A

DISCOURSE

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DISCOURSE.

The capacity of acquiring science, and, by scientific training, the formation qualifying him for the high ends of his being, is among the chief distinctions of man's rational nature. Science and education, then, in their comprehensive and true sense, are the two most important and interesting subjects which can engage the attention of mankind. Both these, nevertheless, from the various causes which have impeded the progress of human improvement, now, after the lapse of nearly six thousand years of the history of man, are found in a state of mere incipiency. They are subjects of which we have reached only the rudiments, and these mixed with manifold errors and mistakes; but subjects which, purified, reformed, enlarged, are to be carried forward in a course of advancement, from measure to measure, and from glory to glory, interminable in their progression, as is man's own immortal existence.

The mariner, observing the heavens which direct his way on the trackless ocean, frequently turns backward his eye, to ascertain the progress which he has made; marks the deviations from the true course of his voyage, which have arisen either from his own mistakes, or from those adverse currents and winds, which he has not been able successfully to oppose; and considers what corrections of his calculations, and what alterations in his sailing are required, that he may make his desired haven. To us, in like manner, as the conductors and friends of an institution, whose design is to promote science and to furnish the means of liberal education, assembled on an occasion such as the present, it would be interesting and instructive, to take a retrospect of the history of science and education in the ages gone by; to ascertain the progress which has been made in them; to note the defects, the errors, the various evils, which, in past or present times, have hindered their advancement; to contemplate their present state and prospects; and to consider what corrections are to be made,

and what means employed, that they may go forward to the achievement of the high end to which God has appointed them—the progressive improvement and perfection of man, and thereby his transformation into the image of the Omniscient and Holy Intelligence, the Father of lights.

Far be it from me, however, to propose to myself the execution, at this time, of such a task. Were I ~~really~~ more competent than I am to such an undertaking, the limits prescribed to the present opportunity forbid the accomplishment of what could in any adequate manner satisfy an inquiry, so extensive, so various, so difficult, so important, in its demands so large. I propose only some very general and slight remarks on the subject.

The fragmentary nature of the remains of the ancient learning, and the imperfect character of the testimony concerning it, which have come down to us, make it difficult to ascertain with precision or certainty, what was the extent of science in the earlier ages of the world. And this obscurity is the greater, the more remote the antiquity to which we go back.

For the rise and first advances of science, after the deluge which destroyed the old world, we are unquestionably to look to the plains of Shina. With claims to an antiquity nearly as high, India, China, Egypt, respectively contend with the empire of Nimrod, for the palm of honor in the promotion of learning. But from all the lights which we have on the subject, it appears pretty evident, that the scientific knowledge of these ancient nations was exceedingly inconsiderable. High attainments have indeed been claimed for them in astronomy; but upon evidence, to say the least, so dubious and contradictory, that upon it little reliance can be placed. The truth seems to be, that men were impelled, in those early times, by the necessities of agriculture and the other interests of life, to observe the motions of the heavenly bodies, which the Creator had ordained to "be for signs, and for seasons, and for days and years." In the early ages, before any calendar was fixed, they had no means of ascertaining the proper times for the different operations of husbandry, but by noticing the changes of particular celestial bodies, which by expe-

rience they found to be the indices to the appropriate seasons. Thus the Greek poet Hesiod, long after the time of the ancient Asiatic and Egyptian astronomy, instructs his countrymen, to plough by the setting and to reap by the rising of the Pleiades, to prune their vines by the rising of Arcturus, to gather their vintage under Orion and Sirius, and to cut wood by the Dog-Star.* And Virgil, a thousand years after him, among the Romans, teaches that an observation of the stars was not less necessary to the husbandman than to the navigator:

> ———Tam sunt Arcturi sidera nobis,
> Hædorumque dies servandi, et lucidus Anguis;
> Quam quibus in patriam ventosa per æquora vectis
> Pontus et ostriferi fauces tentantur Abydi.†

He proceeds, accordingly, to give particular directions, by which the husbandman should govern himself in the various branches of husbandry, according to the sideral indications. Hence the ancient astronomers noticed, as they were able, the heavenly bodies, and compiled registers of their motions and changes, and of the influence of these on the seasons and the weather.

> Atque hæc, ut possimus discere signis,
> Æstusque, pluviasque, et agentes frigora ventos,
> Ipse Pater statuit, quid menstrua Luna moneret,
> Quo signo caderent Austri.‡

But it is pretty manifest, that the astronomy of those early times was little more than an observation of the periods of the rising and setting of some particular stars, and some theoretical conjectures, while hardly any progress was made toward the production of a sound philosophical theory of the heavens. If such was the knowledge of those ancient nations in astronomy, which was the glory and boast of their learning, we may hence judge what were their attainments in the other branches of natural science. In no one of these does it appear, that they possessed any knowledge, which could lay the slightest claim to the name of science.

* Works and Days—Book I. † Georgica, Lib. I ‡ Ibid

The Persians and Phœnicians derived from Chaldea and Egypt the knowledge which these possessed; and the attainments of these later nations appear to have been nearly identical with those of the countries from which their learning was borrowed.

From Egypt and Phœnicia science passed under the dominion of Greece—unquestionably, of all the ancients the peerless mistress in genius and learning. From the earliest times through the whole course of its history, poetry, music, and the arts of design were cultivated, amid the picturesque scenery and beneath the lustrous and resplendent skies of that romantic country. In poetry, we have only to mention Homer, and Hesiod, Sophocles, Euripides, and Aristophanes, to suggest the names of those who, in their several kinds of composition, have been in the most enlightened and cultivated nations, since the time they wrote, the sources at which the whole *gens vatum* have sought to catch the inspiration of song, and the objects of admiration to all who have made the monuments of poetic genius and taste the subject of their studies. In the fine arts of painting, sculpture, and architecture, the perfection to which the Greek masters carried their works, has left to their successors only the office of copying the exquisite models which they have given. In the severer and more substantial departments of knowledge, too, the Greeks displayed their versatile genius and power. Lycurgus and Solon gave laws. Lysias, and Isocrates, Æchines and Demosthenes, with a host of others, by the force of the most powerful eloquence, in the senate and the popular assemblies, excited the passions and wielded the spirits of that curious and ingenious, enterprizing and enthusiastic people. And Herodotus, called, not with historical accuracy, "the father of history," and after him Thucydides and Xenophon, wrote annals of their own and of other countries. About six hundred years before the Christian era, the Greeks began to turn their attention to the cultivation of geometry and astronomy. For this purpose they travelled into Egypt, Phœnicia, Persia, Chaldea, and India, and probably collected whatever knowledge on these subjects those earlier nations possessed. But the knowledge which those eastern nations had to communi-

cate, was exceedingly meagre and imperfect. Philosophy was not the result of investigation and reasoning till it came into Greece: and it is undoubtedly to the Greeks, that it owes whatever of proficiency it attained among the ancients. Among the cultivators of the mathematics and natural philosophy, till the time of Aristotle, Thales, Pythagoras and Plato, are reckoned as the masters, under whom all the other philosophers, distinguished by different degrees of eminence, are to be ranked. Aristotle, with that universality of genius which appears to have belonged to him, directed his attention to natural science. He appears to have had a clearer conception than most of the ancients, of the necessity of deriving the principles of science from an observation of nature; and in some departments of natural history, especially in zoology, he had collected and recorded a large body of facts and observations, and seems to have attained a far more comprehensive view of animated nature than any of ancient times. The clearness of his view on this subject, it has been remarked, "contrasts strikingly with the confusion, vagueness, and assumption of his physical opinions and dogmas. In these it is easy to recognize a mind not at home, and an impression of the necessity of saying something learned, without knowing what to say." * But it was upon metaphysics and logic, that that distinguished man chiefly expended the force of his great genius; and it is evident that he contributed little toward a comprehensive and true system of natural philosophy. Mathematical and natural science passed from the hands of Plato and his followers, to the school of Alexandria, established about three hundred years before Christ, and whose chief seat was that city, founded by the Macedonian conqueror, and on which he imposed his name. In this celebrated school, mathematical knowledge was greatly advanced beyond the preceding attainments, and it was here that astronomy, which hitherto had consisted only in unconnected observations of a few facts, and theoretical conjectures more or less sagacious, mixed with traditions received down from the origin of things, was greatly enlarged, by a long series of better observations, and began to assume the form and to rise into the dignity of a

* Herschel.

science. Among those who flourished in this school, or were cotemporary with it, the most eminent names are, in geometry and mechanics, Euclid, the author of the well known "Elements," Archimedes of Syracuse, and Apollonius of Perga; and in astronomy, Aristarchus of Samos, and Hipparchus of Nice. By the zealous labors of the Alexandrian school, encouraged by the munificent and princely patronage of the Ptolemies, a powerful impulse was given to philosophical inquiry, and in astronomy especially, the observations and facts, which till this time had lain scattered,—mere *disjecta membra*, without symmetry, or connexion,—began to come limb to limb, and part to part, and to grow into form and system. Claudius Ptolemy, who flourished about the middle of the second century of the Christian era, beside some less considerable discoveries of his own, with great learning and industry collected and digested whatever knowledge of astronomy was possessed by his own or preceding times, in a work which he denominated *The Almagest*, and which till modern times continued to be the text-book of the science in Europe. From the time of Ptolemy few additions were made to the knowledge possessed on the subject; the splendor of the Alexandrian school gradually faded away; and the spirit of philosophical inquiry was obscured in the night of "the dark ages."

In metaphysics and dialectics, Plato and Aristotle are the chief among the Greeks. The philosophy of Plato seems to have consisted in a sort of transcendental mysticism, which, removing the field of knowledge beyond the sphere of human investigation, involved the subjects of metaphysical inquiry in the mazes of an impenetrable obscurity. And the opinion, so often reiterated, of "the sublime wisdom of Plato," "the divine philosophy of Plato"—*et id omne genus verborum*—appears for the most part to have arisen from that open-mouthed, and admiring faith, whose ruling maxim is—*omne ignotum pro magnifico*. According to the philosopher of Ægina, the proper object of science is, not those forms of matter, nor those entities of mind, which we encounter in our terrene tabernacling, but certain higher and imperceptible archetypes—the perfect patterns of created things, and

which he represents as the idea of the original Intelligence. But, as these archetypes or patterns of things, are not subjected to human scrutiny, and there exists no medium by which they can be investigated — as neither crucible nor alembic, predicate nor syllogism can be applied to them — this notion of the object of philosophical inquiry led to that universal skepticism, which was the distinguishing characteristic of the Platonic school, under the modified denominations of the Old Academy, the Middle Academy, and the New Academy. The metaphysics of Aristotle, notwithstanding the complaints of its incomprehensibility, certainly seem to be much more intelligible. He speaks of the essence of matter, which he denominates "primary matter," as distinct from the particular forms and modifications under which it appears. This he represents to be the universal element of material things; but maintains, that this can never be the object of sense, but only those properties which belong to it in the different modifications under which it is found. What, on this point, has philosophy, after more than two thousand years, added to this clear and simple statement? The immaterial part of man, he represents as the principle of action, possessed of three faculties — the *nutritive*, by which life is produced and preserved — the *sensitive*, by which we perceive and feel — and the *rational*, by which the various operations of the mind on the objects of its knowledge are performed. This representation is clear and intelligible; and, without endorsing for the unexceptionableness of the analysis, or for his views when he proceeds to further details, we may remark, that, so far as it goes, it perhaps does not appear, what improvement upon it has been made by modern metaphysicians. The logic of Aristotle is an attempt to analyze the process of general reasoning, in which, whatever judgment may be formed of its success, I think that whoever reads the account of it given by Dr. Reid, while he may find much that is useless, and perhaps more that is incomprehensible, will find another reason than the one assigned by that learned man, for respecting the power of the Greek philosopher; — namely, that, "As to his genius, it would be disrespectful to mankind, not to allow an uncommon share to a man who governed the opinions of the

most enlightened part of the species near two thousand years." With Aristotle the progress of metaphysical and dialectical science ended, as with him it may be considered as having begun. From his time till the downfall of the Greek learning, and after this till the revival of letters in the sixteenth century, this great man was, at least with at times some competing claims, regarded as the master in philosophy.

The science and literature of the Romans can hardly be considered as distinct from those of the Greeks. At most they were only modifications of these. Rome presented the singular phenomenon of a great people, through a period of nearly seven centuries, wholly engrossed in the conduct of war and public affairs, extending their empire till at length it included the known world, and rising in power and political grandeur, and yet destitute of a literature or science. For it was not until the conquest of Greece by the arms of the Romans, that they began to cultivate learning: and it is allowed that the whole glory of the Roman literature was confined within the narrow limits of the Augustan age; or, more accurately, the period from the dictatorship of Sylla to the end of the reign of Augustus. If we consider that within this period are found the names of Julius Cæsar, Cicero, Sallust, Livy, Lucretius, Virgil, Horace, and Ovid, it will be evident that to it belong the chiefs of the Roman literature. The satires of Juvenal and the history of Tacitus are perhaps the only works, after the Augustan age, which are regarded as possessing very high literary merit. From the time of Augustus, learning among the Romans rapidly declined.

Instruction among the Egyptians and the Asiatic nations, in such learning as they posessed, was obtained under their *magi*, or learned men. Among the Greeks and Romans it was acquired, sometimes by private tuition, but more commonly in their public schools, or *gymnasia*. After instruction in the rudiments of their own tongue, to which among the Romans was added a knowledge of the Greek language; grammar, rhetoric, logic, arithmetic, music, geometry and astronomy constituted the course of a liberal education. Having completed the ordinary course of the gymnasia, those who proposed to devote themselves to the further pursuit of

learning, found the means of pursuing their studies under private masters, or in the various schools of the different philosophers.

From the decline of the Greek and Roman learning, for ten centuries the history of science and education, or rather of darkness and ignorance, is one in the extreme painful and afflictive. The oppression of the Roman government, and the evils of the times growing out of that oppression, in the last ages of the empire; the desolating wars in which, either as aggressors or aggressed on, all Europe was involved during the whole period of the middle ages; the disorders of the Feudal system, which arose upon the ruins of the Roman empire; and that system of corruption, which grew up in the church, and combining superstition with spiritual despotism, aided in crushing and destroying whatever was enlightened or good, exerted a disastrous influence on learning. The very reason and heart of the human race seemed ready to become extinct. Satan, (it appeared almost without restraint,) ruled the world; and in great wrath did the prince of evil exercise his dominion. The sun and the stars were obscured; far and wide the thick shades of a night wherein was no vision, rested upon the earth; and "a horror of great darkness" fell upon mankind. In that dark and dreadful night, the genius of human nature, grieved and stupified by the calamities which overwhelmed the race, sat down humbled in the dust, and with disshevelled hair and down-cast countenance, waited in mute astonishment, to see what greater evils it was possible for the powers of darkness to inflict on men.

Few words will suffice to tell the sad tale of the ruin of science. From the beginning of the third to the end of the tenth century, learning in Europe constantly declined, and about the latter period reached its greatest obscuration. During these "dark ages," even the voice of poetry, which is of all learning that which seems most capable of existing in the least advanced condition of society, and which has been found to flourish in a state little removed from barbarism, ceased to be heard. Of history there was none better than the ridiculous and lying legends of the lives and exploits of pretended saints; in which one knows not whether more to

execrate the combined imbecility and knavery of the authors, or to pity the shameful ignorance and weakness of the admiring readers. Mathematical and natural science was abandoned. In the decline of learning in the second and third centuries, a new species of Platonism rose into vogue, and in the fourth and fifth became the dominant philosophy, and was blended, very naturally, with the theological fancies of the ancient Mystics, and connected with the pernicious belief and practices of demonology and magic. When in the sixth century Aristotle again assumed the ascendant, it was only his logic that engaged attention. Nor was it *Aristotle* that was studied, but wretched and barbarous translations, or more frequently the miserable disquisitions of yet more miserable commentators on him: and the logic of those ages became a quibbling and contemptible dialectic, studied only for the aid which its votaries hoped to derive from it in the ill-managed religious controversies of the times. The mass of society was sunk in the grossest ignorance, and generally even those occupying its highest places were wholly without education. Persons of the highest rank could neither read nor write. Charters are extant, given in this period, in which kings and nobles affix *signum crucis manu* propria, pro ignoratione *literarum.* Many of the clergy, the order with which almost exclusively any knowledge of letters remained, could not compose the sermons, nor even read the breviaries, which their office required them to administer; and high ecclesiastical dignitaries were unable to subscribe the canons of the councils in which they sat.*

During these ages, indeed, schools were maintained in the cathedral and parochial churches, and in the monasteries, for the instruction and training of candidates for the clerical office, in such learning as existed. There were, too, in all this period, a few individuals who felt the necessity of learning, and made efforts for its promotion. Two powerful sovereigns, in the ninth century,—Charlemagne in France, and Alfred in England,—with the wisdom and genius of truly great princes, sought to establish their empires upon the noble foundations of knowledge and education in their subjects;

* Robertson's Charles V.

and these two princes established in this century the beginnings of two of the most celebrated universities of Europe;—Charlemagne that of Paris, and Alfred that of Oxford. Science, too, during this period in which Europe generally was overwelmed in barbarism, was to some extent cultivated in Ireland. Alcuin, an Irish monk, was the preceptor of Charlemagne at the court of France. Two others, Albinus and Johannes Scotus, became professors—the first in the University of Paris, the second in that of Oxford. Nearly three centuries before the foundation of these famous universities, *Colum*, of the royal blood of Ireland, having previously visited Greece, Italy, and France, founded, about the year 571, on the wave-beaten shores of *Icolmkill*, the institution of that name, called a monastery, but in reality both a college and a cathedral church, and taught science and preached the way of salvation to the Hebrides. Indeed, the historians of the time state that the schools of Ireland were resorted to by great numbers of students from abroad, and that that country appears to have been to Europe at this period, what Athens and Rome were to other parts of the world in times of old. One of the most striking proofs, however, of the existence in this period of some individuals who rose above the general wreck of knowledge and learning, is the fact that it was toward its close, in the tenth century, that the famous controversy originated concerning the character and use of abstract terms, and the nature of general reasoning, which, by the two sects of the Nominalists and the Realists has been carried on with so much zeal to the present day. But that passion for mere verbal subtleties and quibbling, which was the almost universal characteristic of the logical and theological controversies of the ages in question, mark both the learning and the mind of that period as belonging to the very lowest grade. The enlightened efforts of the few individuals who sought something better, were overborne by the evils of the times. They were but the breaking of the clouds for a little, in a starless night, only to close in again in a deeper and darker obscuration.

It was in the eleventh century that the first rays of light began to fret the horizon, giving promise of the coming day,

and which shone forth in the following centuries. I cannot wait to state in detail the various causes which contributed, at this time, to the revival of letters, nor to rehearse the steps of its progress. In that dreary and dismal period, which we have been contemplating, the schools established for the training of the clergy, especially the monasteries, perpetuated such remains of education as existed, and preserved, rather in the works of the ancients than in the learning of their own times, the seeds of science to a more auspicious season. These, carried abroad and scattered, sprang up in this and the following centuries, in different parts of Europe. The Saracens, too, after their conquest of Europe, turned their attention to the science of the nations which they had subdued, translated the principal Greek philosophers into the Arabic tongue, directed by these, applied themselves with zeal to the study of geometry, astronomy, and dialectics, to which they added algebra and alchemy, and founded in Asia, and in Spain, which had fallen under their dominion, schools for the cultivation of these sciences. Upon the first revival of a taste for learning in the West, these schools of the Arabians, especially those in Spain, were frequented by those who sought instruction in the knowledge which they cultivated; and, by a very singular revolution, Europe learned back again from their Saracen conquerors, the sciences which these, more than two centuries before, had derived from them. From the eleventh to the sixteenth century learning and education in Europe were in a course of progressive improvement. Public schools, or colleges, were every where established in the principal cities, and resorted to by great numbers of students. In the twelth century the sciences underwent a great enlargement and a new division. The discovery of the Pandect of Justinian introduced the study of the Roman civil law; to which was soon after added that of the Canon or Ecclesiastical law. Medicine began to be more zealously cultivated. Theology was included in the number of the sciences. The ancient seven liberal arts of the Greeks — grammar, rhetoric, and logic, arithmetic, music, geometry, and astronomy — which, under the names of the *Trivium* and the *Quadrivium*, had hitherto constituted the course of a

liberal education, but the first three of which only were generally taught—were reduced under the one title of Philosophy. Philosophy, Theology, Jurisprudence, and Medicine became the four heads under which the sciences were arranged: the professors of these several branches of learning were divided into four correspondent classes, denoiminated in subsequent times the *faculties;* and the seminaries of learning in this and the next age gradually assumed the character of *universities*, in which the whole circle of the sciences was taught. In the fifteenth century learning was greatly promoted by the fostering and munificent patronage of several Italian princes, among whom the celebrated family of the Medici made themselves most illustrious. The dispersion of the Greek monks and learned men, on the downfall of Constantinople contributed to the same end. The invention of paper in the fourteenth, and of printing in the fifteenth century, removed one of the greatest obstacles to the progress of learning, and furnished the means of its universal diffusion. Elegant editions of the principal Greek and Latin authors, illustrated by commentaries, were published; classical learning revived, and was carried to great perfection; oriental literature was studied with zeal and success; mathematical and astronomical knowledge was again cultivated and greatly advanced; Copernicus announced to the world the true theory of the solar system; the sciences generally were in some degree purified and improved; more competent professors were engaged in the business of education, and better methods of instruction began to prevail. The Protestant Reformation of the sixteenth century exerted a most powerful influence on the promotion of learning. Learning and true religion are natural allies, and exert upon each other a reciprocal influence the most favorable. And as the revival of learning in the preceeding centuries, doubtlessly contributed to the Reformation in religion; so unquestionably that Reformation, in the shaking of the servile dependance on authority which had before prevailed, the spirit of free inquiry which it awakened, the renovation of the faculties of men which it produced, and the impulse which it gave to the human mind on every subject; is itself in turn to be numbered

among the chief causes of the subsequent unparalleled progress of learning. In the sixteenth century, accordingly, and especially in the seventeenth century, when the effects of the Reformation began to be, in some measure, fully felt, learning became the subject of an advancement, such as had never before been known. The human mind, emancipated in some degree from the thraldom of ignorance and the bondage of an oppressing superstition, began to act with better directed efforts, and with unwonted power. By the writings of the celebrated Francis Bacon and his contemporaries, the proper objects and limits of philosophy, and the proper methods and means of its pursuit were more clearly seen and better understood than in any preceding times: and in the discoveries of Galileo, of Kepler and Leibnitz, of Descartes and Gassendi, of Boyle and Newton, and Locke, and their illustrious associates and successors, the field of knowledge underwent that immense enlargement, and there burst forth that flood of light, which constitute the glory of modern science.

Upon the extensive and interesting field of the history of modern science and education, it is not my intention at all to enter. Such general knowledge, at least, of these subjects as is necessary for my present purpose, I presume to be possessed by every well-informed person.

Having arrived in our very hasty and imperfect sketch, at that epoch, at which the history of the ancient science is considered as terminating, and from which that of the modern science begins; the question naturally presents itself to us—*What is the estimate which is to be formed of the ancient learning and education, in comparison with the learning and education of modern times; and what are the reflections which arise from a view of the subject?*

As the Greeks, and, after them, the Romans, of all the ancients, carried learning and education to much the highest degree of attainment, and as what the middle ages accomplished in respect to these subjects, was, at its best estate, no more than an attempt to follow, at a far distance, the footeteps of these masters, our remarks on the ancient learning and education, in the comparative estimate which we make, will have reference principally to these two nations.

First, then, I remark, that in the actual state of advancement of learning and education, the present age possesses an immense advantage over former times.

In the arts of design alone do we confess the superiority of the ancients. In poetry, while we acknowledge their excellence, we claim to have surpassed them—if not in the mere subjugation of syllables to the laws of *Dactyl* and *Spondee*, *Iambic* and *Trochee*, yet in the highest attributes of song—the "thoughts that breathe and words that burn." We should be sorry to want the Iliad, or the Æneid: but we would not exchange the Paradist Lost for them both. We acknowledge the genius of Ovid, the satiric power of Juvenal, the wit and the melody, the *curiosa felicitas—simplex munditiis* of Horace: and we set over against them Pope, and Swift, and Byron. Can Sophocles and Euripides come into competition with our incomparable Shakspeare? And can the residue of the ancient bards balance that great host of the modern sons of song—both of the illustrious dead, and of those whose harps are yet strung, and whose rods still sweep the lyre? In oratory, while we own the elegance of the Roman and the power of the Athenian, we allege that in our own country and in our ancestor-land, within the last and the present age, from the pulpit, the bar, and the senate, there can be brought, ten times told, the number of all the ancient orators whose names have come down to us, by whom these are excelled in all the elements of the highest eloquence. In all that constitutes the higher excellence of history, the Greek and Roman writers fall far below those of the present times. The poverty and meagerness of their sources of information gave no opportunity for the laborious and learned research which characterizes modern works of this class. Where the annals were scarce, the writer drew upon his own imagination, and the merit of the historian consisted in weaving out of "the scanty shreds of vulgar recollections," and of common fame, an ingenious and entertaining narrative. But to exhibit, in the transactions which they relate, the springs of human action; to point out the dependence of effects on their causes, proximate and remote, and how these effects became in turn the causes of other succeeding events, to show in what nations

promoted their true interests, and in what they acted against them, and what were the circumstances, arising either from extraneous sources, or from the internal state of laws, government, manners, or legislation among themselves, which influenced them in each case, and thus to afford lessons of instruction;—in these which constitute the true uses and the chief excellence of history, the ancient historians appear to be comparatively very deficient. In some branches of the mathematics, and their applications, the Greeks had made considerable progress. Yet, here also, their attainments, in comparison with those of the moderns, lay within a very narrow compass. The history of mathematical science, it has been remarked, may be divided into three great periods;—that in which the ancient geometry was exclusively cultivated;—that of the invention of the algebraic calculations and its application to geometry, regarded as "a transition-state of the science," in which the advantages of the new methods were perceived, but the knowledge of the symbolic analysis and its application was not sufficiently mature to serve fully the purposes of investigation;—and that in which the symbolic instrument was, in the highest subjects of mathematical inquiry, superceded the ancient geometry, and has afforded the means of discoveries to which it was inadequate. To that state of advancement, embraced in the first two of these periods, the mathematical knowledge of the ancients was confined; nor even in this do they appear to have advanced beyond what has been regarded by modern mathematicians as the elements of the science. In astronomy the Greeks had, indeed, collected a large and interesting body of the more obvious and common phenomena, and had made some attempts to form from them a theory of nature. But, in comparison with the later discoveries, their knowledge of the celestial phenomena was very limited, and they had made little real progress in harmonizing and rendering such facts as they were acquainted with, to a uniform and consistent system. When we consider that the whole body of the Greek philosophers, the claims of Pythagoras to the contrary notwithstanding, and after them their followers to the time of Copernicus and Galileo, held that the earth was fixed, and

the centre of the system, that they had no knowledge of, nor means of demonstrating the heliocentric theory; that Hipparchus, about a hundred years before Christ, was the first who attempted to give a catalogue of the fixed stars, without which there can hardly be such a science as astronomy; that the chief practical uses to which the ancients were able to apply their knowledge was the designation of the proper seasons for agricultural operations; and finally, that through its whole course, the astronomy of the Greeks, as well as that of the more eastern nations was confounded and mixed up with the ridiculous fooleries of astrology; we shall not form any very exalted idea of the state of the science among them. In the other branches of natural science, their knowledge was even more imperfect. In reference to the whole subject, the distinguished natural philosopher, Sir John F. W. Herschel, who certainly is high authority, has pronounced without qualification the judgment that, "previous to the publication of the Novum Organum of Bacon, natural philosophy, in any legitimate and extensive sense of the word, could hardly be said to exist."* In law, government, and political economy, while many of the particular laws and institutions of the Greek states, and of Rome, evince sagacity in their framers, and are especially the code of Justinian, sources from which much at least of our information is drawn, they yet do not appear in these subjects as matters of scientific knowledge, to have made any considerable attainments. To exhibit general principles, to demonstrate how these operate in particular instances, to point out the ends at which they ought to aim, and to show in what manner they may be directed to these ends,—these, which are the business of science, are designs which their works seem hardly to have contemplated. Their metaphysics are for the most part occupied in vain endeavors to penetrate and explain things that lie beyond the sphere of human inquiry, or in subtleties that were of no practical utility. Even Aristotle, who of all the ancients, was in the philosophy of mind the *caput et princeps*, does not appear to have proceeded from a careful and extensive observation of the phenomena of mind, and the induction thence of general

* Prelim. Discourse on Nat. Philosophy.

laws and principles, to the formation of a system of wanted science. The single fact, which has been remarked, that none of the eminent philosophers seem to have had any clear conception of that power which we call *abstraction*, as a distinct faculty of the mind, nor of the nature and use of general terms in reasoning, sufficiently indicates the very imperfect state of the science among them. The logic of Aristotle, it is safe to say, while a monument of the author's genius, and the source whence later writers have drawn no inconsiderable help, yet has left the subject entangled in such mazes, as to be, without great additional assistance, of no real utility. In respect to ethics, it may be sufficient to say of the Greeks what is true of all the other ancient nations, the Hebrews only excepted, that their ethics were the ethics of *Paganism*,—of those who, though not without some just notions in regard to some particular duties, were fatally mistaken in the first principles of morals, ignorant of their true moral relations arising from the actual state of man in the world, and whose minds were grievously darkened as to the true knowledge of God, the great fountain of moral obligation. What could be expected of systems of moral philosophy, which, like that of Aristotle, began by defining virtue to be *the medium between two extremes;*—that of the stoics, which made it consist in *living according to nature;*—or that of Epicurus who declared it to consist in *its utility in promoting pleasure?* Such were the definitions on this fundamental question of the three principal sects of moral philosophers among the Greeks. Vain in their imaginations, their foolish heart was darkened. Profering themselves to be wise, they became fools, and changed the glory of the incorruptible God into an image made like to corrupt man: wherefore God also gave them over to a reprobate mind.

As to the Romans, they had no science which was of indigenous growth. They always acknowledged that whatever of this kind they possessed, they had derived from Greece; and they always confessed themselves, and were regarded by others, as inferior to their masters from whom they learned.

If, then, we compare the learning of the ancients with the splendid and magnificent discourses of modern philosophy,—

if we contrast their scanty and meagre information, and the vagueness, and confusion and error of their philosophical notions, with that vast body of extensive and various, and rich knowledge on every subject of literature and natural and moral science, and the clear and comprehensive and well digested principles to which the last two centuries have given birth. It is evident that we possess in the actual advancement of learning at the present period an incalculable advantage over all former times. In truth, there is between ancient and modern times, in this respect, no comparison. We will not be understood as deprecating the system of ancient learning. The study of the ancient classics furnishes a means of academical discipline, of which nothing else can supply the place: and the relations to the Greek and Roman literature to our own, are such, as to justify the unanimous judgment of all scholars, which makes some competent knowledge of the former indispensible to a liberal education. But whatever was of worth in the literature of the ancients has been revived and is preserved to us; and is incomparably surpassed by the superadded literature of recent times. And as to science, properly speaking, it scarcely existed among the ancients.—Almost all that deserves the name of science is the product of the last two hundred years.

Of education among the Greeks and Romans, it is impossible to form a very high opinion. Beside that learning, which is the subject-matter of instruction was in such an imperfect state, their education was such as was influenced by and adapted to the ends of life which they proposed to themselves. These were,—not the philosophical, and deep, and worthy investigation of science, nor those ends consonant to the noble nature and destinies of man,—but to lead armies or captivate the curious ears and fascinate the subtle minds, or to sway the turbulent spirit of their countrymen; to obtain the dignities of the state and acquire political power and consequence; or the yet more unworthy one of obtaining victory and renown in the feats of the amphitheatre. Education directed to such ends as these, could not be such as is worthy of commendation, or as is fitting intelligent and immortal man. Imperfect and faulty as is the state of education among

us,—elementary as it is in condition, yet in its own character and in its adaptation to the useful purposes and proper ends of life, we have also an incomparable advantage over former ages.

But it is not in the mere state of advancement, however great comparatively this may be, that the chief superiority of our position over that of the ancients consists. This is found in other considerations.

A second reflection from a comparison of our own with past times, is, that the proper objects of science and ends of education, and the proper means of pursuing these are better understood and more strongly established in the minds of men in the present than in former ages.

The same high authority which we have before cited, Sir John F. W. Herschel, says, "Among the Greek philosophers, of whose attainments in science alone in the earlier ages of the world, we have any positive knowledge, we are struck with the remarkable contrast between their powers of acute and subtle disputation, and their extraordinary success in abstract reasoning on the one hand; and on the other with their loose and careless consideration of external nature, their grossly illogical deductions of principles of sweeping generality from few and ill-observed facts in some cases, and their reckless assumption of abstract principles having no foundation but in their own imaginations, in others; mere forms of words, with nothing corresponding to them in nature, from which, as from mathematical definitions, postulates and axioms they imagined that all phenomena could be derived, all the laws of nature deduced."* These animadversions of this writer upon the Greek philosophers in respect to natural science are equally applicable to their method of philosophizing on subjects of intellectual and moral science. Within the last two centuries it has come to be more clearly seen and more strongly impressed on the minds of men, than even before, that the only foundations of true philosophy are facts ascertained from observation and experience or from testimony, and the induction thence of the general principles and laws of science. Bacon, by his clear and comprehensive percep-

* Prelim. Discourse on Nat. Philosophy.

tion, and his strong statement and enforcement of the proper objects and limits of philosophy, and the true principles of philosophical inquiry, greatly contributed to the more just views on the subject, which have prevailed since his time, and performed a service to science which will identify his name with the history of its progress as long as that history is known. But the improvement in philosophy at that period was the improvement, not of Bacon, but of his age. No error is more common than an idolatrous ascription of a supernatural pre-eminence and power to some fortunate individual who happens to be conspicuous in an age of improvement, and of too little regard to those general and far-reaching causes, by which important changes are wrought in the course of events and the state of society. There were an hundred minds in the age of Bacon, that, had he not done it, could have stated, if not with as much genius and power, yet with as much truth, every principle and law of philosophical inquiry, which he has laid down; as certainly many of his time were actually far more successful in the application of them. For the contributions of that eminent man to the actual stock of scientific knowledge were small; his mind was infected with the common errors and prejudices of the times in which he lived; and it is upon record, that the Lord Verulam, "the father of philosophy,"—"the inventor of the Baconian philosophy,"—was, among other things, a stout and undoubting believer in the redoubtable science of astrology. In this that distinguished philosopher afforded a striking instance of what is not uncommon,—a man of comprehensive and vigorous mind, perceiving with great perspicacity, and laying down with clearness and luminously illustrating great principles of truth and conduct, while yet, trammelled by the prejudices and infirmities which are the common lot of humanity, he finds himself unable to act upon the very principles which with a master's power he elucidates for the instruction and action of others. We repeat that the juster views of the proper objects, limits and means of philosophical inquiry, which began to be entertained from his time, were the improvement not of Bacon, but of his age.—These better views have continued to prevail and to acquire strength till the present time.

Much, too, as remains to be desired in this respect, more just views are entertained, than in former times, both of the ends of education, and of the means by which these ends are to be attained. To an extent not formerly known, men have, during the last two hundred years, chiefly through the influences direct and indirect of Christianity, in those countries where it has obtained prevalence, addressed themselves with intelligence, and all the serious resoluteness of purpose to the proper ends of life. Of education, its nature and objects, as adapted to the true ends of life, more suitable apprehensions are possessed, and there are more adequate conceptions of the principles on which it is to be conducted and the methods by which it is to be effected. And in the prevalence of these better views of the objects of science, and the ends of education, and in the means of their pursuit, far more than in the mere present state of advancement in which these now are, consists in the advantage of our own over former times, just as the advantage of the traveller over his fellow who has missed his way, is not in the number of the furlongs or miles which he has advanced more than the other, but in the fact that he is in the right road to his destination.

A third reflection which offers itself on this subject, is, that there are various circumstances in our condition, which furnish securities against a retrogression to former ignorance and errors, and encourage the expectation of a progressive and rapid advancement of learning and education.

In this light are to be regarded, what we have already spoken of,—the actual present state of advancement in which these now are, and the more just views which prevail of their objects and ends, and of the means by which they are to be pursued. A beginning,—always the most difficult part of the achievement,—a beginning in the right direction,—has been made, and the human mind has received a forward impulse that will scarcely permit it to turn back or to stand still. Every truth, every principle in science of which a knowledge is possessed, every attainment in the art of education which is reached, will open the way to new fields of discovery and lead on to higher attainments. Every degree

of power acquired in applying rightly the laws of philosophical inquiry to the investigations of science, will give greater facility in its exercise, and lead to the attainment of still higher degrees of power in applying these laws. Every error corrected, every clearer and juster view obtained of the true ends of education, and the principles on which, and the means by which, it is to be conducted, will lead to further improvement.

The art of printing, and the extensive intercourse consequent on the astonishing improvements in navigation and other modes of communication, afford the means of the universal diffusion of learning, and render impossible a general retrogression, such as occurred in past ages.

There exists, too, from the combined influence of learning and religion, an improved general condition of society, which affords a security against a return to former ignorance and barbarism, and induces the expectation of further advancement. We are among those who believe that the world, notwithstanding appearances to the contrary, arising from partial views and the contemplation of limited periods, has been, since the introduction of Christianity, in a course of progressive improvement. Certainly since the great Protestant Reformation, there has existed in Christendom an improved condition of society, in respect to government, laws, manners, learning, religion, and the social relations and interests of life, such as the world never before saw. There are now,—there have been in modern times,—no such tyrants as Tiberius and Caligula, and Nero, and Domitian. There are no abuses of superstition and spiritual despotism equal to those of former ages. Christianity has exerted its healing and reforming power upon society. The religious Reformation of the sixteenth century has extended its influence to the Church of Rome itself; and the political Reformation of the eighteenth century has been powerfully felt in states under arbitrary rule, slackning the chains and lightening the yoke of the subject. Growing knowledge and intelligence in the people afford bulwarks against the oppression of rulers, and the ghostly domination of an irreligious and corrupt priesthood, with all its depressing and degrading effects. These things

impose the necesssity upon the part of those who might not otherwise regard them, of respecting the interests of society. The general improvement sometimes reaches even the unprincipled or ignorant ecclesiastic, and teaches even absolute sovereigns that the true and highest glory of their empires consists in the intelligence, elevation, and happiness of their subjects. Of this last effect, a striking instance occurs in the case of the present King of Prussia, whose government, though one of the most absolute in Europe, is at this time doing more directly for the improvement of his people, than that of any other power in the civilized world. This improvement in the general condition of society will advance the interests of learning. It will both extend the taste for intellectual pursuits, and increase the means of its gratification, thus augmenting the number of the cultivators of, and contributors to, science—widening the boundaries and deepening the channels in which the streams of learning flow.

But above all, we have a security against a retrogression of learning and a pledge for its advancement, in the purposes of God, in reference to our world, as indicated in the prophecies and promises of the Holy Scriptures. The Omnipotent has purposed the recovery of this world from the dominion of the Prince of darkness, to the light of the glorious kingdom of his Son. We understand from the book of prophecy, that the period during which it was given to the powers of darkness to have dominion over mankind, is near to its end, that the long expected, long desired day is breaking, when God shall destroy the face of the covering cast over all people, and the veil that is spread over all nations, and when the Son of Righteousness shall arise upon the world, with healing in his wings. In the universal diffusion and the progressive advancement of true religion, we possess a security for the advancement of learning. Religion and ignorance cannot coexist. Either ignorance will banish religion, or religion will destroy ignorance. Religion and learning, both heaven-born daughters of the same Father of lights, seek each other's society, and with kindly favour promote each other's interests. In the prevalence of the kingdom of the Son of God, secured by the promise of the Most High, we have the assurance of

the advancement of all true learning and good education, to their highest glory.

From these several considerations may we not draw the conclusion, that true science and the cause of right education are just opening upon a career of advancement, in which, with a constancy and accelerated rapidity hitherto unknown, they shall go forward to attainments of eminence, of the nature and limits of which we are now unable even to form a conception? The objects of science are as extensive as are the works of God, in the material and in the moral world, the innumerable relations by which these are connected, and the laws by which they are governed. Science, therefore, relatively to our faculties, is always progressive. "In this," says an elegant writer, "nature has not exhausted her bounty in any one period; but by a provision, which makes our very weakness instrumental to her goodness, she has given to all that distant and ever-brightening hope, which, till we arrive at our glorious destination,

> "Leads from goal to goal,
> And opens still, and opens on the soul."

Truth itself will, indeed, always be progressive; but there will still, at every stage of the progress, be something to *discover*, and abundance to *confute*. "In 24,000 years," to borrow the prediction of a very skilful prophet,—"In 24,000 years there will arise philosophers who will boast, that they are destroying the errors that have reigned in the world for 30,000 years past; and there will be people who will believe that they are then only just beginning to open their eyes."* With this advancement in science there will be a correspondent improvement in education, larger and more comprehensive views of its ends and nature will from time to time be obtained; science, which is the instrument by which it is to be effected, will be greatly enlarged; errors will be corrected, defects supplied, and better methods of instruction found out and adopted.

From this vantage ground of possession and of hope, which we have gained, let us look,—backward, to ascertain the progress which has been made, to observe the errors which have

*Brown's Philosophy of the Human Mind.

impeded the progress of human improvement, and to gain instruction from the retrospect;—and forward to the prospects which open before us, and the duties to which Providence calls us, especsally as the conductors and patrons of this institution.

The position which we occupy, all the circumstances of our condition, in reference to this subject, while full of encouragement, impose upon us the strongest obligations to renewed and earnest efforts, for *the progressive advancement of learning and education.* They

> "urge us on,
> With unremitted labour to pursue
> Those sacred stores that wait the ripening soul
> In Truth's exhaustless bosom."*

When I speak of the advancement of science and education beyond their present boundaries, I am not ignorant, how very limited is the extent to which these, even within their existing boundaries, are prosecuted by the great majority of students in our colleges,—how very elementary are the attainments which are made. I am not unapprized of the difficulty, from the condition of our country,—the great demand for active service, the rewards for such service which it holds out, and the strong incentives which urge our young men to an early entrance on public life, of inducing them to continue long enough in a course of education, to afford time either for the acquisition of the scholarship, or the obtaining of the mental training, which are needed to fit them for the duties of their stations. I am persuaded that the interests of society imperiously demand a great reform in this respect. In the hurried and superficial education of those who assume to be the instructors and guides of the public mind, and the directors of public affairs, without doubt, is to be found one of the principal causes of the civil, social, and religious empiricism, which so extensively exerts, in the church and in the country, its disastrous influence. Our young men are thrust forward into public life, immature in age, without scholarship, without knowledge, without mental discipline,—

"Proveniuntque festinantes, novi, stulti, adolescentuli,"—

* Akenside.

to sustain the responsibilities, and cares, and labours of professional life, and to direct the most important affairs of society. The consequence is;—to themselves, oppressed by duties and labours for which they posses no adequate preparation, *death* to all improvement, a sort of suicide, often both physical and mental;—to society detriment, untold, infinite detriment to all its highest and best interests. The strongest obligation, I believe, lies upon our boards of trustees, and those engaged in the instruction of our colleges, to employ their most earnest efforts in correcting these evils, by elevating the standard of education, and requiring in those, who, in the various professional pursuits, shall hereafter have committed to them the instruction of the public mind, and the direction of the civil and religious interests of the country, sound scholarship and thorough academical training. And the strongest obligation, I believe, lies on the whole community to sustain college trustees and instructors in this course, unless, indeed the community chooses rather to be quack-ridden by ignorant empirics, than to have competently educated men in the conduct of their interests. Such an acquaintance with the elements of ~~almost~~ all the most important departments of science, as may give some tolerable degree of enlargement and cultivation to the minds of our pupils, and lay the foundation for their own improvement in these in subsequent life, it seems to me, ought to be insisted on, in the case of all who shall enjoy the privileges and bear the honours of an institution, professing to give a liberal education. But an institution of this kind ought not to be regarded as complete, until it shall be possessed of a course of instruction commensurate with the whole circle of science and literature, and shall be provided with the means of affording to those whose views and circumstances allow them to devote themselves to the further cultivation of letters, the opportunity of extending their researches into new fields of discovery. We ought not to be satisfied with the very humble part of merely treading in the footsteps of our predecessors, and learning the lessons which their talents and industry have provided for us: but we should aim at nothing less than boldly siezing the lights of science where they have left them, and carrying them forward into regions upon which darkness now rests.

It becomes us, also, while we thus endeavor to advance learning and to elevate the standard of education, to employ our best exertions *to diffuse as widely as possible* the advantages of these.

The condition of our country and of our age,—the prospects of both,—demand not only talent but learning. They demand talent cultivated by a liberal education. By a liberal education, we understand a course of instruction, which shall give an acquaintance with at least the leading facts and principles of the most important branches of science and literature, and in doing this shall develope and discipline the various powers of the mind. To this instruction no limits can be set. It must always have reference to the subjects and the extent of knowledge existing in a community, at any particular period. As the subjects of knowledge become more numerous and various, and the extent of knowledge in respect to them is increased, the course of education must enlarge. The universal consent of those most competent to decide, has determined that an acquaintance with the several branches of science and literature embraced in the usual course of studies in our colleges, is indispensible to what can now be called a liberal education. That it is to be expected, that the whole community shall, at any period soon to come, pursue a course of education so extensive, perhaps may not be affirmed. To any great success in professional pursuits this is, in ordinary cases, indispensible. But, from causes to which we have before referred, and which operate even more powerfully in the newer than in the older portions of our country, there is prevalent a strong disposition, even on the part of those who are looking to professional avocations, to satisfy themselves with a more limited academical course. It is not my purpose now to enter into a defence of any of the particular branches of learning included in the established course of college instruction. But against this hasty and limited course of education in those who expect to enter those liberal professions, for success and honor in which adequate preparation is to be obtained only in mature scholarship and the fullest mental discipline, it behooves us to exert all the influence which we may possess. The young man may feel himself constrained to

cut short his preparatory course, because his pecuniary resources are limited; or he may shrink from the severity of long and hard study,—the *labor et sudor* of learning;—or he may think it so important to him and to the world that he should get into public life very soon, that he cannot take time to qualify himself for the discharge of its duties. But let him distinctly understand, that, whatever be the reasons which influence him to take this course, he does it at the expense of certainly great loss, very probably of ultimate failure and mortification. Is a young man poor, and dependent on his own exertions? Let him be patient, and go and provide the means by which he may obtain education, not in name but in reality. Is he indolent, or mentally dissipated, impatient of labor and system in study? Let him correct his habits; let him bend his mind to study; let him learn to love study for the sake of knowledge; or let him abandon all expectation of either usefulness or reputation in life. Is he anxious that the world should soon have the light of his head and the help of his hand? Let him be persuaded that the world will get on one year more, or even longer, without either; and let him set himself down to get something to give, before he runs to communicate. What is the additional effort necessary, when weighed with the benefits of a full and thorough education? What are three, or four, or seven years, at the period of life when preparatory education is obtained, in comparison with the advantages of coming to the duties of public life with the mental discipline and furniture which qualify for their successful discharge? Whether a man regard his own interest and reputation, or the benefit of his fellowmen, or the glory of God, the question is, not how soon he shall get into public life, nor how long he shall be engaged in it, but how much he shall be able to achieve in it. Incomparably more in all these respects, it cannot be doubted, would generally be accomplished by a professional man in a public life of ten years, to which he should bring intellectual maturity and strength, and high acquisitions, a mind trained and disciplined and furnished, than in a public life spread over thirty, or forty, or sixty years, and characterized by comparative crudeness and feebleness and insufficiency.

Nor is there any reason why the advantages of a liberal education should not be extended to other classes of the community besides those destined for professional pursuits,—to agriculturists, to merchants, to mechanics, to men engaged in every department of business. The political institutions of our country, under which men from all occupations take their seats in our public councils and share in the administration of public affairs, seem to make this especially proper, not to say necessary, in this land. And, should men continue to be only private citizens, there is no department of business, which may not be more sucessfully prosecuted by an enlarged and disciplined and cultivated mind, than by one of equal original powers, which is without the advantages of proper education. An instance strikingly illustrative of this is mentioned by Dugald Stewart, in the case of those enlightened speculations on commerce and other branches of national industry which arose in England in the seventeenth century, as the result of the combination of the pursuits of trade with the advantages of a liberal education; in which was laid the foundation of the modern science of political economy, and the consequent immense extension of trade, and the corresponding rise of the commercial interest.* Liberal education, too, would correct that supreme regard to mere money—the *auri sacra fames*,—which is the besetting sin of our country. It would teach men that there is something better in life than money. It would teach them the proper place of money, as the means of something higher and better, and would obviate what is an evil of no small magnitude, and one to which from the condition of our country, we are peculiarly exposed,—the raising of men, by the sudden accumulation of wealth, to weight and consequence in the community, while they are destitute of the enlightened and liberal views, and feelings, and character, which should entitle them to such consideration and influence, or which can qualify them to wield it without prejudice to the interests of society.

From our condition, as living under the dispensation of the gospel, obligation lies upon us *to make our science and education Christian in their character.*

* Works, Vol. VI.

It has been the capital evil of both, in past times, that they have either been connected with false systems of religion, or have been, to a great extent, exclusive of the true religion. In the old systems of Paganism, there was nothing whose influence was not corrupt and degrading. From the time when Christianity obtained prevalence in Europe till the Reformation, its authority was indeed nominally acknowledged. But, beside that there soon grew up in the church the monstrous corruptions of the great anti-christian system. Both science and education, in any proper sense of the terms, from causes to which we have before referred, became, during those ages, almost extinct. Since that period both have been, to an extent greatly to be deplored, exclusive of Christianity, and irreligious in their character. I do not mean to say that they have been wholly irrespective of, or uninfluenced by, Christianity. For it is not possible for the religion of the gospel to exist in any nation, and not to be, in a thousand ways, connected with, and powerfully to influence both their science and their education. But religion has not been incorporated as a part, and the chief part, of science. Education has not been distinctively a religious education. Christianity has not been in these, what it is in fact in the constitution of things,—the centre in relation to which all other learning, all other science, all other education are to be viewed. It has not modelled the relations of these, impressed upon them its own image, breathed into them its own spirit. This cannot be regarded otherwise than as a capital, a fatal defect.

True science is the knowledge of things in those relations in which they exist in the actual constitution of things.—Christianity, in the actual constitution of things, is like the sun in the firmament, that holds the earth with all things in it from falling away headlong into ruin; that in reference to which it moves in its course; and which enlightens and warms, and vivifies and blesses. Science, then, which does not embrace the knowledge of Christianity, is deficient in that which is the chief part of knowledge, and in relation to which all other parts should be regarded. Science which is exclusive of Christianity, is like the science of the solar system which should leave the sun out of consideration. It is not the true science. The end of education is to qualify men

for acting well the part to which they are called by God in this life, and to prepare them for "honour, glory, and immortality, eternal life," in the world to come. It is the improvement and perfecting of their rational nature, that they may be fitted for the responsibilities, the duties, the trials, and the enjoyments which appertain to their being. But man is a religious as well as an intellectual being. The universal sense of Deity, the power of conscience, the belief in a future retribution, even the very absurdities of superstition, as well as the enlightened piety of the renewed mind, evince that the religious principle is a constituent part of his rational nature. He has religious faculties, religious relations, religious responsibilities, religious destinies. That education, therefore,—that perfecting of his nature which is the end of education,—demands the universal and equable improvement of *all* the faculties and powers of his nature. That training which is to prepare him for what belongs to his being, to be complete, must have respect to *all* the relations in which he stands, and the obligations and interests arising out of these relations. The education, then, which does not instruct man in his relations to God,—his relations as a religious being, in his religious duties and destinies, which does not properly cultivate the religious principles of his nature, is chargeable with the grossest oversight of his actual character and condition, and of the exigencies of his being; and must be looked on as utterly inadequate, in the matter of chief importance, to that for which it is the object of education to provide.—When, too, we speak of including religion in science, we mean not the mere religion of theism. When we speak of making education religious, we mean not the teaching of that mere theistical religiousness, that talks in poetic phrase of finding

> "Tongues in trees; books in the running brooks;
> Sermons in stones; and good in every thing;"

and which talks of ascending

> "Through nature up to nature's God."

The truth is, there is little of this religion among men, and what little there is, derives its being and life from the influences direct or indirect, which spring from another stock. For

"——— never yet did philosophic tube,
That brings the planets home into the eye
Of observation, and discovers, else
Not visible, his family of worlds,
Discover him that rules them: such a veil
Hangs over mortal eyes, blind from the birth,
And dark in things Divine. Full often, too,
Our wayward intellect, the more we learn
Of nature, overlooks the author more;
From instrumental causes proud to draw
Conclusions retrograde, and mad mistake."*

The actual state of man is one of sin; of alienation from God, of corruption of nature, and of exposure to the Divine wrath. For this state the gospel of Christ is the remedial provision which God has made and given to men. It is that which, and which alone, is adapted to the exigencies of their moral state. It is the wisdom of God, which he discovered, when the wisdom of the world had proved to be foolishness; the power which he provided, when all human power had been tried and had failed. It is the wisdom of God and the power of God unto salvation. As living under this economy, obligations lie upon us in reference to it. Obligation lies upon us to incorporate it with science, and to give to it that place, which it in fact holds in the system of things. Obligation lies upon us to make the instruction of those who are committed to our care, in their relations and duties and destinies, arising from their being placed under the economy of redeeming mercy, the basis of their education, and to infuse into it the spirit of the gospel of grace.

Such,—while we do not forget that ours is, not a theological school, but a college for instruction in science generally,—such, we are not backward to avow, is the design of this institution. We have no concealment on the subject, no cowering, no pandering to an unchristian and irreligious public sentiment. If there are those in the community, who, after all that history has taught, so dearly taught upon this subject, are prepared to risk the perilous experiment,—perilous even in reference to the wordly interests of society,—of educating their sons without religion, there are those who will serve them. This college has been founded upon Christian princi-

* Cowper.

ples, and in faith and prayer, by men who fear God and honour his Son: and while we trust that there will be, in the religious instructions which shall be here imparted, and in the spirit here cherished, nothing narrow or illiberal, or merely partizan, it will be our aim to carry out the intentions of the founders of the institution. We avow that it is our aim to bring over and into the institution, the influence of the principles of the gospel of the Son of God. It is our design to mingle the waters of the Pierian spring with those of the well of Bethlehem, and of "Siloa's fount, that flows fast by the Oracle of God." It is our wish to graft the laurel of Parnassus into the vine that is planted upon the top of Zion's mount. It is our desire that the Minerva of our college may be baptized into Christ, and be inspired by the Spirit of the Highest.

May we not hope, that thus under this union of religion and learning, here on the banks of our beautiful Ohio, amid hills, and ravines, rocks, and cascades, and forests, our institution will grow up, and strengthen, and enlarge; and co-operating with other similar institutions, will aid in pouring the life-giving light of science and Christianity over this great land, from the tops of the Alleghenies to those of the Rocky Mountains, and from the great seas of the north to the Andes of the south, and far hence to the nations that sit in darkness and in the region and shadow of death. In labouriug for these ends we rely with full confidence upon the kind and cordial and efficient co-operation of the Board of Trustees, and of our brethren of the Faculty. We rely upon the talents and industry and good conduct of those who are students to sustain the honour of the institution, and to give to us in their own respectability and usefulness to the community and to the kingdom of our God, the reward of our toil. We cast ourselves and the institution upon the support and patronage of an enlightened and Christian community. But, chiefly, looking up to the Father of lights, who has said, *If any of you lack wisdom let him ask of God*, and having our expectation from him, and leaning upon the arm of his help, we go forward.

ERRATA.

Page 4, line 7, for "really," read *much*.

Page 5, line 30, for "promotion," read *formation*.