonged to the understanding, we come to the much-abused power of induction which is *par excellence* the instrument of science, and from the use of which it derives its title of inductive science. It is only our faith in this power that upholds the whole structure of science — that takes the place of firmament, pillars, elephant, and rock. But we find here the same professed denial of the basis of induction by those who use it that we find in regard to the general powers of the mind which they use. They deny any trustworthy science of man, and yet they rest all their work on this same. Hume, the father of the school, more consistently refused any such confidence to the powers of the mind. Especially did he disclaim the trustworthiness of the process of induction. He affirmed that we could not pass from the seen to the unseen, from the present to the future. The power by which we are accustomed to do this he calls only a "habit of mind," and its resulting belief, he says, is only "a vivid, lively, forcible, firm, and steady conception resulting from association." Thus he puts a lawless, baseless association of facts and ideas, as the only foundation of induction, and so of much of our common knowledge.¹ Professor Everett has

¹ The elder Darwin, in his *Zoönomia*, derives our ideas of beauty from the same power of association. "He describes the sensations of the babe when, 'soon after it is born into this cold world, it is applied to its mother's warm bosom,' and the agreeable influences which thus grow up in the mind associated with the form and warmth of the bosom 'which the infant embraces with its hands, presses with its lips, and watches with its eye; and thus it acquires more

by a fine analysis of the different kinds of belief, resulting respectively from association and induction, shown this to be untrue (p. 117). Mr. Mill, the philosopher of the inductive school, while using this power, gives it no surer basis. He affirms that our faith in our inductions rests on the grand proposition of the unity and invariableness of the universe, which proposition is, in turn, itself an induction from the inductions which depend upon it. This resting of induction on induction, and induction itself on nothing, has been too clearly shown by others to be the gist of Mr. Mill's philosophy to detain us here. It is enough for our purpose to know that theoretically they all boast of their inductive method, and that practically they all trust in its processes and results, though they cannot give any grounds of confidence in them. It is enough for us to know that they deny more in theory than they do in practice. While they are nihilists in philosophy, they work on the basis of natural realism. And it is only in so far as they and other scientists work on this basis that they do anything for science, or deserve the name of positivists. Denying the science of man, they yet erect their physical science on the basis and by the instruments which are the principles of "the science of man." They are kings in the realm of physical science, because of the kingship of the generic mind that is in them. The veriest materialist among them, who will have no non-

accurate ideas of the form than of the warmth or flavor which it perceives by its other senses. And hence in our maturer years, when any object of vision is presented to us, which by its waving or spiral lines, bears any similitude to the form of the female bosom, — whether it be found in a landscape with soft gradations of rising and descending surface, or in the form of some antique vases, or in the works of the pencil or chisel, — we feel a general glow of delight, which seems to influence all our senses; and if the object be not too large, we experience an attraction to embrace it with our arms, and to salute it with our lips, as we did in our early infancy the bosom of our mother." We quote this from Lewes's *History of Philosophy*, p. 616, who adds, "one of the happiest illustrations of ridicule being the test of truth, is the reply of Sheridan to this theory of beauty. 'I suppose,' said he, 'that the child brought up by hand, would feel all these emotions at the sight of a wooden spoon,' " or in our day at the sight of a bottle.

sense, no mental illusions, but only facts, yet sticks these facts, like a pin-cushion, so full of the needles and pins of his own mind that they are hid by them. He is possessed of the thousand little imps of the mind which he boasts so loudly of having exorcised and driven out of existence. Unrecognized by him, there are all the categories of Kant; and all the logic of Hegel is in him, and goes out from him to embrace and bring to his knowledge the facts which he so dearly loves. He intelligizes these facts by means of them, and thus knows the facts. The universe takes order and system as it is seen through them; the chaotic mass of "possibilities of sensation" becomes organized knowledge as it is transfixed and supplied with these mental categories which form the complete, co-articulated system into which all the facts fit. Herbert Spencer, it is true, represents a great advance on the bald materialism of the Büchner school. He is one of the leading psychologists of the day—a fine exegete of the contents of the mind, and accepts the laws of the mind as necessary to any science. The science of man as he now is, he makes the necessary basis of all other science. But it is only of man as he now is, and not of the coming man also, that he can give us a science. On his hypothesis of evolution, the laws of thought and necessary *a priori* conceptions of the genus man may and probably will be as different from ours to-day as these are different from the mental faculties and processes of a toad. So the science of nature, which we now formulate, will be just about as reliable to the coming man as the toad's view of the universe is to us men of to-day. It gives no basis for true science, because it gives us no stable science of man. All our forms of thought—the categories of Kant and Hegel, which are in every man—he makes to be the result of organized experience transmitted through many generations. But as new experience organizes and transmits itself, new laws of thought will be produced, and a new science of the higher or lower man will have to be exegeted to serve as the basis for the new science of nature. As long as our mental powers remain what they

are, our science is trustworthy ; but when the next evolution comes it all falls, like the house built upon the sand. And he gives us no ground for believing that this evolution will necessarily be a higher one, instead of a lower one, nor, indeed, any criterion to distinguish between "higher" and "lower," right and wrong. If he did this, we might have some confidence in ourselves, and in the science we organize. Whatever philosophical faith he may have, along with Mr. Huxley, in the evolution of the highest and best as the final goal of all this flux and flow, he has no place for it in his system. He allows, with Bacon, that man is the interpreter of nature, but he gives no permanent canons of interpretations. His "First Principles" are not good for all time, and his interpretation of nature is no more than the babblings of a child in a luxuriant garden. He is no more able, on his theory, to get at realities and the science of them, than is the Kantian subjectivist. But, again, we meet him as we do the idealist, with the natural good faith of the soul, and accept what is true in his exegesis of the human mind and the science which it gained thereby. We go with him one step, and compel him to go with us the second step, or to deny the trustworthiness of the step we have taken together. We go with him, while he, with the conceptions of time and space, with the categories of the understanding and the intuitions of the reason, observes, classifies, connects, and solidarizes phenomena into the science of the universe ; and we go farther, and accept the results as real and permanent. We say, how kingly the mind which does the work, and how grand the correlation of the outer and the inner worlds ! But we pray, too, that he may become believing, and not doubtful. We ask him to take the other step, and believe in the truth of what he has so wonderfully interpreted to us, and of that in him which has enabled him to subject and interpret the universe.

If, now, we ask for the one grand result of all scientific studies — passing by its special and minor inductions, and coming to the one which shall include them all — we shall

find it to be this : The universe is one grand, connected, and systematic whole, having all its parts so organically correlated that there is no possibility of accident or disharmony. The symphony of a harmonious universe excels, as it includes, the Pythagorean music of the spheres. To this affirmation all the faltering footsteps of science and all her mighty leaps have tended, and in this all her inductions now concentrate, and make it the fruitful source of reliable deductions. The general theory of development, with all its specific applications, is more a deduction from this truth than the result of purely inductive science. The theory outruns the facts, and yet it is confidently affirmed. It is applied to new phenomena with perfect assurance that it will be found to be the law of their connection. Science, too, is rightly dogmatic in affirming the unity of the universe, which theologians have always affirmed, however much their explanation of it has erred. Science, too, which gives the *ἔτι* of phenomena, rightly rejects any theory or any induction which is at variance with this her ultimate result. But she must take care to see the whole universe, and not to look only at its physical side. If she denies the possibility of miracles, it is because her view of the universe is only partial. If she denies the possibility of physical answer to prayer, it is from the same reason. And theologians have no other ground for affirming the truth of both these than this same belief in the organic unity of the universe, which has become recognized as a truth of reason, and thus a judge of opinions. Science busies herself in showing how all the phenomena of the physical world fall into harmony with this truth of the reason.

Baden Powell says : " All science is but the partial reflection in the reason of man of the great, all-pervading reason of the universe. And thus the unity of science is the reflection of the unity of nature, and of that unity of the supreme reason and intelligence which pervades and rules over all nature, and whence our reason and all science are derived. If the laws of reason did not exist in nature, we

should vainly attempt to force them upon her, and if the laws of nature did not exist in our reason, we should not be able to comprehend them." All science rests on this faith in the correspondence of nature with our laws of thought — upon the reality of our thought. Science, in its highest or dynamic form, does not stop with the observation and classification of facts. But from a few facts it rises to dogmas about all facts; pressing boldly into the otherwise unknown, and embracing it within its circle of knowledge. No vision of the senses, no classification of the understanding, can peer into the future, and give the prevision which science gives when she speaks as confidently of the future as of the present. Back of all this, lies the intuition of truth, the belief in the organic connection of all things, which is at once the goal and the inspiration of science. Our thought can "put a girdle round the earth in forty minutes," can in a moment travel to the confines of eternity, and bring it into present vision. But all this is done in faith and by faith in the truthfulness of our intuition of the truth. We cannot insist on this too strongly.

We live, in so far as we are just, that is, right-minded towards all within and without us, entirely by faith, as it is written: "The just shall live by faith." We come into the world in good faith, and we take the world on good faith. We grow as we continue in this good faith in ourselves and in the world. We trust our growing instincts, and through them we rise to the grandest generalizations of science. We believe in the truth of things, that is, that they are all harmoniously related and correlated. We believe in the truth of ourselves — of all our faculties and powers. We do not believe that our whole nature, or that any part of it, is a lie; for this is the disbelief that embraces all the infidelity the soul of man is capable of. It is in this faith that science works to such good purpose. Real and thorough-going scepticism could never take a step towards any positive result. She claims, as the result of her work, the proposition that

the world is a connected and systematic whole, which is but another form of the first proposition of the reason regarding truth. And the background of all the faith exercised is this same intuition of the reason. It is more the cause and parent of the belief in the organic unity of the universe than the result and child of it. It does not, it is true, exist full-formed in the mind, from earliest childhood, but it is always ahead of the results of the senses and the understanding, correcting and connecting them, until it reaches its perfect form. It begins in the good faith of the child, in the reality or truthfulness of things. It underlies all the generalizations made by the mind. It is the basis of induction. It is true that the consciousness of it is developed out of the processes of the mind which rest on it, but it is always ahead of and underneath these processes. "I do not have faith in the stability and unity of the universe, because I believe the proposition that the universe is a perfect and systematic whole. On the contrary, I deduce this proposition from the faith with which I expect, in every case, this stability. Still further, I do not believe from induction in this stability; for my faith in induction is itself based upon this other faith."¹ The faith which leads us to trust the reports of the senses, is this same faith in the truth. The faith which leads us to trust the reports of the understanding, which are the corrected and connected reports of the senses, is this same faith. And it is this same intuition of truth which conducts the scientist to his belief in the organic unity of the universe. He is simply reducing the materials which this faith, in its successive forms, gives him, to conformity with itself. It is the showing the consubstantiality of the outer and inner, by making all phenomena harmonize with the inner—the proposition of truth.

It would be interesting here to show how this proposition, too, necessitates the "final cause" of things, as the end to which all are working, as the only real cause. The organic connection of things which our intuition of reason gives,

¹ "Science of Thought," p. 122.

necessitates a final cause of the organism and all its parts. It could, too, be shown that "final causes," "the barren vestals," as Bacon called them, have never been barren even, in physical science, but have always been the parents of the greatest discoveries. But it must suffice to mention their connection with this intuition of absolute truth.

The two other propositions of the reason concerning goodness and beauty form the basis of theology and aesthetics. The three propositions concerning truth, goodness, and beauty are the rulers, and the circumscribing boundaries of the universe, and science, in its broadest and truest sense, is only the formulating and systematizing of external realities into conformity with these *a priori* and necessary truths, which are not three truths but one truth. Science is thus of far wider sweep than is ordinarily assigned to it. It includes all that there is to be known, that is knowable — the world, the soul, and God. To limit science to any one of these is arbitrary and untrue. Physical science, as we have seen, is the making the external world harmonize with the first proposition of the reason. In another Article, we purpose to show that the science of religion, or theology, is the making all religious truth harmonize with the second proposition. In the first proposition we have the true basis and method of physical science; and whether her students recognize it or not, they live and work by it. They simply stultify themselves and overthrow their grand results, when they declare that they trust to the senses alone — that they accept nothing but the solid earth of tactual experience beneath them. They build better than they know, and on better foundations than they claim. We may well apply the noble words of Luther to them: "When at a window," said he "I have gazed at the stars, and the whole beautiful vault of heaven, and saw no pillars on which the builder had set such a vault; yet the heavens fell not in, and that vault still stands firm. Now there are simple folk who look about for such pillars, and would fain feel and grasp them. But since they cannot do this they quake and tremble, as if the

heavens would certainly fall in, and for no other reason, than because they cannot see and grasp these pillars; if they could but grasp them, then the heavens, they think, would stand firm enough."

The universe of science still stands firm enough, though there are no visible, material pillars, which the scientist can put under it. But it is self-poised, floating, standing in the mighty faith out of which it has been formed — the truth. The scientist, too, stands on firm ground, but it is something far firmer, and far grander, than this little speck of the visible, material universe — this little mass of thinly-crustured fire, whirling through infinite space and time. It is the faith of the soul, the substance of all things, that supports him.

ARTICLE IV.

BOOK RARITIES AT WASHINGTON.

BY FREDERIC VINTON, ASSISTANT LIBRARIAN OF CONGRESS, WASHINGTON.

THE life of a librarian is full of drudgery, yet sweetened by continual delight. It is in the very nature of his vocation, to be walking up and down the paths of literary history, meeting ever and anon with agreeable company, and now and then being awed by majestic shades. What a life of laborious enjoyment was that of Audiffreddi, who passed twenty-seven years in the Casanata library at Rome, settling, with abundant learning, every question relative to the incunabula beneath his hand, yet carrying his catalogue no farther than the letter *K*. What entertaining discoveries attended every step, while he composed such works as his *Catalogus historico-criticus Romanarum editionum saeculi xv*, and his *Specimen editionum Italicarum saeculi xv*. Nor let it be thought that he was a harmless drone, employed only in frivolous trifles, worthy a Dominican monk; for Audiffreddi was

also an astronomer, and wrote scientific theses, sure to be read again before the approaching transit of Venus. The illustrious names found in the list of European librarians, past and present, — of Bentley and Lessing, of Magliabecchi and Mai, of Daunou and Van Praet, of Heyne and Panizzi, and many others, dignify the profession in the eyes of all men of learning; while thoughts of its intrinsic usefulness half erect it into a priesthood.

Minor pleasures are continually coming to a librarian's lips, in the joy of constant acquisition, inseparable from the due fulfilment of his trust. Nowhere else is the Spanish proverb so true: "He that sells oil anoints his own hands." The newest book may afford unexpected illustrations of literature long familiar; and the oldest book may contain the manuscript name of a famous scholar some way connected with it.¹

It is our design in the pages which follow, to revive and to communicate some of the pleasures which some years' handling of old books has enabled us to enjoy.

Every great library possesses books which have come as duplicates from famous collections, or been owned by celebrated men. It is well known that the basis of the present Library of Congress was the admirable collection of Thomas Jefferson; rich in classics, in works on philosophy, in political and social science, in history, and various literature. Its catalogue was printed by the government in 1815, and it yet enables us to judge of the correctness of the estimate he put upon his library, as expressed in a letter to Thomas

¹ I have before me a book interesting for its contents, and also for a Latin note from an unknown hand. It is *Anacreontis Teii odae ab Henrico Stephano luce et latinitate nunc primum donatae* (small 4to) Lutetiae, 1554. The note reads thus: "Emi hunc librum, Lipsiae, 1748, dimidio carius quam emerant alii docti homines. Tanti poenitere non emo, dicebat δ *ῥάδν* Ernestius, cum cum emeram in auctione Platneriana, cui eo tempore praesens aderat." It must have been John Zachary Plattner, the oculist, whose books were then dispersed at Leipsic, and John August Ernesti who stepped in from his lectures in the neighboring university. We could have wished that the *doctus homo* who left us this anecdote, by communicating his own name, had enabled us to judge of the claim he set up.

Cooper, shortly before it was sold to the United States. He spoke of it as "one of the best selected libraries in the country"; and there is absolutely no trash in it. The number of classical books in ancient and modern literature, gives one a high appreciation of the scholarship of the collector. Two hundred and fifty volumes are in Greek; four hundred and thirty are in Latin; three hundred are in Spanish and Italian; and those in French form a large proportion of the whole. Fifty volumes contain the Bible, or parts of it, in several languages; more being in Greek than in any other, and of the best editions too. The impression produced by the whole catalogue is, that the collection is that of a man of large and liberal studies, of elegant tastes, and disciplined mind. Many of the chief ornaments of the Library of Congress, even in its present state, were of Mr. Jefferson's gathering; and it is not too much to say that the character of the whole collection, as compared with its bulk, was never so high as when it consisted only of what came from his shelves.

Although the fire in the Library of Congress, which, on the 26th of December, 1852, consumed thirty thousand of its volumes, destroyed a part of Mr. Jefferson's books, a great number of them yet remain, and may be easily identified as his. He was accustomed to prefix with his pen the letter T to the signature J, at the bottom of the first page of the ninth sheet, in all his books; and if there was an eighteenth sheet, having T on its first page, he added J, as the initial of his family name. By these means he could have substantiated his claim to any book which should have been lost or stolen.¹

¹ In addition to the above, the Library of Congress possesses books which once belonged to Increase Mather, Peyton Randolph, George Wythe, James Otis, Gouveneur Morris, Mathew Carey, Brockholst Livingston, and John Pickering. Of eminent foreigners it can also show the names of Anse de Villoison, the Marquis Fortia, J. A. Ernesti, Samuel Parr, Richard Heber, Robert Southey, Isaac Reed, George Chalmers, Richard Ford, Sir Robert Ker Porter, William Wordsworth, Henry L. Mansel, Henry Thomas Buckle, and the emperor Maximilian. The last had bought from Señor Andrade, of Mexico, a valuable collection of books, which he thought would form a noble nucleus for a great library,

The law department of the Library of Congress, intended for the use of the Supreme Court of the United States, includes a copy of that work of Leunclavius, of which the title is, *Juris Graeco-Romani tam canonici quam civilis tomi duo*. It is in folio, and dated 1596. On each cover is gilded a coat of arms, and the letters IAC. AVGVST. THVANVS. The great historian, De Thou, was born in 1553, and died in 1617. He was forty-three years old when this book was published, and at the head of the magistracy of France, having been made *président à mortier*, two years before. The subject of this book was appropriate to his profession, and it may well have formed part of his library. Eager eyes have no doubt often searched along these margins (but in vain), for any intelligible trace of the pen that wrote the *Historia temporis sui*. There is, however, no reason to distrust the testimony of the cover. The library of De Thou, rich in manuscripts and in rare editions, was so much his pride and delight that he lavished a fortune in collecting and adorning it. He is said to have spent twenty thousand gold crowns on binding alone. He was accustomed to send paper of superior size and quality to printers whom he knew to be employed in producing books which he would wish to buy; that copies might be struck off for him corresponding with the splendor of many which he already possessed. As Leunclavius was printed at Frankfort, perhaps it was not easy for him to do so in this case; and as the subject belongs more to business than to literature, he may not have thought best to enrich its exterior. But of the general character of the collection we are assured in its catalogue, drawn up by four eminent scholars, in Latin worthy of it, and of themselves, bewailing the *fatalis rerum necessitas* which threatened its dispersion.¹ When the historian died, his eldest son was

with which he meant to adorn the capital of his new empire. But, unhappily, he neglected to pay for it; and when the bullets of Juarez ended his empire with his life, the books went to Leipsic to be sold, and some hundreds of them came back to America to help realize his project, in a republican capital.

¹ Neque tamen ostendere facile est, quanta sit jactura hujusce bibliothecae, quam dotes commendant plurimae, ingens manuscriptorum indubiae vetustatis

but ten years old. In due time that son succeeded his father in some of his offices, and in charge of the royal library of France. But he was unfortunate enough to incur the hostility of Richelieu, for not betraying the treasonable correspondence of Cinq Mars, and to die on the scaffold in 1642, at the age of only thirty-five. Yet the library remained undisturbed till, in 1680, it was sold to Cardinal Rohan. Thence it passed by inheritance, almost a hundred years later, to the prince de Soubise. That nobleman died in 1787, and the fate which was feared in 1679, overtook it in 1789. Thomas Jefferson was then in Paris, ambassador from the United States. No doubt he attended the sale, and bought our *Leunclavius*, which had passed through all the vicissitudes of its owners. The volume has not the characteristic marks which Jefferson was accustomed to affix; but its title stands in his catalogue printed in 1815.

Of like interest with the preceding, and for similar reasons, is another book of law in our collection, *Canciani's Barbarorum leges antiquae*. It consists of five volumes folio, each bearing a handsome book-plate, showing the coronet of a peer of France, surmounting a coat of arms, and having below the words "Bibliothèque de Pastoret." Claude Emmanuel Joseph Pastoret was born at Marseilles in 1756. A literary man of such talent that at the age of twenty-nine he entered the *Académie des inscriptions et de belles lettres*, he was a lawyer of such ability that he became at length chancellor of France. Favorable to the first movements of the revolution, he was chosen president of the legislative assembly. It was he who proposed converting the church of St. Genevieve into the Pantheon of France, and wrote the noble inscription across its front: "Aux grands hommes la patrie reconnaissante." But when he saw royalty about to be swept away by the

copia, curiosa editionum elegantia, in tanta auctorum sylvâ operosus selectus, ad cujus solam compactionem viginti millia scutatorum nummum et amplius consumpta sunt. . . . Quid dicam de ornatu? et quanquam sit adoranda veterum librorum rubigo, tamen illa concinnitas non omittenda, ubi omnes libri, tanquam ab artificum manu recentes et indelibati, nitorem et elegantiam præ se ferant.—Catalogus bibliothecæ thuanæ.

swelling flood of democracy, he sacrificed popular favor to veneration for the crown. When he could do no more to save France, he twice took refuge in Italy till the storm was past. A friend to the empire because it was the choice of his countrymen, he was honored and trusted by it, though known to sympathize with the exiled family. When Louis XVIII. returned, he made Pastoret a marquis, and took pleasure in devising for him the coat of arms exhibited in these volumes. In allusion to the name Pastoret, the shield presents a shepherd bearing his crook, and attended by his dog. Dogs also support it on each side. The motto is "Bonus semper et fidelis," while "France! France!" is inscribed below. The first adjective seems to allude to the public trust which Pastoret well sustained, in presiding over the beneficent institutions of France. To extreme old age he continued a high and honorable career, being tutor to the children of the deceased duke of Berri, among whom was that count de Chambord, who now calls himself Henry V. of France. Pastoret died in 1840, aged eighty-four.

The chief early production by which he distinguished himself was a paper on the influence of the Rhodian law on the marine of Greece and Rome; and the main labor of his mature life was "Histoire de la législation," reviewing the entire jurisprudence of antiquity, in eleven volumes octavo. In all he wrote he was faithful to his profession as a lawyer, and his duty as a magistrate. The volumes before us are fit auxiliaries in such work. Canciani has collected here the legislation of the Middle Ages in every part of Europe. He has assembled the laws of the Germanic tribes, at home, and after their invasions of France and Italy, England and Spain, Sicily and Greece. To these he has added the Saracen statutes made for their possessions in Europe, those of the Christian kingdom of Jerusalem, and the commercial code of Venice. These volumes therefore contain a mine of curiosities for the antiquary, as well as for the student of law. By means of them the student can trace the progressive depravation of the Latin tongue as it was used by the bar-

barians who overran the empire, and perceive the measureless degradation it reached before the revival of learning. We introduce a few sentences from this barbarian legislation, by way of illustrating the subject.

The first *titulus* in the Salic law is headed "De mannire," that is, respecting summons, or, as we say "Sub poena." It reads thus:

Si quis ad mallum [conventum] legibus dominicis manitus fuerit, et non venerit, si eum sumis [impedimentum legale] non detinuerit, solidorum quindecim culpabilis iudicetur, qui faciunt denarios sexingentos.

From the *leges Langobardicæ Lotharii*, we copy the following:

Si quispiam forte aliquem mallaverit, et ille qui mallitus fuerit dixerit eum servum esse, vel alius in ipsa altercatione veniens eum ad servitium mallaverit, volens ut inpraesentiabiliter se wadiet [in vadimonium det]. . . .

This specimen of the Lombard laws is accompanied in Canciani by a life-sized engraving of the "sacra corona ferrea" of Lombardy, nearly a thousand years old, its iron lining being made from a spike that once nailed Jesus to the cross.

Our own *Magna charta*, of the year 1215, presents an advanced specimen of the corruption of the language, in the familiar sentence which we copy thus:

Nullus liber homo capiatur, vel imprisonetur, aut dissaisiatur [be dis-seized], aut utlagetur [outlawed], aut exuletur, aut aliquo modo destruat, nec super eum ibimus, nec super eum mittemus, nisi per legale iudicium parium suorum, vel per legem terræ.

But the last specimen we shall give, from an unknown locality and antiquity, presents the final and unsurpassable corruption of the speech of Cicero. It is termed "abrenuntiatio diaboli."

Forsachistu diabolæ? Ec forsachu diabolæ. End allum diabol gelde? End ec forsacho allum diabol gelde. End allum dioboles wercum? End ec forsacho allum dioboles wercum, und wordum; ende allem them unholdum the hira genotas sint.

This, or its more refined prototype in the service-book of an earlier age, appears to be the original of that passage in the *Book of Common Prayer*, where the minister asks the

adult candidate for baptism, "Dost thou renounce the devil and all his works?"

It would be interesting to be assured that we find on these pages the hand-writing of Pastoret; and the delicate French hand which appears in a few notes, is probably his.

But the most interesting autographs known to me in Washington are found in a quarto copy of Pindar, edited by Jean Benoit, professor at Saumur, and printed there in 1620. It belongs to the Hon. Charles Sumner. The fly-leaf contains several sentences in Greek, copied in a small, neat hand, and the information that the book was bought Nov. 28, 1629. Annotations in Latin and quotations in Greek are profusely strewn along the margins, completely filling them in many places. At the end is an alphabetical index (occupying two pages, very closely written) of the authors cited by the editor, with a multitude of references to the places where they are quoted. "This book," says B. M. Pickering, of London, in a note pasted within the cover, "I bought at Messrs. Sotheby's sale, Aug. 5, 1871, for £41, my opponent being Mr. Addington, the well-known collector of autographs. Mr. Wallis, the dealer in autographs, told me after the sale that he had no doubt about the notes being Milton's writing." These annotations have been carefully compared with some known to be Milton's, found on the leaves of a copy of Lycophron, and found to be precisely similar; while the passages of Lycophron referred to are all on the very pages to which reference is made in these notes. Any one may satisfy himself that this hand-writing is Milton's by selecting letters or words therefrom, and comparing them with words or letters in the fac-similes given by Masson, or by Sotheby, in his "Rambles in the Elucidation of the Hand-writing of Milton." Milton bought this book about a month before he wrote the Christmas Hymn; but he did not begin to study it till the seventeenth of June following; he has stated as much at the end of the volume. The plague broke out at Cambridge, where he was a student, in April, 1630, and the university was dispersed by the dread of it. We do

not know where Milton spent the summer — probably at his father's house; but he records that he finished reading Pindar on the twenty-eighth of September. Mr. Masson rates very high the Latin poems of Milton, written earlier than this; but he says: "His knowledge of Greek cannot at present be so directly tested; but there is evidence of his acquaintance with Greek authors. There is, in the British Museum, a copy of Aratus which belonged to Milton." If Mr. Masson had seen this Pindar, he would have spoken in a more confident tone of Milton's Greek. In these notes, passages from Eustathius are quoted thirty-five times; Homer, sixty-three; Callimachus, twenty-seven; Moschus, nine; Tzetzes, fifteen. Of Lycophron's *Cassandra*, Lord Macaulay says, that it is "the most obscure work in the whole range of ancient literature"; yet Milton had read it, and made notes on it; and he cited from it eighteen passages, while he was reading this Pindar, at the age of twenty-one. What a recreation for summer! and what a commentary on his own resolution,

"To scorn delights, and live laborious days."

We have before us a Latin manuscript, bound as an octavo volume, written on three hundred and seventeen leaves of paper. A title prefixed describes it as a commentary on the four evangelists, by Thomas de Vio, cardinal Cajetan. De Vio was born in 1470, was general of the Dominican order, and legate of Pope Leo X. D'Aubigné's *History of the Reformation* has made us all acquainted with him, as the temperate and politic papal judge before whom Luther appeared in 1518. He lived till 1534; and as our manuscript professes to have been finished at Gaeta, De Vio's birth-place, in 1528, it may possibly have passed under the eye of the author. It is interesting to remember that the sack of Rome, by the constable Bourbon, took place in May 1527; so that while this very ink was moist, the astounding and heart-rending news of sacrilege and bloodshed, was daily arriving from the holy and eternal city.

The words of scripture commented on from line to line,
VOL. XXXI. No. 121.

are rubricated in our manuscript. The comment is ample, yet sober and dignified. The hand-writing is small, handsome, and so uniform, that exactly forty-two lines stand on every page. About fifteen words make up a line; but this is accomplished by a profuse employment of contractions. The difficulty of reading the manuscript is immensely increased by this circumstance. We can give no idea of it, but by copying a passage, not of the most difficult sort.

Scrīpsit āt ē titulū pilatū: e posu' sr crucē. Hic appet q' nō ī pāte crucis s; sr crucē sustitabat' titulus; ac p h' crux t'mnabat' ī srīori pāte lig' trās'uso e q'd extēse erāt manū. Dina puidēt' dispo^m ē ut eā creifixio publice sr crucē a pside ponētur.

Scrīpsit autem et Pilatus titulum: et posuit super crucem. Hinc apparet quod non in parte crucis, sed super crucem sustentabatur titulus: ac propter hoc, crux terminabatur in superiori parti ligno transverso, et quod extensae erant manus. Divina providentia dispositus est ut causae crucifixionis publicae super crucem a praeside ponentur.

If this should seem easy reading to any of our friends, we offer them another specimen.

Ex Egypto vocavi filiū meū. Ubi adūte q' ad Iraz loq't' d. pp Jarl' quē de' appellat filiū suū n solū ibi s; Exo iij fili' pgēt' Isrl'. Matha' āt evng'. ī mystico sēsu dix impleri hāc scripturā d x'.

Ubi adverte quod ad literam loquitur de populo Israelae: quem Deus appellat filium suum, non solum ibi sed Exodo iv. filius meus primogenitus Israel Matthaeus autem evangelista, in mystico sensu dixit impleri hanc scripturam de Christo.

By this condensed mode of writing, the capacity of each page was virtually enlarged, and, at the same time, the labor of the copyist was abridged. The need of this is apparent in view of the heavy task involved in copying such a work as that before us. On these three hundred and seventeen leaves, each having forty-two lines, are no less than twenty-six thousand six hundred and twenty-eight lines; and if fifteen be taken as the average of words in a line, we have a trifle less than four hundred thousand words. Now the hand-writing is not cursive, but resembles what is produced by printing type, which, of course, is an imitation of it. Supposing the scribe produced two pages, or one thousand three hundred and sixty words in a day; this manuscript will then represent the

labor of a year. It is an extraordinary proof of the tenacity with which old usages resist recent improvements, that the tedious and painful process of transcription maintained itself so long against the admirable art of printing. When our manuscript was produced, printing was good part of a century old. Presses had been established throughout Europe, and hundreds of thousands of volumes had proceeded from them. The books described by Panzer, and Maittaire, and Haym and Audiffredi had all been printed and diffused by sale. But it is an affecting demonstration of the cost of books in the age of the Reformation, or it may be rather, of the abundance and cheapness of monkish labor, that human hands were still employed in the weary work of copying books at the rate of two pages a day.

The library of the munificent Henry Probasco, of Cincinnati, contains many Latin manuscripts much more curious than this; and, indeed, this would hardly have been worthy of notice among collectors. But it serves our purpose as illustrating manuscript usages, and it well exemplifies a truth set forth by Louis Curmer, in the introduction to his exquisite edition of *L'Imitation de Jésus Christ*. "Depuis le 8^e siècle jusqu'au 17^e, c'est à dire long temps après la découverte de l'imprimerie, que sembloit devoir rendre inutile l'emploi de la calligraphie, on voit se dérouler un immense cortège de livres précieux, exécuté dans les monastères par le pieux recueillement et l'infatigable patience des religieux, cachant dans l'obscurité des cloîtres un génie consacré tout entier à la gloire de religion." How rich and varied, how tasteful and elegant, are the decorations by which these manuscripts are accompanied, Curmer has demonstrated in the edition referred to, with a profusion which strikes every reader with astonishment and delight.

At the sale of the remarkable collection of books which had belonged to Mr. Henry Perkins, the brewer, of London, the Library of Congress lately became possessed of a Latin manuscript of the Bible, written on vellum, and referred to the thirteenth century. It consists of two volumes, each meas-

uring seventeen and a half inches, by twelve and a half. The number of leaves in the first volume is three hundred and fifty two, and in the second, three hundred and ninety-four. The lines in each column are thirty-three. The writing is in a large, firm, handsome hand, and with ink usually black and glossy. Its uniformity is so great, that one hand appears to have written the whole, and that it closely resembles the impression of type.

The text is accompanied by one hundred and forty-six miniature paintings (not mere capitals, but representations connected with the text), usually marking the commencement of a new subject; but especially adorning the beginning of each testament, or rather the prologues of St. Jerome, so constantly prefixed. These are executed, not indeed, in the highest style of art, but yet with much neatness and elegance, and colored with modesty and in a subdued tone. The colors and the gilding are wonderfully fresh. Much may be learned from these delineations respecting the arts, the costumes and the manners of Italy (?) in the age of Dante. Though these "illuminations" are very inferior to those in the famous "Heures d'Anne de Bretagne," preserved in the national library in Paris, yet the writing is far superior.

The attractions of this noble manuscript are such that it brought two hundred and thirty pounds at the late sale; and yet it is not perfect. One leaf is wanting between Judges and Ruth, including part of both; and five leaves between Daniel and Hosea, containing the end of Bel and the Dragon, and nearly nine chapters of Hosea. It was evidently not prepared expressly for any royal or opulent personage; for the skins were cut in many places, and even deformed by holes, so that the copyist stopped short at one edge of the chasm, and resumed his writing beyond the other. At some point of its history the manuscript has been exposed to damp, and probably to mice. The lower margins in volume first have been ravaged to such a grievous extent, that among its three hundred and fifty-two leaves only five have

not needed to be pieced with parchment of a slightly different shade. The copyist was not careful in the earlier part of his work, omitting letters, words, and sometimes whole clauses and lines.

The division of chapters usually agrees with what is now common; but it is well known that verses were not introduced till about 1550. No doubt something may be learned from this manuscript as to the condition of the Vulgate text of its day. Mr. Perkins bought it in a velvet dress, probably faded and worn; and caused it to be strongly bound in purple morocco; but it is doubtful if either he or the maker of the Catalogue discovered the imperfections we have described.

Of all the treasures in the Library of Congress none is more noble or venerable than the *editio princeps* of Aristotle. What the Bible is to the heart of man, the works of Aristotle were to the mind of mediaeval Europe. "They were considered an authority without appeal, and only second to that of Scripture. In a part of Germany his ethics were read in the churches on Sunday in the place of the Gospel." And yet it was not Aristotle himself that they doated on; for Aristotle himself they had never seen. His writings had come down to them in paraphrase at best, and more commonly in the diluted state of commentary. They read his works in a Latin translation from "Arabian interpreters who did not understand him, and Arabian philosophers who perverted him." The Arabic translations themselves were not made from the Greek, but from the Syriac. In the libraries of Paris, of Madrid, and of Rome, commentaries on Aristotle may still be seen in Arabic, in Syriac, in Hebrew, and even in Armenian. Latin versions of these discolored media obscured the light which was meant to illumine Europe. These versions began to be printed twenty years before the Greek originals. In Buhle's introduction to his edition of Aristotle, we are informed that, in the year 1474, "*libri metaphysicorum Aristotelis fuere primi, qui ex Arabica versione Averrhois in Latinum sermonem ab homine utriusque linguæ imperito translati, typis exscriberenter.*" The first

edition of the collected works of the philosopher in Latin, "cum commentariis Averrois," was put to press in Venice, in 1489.

It was to liberate Aristotle from the chains in which his oriental commentators and their Latin interpreters had bound him (rather, we may say from the brutish disguise which their incantations had put upon him), and enable the world to look "with open face" upon the countenance of the great master, that Aldo Manuzio, of Venice, resolved upon an edition of Aristotle in Greek. Manuscripts of some of the treatises were easily procured. A single copy only could be found of some; fragments only of others, and of still others, nothing at all could at first be recovered. In relation to some, Aldus declares; "Quod ut haberemus, Romam, Florentiam, Mediolanum, in Graeciam, ad ipsos quoque divisos toto orbe Britannos, et quo non? misimus, nec nisi, quod etiam Venetiis habebatur, accepimus." In view of these facts Adolph Stahr declares that this Aristotle has itself the value of a manuscript. The first volume left the press in 1495, the second, third, and fourth in 1497, the fifth in 1498; the whole edition, in preparation and execution, being thus contemporaneous with the progressive discovery of America. This is the Aristotle which is now before me.

On opening it, the first volume is seen to have no title-page. Instead of it are three fragments of Greek verse, written by Manuzio and his friends, in praise of the works of Aristotle. Then follows a Latin preface by Manuzio, and Greek ones by Alexandros Agathemerus and Skipion Cartromachos, the classic masquerade of Alissandro Bondini and Scipione Fortiguerra, the editors Aldus Manutius employs. Then comes, as in all the old editions of Aristotle, the introductory tract by Porphyry; subjoined to which, strangely enough, is a doxology to Jesus Christ. The last page of the volume is occupied with a brief enumeration of its contents, being the logical treatises. Not to follow the distribution of the works of Aristotle through the volumes, it is enough to say that the arrangement is a judicious model for subsequent

editors ; and, what may surprise one, is that scarcely anything is included as Aristotle's, which is not his. Other works, indeed, of Theophrastus, Alexander Aphrodisiensis, and even of Philo Judeus are intercalated, because they are of similar subject. But what is strange indeed, two of the most attractive of all Aristotle's compositions, those on rhetoric and on poetry, are not included in this edition. Of Bondini, the principal editor, we know nothing more than his collaboration in this noble work ; but of Fortiguerra, professor of Greek at Venice, and a protégé of Leo X. before he was pope, we learn that he was admired by Erasmus, who applauds at once his learning and his modesty. In addition to these, Manuzio enumerates five friends, two of whom are Greeks and two Italians, as having been of singular service to him in preparing for his work ; but at the head he places a certain Thomas Anglicus, resident at Venice, " homo et graece et latine peritissimus, praecellensque in doctrinarum omnium disciplinis." Was this learned Englishman Thomas Livacer, afterwards professor of Greek at Oxford ?

The first volume, though better printed than the rest, has neither pagination nor catchwords. In the other volumes, the leaves are numbered and catchwords subjoined. None of the volumes has any proper title-page ; but instead, either in Greek or Latin, or in both, an enumeration of the treatises included. Several Greek lives of Aristotle are prefixed to volume second, but paged separately from the treatises which follow.

That which surprises the reader most is the extreme rudeness of the Greek type, contrasting strangely with the general neatness of the Roman character in which the Latin prefaces are printed, as well as of other Latin books printed in those same years and in the same office. As our common type is but a copy of the manuscript writing which then prevailed, so the first Greek type was an imitation of the cursive Greek manuscripts, sent to the printers as "copy." And as ligatures abounded in them, so do they in our Aristotle. The multitude of expedients by which the scribes of that age contrived

to mar and complicate their work, without saving either space or time, but only deforming the page, and vexing the soul of the reader, is reproduced in these volumes. Letters are inverted, are magnified, are belittled. Uncial forms are mixed with cursive; several shapes of the same letter are used in the same line; iota in datives is sometimes subscribed and sometimes written in the line; hyphens are used or not used as by accident; spaces are introduced in the middle of a word, and again several words follow without perceptible divisions. Beauty is not even aimed at; but all parts of a letter are made of equal thickness, and that so gross and blurred as to be absolutely slovenly. The type corresponds well to Dibdin's account of the *Batrachomyomachy* of 1486: "very barbarous, blurred, and battered." Only thirty lines of Greek are given on a page, which in these same volumes holds thirty-nine of Latin. In Giustiniani's *Psalter*, printed 1516, ligatures are almost wholly discarded in printing Greek, and great regularity is maintained. Even in the Greek *Psalter* of 1486, by greater regularity of appearance, a more agreeable result is attained. In the *Complutensian Polyglott*, printed almost at the same time with Giustiniani, a Greek type is used, remarkably round and plain. The fact appears to be, that instead of causing new type to be cut, Aldus employed what had already been used in other books.¹ Elaborate and tasteful initials however, begin many of the treatises, making more ugly the coarseness and negligence around. At the same time, a cheap parade of learning is made in trifles, betraying shallowness among the most advanced. Though the common breathings are employed on ordinary occasions, vowels standing at the beginning of volumes or of topics, are distinguished by the halves of a capital H, which theory represents as the original of these signs. The dates given in the colophon are expressed by the cumbrous Greek notation, repeating the initial letter of any denom-

¹ He describes the book as produced, *καττιτερινη χειρι Αλδου Μανουτιου*, manu stamnea Aldi manutii, showing that tin was employed, in whole or in part, in the early type metal.

ination (as hundreds) as many times as there are units of that denomination required. Greek names of months, instead of Roman, are also employed in dates.

These volumes have respectively 227, 298, 457, 317, and 292 leaves; and as they contain all that any collation ascribes to this edition, we may regard the copy as exceptionally perfect. It is full bound in Russia, handsomely tooled, and adorned with gold edges.

Who, now, were the scholars that were waiting for this edition; and whose use of it, individually, was in the minds of Aldus and his collaborators as they proceeded? Five eminent Greek scholars were alive when it was projected, four of whom unhappily died before the first volume appeared. Angelo Poliziano, Paolo Barbo da Soncino, and Giovanni Pico della Mirandola left the world in 1494; Ermolao Barbaro died in 1493; but Marsiglio Ficino lived till 1499. Giovanni de' Medici, afterwards Pope Leo X. had learned Greek from Demetrius Chalcondylas and Angelo Poliziano, and was assuredly thought of as a purchaser and patron of this book. Cardinal Bembo was twenty-five years old when the first volume of Aristotle was printed, and so was Bernardo Dovizi da Bibbiena. Of three commentators upon Aristotle, now to be named, Valeriano Bolzani was fifty-five, and he over-lived its publication far into the next century; Pietro Pomponazzo was more than thirty, and Jacopo Sadoletto over twenty-five. Francesco Guicciardini, and Giulio Giusto Scaliger, were only boys, yet perhaps had learned from their elders how important to their future progress was the auspicious publication now taking place.

In foreign countries, too, were many eyes directed toward the presses of Venice, from which were promised them, in this preface, boundless satisfaction in a long succession of Greek authors. Guillaume Budé was thirty-two years old in 1495, Johann Reuchlin was forty. So was Lefèvre d'Étapes, who had already written an introduction to Aristotle's physical works. Cardinal Ximenes, alive to every interest of learning, was nearly sixty; Erasmus was less than thirty.

Three Englishmen, at least, were eager for its appearance: Thomas Linacer, John Colet, and William Grocyn. All these were stars of the first magnitude, whose light has come down to us. Hundreds of lesser luminaries, now lost or neglected, participated in their interest, or were ready to buy the book as soon as it was obtainable. This is no mere conjecture; for Fabricius asserts, "Haec quidem editio aldina jam Erasmi aetate perrara fuit." Clément, in his *Bibliothèque curieuse*, tells us that it is extremely difficult to bring together all the parts of this Aristotle; and that the royal library of Dresden possessed but two volumes and part of another. Renouard, in our day, informs us that complete copies of this edition, in good condition, are extremely rare; and narrates with much satisfaction, the singular and happy accident by which he himself was enabled to complete one which he had gladly purchased in a mutilated state.

To what rare good fortune, then, is it to be ascribed that the Library of Congress, collected in the present century, possesses a perfect copy, in unexceptionable condition? Both within and without the cover, every volume of our copy bears the name and the arms of Thomas Grenville, the accomplished and fortunate Englishman, who purchased a princely collection of books, with the salary afforded by a sinecure office. Dying in 1844, he left his library to the British Museum, which already had a copy of this edition, derived from the collection of King George III. Being sold as a duplicate, it was happily purchased for us, probably by the intervention of Henry Stevens, and we may conjecture, at the impulse of Edward Everett, just then appointed our minister at the Court of London. Such a scholar as Mr. Everett would surely feel a high satisfaction in securing for his country such a treasure of bibliography and of the noblest learning.