GEORGE IDE CHACE

A Memorial

From

MRS. GEORGE I. CHACE.

PROVIDENCE, *June, 1886.*

Geo. D. Chace

GEORGE IDE CHACE, LL.D.

A Memorial.

EDITED BY

JAMES O. MURRAY.

CAMBRIDGE:
Printed at the Riverside Press.
1886.

But I that am under a command not to grieve at the common rate of desolate women, while I am studying which way to moderate my woe, and if it were possible to augment my love, can for the present find out none more just [*to him*] *nor consolatory to myself than the preservation of his memory; which I need not gild as with such flattering commendations as the hired preachers do equally give to the truly and titularly honorable. A naked, unadorned narrative, speaking the simple truth of him will deck him with more substantial glory than all the panegyrics the best pens could ever consecrate to the virtues of the best men.* — MEMOIRS OF COLONEL HUTCHINSON BY HIS WIFE.

CONTENTS.

BIOGRAPHICAL SKETCH

BY

JAMES O. MURRAY, D. D.

GEORGE IDE CHACE.

The life of a beloved and venerated teacher has peculiar claims for commemoration. Even when his fame has been secured by his writings or his services, much of his best work simply lives in the character of the pupils he has trained. In thus moulding character, he touches and shapes the most vital interests of society. He becomes a power behind the throne. The world may admire the philosophical writings of Plato more than his personal reminiscences of Socrates. But if we were compelled to choose between these and the dreamy speculations in some of his treatises, we should not hesitate to take his grateful record of the life of the great Grecian teacher, and give up his brilliant speculations in philosophy. Dr. Arnold of Rugby has just claims for remembrance as a historical scholar. It is not these, however, by which he will chiefly live in the grateful estimation of his countrymen. His fame will be perpetuated rather as the great educator, who more than any man of his age lifted the high vocation of the teacher into its deserved prominence.

All the more is it true that the teachers of men should be fitly commemorated, if the subject of the memoir has been one of those choice spirits whose real worth has been somewhat veiled by reserve, whose sphere of work has been outside the

glare of wide publicity. It happens also in the case of not a few of our worthiest scholars that their toils have been put forth in a varied field of effort, sometimes compelled to this by circumstances or necessity, when, if choice could have been followed, and the talents concentrated on one line of work, the impression of the life would have been more sharply defined. For such, the only adequate estimate can be reached by "gathering up the fragments that remain, that nothing be lost," and weaving into a connected whole what in its separateness never gains the appreciation it deserves. And when a high unity of Christian purpose has characterized the whole career, and the life has borne its best fruit in the closing period, the task will be one no less delightful than sacred.

George Ide Chace, the son of Charles and Ruth (Jenckes) Chace, was born in Lancaster, Massachusetts, February 19, 1808. The home into which he was born was one of those New England households in which so many of our best public men have been trained. Its atmosphere was one of strictness in religious belief and life. But no austerity chilled the affectionate intercourse between parents and son. The relation between his parents and himself, judging from his letters, was one of uncommon confidence and tenderness. Writing to his mother on his thirty-sixth birthday, he says: —

> This day reminds me anew of the untold, unpaid, and unpayable debt of gratitude which every son is under to a good mother, and for which the only return he can make is to show her that he is not insensible of it. Frequently, when not otherwise occupied, does my mind wander back to the days of my early childhood, when it was so sweet to pillow my head upon my mother's knee, when her lap was my

home, the safe refuge to which I flew from every childish grief or trouble. And there are moments when my spirit, worn and soiled by the cares of life, has lost its freshness and its hope, in which I would fain be that little boy over again, and again nestle in my mother's bosom, and find it as secure a retreat from the trials of manhood as I then did from the trials of infancy.

His boyhood was passed on a large farm, now the seat of extensive manufactories. The surrounding region is one of great natural beauty, and to this in his earlier years, as indeed through life, he was keenly sensitive. It wakened in him at an early period the love for observation of nature which similar surroundings have developed in the case of many scientific men. His interest in all natural growths strengthened with years and studies. His love for nature was something more and deeper always than scientific interest. It was also the sentiment which the poetry of Wordsworth expresses so tenderly and richly. But the scientific interest and the tender sentiment had their beginnings in the early home at Lancaster.

An accident which befell him at ten years of age was a turning point in his life. He fell from the roof of a building then undergoing repairs. He escaped fatal injury, but was for a time confined to the house. During this protracted convalescence, he gave himself to study under the tuition of an elder brother. Natural love of study was quickened. His thoughts were turned in the direction of a collegiate education, and his heart became set upon it. In this desire his father warmly sympathized, and when his confinement was ended he began the preparatory studies at Lancaster Academy. Here a marked aptness for study and devotion to it drew upon him the notice of the principal, who wisely and warmly fostered the studious

purposes of his pupil. For this service to himself, in furnishing him at the very outset of his life as a scholar with so much genuine stimulus, Professor Chace always delighted to express the sincerest and deepest gratitude. It was a service which he amply repaid in similar help to many of his college pupils, who recall it with affection and gratitude.

In the autumn of 1827 he entered the sophomore class of Brown University. Under the presidency of Dr. Wayland, begun in that year, the institution was animated by a new life, graphically described by Professor Chace himself, in his discourse on the virtues and services of Dr. Wayland. His intellectual enthusiasm was still more roused. He applied himself to college work with unremitting pains, and was graduated in 1830 with the first honors of his class, a class which has enrolled in it names of high distinction. His valedictory oration on the "Results of Improvements in the Science of Education" seems to show that the vocation of the teacher was attracting him. He does not seem seriously to have contemplated any other as his calling in life. Immediately after his graduation, he took the position of principal of the academy in Waterville, Maine, now known as the Waterville Classical Institute, but after a brief service there relinquished it, to accept the office of tutor in Brown University. Short, however, as the term of service was, it disclosed his rare abilities as a teacher, and it gave him life-long friendships. Years later, in 1841, a call to become the president of the college in Waterville, now known as Colby University, shows that his earlier labors had never been forgotten.

In 1831 he was offered the place of tutor in Brown University. He accepted the office at once, and thus began that long and brilliant career of service to his Alma Mater which lasted

forty-one years. The tutorship to which he was called was that of mathematics, a branch of study for which he had in school and college days shown marked aptitude. From time to time during his connection with the college, he was called on to give instruction in its various departments. There can be no doubt that if Professor Chace had devoted his life to the study of pure mathematics, his abilities would have placed him in the front rank of our mathematicians. In 1833, he was advanced from his tutorship to the position of adjunct professor of mathematics and natural philosophy, and at this point his subsequent career as a teacher of natural sciences begins. In 1834, he was appointed professor of chemistry. In 1836, the chair was enlarged to that of chemistry, geology, and physiology, a chair filled by him till the end of the college year 1866–67. These are certainly rapid changes in the departments of instruction. They are advances, too, in the nature and extent of work required of him. They only show how early and how thoroughly Professor Chace had displayed his varied powers. The following sketch of his career, drawn by his lifelong friend and associate, Professor Gammell, will reveal the sources of his power, and the secret of his success in his manifold labors for the college and for the public.

Of Professor Chace's student days I have little knowledge. He graduated in 1830, and I graduated in 1831, but I recall little else concerning him than the high rank which he held in his class, and the general estimate which was entertained by his fellow students of his ability to master any subject to which he gave his attention. In the summer following his graduation, by the selection of President Wayland, he came back to the college as tutor of mathematics. He thus became a member of the faculty of instruction, a position which

he continued to hold till the summer of 1872, during forty-one years. In this time I was associated with him as an instructor in the college from 1832 to 1864, a period of nearly thirty-two years; and though in quite different departments of instruction from his, I was fully acquainted not only with the character of his work and the manner in which it was performed, but also with the spirit with which he was animated and the success which he achieved.

At the beginning of this period a New England college was an institution quite different from what it has since become. It then retained something of the semi-monastic character which belonged to the colleges that form the two great universities of England. From these colleges our own had taken their type. The rules as to the life and the work of students were still somewhat rigid, and allowed far less liberty than now prevails. Officers of instruction, whether professors or tutors, were required to occupy rooms in the halls, and to exercise an oversight over their students in the rooms around them. The whole college assembled at chapel for morning and evening prayers, the former being at six o'clock in summer, and not later than seven in winter. There was also a commons hall, at which most of the students took their meals, and there were study hours, during which all recreation was suspended and the strictest quiet was enjoined. The accepted theory in those days was, that a student's life was to be one of systematic and diligent work. College education did not then embrace so many amusements as now belong to it. Affiliated secret societies had only just begun to exist, though there had long been societies for debate and for literary exercises. There were then no inter-collegiate matches in boating, or base ball, or other athletic sports. Even Class Day was celebrated on a scale that would now be thought very limited. But even thus college life had its enjoyments which the men of that day delight to recall, and its essential work has not materially changed. Its greater freedom and its enlarged self-reliance have undoubtedly been of important advantage in the formation of manly character.

As I have stated, Mr. Chace began as tutor in mathematics. He was soon promoted to be assistant professor of mechanical philosophy, and in this latter capacity he began the teaching of chemistry. While thus engaged, he spent a lecture season in Philadelphia, as a special assistant of Dr. Robert Hare, then at the height of his renown as professor of chemistry in the Medical School of the University of Pennsylvania. He also attended lectures in anatomy and physiology at that school, which was then largely resorted to by students of natural science. Not long after his return, a professorship was created specially for him, and was made to embrace the three comprehensive and attractive sciences of chemistry, physiology, and geology, and in the teaching of these sciences, with their various affiliations and applications, he spent the greater part of his professional life. He became a master in each one of them; not only a lecturer and teacher, but also an original investigator as to their laws and uses and their manifold relations to other kinds of knowledge.

These sciences had then scarcely begun to have any other than a very secondary place in college education. To make room for them, and to allow to them anything like the prominence which some of their votaries demanded, would require very important changes in the course of instruction, in which the ancient languages had hitherto held the most conspicuous place. The whole question as to what should constitute a liberal education was thus raised, and it has not ceased to be earnestly discussed even at the present time. President Wayland, as is well known, entertained very liberal views on this question, and some years later embodied them in a little volume entitled, "Thoughts on the Present System of Collegiate Education in the United States." From him the new studies did not fail to receive all needed encouragement. He also had a high appreciation of Mr. Chace's ability and promise as an instructor, and we may readily believe that in addition to this he felt a warm interest in the success of the earliest of his own pupils who had been appointed to a professor's chair. All his expectations, I well remember, were fully satisfied by the manner in which

his pupil performed his work. He entered into it with the utmost zeal. He made the study of these sciences exceedingly attractive from the very outset. He imparted his own enthusiasm to his successive classes. The leading proficients among them he would invite to special investigations, and would constantly select from them his assistants in the laboratory and lecture room.

It is to be kept in mind that much of the scientific knowledge which is to us familiar then presented the aspect of novelty and even of mystery. The scientific methods which have now been long in use were then new. The applications of chemistry to the innumerable processes in which it is now involved had then just been developed. The primal facts of animal and vegetable physiology and their connection not only with human life, but with the whole realm of organized being, were then recent discoveries, and so novel were the teachings of geology that many learned theologians were ready to denounce the science as hostile to revealed religion. It is thus that Professor Chace was one of the pioneers in teaching at an American college the physical sciences according to the methods which now prevail. With many of the leading masters of these sciences he maintained a familiar acquaintance. He was always attached to his early teacher, Dr. Hare, and often saw him in his annual visits to Providence. He shared in the extraordinary impulse which the advent of Professor Agassiz imparted to scientific study, especially in geology and physiology, and frequently met him in familiar personal relations. He numbered the late Professor Guyot and Professor James D. Dana among his personal friends, and with the late Professor Henry, of the Smithsonian Institution, he was on terms of special intimacy, and kept up with him a frequent correspondence to the end of his life. The latter especially often urged him to publish some of the results of his scientific work, but save to a very limited extent, he was never willing to do so. His ideal in such matters was a high one, and he thought that many so-called contributions to science were hardly worthy of the name. I have often heard him modestly say that he had nothing of the kind worth publishing.

His services as a teacher of science were by no means confined to his college classes. Quite early in his career his lectures in chemistry, by an arrangement of the city authorities, were attended by the elder classes, of both sexes, of the Providence High School, and this arrangement continued for several years. He also gave a brilliant series of special lectures to the manufacturing jewelers of Providence, which at the time attracted much attention. He was frequently resorted to for advice by manufacturers and others engaged in industries depending on the right application of the principles of chemistry. Invitations, too, constantly came to him to lecture in distant places, as well as in those near to Providence, most of which he was obliged to decline on account of his college engagements. He, however, during vacations in different years, gave courses of lectures in Boston, at the Peabody Institute in Baltimore, and at the Smithsonian Institution in Washington. In the years between 1863 and 1866, while the gold excitement was prevailing, his services were in great demand among capitalists, who sought advice as to the value of mines which were offered to them for purchase. In business of this kind he was for a time quite largely engaged, purely as a man of science, who had nothing at stake but his professional reputation. He thus visited mining districts in Nova Scotia, in Canada, in Colorado, and other Territories of the West, and also in Nicaragua, in Central America. But he made no ventures for himself, and, by his careful examinations and cautious judgments, I have no doubt he often prevented others from doing so, greatly to their own advantage.

In the summer of 1867, the presidency of Brown University became vacant by the resignation of the Rev. Barnas Sears, D. D., who had been elected General Agent of the Peabody Education Fund. The resignation was unexpected, and it occasioned no small embarrassment at the college. Professor Chace was the senior member of the faculty, and by a portion of the corporation he was deemed the most desirable person that could be selected to fill the vacant office, while a majority of that body were unwilling to vote for any one who

was not a clergyman, as all the presidents had hitherto been. Another person was accordingly chosen to fill the office, but by him it was declined. Meanwhile, the emergency became a pressing one, and Professor Chace was requested to assume the office *ad interim*, till another election should be made; and he was also charged with the instruction of the senior class in metaphysics and ethics, a work usually associated with the office of president. This, not without reluctance, he also consented to do, for it seemed to be essential to the well-being of the college, and for six months he performed the twofold duties thus assigned to him, with eminent success. It was, however, still the opinion of the corporation that the head of the college should be a minister of the gospel. The result was that the Rev. Dr. Caswell, the venerable and highly esteemed ex-professor of mathematics and astronomy, who had retired from his chair some years before, was chosen to the office of president, and Professor Chace was at the same time transferred to the professorship of metaphysics and ethics. Dr. Caswell was now advanced in life, and was unwilling to undertake the duties of a new department of instruction. He could not, therefore, fill the office of president, unless the other part of the corporation's arrangement was carried into effect by Mr. Chace's acceptance of the vacant professorship. The dilemma was not an agreeable one. It demanded a great sacrifice on the part of Mr. Chace, and it is not surprising that he hesitated before accepting a position not only involving new labors and responsibilities, but also thus peculiarly conditioned by the action of the corporation. His final decision was prompted by his loyalty to the college, and by his warm regard for Dr. Caswell, his early teacher, and his friend and associate for many years. His acceptance, in the circumstances, was regarded by his friends as an act of rare magnanimity and self-denial.

It is not to be imagined that Professor Chace was summoned from his chair of natural science to one apparently so dissimilar without distinct and well-considered reference to his qualifications. In the first place, he had been a teacher in the college for thirty-six years, and in

that time had taught a variety of studies probably greater than any other teacher in its whole history, and this he had done with a high order of success. His mind united in a rare degree metaphysical acuteness and philosophic breadth, and he was an accomplished master in the art of teaching. Nor had his devotion to natural science been by any means exclusive. He could not study any one subject without considering its relations to kindred subjects. To his thoughtful and religious mind the world of matter was the vestibule to the world of spirit. His study of the mysteries of the one had led him to contemplate the sublimer mysteries of the other. No realm of inquiry was to him invested with so much interest as that which lies on the confines of matter and mind, and he had long delighted to meditate the problems which it suggests, and the analogies which it reveals. He was also well informed as to the characteristics of the leading schools of metaphysical philosophy, and once engaged in his new teaching he became intensely interested in it. He performed his work in a manner which awakened the utmost enthusiasm in the several classes he instructed, and retired from it in 1872, at the end of five years of most useful and honorable service.

I have thus written of Professor Chace only as a man of science and as a teacher. This, however, is by no means all that he was. I have been much with him in other interesting relations in which his personal qualities were finely shown and his varied resources were amply revealed. Of these I may refer to a circle of educated men, known as the "Friday Evening Club," of which he was one of the original members. It was formed in 1868, and was not suspended till 1884, and then only in consequence of the changes which death and absence and domestic bereavement had wrought among those who composed it. It was essentially and largely social in its character and spirit, but each member was required in his turn to furnish a paper on some subject of his own selection that was also approved by the club. His papers, according to my recollection, more frequently related to ethical, or social, or metaphysical subjects than to those of

natural science. It was especially in these, and in the free and wide-ranging discussion of the papers prepared by others, that he showed not only the extent and thoroughness of his knowledge and the variety of his intellectual resources, but also the genial and unassuming responsiveness of his social spirit. In the generous confidence, the abounding good nature, the unrestricted interchange of opinions and suggestions of every kind, both grave and gay, in the sallies of wit, and in the high debate which marked these meetings he took great delight, and during the sixteen years in which they continued to be held he contributed his full share to the rare intellectual and social enjoyments which, in the minds of all its members, will always be associated with our "Friday Evening Club."

In addition to what Professor Gammell has written, it is worthy of note that the foundation of the present Geological Collection in the university was laid by Professor Chace. To accomplish this he made an extended tour in the summer of 1836, through Virginia and Kentucky, accompanied by one of his students. The service rendered by Professor Chace to the college by his collections in this expedition was one of great value. So long as he held the chair of geology, he watched over this cabinet with unflagging interest, seeking to enrich it by exchanges, and fully realizing how essential such collections are to teacher and pupil alike.

Between Professor Chace and his classes in college from first to last, as will abundantly appear in this sketch, a relation of peculiar worth existed. It was more than respect or admiration for his qualities as a teacher. Though somewhat reserved in manner, yet his pupils never failed to recognize the innate kindliness and absolute sincerity of his nature. They knew him to be genuine and true in all his relations with them; and the following tributes from some of these who have become emi-

nent in various callings, while they fitly supplement from the student's point of view Professor Gammell's admirable sketch, only express what all his classes have gladly acknowledged. The first is from the Rev. George P. Fisher, D. D., LL. D., professor in Yale College : —

In the early part of our college course we did not meet Professor Chace in the class-room. In the first term of the junior year we had some lessons from him in physiology, and in the second term we had recitations and lectures in chemistry. In the second term of the senior year we recited to him "Butler's Analogy." Before I came into personal contact with him as an instructor I had little direct acquaintance with him. Twice every day he appeared at prayers in the chapel, and occasionally, but very unfrequently, in the absence of both Dr. Wayland and Dr. Caswell, he may have conducted the service. When he met us on our walks, he greeted us with uniform courtesy, mingled with a certain reserve, or appearance of reserve. He was regarded, as we knew, by all the students as a teacher of remarkable acuteness and logical ability, and as exacting, in the good sense of the term. He saw through disguises; it was hard for a student to shirk his duties under him, and his sharp cross-examination laid bare the ignorance, with a pretense to knowledge, which is a not uncommon phenomenon in college recitations. It was then the custom at Brown, as some of us have not forgotten, for the students to be kept by the rule in their rooms during the "study hours" of the day and evening, and for the several professors to call at the doors to ascertain if the inmates were at home. The rule had begun to be observed by the officers with different degrees of laxity, and was thus on the road to abrogation; but Professor Chace was noted for the punctual or more strict observance of it. Hence students who chafed under this restriction sought rooms elsewhere than in his division. But as to his fairness, as well as his civility of manner, I never heard, then or afterwards, any dispute or complaint.

It was the custom of Professors Caswell and Chace to select two students from the class to assist them in preparing experiments for their lectures. My classmate, Weston, and myself were honored with this appointment. We thus had occasion to observe with what vigilance and painstaking Professor Chace made ready for his chemical lectures. With characteristic caution, he would not unfrequently warn the class, just before performing an experiment, that it might not succeed; but we knew, and the class found out, that the experiments would never fail. Of the attainments of Professor Chace in the science of chemistry I am not competent to speak; but of his merits as a lecturer in that branch there can be but one opinion among his pupils. His order was lucid; he did not crowd the hearer's mind with minutiæ; he set forth the main facts and principles of the science simply and precisely; he was fluent without being too rapid. In conducting recitations, he demanded precision of statement, and his whole method of procedure had a high disciplinary value. In personal intercourse with Professor Chace, Weston and I met only with kindness; but it was not until later that I escaped from a certain feeling of self-criticism from the consciousness of being under the eye of so keen-sighted a man, whose pitiless analysis, we fancied, would detect any of our shortcomings as surely as he detected fallacies of logic and inaccuracies of statement in the class-room. Subsequently, as I saw him in his own family and in the more familiar intercourse of later years, this peculiar feeling vanished. His evidently warm attachment to his pupils, his relish for humor, and his affability exorcised the old timidity natural to a boy.

Professor Chace taught the seniors "Butler's Analogy." Here we met him in another province in which his extraordinary acumen appeared to great advantage. He had an innate taste for metaphysics, and a corresponding talent. It was a field in which he was adapted to attain to very high distinction. The study of Butler under such a teacher, independently of the instruction derived from the author, was an admirable discipline of the intellectual powers. Our teacher, when

he differed from Butler, or from other authorities, appeared to us to have at command a weapon as sharp as a blade of Damascus. A believer in the truths of religion, he was one who imperatively sought and required a rational basis for all his opinions. His understanding was naturally skeptical in the sense that he interrogated whatever called for credence, and was disposed to take nothing for granted. His natural tendencies, I should say, were wholly averse to everything that savored of mysticism. His temperament, if one may so say, was scientific in its whole character. Tenets that offered themselves for acceptance must exhibit their title to belief. Knowledge must verify itself, and define itself, and keep within its exact boundaries. His religious character was manifest rather in a steady self-government and in faithful obedience to the precepts of the Master than in expressions of emotion.

But I must leave it to others to dwell on the various excellences of our honored friend, and, in particular, on the traits which were specially manifest, and the services rendered to the public, in the closing period of his life. He deserves to be always held in honor in Brown University as a very able and faithful instructor. In the memory of his pupils he will always abide in a place of honor and grateful esteem.

President Angell, of the University of Michigan, gives similar tribute to Professor Chace's merits as an instructor: —

While I was an under-graduate in Brown University, Professor Chace at one time or another gave instruction in different branches of mathematics, in chemistry, in physics, in zoölogy, in botany, in geology, and in "Butler's Analogy," and afterwards in the whole range of philosophic studies pursued in that institution. His pupils will, I am sure, with one accord, testify that he taught every branch admirably. He had in large measure the qualities of a superior teacher. His mind was singularly acute, yet he never indulged in hair-splitting. He had remarkable power of clear and terse statement. No one was left in doubt concerning his meaning. His lucid propositions were in them-

selves almost demonstrations. He untangled a difficult problem with such simplicity that men disinclined to mathematics learned to like them under his instruction. In illustrating scientific teaching he was very skillful as a manipulator and experimenter. He was one of the few men who could talk well while conducting an experiment.

Lucid and accurate himself, he insisted on clearness and exactness in his pupils. No slipshod work passed muster with him. None of the ingenious devices with which shiftless students strive to palm off ignorance, or half-knowledge, or happy guesses, for real knowledge ever deceived him. So well was this understood that no student who was not at once very audacious and desperately hard pressed would be so short sighted as to attempt it. Few members of any class which passed through his hands failed to have their minds quickened, if not to catch a positive inspiration for scholarly work, from his vigor and enthusiasm.

In respect to style his writing was of a high order. It was simple and wonderfully clear. It was compact, yet graceful and flowing. At times it rose easily and naturally to fervid eloquence.

He always seemed to me to have an eminently scientific cast of mind. He observed keenly, he analyzed thoroughly, he made the most careful inductions, he governed all his reasoning by the severest canons of logic. Had not the exigencies of old-fashioned college teaching compelled him to scatter his energies over so many fields of work; had he been able to concentrate his efforts on some one of the sciences, he must have attained marked eminence in it. Yet probably his dominant passion as a scholar was always for philosophic study, and could he have devoted himself to that early in life he would have accomplished more than he could have done by an exclusive devotion to science. Still, either because so much of his life had been given to science, or because he had by nature so strong a scientific bent, he carried much of the scientific method into his philosophic work, as he did into all work. Perhaps his mind might be called in the best sense skeptical. He took nothing for granted. His premises must be beyond dispute.

Every step of reasoning must be securely taken. He must have rational grounds for his beliefs. Therefore his conclusions, when reached, were strongly held. They were not merely opinions, but convictions, and very positive convictions.

The strength of his convictions, and his weight of character, and his acute perception of the character of others enabled him to do easily, when he turned from the secluded life of a scholar to an active participation in public duties, what was a surprise to many, namely, to take a leading place among men of affairs, and to control and guide them in a remarkable degree. They speedily recognized in him a man of clear ideas, of great force and energy, of the purest principle, and of sincere devotion to the good of the unfortunate and the criminal classes which the charitable and the penal institutions of the State undertook to care for. I have always understood that the Hospital Boards and Board of State Charities on which he served so faithfully were largely guided by his counsels while he was a member of them.

It was perhaps a surprise to those who did not know him well that he should have given the ripest years of his life to charitable labors, which could be requited only by the consciousness of good done to the helpless and the wretched. There was in him a certain shyness or reserve which restrained him from revealing himself to those outside of a narrow circle of most intimate friends, and sometimes gave the impression to others of lacking something of that tenderness and sympathy which really dwelt in his heart. Fortunate as Rhode Island has been in finding men of ability and character to administer as a labor of love her charitable and penal institutions, she has had none who have given themselves for long and toilsome years to that noble work with more unselfish consideration and more fruitful results than George I. Chace. In that field too his practical wisdom, his scientific knowledge, and his philosophic ability all contributed to his success. His old pupils must feel that, since the gratification was denied them of seeing him, in his fruitful and vigorous old age, sitting in the governing board of the ancient university to which he had given a long and useful life

of toil, and which he remembered so affectionately in his dying hours, no other work could so fitly have crowned his days as his mission of mercy to the insane, the sick, and the prisoner. We shall remember him with affection and admiration, not only as the teacher, the scientist, the philosopher, but also as the minister to the sorrowing and the suffering, the loving disciple of his Lord and Master.

Hon. Edward L. Pierce, of Boston, the biographer of Sumner, has also well depicted the impression left by Professor Chace on the students as a man and a teacher : —

The characteristic of Professor Chace as an instructor which most impressed me during the years 1846–1850, in which I was a member of his classes, was the clearness and definiteness of his conceptions. His language was always intelligible, for the thought behind it was exactly defined in his own mind. A vague or loose statement was foreign to his intellectual being. His teaching was never obscured by a cloud of words, and he said only what was needed to communicate his ideas. No one who has seen much of teachers can fail to respect a faculty in him, which is missing in many men of genuine learning and accomplishments.

As he did *his* duty, he expected his pupils to do *theirs*. He was not disposed to pass lightly over the laziness and indifference of students who came unprepared to the class-room, either confessing their neglect of their appointed tasks, or trying to hide it by a fluent recitation. To such, if the occasion justified, he was apt to speak sharply, sometimes with satire. If the offender had in him a substratum of character and purpose, he profited by the rebuke. We venerate, when our powers are put to the test in the strain of active life, not the teachers who overlooked our shortcomings, but those only who taught us how to think and how to work, and who helped to give us character and brains.

Professor Chace was social and friendly, more so than one might think from his manner and presence, and he followed with interest the

fortunes of the men he had taught. I recall the excursion to Cumberland and vicinity, taken annually by the class in geology, in which he explained rare specimens gathered from the mines, — the day closing with an entertainment at his house, where host and hostess alike had good words for each and all of us.

It is rare that one has combined such various gifts, such a comprehensive intelligence, as distinguished our professor, equally at home as he was in the exact sciences and in that larger field in which philosopher and teacher "vindicate the ways of God to man." Pascal and Leibnitz easily attained this distinction; but it is shared by few, and the world questions the pretensions of all who undertake speculations in departments not closely related to each other. *Est mos hominum ut nolint eundem pluribus rebus excellere.*

I have often thought what rare endowments were united in Professor Chace, and how well placed he would have been at the head of one of the modern technical schools, to which he would have brought not only an accurate knowledge of the sciences, but also practical sense and the large-mindedness of one interested in all concerns of patriotism and humanity. We may regret that he has left no permanent memorial in any treatise upon the subjects which he taught, and that others can never know him as his pupils have known him. But this is only the common lot. The fashion of this world passeth away; and even the author who has put his life's work into a book soon finds, in the quick transitions of thought and discovery, that he must give place to others who have profited by his labors and investigations. But our professor will at least always live in the character and work of the pupils he served so well. For myself, his personality as teacher and friend has been a grateful memory during the long interval of more than thirty-five years since I left the college, and will remain such until I follow him.

These tributes give fit expression to the sentiments which forty classes in the college have cherished of his work in the class-room. They are no blind enthusiasm for an instructor

popular by reason of other qualities than the solid merits of learning and aptness to teach. They record in well-considered phrase the delightful memories of an instructor who had a gift for teaching of high and uncommon order, and record also the fact that in Professor Chace the college had an illustration of the truth that in all instruction, taken at its largest and best, it is the character behind the teachings that is the most efficient educating force.

In the interval between the presidency of Dr. Barnas Sears and that of his successor, Dr. Alexis Caswell, Professor Chace was appointed president *ad interim*, holding office for the year 1866–67. This appointment involved a change in his department of instruction from his old professorship in science to that of the chair of moral and intellectual philosophy. It was not without a pang that he severed his connection with the scientific department of the college, in which he had wrought for so many years. No more enthusiastic devotee of science ever labored in her fields. But, as will be seen, Professor Chace had exceptional fitness for his new duties as teacher of moral and intellectual philosophy, and fulfilled them with the most gratifying success to his classes and the friends of the institution. To the work thus intrusted to him he brought qualities which assured its complete and happy achievement. He had from the beginning of his career as professor in the college enjoyed the confidence and esteem of his pupils, as a man. He had won their admiration as a teacher. The dignified courtesy which in his recitation or lecture room governed his classes so admirably proved equally efficient and equally attractive in this new relation. The extraordinary executive abilities which marked his later career in connection with public trusts were

at once brought into notice. No detail escaped his observation. He was a wise disciplinarian. The college work moved on without friction, and the order of the institution improved steadily and visibly under his care. A touching reminder of his painstaking fidelity in the fulfillment of every official duty has since his death been found in the carefully written prayers by which he prepared himself to conduct the chapel exercises. They are models of what such prayers should be. They were noted by the students for their appropriateness and fervor, and gave to the chapel services a deeply reverent but also a warmly spiritual tone.

At the close of the period, and when, as it appears, the college had been brought safely and prosperously through a crisis in its history, Professor Chace was rewarded by the most gratifying testimonies to the success of his administration. They reached him in resolutions by the corporation and by the faculty of the university. The city journals uttered in the public ear the same strains of commendation. That he had given proof of eminent fitness for the position there could be no doubt. Had the corporation appointed him president, there is every reason to believe he would have administered the trust with signal efficiency. The traditions of the college, traditions which are deserving all respect, seemed to require that the incumbent should be a clergyman.

The resolutions adopted by the faculty and the corporation are here given, as perhaps best embodying the results and successes of his temporary administration : —

At a meeting of the faculty held this day the following resolutions were unanimously adopted :

Whereas, during the first term of the present year the duties of

president and of professor of moral and intellectual philosophy were performed *ad interim* by Professor George Ide Chace, LL. D. : —

Resolved, that Professor Chace, in consenting to undertake these duties at a crisis of peculiar peril in the history of the university and under circumstances involving unusual anxiety and labor, has furnished additional proof of his disinterested zeal for the highest interests of the institution of which he has been so long a distinguished ornament.

Resolved, that the faculty hereby express their appreciation of the eminent ability and success with which these important duties have been performed, and their sense of the signal service which Professor Chace has rendered to the university by his judicious and dignified administration of its affairs.

Resolved, that the foregoing be entered upon our records, and that a copy be presented to Professor Chace.

A. Harkness, *Secretary.*

Brown University, *February* 25, 1868.

Providence *February* 11, 1868.

Dear Sir, — It gives me pleasure to send you the following votes of the corporation of Brown University at the meeting on the 7th instant : —

" *Voted*, that the thanks of this corporation be rendered to George I. Chace, President *ad interim*, for his important and satisfactory report of the condition of the university under his administration at the present time, and for his recommendations for its future improvement, and that the secretary communicate this vote to him.

" *Voted*, that the report of George I. Chace, President *ad interim*, made to the corporation at the present meeting, be referred to a committee, to consider the same, and to report at the next meeting of the corporation, — a course advisable to be adopted to carry into effect the improvements therein suggested, and any others in their opinion desirable and practicable."

In accordance with the above vote the following committee was appointed: Messrs. Caswell, Kingsbury, Caldwell, Woods, of the Fellows; Messrs. W. S. Patten, Ives, Hague, S. G. Arnold, Woods, Lincoln, Trustees.

Allow me the return of the report at your earliest convenience, as it is deemed desirable to copy it on our records. Yours truly,

JOHN KINGSBURY, *Secretary* C. B. U.

GEORGE I. CHACE, LL. D.

On the accession of Dr. Caswell to the presidency of the college, Professor Chace's labors were entirely devoted to the new department of moral and intellectual philosophy, which he had assumed the previous year, and in which he at once reached honorable distinction. This was a matter of no surprise to those who knew his fondness for philosophical studies, especially as these are connected with natural theology, and who had been acquainted with his contributions to our periodical literature discussing such themes. They show the qualities which a successful teacher in this department of study must have at command. In his memorial sermon, Rev. Dr. Thayer has given a just estimate of Professor Chace's fitness for the chair of moral and intellectual philosophy: —

He was a careful student of the relations between mind and matter, and of the mysterious analogies through which they reflect light one on the other. The results of these studies he frequently gave to special companies of students who met for this purpose, and thus he unfolded the essential items of natural theology and the argument for immortality. So far, indeed, from his physical studies having absorbed his capacity for psychological inquiries or dulled his sensibilities to their finest distinctions, his earlier direction of thought seemed rather to have rendered his mental vision in the sphere of intellectual and moral philosophy more acute, and to have disciplined to severer limitations

his use of analogical reasoning. . . . Many who hear me will testify to the thoroughness of his instructions, and to the opinions they then formed of his power to impress on other minds the great truths of Christian ethics. To some, indeed, who have known little of Professor Chace as a scientific man, but who in these last years have been somewhat familiar with his treatment of metaphysical subjects, it is a question if metaphysical acumen was not his chief characteristic, and his last department was not best fitted to call out his highest powers.

Professor Andrews, now filling the chair of history and political economy in Brown University, and a former pupil of Professor Chace's in these studies, has kindly furnished the accompanying statement as to his methods of teaching, its range and its success, which illustrates and confirms what Dr. Thayer has so well said: —

Professor Dunn's death and Dr. Sears's resignation in the summer of 1867 vacated, besides the presidency, two most important professorships. Who was to succeed to the open places became a serious question, which students asked with no less anxiety than those who were responsible for the answer. The more thoughtful and advanced of them naturally felt special solicitude respecting the instruction in philosophy. Professor Chace's reputation for ability and for the mastery of his chosen department may have been as high outside college as within, but few others knew so well as those in college who had already been his pupils the extraordinary range of his acquirements or his incomparable excellence as a teacher. To them, therefore, the more since they could not appreciate the peculiar difficulties of the new department, his transfer to the chair of philosophy gave the utmost satisfaction. As class after class reached the senior year, this rose to enthusiasm.

The five classes instructed by Professor Chace in philosophy will never be able to avoid regarding his work during those years as the clearest of his many titles to grateful remembrance by the college. It

seems impossible that he should ever have taught any other subject with equal triumph. He unfolded puzzling conceptions in psychology and followed out the finest metaphysical distinctions, apparently with as complete ease and thoroughness as if his work had always lain in this field. And it is doubtless true that no one of the matters which his change of employment called him to canvass was new to him.

Of what, as a student, he had learned from President Wayland, whom he warmly admired and revered, he had evidently forgotten nothing, although tradition has it that he never took notes in class. I chance to possess an item of evidence regarding his proficiency in philosophy when an under-graduate, which has not hitherto been made public. The Rev. Dr. Babcock, at that time president of Waterville College, once related to me that, being present at Dr. Wayland's examination in Professor Chace's senior year in college, he was led by the young gentleman's brilliant answers to ask him some quite difficult questions considerably aside from the topic assigned. Chace hesitating a little over one of these, Wayland leaned toward Babcock and whispered, "Push him, push him; he 'll stand it." Stand it he did, giving, after an instant's reflection, the correct reply. Similarly in all the subsequent years, his thinking must have taken a far wider sweep than his immediate tasks exacted.

Such, for instance, was his cast of mind that all his investigations in science were at the same time studies in natural theology. He had become a master in this, and his handling of the argument from design and his whole exhibition of the telic structure of the universe were veritably peerless. In enforcing truths of this sort he made constant and minute reference to the eye and other parts of the human frame, where his critical knowledge of physiology did him admirable service. Not an exercise with his class passed wherein he did not greatly enrich his philosophical instruction by precious bits of fact, method, or insight from the domain, so familiar to him, of the physical sciences.

Professor Chace's wide researches in other directions had somewhat limited the amount of reading which he would have been glad to do in

the earlier history of philosophy, but in the discussions of the philosophical world which were current in his time he was certainly at home. He was well acquainted, in fact, with modern English philosophy entire, from Locke, whose system, as usual then and even still in American colleges, formed the point of departure for his course of instruction in this branch, through Berkeley, Hume, Reid, and Stewart, to Hamilton and Mill. To the French development of Locke, or the still more important one by Kant in Germany, he paid little attention, herein again following the custom of American colleges. Well do I remember, among much else, his clear account and searching criticism of Positivism, and how plain he made the logical path from Locke through Berkeley to Hume. Not less striking was the concise *résumé* he used to give of the various forms which Pantheism has taken in the history of thought. He loved to dwell upon the causal judgment, and to point out its significance for philosophy and theology; and he never tired of explaining the fatal consequences of accepting Hamilton's doctrine upon this point. He was no believer in Idealism, but had profound regard for Berkeley, and was wont to insist that Berkeley's views should not be misunderstood. The professor had interesting and original ideas of the "art process," as he called it; and this, so far as I can remember, was the only subject upon which his conclusions were exactly the reverse of Wayland's. Free-will, where he showed familiarity with Edwards, the nature of miracle, the mode of the soul's cognition of its body, — point of his chief difference with President Porter, — are specimens of the themes with which that rare mind and trained tongue engaged the interested attention of college students.

In ethics it was Professor Chace's dearest conviction, underlying all his teaching, never to be forgotten by any of his pupils, that right is eternal, not proceeding from will, but of the nature of law to all will, even God's. As little can his unvarying reverence, his earnest spirit in treating ethical problems, or his lucid and sensible views upon vexing questions in casuistry ever pass from our memories.

Professor Chace had the keenest analytic power of any thinker whom

I have ever heard discourse; and, what is very rare indeed, he joined with this a hardly less remarkable faculty for generalization, which enabled him, on grasping the salient notions of a philosophical system, to think his way rapidly to its remotest deductions with but a fraction of the reading which many another scholar would have required. A consequence, a very part rather, of this his gift at generalizing, was his genius for bearing in mind and setting forth all the relevant aspects of whatever subject he undertook to expound, in their proper and natural relations, so as to produce a symmetrical and truthful impression. In proportion, therefore, in its relative emphasis of points, dwelling only upon essentials and passing the rest with a glance, his teaching was about faultless. And touching these essentials, nothing short of absolute mastery by pupils would satisfy him. That a recitation reproduced the lecture signified little; the student was held to a careful original explanation of every topic. Essays were assigned, yet without references to authorities, every artifice being employed to compel in the young men power, independence, and clearness of thought. The class-room discussions and criticisms were meant to stimulate these qualities.

All those of us who sat at his feet in philosophy will remember to our instructor's perpetual praise that he entertained such a theory as he did of the aim of college instruction, — a theory which few now seem to cherish. I mean that he taught for the sake of his pupils, to build intellect and character, rather than for the sake of the subject. His first care was to train the mind; filling it he thought important, but subordinate. Poise, strength, and consistency in mental work resulted. Able students felt so sure of the ground they had traversed — this is so far, indeed, a just criticism of the method — that they were left too little conscious how much, after all, they had not learned. There was moral quickening as well as intellectual, continual pungent reminders of the supremacy of moral law, of the reasonableness and worth of religion. Pupils awoke to their powers and their duties. Not few are the successful men now in society's busiest places who received in Professor Chace's lecture-room their first inspiring consciousness of

vocation, their earliest permanent and decisive ambitions. In fact, there are none, I believe, who studied philosophy under him but look back to that golden year as intellectually and morally the central epoch of their lives.

The professor's expositions, whatever the subject, were clothed in language the most choice and exact, often elegant, not rarely eloquent, the more remarkable from his long association with material science, and from the fact that he had always been more thinker than reader. His references to literature were few, but felicitous. Many will recall his apt quotation from Virgil in his charming and spirited address to General Sheridan, upon that gentleman's memorable visit to the college, I think, in 1868. His knowledge of Scripture was copious and precise, and the rich beauties therefrom, in which his chapel prayers abounded, made listening to these a constant pleasure and surprise.

For five years Professor Chace continued to hold this position. His power in the department grew steadily. Though at times he longed for the old familiar paths of science which he loved so well to tread, yet he could not have failed to see that at no time during the long period of his connection with the college was his influence over the students intellectually and morally greater than during his five years of work in the chair of moral and intellectual philosophy. Striking and gratifying tokens of this are seen in a petition and an address from the class of 1872 here given. And when at length the projected departure for foreign shores took place, the class went in a body to the station, and bade him with cordial and affectionate greetings a God-speed on his voyage.

PETITION OF CLASS OF 1872.

To our Respected and Beloved Professor George I. Chace:

Realizing the invaluable character of the instruction which we have received from you, and cherishing at the same time feelings of warm

personal attachment, which the relations of the past year have developed, we learn with deep regret that your connection with our college is so soon to cease. Your instruction cannot, we feel, be replaced to us: still less can be filled the place which you occupy within our hearts. We desire, therefore, as a class, to return to you our heartfelt thanks for the past; and while expressing our preference for your instruction over that of any one who might succeed you, we sincerely hope that it may be within your power to complete our course of instruction in moral philosophy, when we shall consider it our honor to leave the university with you. [Signed by the class.]

To Professor George I. Chace, LL. D.:

Respected Sir, — A few months since we learned with much regret that you were about to resign your professorship in the university. We therefore took the liberty to express to you our earnest hope that you would delay your departure at least till we had completed the studies which we had already so happily begun under your guidance. We do not imagine that your plans were changed in consequence of our solicitation alone; yet we feel that we are greatly indebted to you for having continued to us the benefit of your instruction during the remaining term of our college course. Had you left us then it would have occasioned us a great disappointment. That you have remained to the present time has afforded us a corresponding satisfaction and pleasure. During the past year and a half you have conducted us through some of the most interesting and important departments of science, both material and spiritual, and have taught us lessons of priceless value relating both to the present life and to that which is to come. We shall always cherish these instructions as among the best treasures of our college education, and we shall aim to guide our lives in accordance with the precepts and standards which you have placed before us. For all these and for the daily interest and care which you have bestowed upon us, we beg you to accept our heartfelt gratitude.

We are to be the last in the series of classes which have gone forth

from the university bearing the impress of your instructions, and your departure is to be coincident with our own. In recognition of this coincidence and as a testimonial of the sentiments we cherish, suffer us to present to you this simple record, signed with the name of every member of the class. It is designed to express to you our individual respect and esteem, our high appreciation as a class of the instructions which you have given us, and our sincere good wishes for the prosperity of your journey and for your health and happiness during many years to come.

In taking leave of you we subscribe ourselves, very respectfully,

YOUR PUPILS AND FRIENDS.

The university also, through its corporation, gave expression to its earnest desire for the retention of Professor Chace among its faculty, as the following resolutions will show. In this action of the college authorities were embodied the views and feelings of the alumni of the institution. He closed his career as professor brilliantly, and amid general regrets that it was to terminate.

PROVIDENCE, *January* 24, 1872.

PROFESSOR GEORGE I. CHACE, LL. D.:

DEAR SIR, — At a meeting of the corporation of Brown University, held to-day in Rhode Island Hall, the undersigned were appointed by the corporation to convey to you the following resolutions, namely: —

"*Resolved*, that this corporation tender Professor George I. Chace their unanimous thanks for his services as professor of intellectual and moral philosophy, and their unanimous request that he continue to render the same service during the present collegiate year.

"*Resolved*, that this corporation take the present occasion to express to Professor George I. Chace their unanimous desire that the relation which he has for so many years sustained to the university, as one of the instructors therein, may be continued in future years in such department and to such an extent as may be acceptable to himself and the corporation."

Permit us, dear sir, to add for ourselves an expression of our gratitude for the eminent service which you have rendered the university, and of an earnest hope that you will comply with the unanimous request of the corporation; for we are confident that you will thus confer a lasting benefit on the young men who enjoy your instruction, and a further honor on the university which you have loved, and have done so much to render justly famous in the land. With sentiments of cordial esteem and friendship we are, Truly yours,

ALVAH HOVEY,
C. S. BRADLEY,
THATCHER THAYER.

But in the fullness of his strength, and with these tokens of hearty appreciation of his pupils, colleagues, and the public, Professor Chace decided on retirement from the institution he had served for forty-one years with unremitting vigor. It was no sudden impulse, no hasty plan. Five years earlier he had written his sister, to whom through life he was tenderly attached: "I prefer to close my professional career while I am in full strength and vigor, and while I still have freshness of interests enough to find other occupations attractive."

During the years 1872–73 he sought these new interests in foreign travel. In company with Mrs. Chace he visited Europe, Greece, and Egypt. He had projected also travel in the Holy Land, but was obliged to forego this part of his tour. He sought the shores of the Old World, not so much for rest as for the culture to be gained by travel. He had been deeply interested in the study of history as it disclosed a plan of God for human advancement. He loved, like Bunsen, to trace the footsteps of God in history. Hence his desire to see for himself the great civilizations of the Old World; to be brought in contact with older races; to survey for himself the wrecks of the storied

past. Art in great paintings or sculptures had for him less interest than masterpieces in literature or the growths of nature. He soon wearied of the picture-galleries. But his delight knew no bounds when he found himself among the Alps. His studies in geology had perhaps something to do with this. He had seen the grandest of our own scenery on the Pacific coast. But amid the stupendous movements of nature as the Alpine scenery discloses them, his mind and heart were stirred to unwonted enthusiasm. He looked on them less from the scientific point of view than from the æsthetic or moral. Mrs. Agassiz, in the memoir of her husband, lately published, has said that the key-note of all his scientific investigations was belief in the existence of a Creator. Through all Professor Chace's life, this runs as a golden thread. It is best expressed by himself in this extract from an address to one of the college classes on the occasion of a Class Day celebration : —

But I must not dwell upon our companionship, however pleasant it has been to me, as we have ranged together over so wide and so diverse fields of the great domain of nature. I trust that we have gathered some fruit. I trust that our souls have been nourished as well as our understandings informed. I trust that nature has lost none of her mystery or beauty while we have analyzed her phenomena and subjected them to the dominion of law. Nay, has she not revealed to us a profounder mystery. Have we not discerned in her a higher beauty, — a beauty of mind, of thought, of soul, of which her outward forms and phases are but the dim reflections? I envy no man that philosophy which would limit our knowledge to the feeble grasp of the senses, would divorce from the universe mind, and see in its regulated and orderly changes only the operation of material forces and laws. Better abandon at once all philosophy and all science. Better the rehabilitation in nature of her ancient divinities, — better for head, better for

heart, better for soul. Better that Apollo should again curb with his strong arm the fiery steeds of the sun, the swift-footed hours daneing in faithful attendance around his flying car; better that Neptune should traverse once more the ocean in his dolphin-drawn chariot, ruling by his trident the waves, with a huge train of gamboling monsters in his wake; better that the forest should be still peopled by dryads, and every river and brook and fountain have its naiad; better that the features of a god should look out from every knoll and rock and tree, than that a blank, dead atheism should spread over and impall nature.

But I need not say to you that such are not the teachings of true science. It is only philosophy, falsely so called, that conducts to conclusions so disastrous to our whole natures and to every interest of human society. Science genuine and profound, and in proportion as it is genuine and profound, will ever be found the assistant and handmaid of religion, the interpreter of the divine thought, and the revealer of the divine will in nature. It discloses in the outward material world a breadth of plan, a comprehensiveness of design, a grandeur of movement, and a sublimity of purpose in comparison with which the loftiest conceptions of divinity attained by classic antiquity are but the feeble imaginings of sick men or the puerile fancies of children. Imparting to the universe something of its real magnitude and proportions, it converts that universe into a vast temple everywhere irradiated by the power and the presence of God, and makes life to a devout man one continued act of worship.

Next, however, to the grandeurs of Alpine scenery what interested him most deeply was Egypt and Egyptology. The land of the Pharaohs was to him fuller of interest than any spot he visited. It fascinated him as it has fascinated so many other thoughtful minds. He never wearied of visiting the Museum of Antiquities at Cairo. He spent hours each day, during a protracted stay in the ancient city, in studying its treasures.

And it was mainly the religious element in that old civilization which delighted and engrossed him. The interest of a Christian philosopher in Egyptology, springing from investigations in comparative religion, drew him more and more closely to the strange Egyptian mythology. It seemed to him to have imbedded in itself so lofty and so spiritual teachings as to create a profound and serious problem. He could not dismiss it as sheer and utter paganism. On his return, he prepared and read before the Friday Evening Club in Providence a paper on the Osiris Myth, which closes with these words, and which shows the intensity of interest with which he regarded the whole subject: —

But whence, we naturally ask, did the Egyptian faith derive the spiritual truths which during the earlier centuries gave it such power, and which after ages of corruption and perversion by the priests still enabled it to maintain its hold upon the respect of the people? More especially, whence the unexpected and almost startling resemblance which in some of its features it bears to Christianity, unfolding as it seems to do a similar plan of salvation, and revealing like phases of the divine character? Are its contained truths parts of a heritage, originally bestowed upon man before his dispersion over the earth? Or did they originate, as Bunsen supposes, in the God-consciousness of the human soul? Or were they reached by philosophic induction through profound thought and study? Or has the common Father, instead of restricting his revelations to a single tribe or stock, made known to all the great races of mankind such moral and spiritual truths as are necessary to the performance of the part assigned them in the drama of human progress? However we may answer this question, a faith that has lighted so many millions of our fellow-men to the tomb, and has projected its rays, feeble and flickering though they be, into the unexplored regions beyond, is worthy of our respectful and sympathetic regard.

This period of foreign travel in 1872–73, lasting for a year and a half, seems, however, only to have invigorated him for a new sphere and new plans of work. He wrote from Dresden: "It is now a little more than a year since we left home. I am getting weary of travel, and shall be glad when we have accomplished what we proposed to do." His active spirit never could have contented itself with mere scholarly leisure. Some career of useful endeavor it was sure to create for itself. Accordingly, on his return to his own land, and for the last twelve years of his busy life, we find him devoting himself to labors wholly apart from his old professional calling, yet which crown his life with rare completeness and honor. It seems evident that in these the influence of Dr. Wayland is clearly traceable. He had in a passage of great force and beauty spoken of Dr. Wayland's devoted labors for promoting every educational, philanthropic, and religious interest in the city of Providence and the State of Rhode Island. He caught the inspiration of the great example. It was easy for him to do so. He was never a scholarly recluse, shutting himself off from contact with living social interests. Naturally reserved, yet that reserve never stood in the way of active service, and was no bar to useful endeavor. It was his conviction that the scholar, be he man of letters or man of science, held his gifts and acquirements in trust for the common good. Years before, and while he was busy with his college classes, he found time to give lectures to those engaged in the manufacturing industries of the State. An illustration of what he did in this way is found in the following extract from the Providence "Journal": —

We take pleasure in publishing the following correspondence, growing out of a course of lectures delivered during the past winter in

Rhode Island Hall. These lectures were given under a provision made in the recent organization of the university for extending to the practical classes of the community the advantages of scientific instruction in the processes of their several arts. They were especially designed for the benefit of those engaged in the working of metals, and were attended by large numbers of the intelligent and enterprising jewelers of our city. The manner in which they were appreciated is indicated by the correspondence, and the value of such appreciation will be inferred from the position and character of the gentlemen whose names are affixed to it.

PROVIDENCE, *June* 8, 1853.

PROFESSOR GEORGE I. CHACE, Brown University:

DEAR SIR, — We ask your acceptance of the accompanying silver pitcher as a token of the regard in which we hold your labors in the course of lectures at Rhode Island Hall, on the Chemistry of the Metals.

Yours, very respectfully,

Church & Metcalf,
Samuel Allen,
Budlong & Rathbun,
Stone & Weaver,
George Mason,
George Hunt,
T. J. Linton,
Gorham & Co.,
Mathewson & Allen,
Sacket, Davis & Potter,
Allin Brown,
Henry Simon,
Potter & Brown,
Lewis Carr,
W. F. Marshall,
George A. Sagendorph,
Wm. W. Keach,
G. & H. Owen,
Palmer & Capron.

BROWN UNIVERSITY, *June* 8, 1853.

GENTLEMEN, — Permit me to tender to you my sincere thanks for the splendid testimonial with which you have been pleased to honor my humble endeavors to elucidate some of the processes of your beautiful art. Whether I regard the object itself — a graceful and finished product of Rhode Island skill and workmanship — or think of the generous appreciation and high courtesy to which I am indebted for it, its

possession is equally a source of pride and gratification. I shall ever prize it, not only as a grateful remembrancer of the past, — of hours spent pleasantly by me, and I hope not unprofitably by you, — but as a bright augury of a closer relationship in future, at least within the borders of our city, between science and the productive arts. For the establishment and maintenance of such a relationship, I pledge you, in receiving this superb gift and proud token of your confidence and regard, that no exertions on my part shall be wanting.

With sentiments of the highest respect, I remain, gentlemen,

Your obliged servant,

GEORGE I. CHACE.

We think that the university could hardly desire a more gratifying proof than is thus offered that its recent provisions for the wider and more general diffusion of scientific knowledge, especially among the mechanical classes, are held in due estimation. When, last autumn, by way of carrying out these provisions in one of the directions open for it, the above course of lectures was suggested to some of our leading manufacturing jewelers, they entered at once into the spirit of the enterprise, and lent to it their ready aid and sympathy. And now, after having contributed, by their coöperation and influence, in no small degree to its successful issue, they have chosen this most emphatic mode of publicly expressing their approbation of the design and purpose in which it originated.

We trust that the endeavors of the university for the promotion of a broader and more popular education will be seconded with equal promptitude and spirit by the intelligent and influential citizens engaged in other branches of trade and manufacture, and that the time will soon come when a knowledge of the sciences, instead of being confined to the professional classes, by whom they are sought chiefly as a means of culture, shall be the possession of every mechanic and artisan, to whom, besides answering the same general end of culture, they will prove of the greatest practical value.

With the views here expressed Professor Chace was in the fullest sympathy. He was ready to give unsparing effort to carry them into effect. His success in this field of effort was as marked as his success in class-rooms with the pupils of the college, or before more cultivated audiences.

It is important to note these early efforts of Professor Chace to identify himself with interests outside his professional life, since they are the root out of which sprang the "bright consummate flower" of his closing years. The charitable labors which invested them with so rich a crown were in fact no sudden development. His mind and heart had long been in training for them, and when the opportunity came he seized it. These labors were, during this period, mainly of a philanthropic nature. But before considering them in proper detail, what seems like an episode in his career should be noticed. It was his brief service to the city of Providence as one of its aldermen. To this office he was chosen in 1878, again in 1879, afterwards declining reëlection, but only because his labors for the public weal in other directions had become too severely onerous. To this office he brought the same gifts which had made him conspicuous as a teacher: fearless honesty in dealing with all questions; thorough-going scrutiny of whatever came up for investigation; careful weighing of all considerations bearing on the question, — and then, as the result, sound practical conclusions. His speech on the subject of true municipal economy attracted at the time of its delivery the attention of the whole city. It was commented on most favorably by the city journals. Citizens sent in communications warmly commending his views. In all the varied interests with which city government has to deal, he was con-

spicuous as the advocate of sound business-like views. He felt profound concern as to the whole question of municipal government. He sat upon committees, engaged in debate, promoted measures in the board of aldermen, with the same earnest, painstaking, thorough-going service with which he taught his classes in mental and moral philosophy. Perhaps no better illustration of the breadth and wisdom with which he met all subjects of municipal welfare can be found than is supplied in a speech at the dedication of the new Providence High School Building. Its opening portions are subjoined: —

The completion of this ample, commodious, and beautiful edifice, to be dedicated henceforward to the highest education of our city, to be the perpetual seat and home of a manly discipline and generous culture, where our most gifted youth may, generation after generation, receive instruction in all useful knowledge, and have their minds moulded to types of intellectual grace and moral beauty, is a just cause for pride and a fit subject for congratulations among our citizens. Well may we give a brief hour to the indulgence of such pride and the interchange of such congratulations. Happily there are no drawbacks to the satisfaction we may properly feel in the accomplishment of so important a work. Although hardly surpassed in exterior attractions by any building in our city, and uniting within, to elegance of finish, every accommodation that could be desired, through the sedulous care of the commission intrusted with its erection, it has been kept within the limits of the original estimate, and now stands complete in all its parts, at a cost which need not disturb the serenity of the most cautious and prudent citizen.

Whether we ought to have a high school, whether an institution offering advantages superior to those of our grammar schools has a rightful place in our system of public education, whether it is expedient or wise or just to provide in the general tax levy for the support of such an institution, I will not now inquire. That question

has been decided by our citizens; and the experience of the last thirty-five years has, I think, abundantly vindicated their decision. As there are some, however, who are disposed to question its correctness; who, though freely admitting, on the ground of the general welfare, the duty of providing for every child born the means of an education that shall fit him for the discharge of all the duties of a freeman, doubt the propriety or right of burdening the general taxpayer for training here and there a favored boy or girl for the higher walks and better conditions of life, it may be worth while to consider for a moment whether there be any just ground for the distinction here made.

Is it more important that there should be honest and intelligent voters than that there should be able men, good and true, for whom they may cast their votes? Is it more important to a community to have well-informed and industrious operatives than to have men of large intelligence and clear heads who may direct their labors and turn them into profitable channels? Is an enlightened class of producers more essential to the business prosperity of the country than honest clerks, skillful accountants, capable and trusty agents, and able and sagacious business men and financiers? At whose door lies the responsibility for the great losses and fearful commercial disasters of the last few years, and for the present depressed state of every species of industry? At whose door, I say, does the responsibility for these great evils lie? Surely not at the door of the producing classes. The country is to-day full to repletion of the products of their labor. We must look higher up in society for the origin of our business troubles. Their fruitful source will be found in unwise investments, in incompetent management, in ignorance of the fundamental laws of trade and finance, in wild and reckless speculation, in enterprises not well considered and from the start doomed to failure, in lack of capacity for the organization and conduct of business, in breaches of trust, in failures of character, in defalcations and misappropriations, in fraud and trickery and dishonesty of all kinds among the better con-

ditioned class, — among those who occupy pivotal positions, and control by their movements, to a large extent, the business of the country; who not only direct its industries, but receive, handle, and distribute their varied products. These higher places in society must be filled with a higher order of men before prosperity can be restored or business settle itself upon a sure and solid basis. For the training and preparation of such men we need all that our highest schools and best masters can do for them. These more advanced institutions of learning are as essential to the public welfare, and are, consequently, as much entitled to public support, as schools of a lower grade, where the pupils are fitted for the ordinary occupations and duties of life.

But there is another question connected with our subject, that is not so easily answered: To what extent should provision be made at public expense for this higher education? Shall the doors of our school be thrown wide open, inviting all who may desire to enter? Or shall restrictions be placed upon admission, limiting the number to such as are, by character and attainment, prepared to avail themselves of its advantages, and as may be required by the interests of the community to fill its more important places? To ask this question, one would at first think, is to answer it. Nothing would seem clearer than that a system of public education, depending for its justification upon the requirement of the public welfare, should be kept within the limits of that requirement. Otherwise it loses its *raison d'être*. The encouragement of tastes and aspirations for a kind of life which nature has not fitted one for is at best a questionable benefit. It should ever be remembered that schools do not make brain; they only discipline and train it. The smith may go through the form of sharpening a sabre or knife; but if it lack steel, he cannot impart to it keenness of edge. In the struggle for place and power, rude strength will always get the better of educated feebleness. To turn, at public expense, those born with organizations fitting them to become good farmers or skillful mechanics into slow accountants, or incapable business agents, or dull teachers, or poor

doctors, or ministers, or lawyers, is an injury to the individuals themselves, as well as a wrong to the community.

But his chief work as a public man is to be found in his connection with the State Board of Charities. The following account of it, furnished by Professor Gammell, will show what it was for practical wisdom, for far-reaching benevolence, what a high order of ability it required, and what a success he achieved.

After the return of Mr. Chace from his visit to Europe and the East, he was not without some solicitude as to the manner in which he might find occupation for his unaccustomed leisure. His life had been spent in the most uniform of all professions, in which the duties of nearly every day are prescribed by an unvarying rule. He had, however, little considered how many things there are of public importance in every large community that will be done only by benevolent and public-spirited citizens, and especially how numerous are the demands which are sure to be made on an educated man of leisure who has any aptitude for affairs. It was not long before he found himself fully occupied with new activities and cares. He had already, as early as 1870, been chosen a trustee of the Butler Hospital for the Insane, and had become much interested in the work of that admirable institution. He continued his connection with it for thirteen years. In May, 1874, a few months after his return, he was appointed by the governor of Rhode Island a member of the Board of State Charities and Corrections, a board which had been created a few years before for the management of the charitable and penal institutions belonging to the State. On taking his seat with his associates he was immediately chosen chairman of the board, and that position he continued to fill till his resignation in October, 1883, when his health was beginning to fail. In November, 1875, he was chosen a trustee of the Rhode Island Hospital, and in June, 1877, he was made president of its corporation. This latter office he continued to hold to the end of his life. Of the duties pertaining to it he took broad and generous

views, and gave a great deal of time to assisting in the beneficent work of the hospital. He also had the satisfaction of seeing its resources greatly increased and its usefulness enlarged during the period of his connection with it.

It was, however, in the Board of State Charities and Corrections that his duties became by far the most engrossing. It was of the nature of a public trust, and having been but recently created by the State it had not yet completed the experimental period of its existence. It was also requiring large outlays of money, and was naturally regarded with some misgivings, which made its success a matter of the utmost importance. This board, unlike those in other States, is not advisory in its functions, but purely administrative, and it exercises entire control over the institutions committed to its care, being responsible only to the legislature. Its members are always citizens of high character and superior intelligence, who serve without compensation. When Mr. Chace entered upon his duties the State Farm in Cranston, some seven miles from Providence, contained only three of the institutions now established there. These were the Almshouse, the House of Correction, and the Asylum for the Incurable Insane, and for these the buildings had not all been constructed. The legislature, however, had decided that the State Prison and the Providence County Jail should be placed there so soon as the requisite buildings could be erected; and a commission had been created for erecting them, of which the chairman of the board was, *ex officio*, a member. Subsequently the institution known as the Reform School of the City of Providence was transferred to the State, and additional buildings for separate reformatories for both sexes were built under the direction of the board. When these were completed, the establishment at the State Farm included six separate institutions, and in addition to these the board exercises an incidental supervision of the jails in the several counties of the State. These institutions now require not less than thirty-five separate buildings for their accommodation, besides houses for officers, attendants, farmers, and laborers. Of these main buildings, ten are for the Asylum for the

Incurable Insane, nine are for the Boys' Reformatory, six are for the State Prison and the County Jail, five are for the Almshouse, four are for the House of Correction, and one for the Girls' Reformatory. The larger part of these buildings were constructed while Mr. Chace was connected with the board, and more or less under his supervision. But in addition to the work of building, which was so long in progress, was the associated work of laying out the grounds embracing a farm of more than five hundred acres, of inclosing the entire estate and the allotments of the several institutions with suitable walls, of providing roads for access to them, of making advantageous arrangements for gaslight, for abundant water, and for a system of comprehensive drainage. New legislation was also to be prepared for adoption by the General Assembly, and explained to its committees; and, what was not unfrequently the most delicate and difficult task of all, suitable officers were to be selected and secured for the proper administration of a group of institutions so comprehensive and at the same time so diversified in their purposes and in the care which they required.

To this entire work in all its branches Mr. Chace gave himself with extraordinary energy and zeal. It occupied all his time, and well-nigh all his thoughts, until its accomplishment was secured, and these important institutions of the State were placed upon their present prosperous footing, and under a system of administration reorganized and adjusted to their new and enlarged dimensions. In all this work he and his associates were in the fullest harmony and coöperation. His scientific knowledge, his careful judgment, and his weight of character gave them the assurance that he was a safe counselor and guide, while his conciliatory spirit and unfailing courtesy enabled him to harmonize varying opinions, and to secure entire unity of action in the discharge of every duty. Difficult and delicate negotiations were often intrusted to him, in full confidence that the views of the board and the interests of the State would in this way be best promoted, and the result always showed that this confidence had not been misplaced. Several of his associates with whom I have conversed have spoken in terms of the

warmest commendation of his judgment, of his executive capacity, his varied practical knowledge, his thoroughness in all investigations, his patience in all times of trial, his uniform courtesy, and his rare fitness to guide the deliberations and shape the action of the board. While he occupied this position he was largely engaged with its duties and cares, and some of these years, as he used to say, were among the busiest of his life.

Before this work of construction and reorganization was entirely finished, those who were nearest to him perceived that it was wearing upon his strength. He had already been admonished by an eminent physician whom he consulted that he was tasking himself with too many cares for the period of life which he had reached. He, however, did not remit them, though he practiced every prudence, till he saw the State Farm and its institutions brought to the condition contemplated in the plans which he had assisted in preparing, and administered according to the methods which he had advocated and caused to be adopted. He felt bound in honor and in religious duty to assist in carrying to its completion the important work whose execution had been intrusted to him and his associates. When this had been accomplished he withdrew from the board in October, 1883, after a period of service extending through nine years and five months, and when he had already passed his seventy-fifth birthday. His resignation was even then in accordance with the dictates of prudence rather than with his wishes, and his interests and his thoughts continued to linger amidst the State institutions which had been so long nurtured by his daily care. He, however, still continued his connection with the Rhode Island Hospital and some other posts of disinterested service, to the end of his life.

These closing years which Mr. Chace thus devoted to the institutions of philanthropy with which he became connected, and especially to the care of the comprehensive establishment at which the State of Rhode Island gathers its criminals, its pauper insane, its wayward children, and its dependent poor, make a fitting complement to his long period

of service as a teacher of science at the university. Together they constitute a life of that order of usefulness and distinction which is always its own best eulogy, — a life faithfully and religiously spent in promoting the noblest interests of society and of mankind.

And perhaps no more striking proof of what power there is in such an example could be given than is found in the tribute paid to him by Hon. Francis Wayland, of New Haven, Conn.

In the course of the annual meeting of the National Prison Association, held at Detroit October 17–21, 1885, Professor Francis Wayland, Dean of Yale Law School, addressed the association as follows, Ex-President R. B. Hayes being in the chair: —

Mr. Chairman, — Since our last annual meeting death has taken from us several of our most esteemed counselors and co-workers. The career of one of them so admirably illustrates the value of educated ability in the work of prison reform and furnishes so stimulating an example of self-denying devotion to duty that it deserves something more than passing mention.

Professor George Ide Chace, LL. D., a vice-president of this body since its reorganization, was graduated at Brown University in 1830 with the highest honors of his class. Summoned by his Alma Mater, a year later, to become a member of the faculty of instruction, he had, at the time of his retirement in 1872, filled with conspicuous ability every position from tutor to president.

After eighteen months of well-earned rest which he spent in foreign travel, he returned to Providence greatly improved in health. He was then at an age when most men, after so many years of confining and monotonous labor, would have felt disposed to pass the remaining days in "the still air of delightful studies." But if such a temptation assailed Professor Chace, he resisted it manfully and successfully. He was very soon appointed a member, and a little later chairman, of the

State Board of Charities and Corrections, an office which he held for nearly ten years. During the same period he was a trustee for the Butler Hospital for the Insane, and President of the Rhode Island Hospital. As has been well said: "To the promotion of the great interests of all these institutions he gave himself with zeal and devotion, occupied in thought and action with beneficent and Christian measures for the cure of the sick and the care of the insane and the reformation of the vicious."

But what more immediately concerns us relates to his labors as chairman of the Rhode Island State Board of Charities and Corrections. That the penal and correctional institutions of that enlightened, progressive little commonwealth have reached such a praiseworthy condition of excellence is largely due to the intelligent zeal with which Professor Chace devoted himself to this form of philanthropic effort.

His active mind could not long be contented with methods which had nothing to justify their existence but the fact that they survived. Indeed, for a man of his years, he was singularly hospitable to new ideas if they gave fair or reasonable promise of good results. He sought information in all directions, deferring with characteristic modesty to the opinions of those who had been longer in this field of labor than himself, but taking nothing for granted which did not commend itself to his own deliberate judgment. He was thoroughly humane, without ever being betrayed into merely sentimental sympathy with the wrongdoer. In his view, the whole duty of society was not discharged by secluding the offender from contact with his fellows during a fixed term of imprisonment. He believed that reformation and imprisonment should go hand in hand; that the inmate of a prison or jail should be encouraged in every legitimate way to reënter the ranks of society as a reclaimed man. To this end he welcomed every available form of useful labor, every practicable scheme of instruction, the religious services of the chaplain, the faithful work of the Sabbath-school teacher. He held that these were all important factors in the work of reformation, elements of physical, mental, and moral discipline which would be in-

valuable to the prisoner, if wisely employed and honestly accepted. At the same time, he never favored lavish expenditure. Guarding with scrupulous fidelity every trust confided to his care, he did not consider his official obligations fulfilled if he did not protect the interests of the tax-payer. While he did not regard an annual balance in favor of the State as the main thing to be aimed at by the board of control, he held that the public had a right to demand the strictest economy in prison management consistent with a wise system of prison reform.

He knew that this was impossible without diligent attention to details, and no small portion of his time was employed in regular and careful inspection of every branch of the service.

He soon learned that the best subordinate officers are not too good to be kept under the watchful eye of adequate supervision. Accordingly, his visits to the institutions over which he presided were not only frequent, but were felt to be much more than formal. Every official was made aware that genuine worth would be appreciated and that no neglect of duty would be overlooked. Friendly with all, but familiar with none, he happily blended true dignity with kindly courtesy. He never turned a deaf ear to a meritorious applicant for mercy, and he was rarely deceived by spurious professions of reform. His intimate friends often speak of the surprise with which they beheld this man, habituated for nearly half a century to the drill of the class-room, display as much aptitude for the superintendence of penal and correctional institutions as if that had been his life work.

It came simply from his habit of doing with conscientious thoroughness, inspired and guided by a disciplined intellect, whatever service was required at his hands.

Mr. Chairman, I am painfully conscious that this most imperfect tribute does scant justice to my early instructor and my life long friend. But he needs no commendation where he is known, and no memorial within the just limits of an occasion like this would fitly introduce him to a stranger.

I beg leave to offer the following resolutions: -

Resolved, that this association desires to place on record its high appreciation of the intelligent zeal, the untiring industry, and the unselfish devotion with which our late associate, Professor George Ide Chace, LL. D., consecrated the closing years of his valuable life to the cause of prison reform.

Resolved, that our lamented friend has left an example worthy of all imitation among educated men of the application of a carefully trained mind to the solution of important problems in the science of penology.

The resolutions were unanimously adopted.

Interwoven with the career thus sketched were other services rendered the public from time to time during his life. These were services in the form of public addresses or contributions to our periodical literature. Allusion has already been made to his lectures before the representatives of various manufacturing interests. But in public address he met what would be judged more exacting occasions. These were of two kinds; occasional discourses and courses of lectures. He was a dignified and attractive speaker, never affecting the orator, rather always speaking as the teacher, and depending for effect on the force of his reasoning and the legitimate power of a very pure, clear, and, at times, chastely ornate style. He had, however, the advantage of impressive bearing, and if the manner of address was far from studied oratory, it was attractive for its manly dignity, its perfect sincerity, and, on fit occasion, solemn earnestness of utterance. His oration before the Porter Rhetorical Society of Andover Theological Seminary, in 1854, gave rise to some discussion of the views advanced on the relation of Divine Providence to natural law. He was entirely prepared to encounter dissent from his views. This his catholic spirit

would readily tolerate. He was stung only when it was implied that such views carried with them essentially disbelief in the teachings of Scripture. It was with a just resentment that he repelled any such imputation. In reply to one such attack, alleging that "one for consistency's sake should renounce Christianity before he uttered such a philosophy," he wrote the following spirited disclaimer : —

> I cannot in silence suffer suspicion to be thus cast upon my earnest faith in that system of revealed truth upon which rests all hope not only of my own personal salvation, but of the salvation of the race; and with which I believe all the highest and best interests of mankind in this world to be most intimately connected. No man has a *moral* right to cast such a suspicion. There is not a word in the discourse, from the beginning to the end, to afford the slightest justification of it.

There is here no intention of raking over the ashes of a buried controversy. All that is meant is to secure for his memory — possibly a work of supererogation now — the record that he believed his views to be in full harmony with the Scriptures, truly interpreted, and that they were views accepted, as he thought, by such Christian men of science as Professor Hitchcock, the eminent geologist of Amherst College, and Professor Dana, of Yale College. The discourse was, subsequent to delivery, published. It was an unalloyed gratification to its author that he received from Professor Dana a letter sympathizing with his views and admiring his discourse : —

New Haven, *July* 17, 1856.

My dear Sir, — Your very acceptable letter was received some weeks since. The first article of yours to which you alluded I had seen, and the second one I immediately looked for and found. Both I have much enjoyed, admiring your views and your mode of presenting

them. The Providence of God is a deep subject; and perhaps none has received greater light from the progress of science than this. You allude to one branch of the subject without dwelling upon it, — the influence over men and human events through action on the minds of men by the Divine Spirit. By enlarging on Providence from this point of view, you might make a valuable contribution to theological science. . . . With much esteem, very truly yours,

JAMES D. DANA.

Apart from all debate as to the soundness of its views, there was no question as to its ability and beauty as an occasional discourse. The subject was one he had considered long and deeply. Some of its passages have rare finish, and the whole discussion shows with what profound interest he regarded the problems in which modern science and Divine revelation are both involved.

Perhaps, however, the most successful of all his occasional discourses was that delivered in 1866, commemorating the life and services of President Wayland. Under that presidency the greater part of his professional career had been passed. Under it he had begun his career as teacher in the college. He enjoyed Dr. Wayland's confidence and friendship. In turn, Dr. Wayland leaned strongly on his counsels, was proud of his successes. The relation between them was one of affectionate esteem. The confidence of the one was met by the most devoted loyalty of the other. All Professor Chace's heart was thus enlisted in the commemorative discourse. It was a masterly analysis of Dr. Wayland's powers, a well-weighed estimate of his great services to education, philanthropy, and religion. Its style was elevated, but all through the address the warmth of his personal attachment, the glow of his admiration, kindled

his discussion. And the impassioned close was instantly recognized by all who heard it as the long pent-up outburst of an affection which had been gathering volume from the time in which he had sat as a pupil at the feet of his great master to the moment of its utterance.

In the various courses of lectures Professor Chace was called on to deliver he certainly won high and deserved praise. A successful and brilliant experimenter when experiment was called for, gifted with the power to make abstruse questions clear to common minds, capable also of leading the more cultivated and thoughtful into the higher relations of thought, his services were often called into requisition. His more noted courses of lectures were those before the Smithsonian Institution at Washington, D. C.; that before the Peabody Institute, Baltimore; a course in Boston; and one before the Newton Theological Seminary. The latter, never before published, is appended to this memorial. At their close the faculty of the seminary adopted the following minute, expressing their appreciation of the services he had rendered: —

The faculty of the Newton Theological Institution feel constrained, as individuals and as a body, to put on record their high appreciation of the course of lectures delivered by Professor Chace. They are confident that the lectures have been of great service to the students, enlarging their knowledge in an important field of inquiry, quickening insight to discover proofs of intelligence in the objects and laws of the natural world, and confirming faith in the unity of the divine plan which enfolds both nature and revelation. They are gratified that the success of the course demonstrates the worth of this new line of instruction and the wisdom of instituting it. They unite in expressing the desire that the lectures may in some way be given to the public, and reach a larger audience.

These lectures show a sustained power of discussion as well as the close and clear discrimination of a trained thinker. They bring him vividly before us in the light in which he loved best to stand, that of a scientific man endeavoring not so much to harmonize science and religion as to show the provinces of each, and that belief in the Divine revelation given us in the Scriptures rests on rational grounds. It is a gratifying thought that his latest public utterance, an address before the Rhode Island Medical Society, in June, 1883, on "Theism from the Physician's Standpoint," shows him in the same attractive light.

Professor Chace's contributions to periodical literature were numerous, considering the demands which his varied and incessant labors as a professor made upon him. It is noticeable that they are mainly devoted to the discussion of subjects not specifically scientific, but involving more or less questions in theology or philosophy. His most valuable articles for the reviews will be found in the "Bibliotheca Sacra." They form a connected series of discussions in natural theology, and were contributed during the years 1848–50. He began the series with an article on the "Divine Agency in the Production of Natural Phenomena" (Bib. Sac., May, 1848). This was followed by one on "Spirit and the Constitution of Spiritual Beings" (Bib. Sac., November, 1848). He furnished next an article on the "Natural Proofs of the Immortality of the Soul" (Bib. Sac., February, 1849). This, an elaborate and very acute criticism of Bp. Butler's celebrated chapter in his "Analogy," will be recognized by his students as having been given them during their study of the "Analogy" under him, and is the fruit of long and patient thought. This article was followed by one upon the "Dependence of the Mental Powers upon the

Bodily Organization" (Bib. Sac., August, 1849), a subject cognate with the one he had just discussed.

The series ends with two articles, "On the Existence and Natural Attributes of the Divine Being," "The Moral Attributes of the Divine Being" (Bib. Sac., April and October, 1850). Of these articles Professor B. B. Edwards, then conducting the "Bibliotheca Sacra," wrote: "We esteem them, and that is the opinion of all who speak of them, as among the ablest and best written which we have ever had in our journal." This is high praise, for Professor Edwards was a man of high ideals in everything, and the journal was at that time publishing articles which gave it the highest rank among reviews of its order.

A list of Professor Chace's more important contributions to the reviews will be found appended to this sketch. Two of them, that on the "Realm of Faith" (Baptist Quarterly, January, 1871), and that reviewing Mr. Rowland G. Hazard's able work, "Man, a Creative First Cause" (Andover Review, December, 1884), are reprinted in this volume. The lucid order of all his discussions, the grasp of the subject, the clear, vigorous, and polished style, qualities found in all his writings, show the secret of his success in this department, a field in which ten fail where one succeeds. Professor Chace was a master of English. His sentences are, in terseness and energy of expression, models. His illustrations are felicitous, and when he uses ornament it is chaste and rich. The passages which here and there strike the reader for their beauty of thought and expression are numerous, and yet no one can regard them as other than aids to the enforcement of his views. The absolute and transparent sincerity of the man is seen in the writing.

Any formal analysis and estimate of Professor Chace's intellectual powers are needless, after such tributes from his colleagues and pupils as this sketch has embodied, and after the enumeration of his labors and successes. But one point needs any further notice. Coupled with qualities and habits of mind fitting him for severe scientific reasoning and investigation there was a love of literature, which he found time always to gratify. It was his habit, after the severer toils of the day were over, to read aloud to his wife from the best authors, or to be read to by her. So they together traversed the pages of our choice poets, essayists, and historians. With Tennyson and Browning among modern poets he was specially familiar, while Milton and Shakespeare were his delights among the older. To the last, this companionship with our best authors was kept up, and much of that finer element in his written style as well as in his general culture was due to this familiarity with good letters.

Of Professor Chace's Christian character it may be said that it was marked throughout by genuineness, depth, and catholicity. He made a profession of his faith in the outset of his career as teacher in the college, uniting himself with the First Baptist Church in Providence, and remaining in its communion till his death, his membership thus continuing for fifty years. The religious atmosphere which surrounded his earlier Christian experience was one peculiar to the time. Habits of severe and gloom-breeding introspection, and a vigorous imposition of external tests as marks of discipleship, too much predominated. But the letters of Professor Chace to intimate friends at this period, though too full of sacred personal experiences to be put under the eyes of the public, show a simple, warm, sometimes almost tearful love to his Saviour, which would seem strange to those

who thought mainly of his life as reserved, if not cold. It is difficult to understand how the impression was created that he was of skeptical tendency. Nothing in his correspondence shows it. It is easy to misinterpret the working of a mind which asks for grounds of belief. In the days of an unquestioning faith, even to inquire seems disloyalty to the truth, and to doubt is to side with the unbeliever. Professor Chace held with Sir William Hamilton that doubt had its legitimate province. "We doubt in order that we may believe; we begin that we may not end in doubt. We doubt once that we may believe always; we renounce authority that we may follow reason; we surrender opinions that we may obtain knowledge. We must be protestants, not infidels, in philosophy."[1] He subjected his beliefs to careful examination, but from the beginning to the end of his career he was a sincere and full believer in the great truths of the revealed word of God.

He fought his doubts and gathered strength,
  He would not make his judgment blind;
  He faced the spectres of the mind,
And laid them: thus he came at length

To find a stronger faith his own
  And Power was with him in the night
  Which makes the darkness and the light,
And dwells not in the light alone,

But in the darkness and the cloud,
  As over Sinai's peaks of old
  While Israel made them gods of gold,
Although the trumpet blew so loud.

There was also in his piety an emotional element, not indeed

[1] See Sir William Hamilton's *Lectures on Metaphysics*, Am. ed. p. 64.

easily stirred, never in fact roused by mere appeals, but which on fit occasion and in the view of the great truths of religion, natural or revealed, was sure to manifest itself. In his letters there are found many and touching expressions of his gratitude to God. His scientific investigations leading him up to these high thoughts of God, often left him the grateful worshipper where he had begun as the scientific investigator. And in all the later labors of charity which he undertook, sympathy — all the deeper because so genuine — was an unfailing stimulus to their performance. This emotional side may have been not often shown, but those who knew him intimately, knew was not wanting in him. It was mostly known, indeed, in the sacred privacies of his own home. And yet on occasions it could not hide itself away. An instance of what depth and tenderness were in his emotional nature is given in the following letter to his sister, describing a scene in church of which he had been witness: —

PROVIDENCE, *June* 9, 1861.

MY DEAR SISTER, — I have been present to-day at one of the most impressive scenes which it has ever been my lot to witness. Our second regiment of troops leave this week for the seat of war. This morning they attended worship at our church. They occupied the whole body of the church. The Governor, together with his staff of high officers, was with them. The flag of our country floated from the spire of the church, and on the inside of the church, the pulpit and the wall on either side of the pulpit was covered with flags. Our pastor preached a most faithful and earnest discourse, made more solemn by the thought that many present were probably listening for the last time to the preached word of God in the Christian sanctuary. The text was from Isaiah 52d chapter, 11th and 12th verses: "Be ye clean, that bear the vessels of the Lord. For ye shall not go out with haste, nor

go by flight; for the Lord will go before you; and the God of Israel will be your rearward." The discourse will probably be printed, in which case I will send you a copy. Some portions of it were very moving. Dr. Wayland made the opening prayer. It was a sublime lifting up to the throne of grace of the whole regiment together with the holy cause in defense of which they were about to offer up, if need be, their lives. I am not so easily moved as I once was, and yet the tears ran in streams down my cheeks during the whole prayer.

The catholicity which marked his religious life is one of its conspicuous traits. He was a Baptist by conviction, and he was always loyal to his church. His devotion to it increased with his years. But he was in the fullest fellowship with all true believers. No belief of his was any bar to the heartiest appreciation of all true churches of our Lord Jesus Christ. In a letter to his sister written from Geneva, 1872, he makes this striking remark: "I have been in communities Protestant and Catholic, of every variety of faith and sect, without perceiving those differences of character which we are accustomed to associate with differences of belief. I am persuaded that the church convictions of men leave the deeper elements of character less altered than we suppose."

There were forms of Christian service also in which he was ever ready to engage. Repeatedly during his busiest professional career he gave his time to the instruction of Bible classes. These were sometimes formed of students from the college, sometimes of young and middle-aged business men. They were held in connection with the Sunday-school of the First Baptist Church. The book of Scripture he chose to teach was the Book of Proverbs. He regarded its ethics as the soundest and timeliest practical instruction. It was his delight

to find the same root for Hebrew and for Christian ethics in the unchangeable laws of right. One of his pupils writes in reference to these Bible classes: "Among our college note-books especially do we value the one in which are recorded the rich practical thoughts which Sunday after Sunday were brought to our notice in these lessons, so full of the wisdom of Solomon." During the year 1851–52 he was superintendent of the First Baptist Sunday-school, a post he resigned only because his labors at that time in other directions had become too much for his strength. It is eminently characteristic of him that, as his carefully written report shows, his first aim in assuming the office was "to elevate the instruction of the school, and give to it unity of aim and character and spirit." He sought accordingly "means of awakening a deeper interest in the study of the Bible, and of imparting larger and more comprehensive and more affecting views of Christian truth." In the same line of work he was accustomed to give lectures to companies of students or to congregations, in which the relations of science and religion were discussed. One such course, followed by large audiences, was given at the Central Baptist Church in the winter and spring of 1869. The class of 1870 in Brown University sent him a petition for a "series of Sunday afternoon lectures concerning the relations existing between science and revealed religion," and the petition states in its preamble that it had been "his custom of late to favor the senior class with a series of Sunday afternoon lectures."

Nothing could better illustrate the spirit by which all his Christian work was prompted than an address given before the Women's City Missionary Society of the city of Providence, November 10, 1879. The address itself is one of great force and

beauty; but an emphasis is added to the whole from the fact that his labors in the same direction had chastened his spirit, and that the keen practical vision which was so quick to see the wiser methods of reformatory effort was suffused with a tender and gracious Christian compassion. There is one portion of the address which may well stand as the embodiment of his later Christian services. And those who love and cherish his memory will gladly see it reproduced in this memorial, as the medium through which they may look to contemplate the life of this gifted man of science, this beloved and honored teacher: —

I have been asked for suggestions as to the best means of reaching the classes for whose benefit your missions are especially intended. Were my experience in laboring for the good of others far greater than it has been, I should hardly venture to indicate any change in methods of which the wisdom, in your hands, has been strikingly vindicated. The work of making men better is found by all who have tried no easy task. The labors of philanthropy, in whatever direction, are of all labors the most discouraging. "Set thyself to do good," says the Eastern sage, "and thou shalt have sweet moments and bitter hours." It is everywhere and under all circumstances up-hill work; and too often, when we hope we have succeeded in helping an erring brother to attain a higher moral footing, like the stone of the fabled Sisyphus he descends with a bound to the level from which he started. In the struggle to overcome the evil in the world by natural forces, the odds are greatly against us. Depraved and selfish natures, low desires clamorous for gratification, vicious tastes and habits constantly gaining strength from indulgence, with a perpetual environment of temptations, are to be contended with. In this struggle, mere physical appliances are unavailing. They may for a time restrain the evil propensities, but they have no power to cure them. Statesmanship has labored for thousands of years at the dark problem, but has found no solution. Its wisest laws and its best institutions have served only to

abate somewhat the evils springing from man's corrupt nature. Philosophy stands appalled at the magnitude of these evils, and confesses herself unequal to grappling with them. There is only one remedy. That remedy is the quickening of the moral sentiments which lie dormant in every human bosom. The final battle between good and evil is to be fought in individual souls. It is regenerated men and women that are to regenerate society and the world.

It becomes, then, a question of the highest importance how the moral energies slumbering in every soul can be best aroused and brought into conflict with the hitherto controlling forces of evil, and a victory and permanent control over the latter be gained; how a worldly character, moulded by the requirements of interest, can be made to give place to one of nobler type, ever prompting its possessor to works of beneficence and charity.

So far as our instrumentality is concerned, the question seems to me not a difficult one to answer. We must bring ourselves into the closest possible relation with those whom we seek to benefit. Our moral impulses must quicken theirs; our characters must help to form and elevate theirs. It is useless to attempt awakening in others sentiments we do not ourselves feel, or imparting to them ideals which we do not in our daily lives embody and exemplify. It is not the sermon, but the man back of the sermon, that reaches the hearts and consciences of his hearers. It is not eloquence of speech that gives power to the exhortations of the Christian brother, but his known character and life. Unless these be in harmony with his words, the latter fall powerless upon the ear of the listener, or awaken in him only disgust. Pure, genuine feeling is the most persuasive of exhorters. A noble Christian character is the most eloquent of preachers.

I have said the closer we place ourselves to those whom we would make better, the greater will be our influence over them. For the fullest effect, it should be mind to mind, heart to heart, soul to soul. When the prophet would impart of his own life to the dead son of the Shunamite, he stretched himself upon the child, and put his mouth

upon his mouth, and his eyes upon his eyes, and his hands upon his hands. We have in this a symbol of the relationship most favorable to the impartation of spiritual life; or, to borrow another illustration from the Scriptures, the leaven must be diffused through the mass, in contact with every part of it, in order that the whole lump be leavened. Its modifying power is strictly limited to that which it touches.

There are some who, in addition to an abounding Christian charity, possess a rare spiritual tact by which they feel their way into the depths of the soul, and there touch with healing finger the springs of thought and action. Although this God-given power is denied to most of us, genuine love to our neighbor and an earnest desire to do him good, with a proper regard to propriety of manner and occasion, will open the way to his better feelings and bring him within the sphere of our Christian influence. No one, of however humble abilities, need fear that his efforts, if put forth for the Master and in his spirit, will be in vain. The water that is spilt upon the ground, and cannot be gathered up, is not wholly lost. It in due time makes the earth greener.

But it is not enough that the moral sentiments be wakened and brought into an active state. They must be strengthened and fortified against the temptations of interest and the assaults of appetite and passion by assiduous culture. The Christian care, instruction, and oversight of those who have commenced a new life, the shielding of them from the dangers of evil companionship, is of the greatest importance. It cannot be neglected without imminent peril to the good work begun. The seed that fell by the wayside, had the fowls been kept away from it, might have struck root into the hard and trodden earth, and in due time brought forth fruit. If the soil of the stony ground had been deepened by culture, the seed that sprung upon it so quickly would not as quickly have withered away.

I should be unjust to them, and fail in my duty to you, if I omitted to say there is another side to the picture. Large numbers even of those who by their errors and indiscretions have exposed themselves to

the law, and been committed to the guardianship and keeping of the State, when removed from the temptations which society places around them, are found to be kind-hearted, faithful to their obligations, and ready when opportunity offers to help others. They are by nature weak rather than bad. They are quite as much the victims of society as of their own vicious appetites and desires. I have sometimes thought that if our Saviour was now on earth He would find among these his chosen field of labor, — that turning from the proud Pharisee, from those who cry Lord, Lord, who prophesy in his name and in his name do many wonderful works, He would seek among these humble and erring ones his lost sheep, — that He would hunt in this, to the human eye, unpromising ground, for the lost pieces of silver.

The life thus commemorated ended April 29, 1885. The end came after months of patient waiting, full of Christian calmness, and sacred, in view of the anticipated departure, with affections that grew only more tender and blessed to the end. He had been told in the summer before that a mortal disease was upon him. Friends could only note in him a shade more of gravity, subduing his habitual cheerfulness into quiet resignation. It was never his characteristic to dwell on the past. In active life, he was wont far more to be thinking of the future, what more he might do, how life could be brought onward into nobler fruitage. And so he fixed his eye on the great immortality. His faith in Jesus Christ imparted abiding and sustaining hopes. Together with her, who had been for many years the gracious and stimulating helper of his labors by her unfailing sympathies and truest counsels; who had made his home the centre of his being; with whom he had traversed much of our best literature, and whose life had been to him the most prized of earthly blessings, he loved to repeat these lines of Mrs. Barbauld: —

Life ! We 've been long together,
Through pleasant and through cloudy weather :
'T is hard to part when friends are dear ;
Perhaps 't will cost a sigh, a tear ;
Then steal away, give little warning,
Choose thine own time,
Say not Good-Night, but in some brighter clime
Bid me Good-Morning.

The last hours were hours of delirium. But through this the religious spirit was seen in the broken prayers, so simple, yet so touching; and once the face was lighted up with an unearthly glow, as if foregleams of the blessed immortality had been vouchsafed the dying sufferer. All was serenity and perfect peace in that hour when his spirit returned to God who gave it. The funeral services were held in the First Baptist Meeting-house, at eleven o'clock, on the Saturday morning following. The service was simple — in strict accordance with the wishes of the dead ; his pastor, the Rev. T. Edwin Brown, D. D., reading the customary Scripture lesson, and offering an impressive prayer. The hymns, " Abide with me," and, " Lead, kindly light," were sung by the choir. The mortal remains were taken to Swan Point Cemetery for interment. There they rest, near the city he loved so much, and in which, for more than half a century, he had lived and labored.

The tidings of his death carried grief into a wide circle. The city of Providence felt it not only as a public loss, but to many of its circles the loss was keenly personal. The city journals all gave utterance to the general sorrow. The religious and secular press of other cities, the journals of education, all united in the tribute to his memory, as of one who had

brightened and blessed life for many, who had been a faithful steward of God's gifts, and in whom life, in the blending of scholarly acquirements with Christian faith, had reached rare completeness and fullness. Every institution with which he had been connected, from the college where he had so long labored to the hospital he had so devotedly cared for, passed resolutions of respect to his memory. And when the annual Commencement of the college came, at which for so many years his figure had been among the most conspicuous, eagerly sought for by his old pupils, and the alumni came together at their annual meeting, the one thought weighing on all hearts was that Professor Chace had gone from them. The deep sense of bereavement was only quickened when the announcement came that he had given new proof of his unfaltering love for the college he had served so long and so brilliantly by a bequest securing two scholarships, one of $4,000 and the other of $5,000 in value, to be awarded by the faculty. The sense of his generosity, as well as of his thoughtful devotion to the institution, only made the grief over his departure more poignant. The deep feeling of the alumni found expression in addresses, two of which are here given : —

Professor John L. Lincoln offered the following tribute of respect to the late Professor George I. Chace, which was ordered to be entered on the minutes of the meeting : —

The members of the Alumni Association, assembled at their annual reunion, desire to express their deep regret at the death of George Ide Chace, a graduate of the class of 1830, and a teacher in the university for more than forty years. Some of our number remember him with love as a fellow-student, very many with profound respect and gratitude as an instructor, and all of us with admiration and

pride as an ever dutiful and honored son of our common Alma Mater. The promise which he gave in youth, by his high rank as a student and a scholar in his under-graduate course, was amply fulfilled by the numerous and eminently successful and useful services which he rendered in manhood and age, both within and without the walls of the university. In looking back over his brilliant career as a college teacher, we observe as one of its signal distinctions the variety and diversity of the departments in which he gave instruction, and also their great value as means of education. Beginning with mathematics and mechanical philosophy, he was afterwards, for more than thirty years, a professor in different departments of physical science; and finally, in obedience to the call of the university, at a critical period of its history, he gave himself to the teaching of metaphysics and ethics. His rare ability in all these sciences, both in the investigation and in the communication of truth; his clearness and fullness of comprehension in the statement of principles, and his skill and aptness in their illustration; the stimulating influence of his instructions towards the pursuit and acquisition of sound knowledge, and their moulding moral force in producing right habits of thinking and noble forms of character, — all these will ever be cherished by his pupils among the choicest memories of their college education, and be treasured in the history of our university among the best elements of its fame and usefulness. And while we thus recall, as alumni of this university, the useful services of Professor Chace's long professional career, we would not forget the new course of service, no less useful, on which he entered at the completion of that career. He might reasonably have then sought a studious retirement, where he might spend his declining years in meditation upon the elevated themes of philosophy and religion so familiar to him by nature and by habit. But so strong were his tendencies to useful action, he saw so keenly the need of such action in the world, the good that imperatively needed to be done and the evil to be undone, that he then gave himself with fresh zeal and devotion to the promotion of the great interests of philanthropy, morality, and

religion, in connection with charitable and public institutions in Rhode Island. This feature of Professor Chace's life and character reminds one of the words of a Latin poet, said of a great Roman, who was a man alike of action and of thought: —

"Nil actum credens, dumquid superesset agendum."

So it was with Professor Chace, that he thought "nothing done so long as anything remained to be done." So was it, also, with him as a Christian man, that with the aim and spirit of a life to be lived not for self, but for others, he gave his best thoughts and efforts to wise and beneficent measures for the cure of the sick, for the care of the insane, the instruction of the ignorant, and the reformation of the vicious. Such was the end that crowned the work of his life.

The alumni, desiring to preserve his memory, direct that this minute be entered upon their records; also that a copy of it be sent to Mrs. Chace.

Colonel William Goddard then addressed the Alumni as follows: —

Any tribute of respect to the memory of Professor Chace would command my warm approval. But I think it is peculiarly fitting that the alumni of Brown University should confess their obligations to this great teacher, and record their high respect for his memory. While in all the relations of life his character and services must challenge our admiration, it was within these college walls that this good tree brought forth its best fruit. Here for forty years he worked with unremitting zeal, teaching and testifying the value of liberal studies and of exact scientific investigations, and patiently struggling with the dullness of apprehension and the undeveloped faculties of generations of his pupils. And what a work it was! He imparted instruction in more branches of learning than any teacher I ever knew, and his knowledge of each was accurate. He impressed his pupils with the importance of thorough preparation by study, but he had the gift, possessed only by the really great teachers, of developing

their powers of reasoning and of disclosing to them the undiscovered paths of original investigation. And he taught them what may be done with life by those who know how to employ it. I do not think Professor Chace was endowed with what is called personal magnetism. His manners were constrained and sometimes even severe. But no student who came in contact with him ever doubted the warmth of his heart and the justness of his character any more than he questioned his intellectual powers. His hold upon his pupils was therefore due to no fascination of manners, to no merely artificial gifts. It was founded upon faith in the man, and it was enforced by the range and acuteness of an intellect whose power has never, in my judgment, been fully estimated. His pupils were content to lean upon his strong arm as he upheld the torch which illumined the dark mines of science, and they listened with eagerness and rapture to the voice that made clear the mysteries of metaphysical studies and declared to them the eternal verities of Christian philosophy. And so to-day the graduates of the old college, in whose service he spent so much of his honorable life, pause amid these festal scenes to recall with grateful hearts all that this illustrious teacher has done, and in broken accents to speak once more of their love and veneration for him. His toil was long — let us who enjoy its fruits hold his name and services in perpetual remembrance.

Mr. President, a less magnanimous man than Professor Chace might have grieved over the treatment he received from the government of the college after he ceased to be one of its officers of instruction. It is to the lasting discredit of the corporation that they constantly refused to admit this man to any part in the government of the university for whose highest interest he had done so much, and whose welfare was always an object of his deepest concern. But Professor Chace knew how to distinguish between the college and its government; between catholic and comprehensive aims and purposes, and the narrowness of sect and petty individual jealousies. He never faltered in his love for the old college, happy in the thought that

"the boys would stand by him." The kindly voice of our great teacher is hushed forever; the hand which guided us through the paths of learning is stiffened in death; but the boys stand by his memory as he stood by us, when "the night was dark and we were far from home."

The reward of a teacher is found, most of all, in the gratitude and veneration of his pupils. In days of student-life they may not always fully appreciate his worth. But in after years, when the perception of what worth was in the teacher and his teachings becomes more clear and ripened powers enable a truer estimate, then the tribute surely comes. It is the high meed of praise due Professor Chace that the tribute laid on his honored grave, in the reverent and affectionate esteem of the long line of his pupils, began in college days, only to grow deeper, stronger, and purer throughout life.

LIST OF CONTRIBUTIONS TO REVIEWS.

Of the Dependence of the Mental Powers upon the Bodily Organization. *Bibliotheca Sacra*, August, 1849, pp. 534–558.

Of the Natural Proofs of the Immortality of the Soul. *Bibliotheca Sacra*, February, 1849, pp. 48–75.

Bowen's Lectures. (Metaphysical and Ethical Science and the Evidences of Religion.) *The Christian Review*, January, 1850, pp. 78–94.

Of the Existence and Natural Attributes of the Divine Being. *Bibliotheca Sacra*, April, 1850, pp. 328–352.

Of the Divine Agency in the Production of Material Phenomena. *Bibliotheca Sacra*, May, 1848, pp. 342–357.

Of Spirit and the Constitution of Spiritual Beings. *Bibliotheca Sacra*, November, 1848, pp. 633–650.

Of the Moral Attributes of the Divine Being. *Bibliotheca Sacra*, October, 1850, pp. 668–696.

Origin of the Human Race. *The Christian Review*, April, 1851, pp. 226–244.

Sir William Hamilton's Discussions. (Philosophy and Literature.) *The Christian Review*, January, 1854, pp. 39–72.

The Persistence of Physical Laws. *North American Review*, July, 1855, pp. 159–194.

The Causal Judgment. *The Baptist Quarterly*, April, 1869, pp. 157–167.

The Realm of Faith. *The Baptist Quarterly*, January, 1871, pp. 42–57.

Review of Rowland G. Hazard's "Man a Creative First Cause." *Andover Review, December* 1884.

LECTURES AND ESSAYS.

THE EXISTENCE OF GOD.[1]

LECTURE I.

The argument for an intelligent Author of nature, from the indications of design in the world around us, though not wholly discredited, has been held in much less esteem of late years than formerly. Several causes have contributed to this. In the first place, the physical sciences, while they have vastly enlarged our conceptions of the material universe, and enabled us to trace back, step by step, a multitude of phenomena to the sources from which they immediately spring, discover in these sources no indications of a personal intelligence or will. All that science reveals is a mysterious and inscrutable energy, inseparable from matter, and determined in its manifestations solely by physical conditions. When these conditions are supplied, the manifestation takes place, no matter what the attendant circumstances or the immediate results; as well for evil as for good; as readily for destroying life as for saving it. The power awakened is heedless of all moral distinctions, and blind to the consequences of its own action. This absence of any appearance of will or purpose in the activities of nature has led men of science to seek an explanation of her adaptations and harmonies in theories of spontaneous evolution. Assuming the eternity of matter and force, they have attempted from these

[1] This course of lectures was delivered before the Faculty and Students of the Newton Theological Institution in the winter of 1876.

data alone to solve the problem of the universe. The whole world, organic and inorganic, has been put under contribution for analogies and facts in support of some of these theories. The comparatively recent doctrine of the conservation of energy, which makes force, like matter, indestructible, however far from being established, has been pressed into their service. Popularized and brought to a level with all understandings, the idea of creation as a mere series of developments has been disseminated through lectures, through periodicals, and through books, until the universal mind has become affected by it, and men who by no means accept the teaching are inclined to regard with less favor the argument of Paley and Butler, and, indeed, all reasoning from what are called final causes. They seek other warrant for their belief in an intelligent author and moral governor of the universe.

In the second place, the many and confessedly great difficulties attendant upon every form of theism; the origin and continued existence of moral and physical evil, and the extent to which they cast their dark shadow over human society, destined, as most creeds teach us, not gradually to melt away and at length disappear, but to stretch onward to another world, there only to become darker and more appalling; the part which chance seems to play in human affairs; the irregularities and disorders everywhere apparent, virtue overborne and vice prosperous, merit neglected and charlatanry of every kind rewarded; and, I may add, the dumbness of oracles and the silence of the grave, — these have driven minds of a certain cast, in which feeling and sentiment predominate over the logical faculty, from the beliefs of the race into a vague, dreamy pantheism. Without attempting its correlation with actual phe-

nomena, they imagine through all nature a certain mysterious energy, impersonal and unconscious, ever welling up out of the bosom of what we call matter, and filling all around with its myriad creations. These creations, after a transient and merely phenomenal existence, sink back to the source from which they came. Man, the highest of them, is but a bubble on a vast ocean. The bubble breaks, and the tiny drops mingle with the mass of waters, again to be thrown up at some other point with a form equally evanescent. This species of mystic and unformulated pantheism, entirely unlike that of Spinoza, which, though resting upon an insecure foundation, was faultlessly logical in structure, has found its way, to a large extent, into modern literature, — remarkably in contrast in this respect with that of the Elizabethan age, — and is through this exerting upon multitudes its seductive and enervating influence. Its very vagueness makes it only the more dangerous. If without the veil of sentiment, which is thrown over it, it were clearly and nakedly presented, it would lose all its attractions. The demands of neither head nor heart would be satisfied by it. It is through the power of imagery and the charms of language that the subtle poison finds its way to the soul. With those who have come under its palsying effect, reasoning of any kind is rarely of much avail. But argument from design, the force of which is not admitted, would seem in their case to be especially inappropriate.

In the third place, on account of the difficulties met in proving the existence of a personal God from the works of creation, many devout thinkers have turned from the outward world to the mind itself, to reach through this, if possible, the same result by a shorter and more direct method; to find a sure basis

for their belief, not in argument, but in immediate intuitions, in the ideas of the reason, in the affirmations of the intelligence, in the sense of duty, in the feeling of dependence, in the impulse to worship, — in a word, in what has been called the God-consciousness of the soul, underlying and giving support to all the different faiths which have swayed mankind. While not disposed to undervalue these inner testimonies to the sublimest as well as the most important of truths, and believing fully that the mind is constituted in harmony with it, I am still inclined to think that the most direct and sure way of arriving at a knowledge of the being and attributes of God is through His works. We cannot in any proper sense be said to be conscious of His existence. Our assurance of the fact must come from the manifestations which He has made of Himself. We must learn from these, if at all, his character. *A priori* reasoning has here no place. Neither can we pass, by inference, from mere ideas in the mind to corresponding outward realities. Unless the Creator has left the marks of his hand upon the things which He has made, without a direct revelation we must forever remain in ignorance of Him. The signs of intelligence as well as of power, of design and purpose visible in every part of creation, must furnish the clue to a knowledge of its author. Nor need we fear mistake or deception in following it. It is in the direction of the natural and habitual movement of the rational faculty. The process is similar to that by which we become acquainted with the characters of our fellow-men. The inferences involved, though not, perhaps, so immediate, are of the same nature and equally legitimate.

Nor is the argument for the divine existence from the indications of mind in the world around us weakened or in any

manner affected by recent discoveries in science. These, by extending the area of our knowledge, have only enlarged the premises from which it derives its conclusion. Science has nothing to do with the origin of phenomena. Beyond their mere observation and classification, its office is strictly limited to the ascertainment of the conditions and order of their occurrence. It has no line long enough to fathom the source from which a single phenomenon arises. Its want of knowledge here is absolute. The hypothesis of material atoms and of attraction and repulsion, energies proceeding from them, by which it seeks to supply this want, is a pure figment of the imagination. The origin and nature of the forces which appear in matter are as inscrutable to science as the thoughts of the Infinite One. All that can be said is that they emerge, if not from absolute points, from spheres so inconceivably minute that the most powerful microscope utterly fails to disclose them. The intimate movements of the atoms, if such they be, upon which all outward visible changes are dependent, are hidden from human view by an impenetrable veil. The continuous efforts of the most powerful intellects for forty centuries have failed to lift a single corner of it. The realm beneath that veil will continue to be, as heretofore, a region of conjecture and hypothesis; and every adequate hypothesis will include an insoluble mystery, — the emergence of force which, whether from something or from nothing, is as unthinkable as creation. In truth, the explanatory power of the hypothesis depends upon the nucleus of supernaturalism, which it enfolds. God is embosomed in it. The mere sciolist does not perceive this. But men of deeper insight, such as the Tyndalls, the Huxleys, and the Spencers, are compelled to acknowledge it, though in language less explicit than could be desired.

The only way in which modern investigation has influenced, or can be imagined hereafter, however far it may be carried, to influence natural theology, is in furnishing ampler, better, and better assorted materials for the construction of the science. The foundations upon which the science rests are quite out of its reach. Should any of the theories of evolution on which minds of a speculative tendency have been at work for so many centuries ever be established, they will come in merely as illustrations of the mode of the divine working.

Nor is the argument from design weakened or neutralized by the reveries of a bewildered and bewildering pantheism. On the contrary, it cuts right through the mist and haze, and opens to view the clear azure beyond. If there is anything that will rouse the mystic dreamer to a right, manly, and vigorous use of his reasoning faculties, it is to confront him on the one hand with the evidences of design in nature, and on the other with the mighty power within or behind nature, ceaselessly carrying forward, through her vast machinery, the beneficent ends so manifestly had in view. If, when thus brought face to face with the power of God and the certified works of God, his dreams do not dissolve, nothing, it would seem, short of the visible presence of the Being whose existence he refuses to admit would be sufficient to dispel them.

I am persuaded that theism has lost ground in suffering itself to be drawn away from the old beaten track marked out so long ago by Hebrew prophets and Grecian sages, into new and more direct paths supposed to lead to the same end. By no other road can the mind arrive at such assurance of a personal Deity. In no other way can it hope to learn the attributes of that Deity. It is through final, and not through efficient, causes

that the divine character is revealed. It is by studying these, and these alone, that we become acquainted with it. All other proposed ways, whether starting from the data of consciousness, or from outward, observed phenomena, if strictly followed, conduct us only to "an unknown and inscrutable reality lying behind appearances," to borrow the language of Herbert Spencer, or, in the bolder and franker words of Mr. Tyndall, to a recognition in "that matter which we in our ignorance have hitherto covered with opprobrium" of "the promise and potency of every form and quality of life." I assume, in saying this, that the validity of the causal intuition is admitted. If it is not, if the authority of this be rejected, then there remains only the idealism of Hume or the phenomenalism of Compte. The surest defense against any of the forms of unbelief is a solid wall of theism, having its foundation in the evidences of thought and purpose in nature, and buttressed and coped by the truths of revelation. Such a theism, while furnishing efficient correctives for the vagaries of the imagination and intellect, would also administer deserved rebuke to the bitterness of sects and the narrowness of creeds. A broader and more beneficent light would shine from it upon all God's creatures. In that light many supposed difficulties would vanish. I propose, therefore, briefly to state and examine the argument for the divine existence from the indications of intelligence and design in the outward world, and see whether it have indeed lost its claim to our respect and confidence, or whether it still remains intact alike in its premises, in its reasoning, and in the conclusion to which it conducts us; nay, whether that conclusion be not supported and confirmed by all collateral testimonies. Something of this kind, if I mistake not, is demanded by the pressure and drift of the

times. The air is heavy with unbelief. It is not merely a questioning of scriptural or traditional dogma. The doubt extends to the foundations of religious faith. When men eminent in science tell us that everything lying beyond the sphere of the senses is but "lunar politics," of which we know nothing and can know nothing, and about which it is a waste of time to speculate; when the astronomer refuses to admit the existence of God because he cannot with his telescope see Him rolling the spheres through space; and the chemist withholds his assent to the reality of spirit because he cannot precipitate it in a beaker glass, or obtain it as a residue in an evaporating dish, or collect it as a distillate in an alembic, it does not become the Christian theist to keep silence. Beliefs more precious to him than life, which impart to existence its dignity and worth; beliefs more important to the welfare of mankind than all that science has achieved, or ever can achieve; beliefs essential to the continuance and safety of organized society, are ruthlessly attacked, and it behooves him to appear in their defense, and with all sincerity and truthfulness show the grounds of the faith that is in him.

NATURE OF THE ARGUMENT.

The argument for an intelligent Creator from the indications of design in the outward world rests primarily on the causal judgment, — one of the clearest affirmations of the intelligence. *Ex nihilo, nihil fit.* Nothing can come into existence of itself. Events do not happen. For every change, wherever or whenever occurring, there must be a cause or causes adequate to produce it. The requirement of adequacy, in respect to both nature and efficiency, is included in the judgment, and is as

absolute as the requirement of cause. If the change observed have manifest relation to something beyond as an end, we ascribe intelligence to the source from which it proceeds. If the end is perceived to be worthy and good, the evidence of intelligence becomes clearer, and is less open to question. As intelligence can be conceived to manifest itself in action only through will, we ascribe this also to the cause producing the change.

If a large number of specially adopted movements or changes look to the same end, the inference of power back of them, acting under the guidance of intelligence and by direction of will, is proportionally strengthened.

If many ends, diverse in character, but all worthy, are reached each by appropriate means, we have there the strongest assurance possible of the concurrence of intelligence and will, as well as power in securing them.

If these ends appear in turn as means to high ends, and these to yet higher, until they are all at length merged in the single end of ministry to happiness, we are then led by the causal judgment to ascribe benevolence as well as power, intelligence, and will to the author of the contrivances. Benevolence is an attribute of character. Its manifestation is evidence of character. We have then in the author of the supposed contrivance all the attributes essential to personality. A being endowed with intelligence and possessing will, power, and character, is a person in the fullest sense of the word.

It is immaterial to the argument in what manner the cause acts, — whether mediately or immediately, whether during each successive moment of time or once for all time. It is the result of the action, objects accomplished by it, that disclose the character of the actor. Words do not express ideas less clearly

on account of the complex apparatus of brain, nerves, and muscles intervening between the thought and its vocal sign. It is only when our attention is called to the subject that we think of the interposed mechanisms. A constitution of government whose wise provisions continue to yield their beneficent fruits through many successive generations affords evidence of as large an intelligence and humanity as a work whose benefits are more immediate.

If the end is not reached directly, but by the use of means and instrumentalities, the indications of mind are not the less clear on this account. On the contrary, we have in the devices for securing the end proof of mind in higher and more prolonged action. Remoteness of end and complexity in the means employed for attaining it suppose a corresponding extent of contrivance and reach of design. An article for use or wear, as a spade or a boot, when made by hand, is proof of intelligence and purpose. But it is evidence of a higher degree of intelligence and of a larger purpose when it is the rapid and continuous product of ingeniously constructed machinery.

The numerous discoveries and inventions by which natural forces have been brought under human control, and the still more numerous contrivances by which these forces, when thus under control, have been made so largely tributary to the well-being of society and the progress of the race, are among the highest evidences of mind as well as the noblest proof of its dignity and worth afforded by modern times. Should we imagine discovery and invention still to go forward, until at length the whole realm of nature should be brought under the dominion of man, and all her agents be made subservient to his uses, and the burden of toil be finally lifted from human shoulders, no loftier conception of the achievement of mere intellect could be formed.

Were such an imagined state of things to be realized, I may here remark, and were a being of a lower order of intelligence to be admitted to the scene, seeing everything that could gratify the desire of man spontaneously produced and delivered to his hand, he would naturally seek an explanation of the wonderful phenomenon. Finding only shafts and wheels and arms and levers in rapid movement, the point where the power was applied being hidden from sight, he might suppose they contained within themselves the cause of their motions. If the period of observation were brief, so that no change was noticed in the machinery or in its working, he might come to the conclusion that it had always existed and always been in operation; or if signs of former changes were discovered incompatible with this hypothesis, he might suppose that it was self-formed as well as self-acting. Would this be more remarkable than the analogous conclusion reached by men who are no mean thinkers touching the works of God?

The kind of reasoning whose nature and validity I have endeavored to show is so familiar to us, we are so constantly practicing it, the steps in it are so short and so rapidly taken, that we are scarcely aware that it is reasoning. We mistake mere logical deductions for immediate perceptions. In fact, however, mind is never an object of direct apprehension. Its existence is only inferred from signs. These may be directly exhibited by the being himself, or they may appear in his works. In either case the knowledge derived from them is inferential, and inferential only. The human mind is no more seen, is no more an object of sense, than that mighty Intelligence the overshadowings of whose power in nature fill us with awe when we contemplate them. It is from these everywhere present manifesta-

tions of duty that the plain, unlettered man and the intelligent savage even unconsciously draw their simple but sublime conclusion.

Upon those who reject the authority of the causal judgment — fortunately their number is small, it is hardly necessary to say — this kind of reasoning, when extended beyond the boundaries of experience, can have little or no influence. For them theology as a science is impossible. Like philosophy it derives its support from an intuition, to which this restricted class of thinkers deny a place in the intelligence.

APPLICATION OF THE ARGUMENT.

Dr. Paley, in seeking for proofs of an intelligent Creator, extends his survey over the whole of organic and inorganic nature. Everywhere he finds the indications of design. These are most striking, however (and the evidence here comes home most strongly to us) in the structures of plants and animals. Among these structures, the human eye and ear naturally hold a prominent place in his argument. In no part of our organization is the evidence of contrivance and purpose clearer. In no part do we discover the signs of an intelligence more completely human. The eye is an optical instrument, as truly so as the microscope or telescope, or the camera obscura, which it more nearly resembles. It acts upon light in the same manner, and like that forms in its dark chamber an exact image or picture of whatever is before it with a knowledge of the end to be attained; and with the right materials and suitable instruments at our command, we should have constructed a similar organ. In like manner the ear is merely an acoustic instrument. It is formed on principles which we perfectly understand, and which

we ourselves embody in analogous structures. The mechanism of the brain and nervous system comes much less within our comprehension. We have little knowledge of their structure, and still less knowledge of the endowments by which they are fitted to perform their important functions. Did we understand the way in which the nerves on the one hand transmit to the sensorium impressions received from without, and on the other convey the mandates of the will to the muscles, we should undoubtedly have proof of a much larger intelligence and a higher and wider range of contrivance than is witnessed in any of the merely mechanical parts of the body. Did we comprehend the functions of the brain, could we look in upon it, and see how it ministers to sensation, to perception, to thought, to feeling, and to will, we should perceive in this wonderful structure which bridges the impassable gulf separating matter from spirit and establishes a way for intercourse between them, evidence of knowledge, skill, and inventive resource, in the presence of which the signs of intelligence in other parts referred to would fade into dimness and obscurity.

But it is not from the eye, or the ear, or the heart, or the hand, or the brain, or from any other of the organs or members of the body, or from all of them united and built up into the perfect man, that we gain, as I think, our strongest impressions of the exhaustless resources of the divine contrivance, but from the vast system of terrestrial machinery, deriving its motive power from the sun, by which, through specially devised attachments, eyes and ears and hearts and hands and brains are continually being formed, and through whose ceaseless working human beings, complete in all their parts, and innumerable other beings, animal and vegetable, equally perfect, are every moment coming by countless myriads into existence.

The ordinary nail, by its manifest adaptation to a special use, affords evidence of thought and purpose on the part of the inventor; but how much more the nail-machine, on one side craunching with its steel jaws the bars of iron presented to it, and on the other delivering in a continuous stream the finished product. The invention of the screw followed that of the nail. It supposes more thought and a higher degree of intelligence. But how little of mind does this show in comparison with the machinery of the screw factory, at one of whose doors enter coils of rusty wire, while at the other passes out, untouched by hand, the completed manufacture. The textile coverings with which we protect and adorn ourselves were not invented at once. It is only through many successive improvements, each the product of thought, that they have become what they are. We cannot look upon them without realizing this. But how much more strongly are we impressed with the power of mind when we go through one of the ten thousand mills which are flooding the world with their diverse and beautiful fabrics. So it is in nature. Our profoundest impressions of exhaustlessness in power of contrivance do not come from mere organized structures, however replete with evidences of thought and purpose they may be, but from the combination of agencies and instrumentalities by which, out of materials the most unpromising, their production is everywhere going forward. By processes to us wholly inscrutable, air, water, and earth are transmuted into the substance of wood and bark, leaf and flower; of bone and muscle, nerve and sinew. In ways which we do not understand, and by agencies of which we are profoundly ignorant, the products of this subtle alchemy are wrought into vegetable and animal organs; and these in like manner are built into the

structures of the innumerable and endlessly diversified beings by which our globe is tenanted. Well might the preacher derive his most striking illustration of the marvelous and incomprehensible ways of the divine working from "how the bones do grow in the womb of her that is with child." In that chamber of mystery and power are wrought miracles as great as any of those which two thousand years ago made the shores of the Galilean lake immortal. Every living thing has its origin in darkness and mystery to the human eye and mind equally profound.

But may we not find an explanation of all the terrestrial phenomena, it will be asked, in the properties of matter? May not "the promise and potency of every form and quality of life" be discovered in the primordial constituents of being? May we not suppose these in proper collocation to have evolved by their interaction the entire system of things with which we find ourselves connected? Has not time been long enough? Are not the energies revealed in matter sufficiently enduring and sufficiently obedient to law?

Waiving the grave difficulties attending this hypothesis, and passing over the very slender foundation upon which it rests, let us entertain it for a moment and see what bearing it has upon our argument. Does it enable us to dispense with intelligence? Does the hypothesis do anything more than carry to a point further back the application of its directive power? Would the proper endowment and placing of the primordial atoms require no thought — an endowment and placing such that, by their definitely regulated interaction continued on through the cosmic ages, they should in the end of time achieve the marvels of life and intelligence which we behold around us?

To infuse the required energy into the nebulous matter and start movements, which, traveling down the eons of eternity, shall at length, organization of system and planet completed, converge, and, by and by, meeting in an eye or heart or hand or brain, shall secure to it its wonderful endowments: would this demand no effort of mind? On the contrary, would it not suppose an intelligence which, flashing along the lines of antecedent and consequent, should take in at a glance all the possibilities offered by original chaos of atoms? Should the so-called development hypothesis be ever established on the basis of observation and induction, which I deem highly improbable, it could lead us legitimately only to sublime conceptions of the attributes of Deity. Instead of embarrassing theism, it would assist in removing difficulties attending it. It would explain, for instance, in a satisfactory manner the origin of certain existing forms of life, which it is not easy to imagine God could have taken pleasure in directly creating. If the argument for the divine existence derived from this wider and more profound view of nature be less convincing than the argument from special structures, it is because the mind, overwhelmed and paralyzed by the vastness of the premises, moves with enfeebled energy to the conclusion. A larger and stronger intelligence would arrive at the truth with as much certainty, and hold it with as firm a grasp.

The doctrine of evolution, though in itself perfectly compatible with a sublime theism, when grafted upon the hypothesis of the eternity of matter becomes the very stronghold of materialism. In fact, the two hypotheses united constitute materialism, and the only form of it that an intelligent man can entertain. In this form it is not unfrequent among men of science, and

there are perhaps few thoughtful persons who have not, at moments when faith was weak, felt its depressing influences. Why not suppose, it is said, the material atoms to be self-existent, and by interactions dependent upon their inherent energies to have organized the universe? Why suppose an eternal, self-existent Being, who has created and endowed these atoms, and assigned to each its place and work? Is not the first the simpler hypothesis? Does it not involve less that is incomprehensible and unimaginable? Does it not explain equally well the phenomena? Is it not wholly relieved of the moral difficulties with which theism has always been pressed? Are we not therefore bound in reason to prefer it?

This view of nature, which lies at the bottom of so much of the unbelief of our times, may assume either a materialistic or pantheistic phase, according to the nature attributed to the primary constituents of being. I shall not enter upon an examination of it at the present time, but shall make it the special subject of my next lecture. I will only say now, that the hypothesis, even in its lowest and materialistic form, if it were philosophically admissible, which I believe it is not, and if it were compatible with observed phenomena and the received doctrines of science, which I hope to show it is not, would by no means preclude the supposition of a mighty intelligence pervading every part of the universe — an intelligence not preceding and determining the organization of the universe, but developed through that organization. If, in the case of ourselves, as this class of philosophers inform us, molecular agitations and neural tremors appear in consciousness, as sensations, perceptions, thought, feeling, purpose, and will, why may we not suppose the universal restlessness of matter, the intense movements by

which its particles are everywhere agitated, the inconceivably rapid vibrations which are ceaselessly coursing its huge and aggregated masses, why may we not suppose these vast and rhythmic movements, extending through all nature, to give being to an Infinite and Supreme Mind endowed with the attribute of omniscience? Will it be said that it is only in nerve substance that molecular movements evolve thought? Is there any warrant for such an assumption? Would it not be a species of anthropomorphism grosser than ever has been charged upon theism?

The conclusions thus far reached are, that in establishing the existence of a personal God, we must rely chiefly upon the evidence of design in nature.

That arguments derived from other sources are only accessory and corroborative.

That the discoveries of modern science have not undermined the teleological argument, but, on the contrary, have laid a broader and deeper foundation for it, and have, moreover, furnished ampler, better, and better-assorted materials for its construction.

That the argument rests primarily upon the causal judgment.

That all its inferences have the warrant of that judgment, and that they do not differ at all in kind from inferences upon which we are continually acting in the ordinary affairs of life.

That the intelligence and design manifested in the structure of the animal organs is so entirely human in character, that we not only understand perfectly many of these organs, but ourselves construct instruments closely resembling them in principle and in purpose.

That it is not in the eye or ear or heart or brain, or in any of

the animal organs, or in the entire animal structure, that we witness the most impressive exhibitions of intelligence and design, but in the adjustments of that vast system of machinery by which, out of materials the most unpromising, eyes and ears and hearts and brains are everywhere being formed and built into the structure of the living animal.

That the development hypothesis, supposing it were to be established, would not enable us to dispense with intelligence, but only carry to a point further back the application of its directive power. And, finally,

That even materialism, consistently carried out, does not preclude the supposition of a mighty Intelligence pervading every part of the universe.

THE MATERIALISTIC FORM OF THE DEVELOPMENT HYPOTHESIS.

LECTURE II.

In my former lecture I expressed the belief that the doctrine of evolution was by itself compatible with the loftiest theism, and that should it ever be established on a solid basis, which I thought highly improbable, it could legitimately conduct us only to sublime conceptions of the mode of the divine working. But when associated with another and quite different hypothesis — that of the eternal and independent existence of matter — it becomes the main pillar and chief support of materialism. It is in this association, and only in this, that I propose in the present lecture to consider it.

The doctrine of evolution being admitted, matter and force, it is said, are all that is required for solving the problem of the universe. Why not suppose matter and force, or rather matter embosoming force, to be eternal? Is not this in all respects preferable to the difficult and hardly conceivable hypothesis of its creation? Is it not simpler? Does it not account equally well for all the phenomena? Does it not escape the difficulties and embarrassments which attend the supposition of an intelligent Author and moral Governor of the world?

In examining this hypothesis, which from its imagined simplicity is so seductive to merely theoretic minds, and which in

one form or another has always found advocates, I shall inquire first, Is it philosophically admissible? Secondly, Is it in accordance with observed phenomena and the received doctrines of science?

Before we can answer these inquiries, we must know what the hypothesis includes; what other subordinate hypotheses are infolded in it. On a very slight examination, the following contents will, I think, be distinctly recognized: —

1. The eternity and self-existence of matter.

2. The evolution of the existing order of things through the long-continued interaction of its primary molecules; and through that alone.

3. The production of mind by certain groupings of these same molecules, and the awakening of thought and feeling by their interaction while thus associated.

Let us see what is included in the first of these hypotheses — the eternity and self-existence of matter. What is matter? Of what does it consist? What is the nature of its primary constituents, or the molecules of which it is supposed to be built up? What are these molecules so marvelously endowed? What is their intimate constitution?

For a very long time physicists were content to regard them as simple unities, or atoms, as they were called, supposed to be indestructible and unalterable. This view of their constitution answered all the demands made upon them in explaining the known facts of science. It, moreover, seemed to be supported and confirmed by laws regulating their combination, which were discovered by Mr. Dalton, near the beginning of the present century. Since that time, until very recently, the atomic theory has been accepted as an established doctrine, has held a promi-

nent place in all treatises on chemistry and physics. Within a few years past, however, facts have been brought to light which, refusing explanation on that theory, demand a radical change in our ideas of the elementary constituents of bodies. Under the brilliant light cast upon them by the spectroscope, — that newest instrument of investigation which has already done so much for the enlargement of our knowledge, — under the brilliant light of the spectroscope, the hitherto supposed atoms expand into clusters of worlds. Each little world, held in its place by an exact balance of forces, has its own separate and distinct movements, while it partakes of the more general motions of the system to which it belongs. The constitution of one of these molecules is shown by the lines in the spectrum obtained by passing the light emitted by the substance when intensely heated, and in the state of a vapor or gas, through a succession of prisms. The number of lines in the spectrum indicates the number of separate parts contained in the molecule, and the position and color of the lines, the tensions at which the parts are severally held by the forces pervading and animating the minute structure. The molecules of the same elementary substance give always the same number of lines, of the same colors, and occupying the same positions in the spectrum. The molecules of different elementary substances give different systems of colored lines, indicating corresponding differences in constitution, — that is in the number and tension of their component parts. Each one of the elements has its own characteristic spectrum. Nitrogen, oxygen, and iron give each a great number of separate lines of nearly all the colors of the solar spectrum, indicating a remarkable degree of complexity in the constitution of their molecules. Hydrogen gives a much smaller number of

orange and blue lines, while sodium gives a single yellow line. This, however, under a high refractive force, opens into two closely approximated and parallel lines, the color remaining the same.

It is on the identity of the spectra given by the molecules of the same substance that spectral analysis is based, a mode of research by which the physicist not only detects the minutest portion of any of the elements, in air, earth, or water, but explores the realms of space, and finds in other worlds and suns than our own the same elements, with molecules constituted in precisely the same manner. Hydrogen and the vapors of iron, manganese, nickel, chromium, potassium, sodium, calcium, and magnesium in the sun! Water in several of the planets! Hydrogen, bismuth, antimony, sodium, magnesium, and mercury in the fixed stars; and in the scarcely discernible nebulæ, hanging upon the outskirts of creation, and not yet shaped into worlds, hydrogen, the omnipresent element, and associated with it nitrogen! How wonderful these facts! and how much more wonderful that man on his little planet should have been able to discover them! This vast extension of our knowledge, affording ground for the presumption of unity of composition and structure throughout the entire universe, confers upon the primary constituents of matter an interest not before possessed by them. These elementary molecules, so complex in structure, embodying forces so inscrutable and yet so obedient to law, presenting differences of constitution in the different kinds of matter, but in the same kind always in precisely the same way, and brought to exactly the same weight and same measure, whence are they? Under what conditions have they been formed? These infinitesimal structures, so minute as to be be-

yond the reach of the most powerful microscope, and yet containing each within itself a subtle mechanism; these prepared materials and instruments ready for the worlds, how have they come into existence? Chance will not account for them. The law of the survival of the fittest, supposed to have exerted so powerful an influence in the organic world, can have had no part in their production. They must have been formed under the guidance of mind, or have had no beginning. Either a Being eternal and self-existent must have specially prepared them with all their adaptations for the sublime end of building up a universe, and peopling it with moral intelligences, or else they must have always existed without object or purpose, not merely in countless myriads, but in numbers immeasurably surpassing the possibilities of thought; and although individually separate and distinct, yet so correlated, that by their interaction continued through a past eternity, they have evolved along with innumerable other and vastly larger worlds the little one which we inhabit, with its exhaustless provisions for the support of life and its teeming population. Such is the dilemma in which we are placed. Can we for a moment hesitate which horn to take? Does it admit of question which of the two hypotheses is the simpler, the more philosophical, or the more in consonance with every part of our nature, rational, moral, and religious?

But we have just entered upon the embarrassments which environ the materialist. The present system of things bears evident marks of transitoriness. It has had a beginning in time, and unless sustained by a power from without it will come to an end in time. The signs of growth or decay, or of both growth and decay, are visible in every part of it. Many such systems might have come successively into existence, and have

run one after another their courses, and yet have hardly touched the resources of a past eternity.

Two sides are presented by every true picture of the universe. With one of these sides the public has been made familiar by the astronomer and the geologist. Emergence from chaos, organization, growth, development, these are the characteristics of the familiar side. On the other side are equally unmistakable indications of decline, waste, decay, and final dissolution. These two sides belong as truly to a portrait of nature as she sits to us, as to a picture of human life. To be satisfied of this, we have only to glance at two or three well-known facts.

The earth is dependent upon the sun for its productive powers. Without a constant supply of heat and light from that central orb, all the activities on its surface would quickly cease. It is the sun that lifts the watery vapor from the ocean to be formed in the upper air into clouds, which are borne by the winds, the sun's carriers, over island and continent, dispensing in fertilizing showers their wealth of water. It is the sun that opens the soil to the genial influences of spring, and quickens into life and growth the innumerable organisms held in its bosom. It is the sun, working in the microscopic laboratories of the plant, that enables it to effect transformations so marvellous to perform before our eyes, and under our hands the miracle of turning stones into bread. Water power, wind power, steam power, electric power, animal power, all these are but altered forms of sun power. It is that which keeps in motion the whole terrestrial machinery. Let the pulses of solar energy no longer reach our planet, and the animated scene of which it is now the theatre would shortly disappear. In a stillness and silence more profound than that of death, it would roll a tenantless ball through space.

But a very small part of the sun's rays are intercepted by the earth. An incomparably larger portion continue their course unobstructed and without utilization till they are lost in the infinite depths of ether. To a thoughtful mind there are few things more impressive than this amazing and ceaseless waste of solar energy. It is not of a day or a year. It has continued through all past time. During the entire lapse of the geologic ages enough of sun power has been each moment expended in merely awaking ethereal undulations, to clothe with verdure and beauty, and fill with life, more than two billion such worlds as ours. The other suns of our firmament are wasting in like manner their stores of energy. Some of them are believed to be at present hotter than our own. Others have already declined to an inferior temperature. These differences are so marked that astronomers have made them the basis of classification. They tell us which of the myriad suns are the oldest and furthest spent, and which have come most recently from the glowing forge of the almighty Artificer. They are all, however, lavishly spending the primordial forces with which they were stored, and it is only a matter of time when the hottest of them, if no higher power intervene, shall have exerted the last ethereal wave, and sunk to the temperature of surrounding space. When this condition of equilibrium shall have become universal change will cease; for change is everywhere born of the conflict of unequal forces. The motive power of the universe will have been spent. Nature, like a clock, has run down and stopped. Like a clock, it must be wound up anew before it will start again. The fires under the boiler have gone out, and the engine has ceased to move. They must be rekindled, or it will remain permanently at rest. Were matter eternal, however

unequally we may suppose the forces connected with it to have been originally distributed, they must, long ages before the commencement of the present order of things, have lost their capacity for work by coming to a state of equilibrium. When this passive state had once been reached, it would have continued forever. Only a power above nature could redistribute the forces, and enable them again to do work.

Let it not be supposed that the view here set forth is at variance with the doctrine of the conservation of energy. On the contrary, it fully recognizes that doctrine. The decline of temperature experienced by the suns of our firmament is not owing to the destruction of any part of the forces originally imprisoned within these. These forces are, and have been from the beginning, continually escaping. They still exist, but have lost their capacity for work. They are no longer available for cosmic purposes. They have passed from the orbs into which they were gathered, and are now traversing in ethereal waves the heights and depths of space, or rippling, if such there exist, on its far-distant shores. Their tendency still is to diffusion and equalization. They have no power to gather themselves up and return to the bodies from which they emanated. As well might the weight of the run-down clock regain without aid its previous working position; or the exhausted and scattered steam reënter the cylinder, and drive anew the piston. For gathering up and restoring to these suns their lost energy, an almighty Hand is demanded; and without such restoration their days are numbered.

It has been suggested that the decaying fires of our sun may be from time to time rekindled, by the planets one after another plunging in upon it. This, however, would only prolong the

period of its activity. The end would be the same. The last planet would at length impart, by its shock, the last addition of heat, and the process of refrigeration would from that time go on without interruption.

Another suggestion has been made which is worthy of consideration only on account of the respectable source from which it comes. Mr. Herbert Spencer supposes that the heat evolved by the impact of the planets upon the sun, as they shall be successively drawn in and absorbed by it, may be sufficient to bring all the matter in our system into a nebulous condition, and thus make way for the emergence of a new system out of the ruins of the old. This new system, after having run its orderly course, he supposes to furnish in like manner by its final disruption the material for a third system; and so on indefinitely. How Mr. Spencer could have been drawn into an hypothesis so extravagant, looking backwards as well as forwards, it is not easy to imagine. Any well-instructed physicist would have informed him that the heat evolved by the supposed collision would at most be only sufficient to throw the planets back to their primitive orbits, without any rise of temperature either in the sun or in themselves. To bring the matter belonging to our system into its original nebulous condition, there must be added to this all the heat that has exhaled from it, from the time when it first floated as a glowing cloud in space down to the present hour, and all the heat that will hereafter exhale from its different members until the moment of the supposed impact of the last planet. There is not a fact or analogy even suggesting the return, by natural causes, of this enormous amount of escaped heat to the bodies with which it was originally associated. Such a return would be in direct opposition to the law of diffusion

governing the movements of caloric, and, as already stated, would require the interposition of supernatural agencies. When this theory of the universe was first proposed by the celebrated Kant, the law of equivalency governing the conversion of force into heat, and of heat again into force, was not known. Had he been aware of the existence of this law, he could hardly have entertained so wild a supposition. The fundamental hypothesis of materialism is therefore untenable. It does not explain in a satisfactory manner any of the phenomena of nature, and is quite incompatible with some of the most marked and striking of these phenomena. The universe has had a beginning, and, unless sustained by a power without itself, will come to an end. It is therefore not eternal. The universe was not built up by natural forces out of the ruins of one which preceded it. Neither can it furnish in its dissolution material for the construction, under natural laws, of another to succeed it. It is, therefore, not one of an eternal series of universes. It must then have come into existence through supernatural agency; or, in other words, by the fiat of an almighty and omniscient Creator.

But we have not done with our subject. Other difficulties of scarcely less magnitude than those already encountered lie in the path of consistent, philosophic materialism. I will advert to three of them only: (1) the transition from inorganic nature to the living structures of plants and animals; (2) the passage from the lower and simpler to the higher and more complex types of organized life; (3) the leap from extension to thought, or from mere material properties to the endowments of mind. Of the second of these difficulties we have Mr. Darwin's proposed solution. Of the first and third nothing approaching the character

of a scientific explanation has been attempted. He would be a bold man who, in this last half of the nineteenth century, should undertake to show how the molecules of inorganic matter, under no other guidance than their own affinities, may in the beginning have come together and united so as to form living plants and animals. The most that any one could do would be to assert the possibility of this, without being able to adduce a single fact in support of the assertion. The supposed cases of spontaneous generation which once gave plausibility to such an hypothesis, under the sharper scrutiny of modern investigation aided by the microscope, have one after another resolved themselves into instances of ordinary and normal reproduction. After a full history of these cases, and of the investigations to which they have led, Mr. Huxley in his Address before the British Association for the Advancement of Science, September, 1870, comes to the conclusion that they do not any of them afford evidence that "the molecules of dead matter, for no valid or intelligible reason that is assigned, are able to arrange themselves into living bodies exactly such as can be demonstrated to be frequently produced in another way." "But although I cannot express this conviction of mine too strongly," he adds, "I must carefully guard myself against the supposition that I intend to suggest that no such thing as abiogenesis" — the production of living matter by matter without life — "has ever taken place in the past." "If it were given me to look beyond the abyss of geologically recorded time, to the still more remote period when the earth was passing through physical and chemical conditions which it can no more see again than a man can recall his infancy, I should expect to be a witness of the evolution of living protoplasm from non-living matter. I should

expect to see it appear under forms of great simplicity, endowed, like existing fungi, with the power of determining the formation of new protoplasm from such matters as ammonium carbonates, oxalates and tartrates, alkaline and earthy phosphates, and water without the aid of light." To this belief he is led, as he informs us, by "analogical reasoning," although he acknowledges he has no right to call "it anything but an act of philosophic faith." It is to be regretted that he does not state the facts upon which his analogical reasoning is based; for after the concessions he makes, it is certainly not easy to imagine them. He supposes that at some unknown epoch in the past history of our planet, under conditions equally unknown, but presumed to be very unlike any now existing, a certain specific event happened through the action of natural causes alone, to the production of which the known laws of matter are wholly inadequate. He further admits that nothing like it has ever come within the range of human experience. How he founds upon analogy a belief so remarkable is beyond my comprehension. Could he point to actual and admitted instances of spontaneous generation, or did we know that life was introduced by this method to any of the other planets, he might then reason by analogy to the mode of its introduction to our own; but without some such knowledge I see no basis whatever for analogical reasoning. The origin of life, except through supernatural agency, is still an unsolved and, as I believe, an insoluble problem. Among other desperate hypotheses, its importation from a foreign source on the fragment of a disrupted world has been suggested. This, however, would not explain its origin, but only carry it farther back.

Mr. Darwin does not attempt to solve the difficult problem,

but, assuming the existence of a few of the simplest forms of life, he endeavors to show how from these under the operation of natural laws may have sprung the entire population of the globe. This is not quite satisfactory to Mr. Tyndall, who thinks little is gained to science by tracing the existing species of plants and animals back to a few primitive types, if for the origin of these we are obliged to have recourse to supernatural agency, the *bête noir* of his school of philosophers. We might as well, he says, suppose the intervention of such agency in the production of every new species. In making this criticism, Mr. Tyndall seems to overlook the important fact that Mr. Darwin's principles do not touch the origin of life, but relate exclusively to the modifications which it has undergone since its first appearance on the earth. Atavism, the law of variation, and the selective power of environments, or external conditions, are the key to his system. Atavism moulds the offspring upon the parental type. The law of variation arranges minor details, so that the offspring always differ more or less from the parents, and also more or less from one another. When the peculiarities of the individual are such as to adapt it more perfectly to its surroundings, the posterity to which they are bequeathed will be perpetuated, and a subordinate variety or species will be established. If, on the other hand, the peculiarities of the individual are such as tend to unfit it for its habitat, and consequently lessen its chances of success in the struggle for existence, the posterity to which they are transmitted will grow weaker with every generation, and the variety marked by these disadvantageous peculiarities will finally die out. By this selection of the fittest, which has been going on under natural laws from the beginning, Mr. Darwin supposes the earth to have been provided at all periods of its exist-

ence with appropriate inhabitants. That the causes assumed are real, and their tendency is in the direction indicated, must, I think, be admitted. But their adequacy to produce the amazing results ascribed to them, however long in operation, there is great reason to doubt. It is certainly very far from having been proved. Although man has for many centuries availed himself of these laws in his efforts to produce improved varieties of the domesticated plants and animals, he has not been able to originate a single new species, or a variety so far removed from the ancestral type as to bear any of the crucial tests of species. Until this is done, evolution by natural selection, although a great advance upon any of the development theories that have preceded it, must be regarded merely as a working hypothesis, destined to work its way either into science, or, what is more probable, out of it, as ninety-nine out of every hundred such hypotheses have hitherto done.

One of the strongest grounds of objection to Mr. Darwin's theory is its want of accordance with the recorded facts of geology. This was early pointed out by Agassiz. By the requirements of the theory, life on the earth must have slowly advanced by insensible movements from the lowest to the highest types. The rocks, however, do not show this. As we rise through the successive strata, we do not observe one species of plant or animal graduating into another; but the first species continues unchanged, until it by and by gives place to the next above it, which from the beginning is perfectly distinct and well marked. Intermediate varieties interposed between two successive species are nowhere found. Life has, to all appearance, ascended by steps, and not continuously on an inclined plane. In reply it is said that intermediate varieties may have

once existed, and have afterwards been destroyed by denuding agencies which are known to have swept away such vast bodies of strata. The answer, however, is strained, and can hardly be deemed satisfactory by those who offer it. If there were ever connecting links between the fossil species, it is certainly remarkable that not one of them should have been preserved and come down to us in the existing formations.

Should the Darwinian hypothesis ever attain to the position of a received doctrine, it will not, as I have already more than once said, do away with the necessity of intelligence for the adjustment of organic to inorganic nature: but only carry its exercise back to the ordaining of the laws under which the innumerable adaptations have arisen.

I have said that he must be a bold man who should undertake to show how the molecules of oxygen, hydrogen, nitrogen, and carbon, under no other guidance than their own affinities, may in the beginning have come together and united so as to form the living structures of plants and animals. But a much bolder man would be required for the task of explaining how the molecules of these same elements can, under any conditions, or in any relations, acquire the power of feeling, thought, and will, and thus pass by virtue of mere collocation from the domain of matter to the realm of mind. Neither these substances nor any of their known compounds have ever shown the slightest evidence of sensibility, although they have been subjected for a whole century to the tortures of the laboratory. Their action is determined, not by the presentation of motive, but by the supply of the proper physical conditions. When these are present it takes place, no matter what the consequence may be. The supposition of will and a contemplated end determining

their action is as completely negatived by the experiments of the laboratory as their possession of sensibility. To say, in opposition alike to the conclusions of the chemist and the physicist, that the elementary molecules of matter may, for aught we know to the contrary, be endowed with a latent sensibility and will only requiring organic conditions for their manifestation, is to seek refuge in our ignorance, which neither facts nor analogies justify, and which, in the circumstances, can hardly be regarded as honest. The phenomena of mind and matter not only have nothing in common, but are so unlike as to render comparison between them impossible. Why, then, refer them to the same essence? What reason for assuming that they have a common substratum? If the phenomena be so unlike, why should not the noumena be equally unlike? Why not refer the two groups of phenomena to two distinct essences, differing in their nature as they differ in their manifestations? Does not a true philosophy require this? But it is said that we must not multiply causes unnecessarily. Matter is in the field. We are certain of its existence. If from its known powers we can account for the activities of mind, without invoking other aid, we are bound to do so. But do we know matter any better than we know mind? Have not as many philosophers attempted to solve the problem of the universe on the supposition of mind alone as on a purely material hypothesis? Are we not absolutely ignorant of the essence of both matter and mind? Have we any other warrant for supposing their existence but the causal judgment? and does not this require that the essence should be in the strictest relation to the manifestation of a nature exactly fitted for producing it? When the manifestations are totally unlike, so as to exclude the possibility of comparison,

is it not a violation of one of the plainest dictates of the reason to refer them, without evidence of the fact, to the same essence? The teachings of analogy are, moreover, in perfect accordance with the requirements of the principle of causality. The progress of knowledge during the past century, while it has tended to the unification of laws, has tended equally to the multiplication of substances. Instead of four elements, as in the time of Aristotle, we now reckon more than threescore. Several have been recently added to those previously known, by the spectroscope. Not limited in its explorations to our planet, this marvelous instrument, reaching out to the sun and stellar worlds, discovers in these distant orbs substances not known to exist on the earth. Besides the different kinds of matter brought to light by modern research, physicists infer the existence of a substance incomparably rarer and more subtle than any known form of matter. This substance is supposed to fill, if not the entire void of space, that finite portion of it which is occupied by the material universe. It is not affected by gravity, and gives no evidence of any of the attractions by which ordinary matter is animated. It is so tenuous that the planets in their revolutions about the sun experience no appreciable resistance from it. Motion is propagated through it with the velocity of light. Many billions of its delicate pulses beat upon the retina of the eye every second, having proceeded from the sun with a rate of motion which would carry them eight times round the earth during the same brief period. If the physicist is obliged to hypothecate a substance so unlike any kind of matter to account for the phenomena of light and heat, surely we may be pardoned for failing to see an adequate explanation of thought, feeling, and will in the reactions of phosphorus and

the four organic elements. Why not suppose the powers of mind to inhere in a substance or essence as much more subtle than the ethereal medium of light and heat as that is than the earth under our feet?

But, it is said, we never witness any exhibition of mental phenomena except in connection with matter. So our knowledge of this pulsating ether, embosoming all worlds, is gained wholly through matter, upon which it acts, and by which it is acted upon. We have no facilities for directly apprehending it, more than we have for directly apprehending spirit. We learn the existence of both in the same way, — through their material manifestations.

Again, it is said, the powers of the mind are in the closest relationship with the brain: that when this is stimulated the mental activities are quickened, and when it is paralyzed they cease altogether; that mere pressure upon certain parts of the brain is sufficient to destroy consciousness. The fact being admitted, does it prove anything more than that, under our present constitution, the mind is dependent in the exercise of its powers upon the brain? Do the discoveries of the modern physiologist do more than specialize this dependence? Do any of them show, or tend to show, that the brain thinks, or that thought is a secretion of the brain, or in any way a functional product of that organ? Do they furnish any new data upon which to build such a theory? Do we at the present hour know any more of the actual relation of the mind to its material organ than was known two thousand years ago? Is not the gulf between molecular movements and neural tremors, on the one hand, and the apprehension of truth and the sense of duty, on the other, impossible in thought even,—as absolutely so now as it was in the

time of Plato? This is admitted by Mr. Tyndall in his imagined interview with Bishop Butler. But he attempts to offset it by an equal difficulty which he supposes to be connected with Bishop Butler's teaching. Had the bishop really been present, he would quickly have enlightened the savant on this point. He would have said, "Mr. Tyndall, I do not suppose, as you seem to imagine, the powers of mind to be independent, detached from all substance, and resting upon nothing. On the contrary, I believe them to be connected with an essence incomparably more subtle than any kind of matter, — a substance composite and organized it may be, but with parts so firmly united that the dissolution of the body has no effect upon it." To this reply of the bishop I do not see how the accomplished professor, on his own principles, could make answer.

Although we have no evidence, it may be further said that the brain actually perceives and thinks, and can hardly suppose it, yet, after all, perception and thought may be in some way the products of its action. It would be interesting and instructive to examine some of the attempts that have been made to construct a material theory of the mental phenomena, and see with what success they have been attended; and to no effort of this kind could we better turn than to the recent work of G. H. Lewes, on the problems of life and mind. Though as yet incomplete, the volume published will well repay a perusal. Like all his writings, the work discloses an unrivaled power of conveying with rare beauty of expression and imagery every conceivable form and shade of thought. It is from such a pen, if from any, that we should expect an intelligible explanation of the dynamics of the brain in the evolution of the mental processes. In attempting this explanation Mr. Lewes does not con-

fine himself to ascertained facts, but, with unlimited draft upon the imagination, he endeavors to show how we may suppose thought to emerge from its organic conditions in the brain and nervous system. He tells us of psychoplasm, and neural units, and serial changes, and residua of experiences, individual and ancestral. "Psychoplasm is the sentient material out of which all the forms of consciousness are evolved." "Psychoplasmic tremors are the raw materials of consciousness." "The movements of psychoplasm constitute sensibility." "The psychical organism is evolved from psychoplasm." "The soul derives its structure and powers from psychoplasm." "Psychoplasm is the mass of potential feeling derived from all the sensative affections of the organism, not only of the individual, but, through heredity, of the ancestral organisms." "A neural unit is a tremor. Several units are grouped into a higher unity, or neural process, which is a fusion of tremors, as a sound is a fusion of aerial pulses; and each process may in turn be grouped with others, and thus from this grouping of groups all the varieties emerge. What on the physiological side is simply a neural process, on the psychological side is a sentient process. We may liken sentience to combustion, and then the neural units will stand for the oscillating molecules." A neural tremor and sensibility are only different phases of the same thing. It may be compared to a curve with a convex and a concave side, one seen from without and the other from within. "Sensibility may be said to rest upon seriated change." "If the changes were simply movements, physical or chemical, they would not present the phenomena of consciousness." "They must be serial and convergent through a consensus determined by essential community of structure." "Experience is the registration

of feeling." "Experience is the organic registration of assimilated material." "The accumulated experiences of ancestors, as well as the accumulated experiences of the individual, leave residua in modifications of structure." The great problem of psychology is to develop all psychical phenomena from one fundamental process in one vital tissue. The tissue is the nervous; the process is a grouping of neural units in tremors.

Such is the foundation upon which Mr. Lewes aspires to build a new system of mental philosophy. Never did one labor at a more hopeless task. It is sorrowful to witness the efforts of so gifted a mind put forth in the vain endeavor to render that which is untranslatable, to explain that which is inconceivable, to illustrate that which is unthinkable.

I have endeavored to signalize some of the difficulties which lie in the path of the materialist.

According to the most advanced teachings of science, the primary constituents of matter are not mere atoms, as heretofore supposed, whose existence demands no explanation, but elaborately organized structures, miniature systems of worlds, as much to be accounted for as the larger systems built from them.

The universe is not eternal, either actually or potentially. It has had a beginning, and unless sustained by a power without itself it will have an end. The forces by which the existing order of things is maintained are being constantly expended, and must finally be lost for cosmic purposes by diffusion through space. Many such universes may have come into existence, run their courses, and passed away, and yet hardly have touched the resources of a past eternity.

Under the materialistic hypothesis life is assumed to have

commenced in our world by the spontaneous generation of plants and animals, not a single instance of which has ever come within the range of human experience. Mr. Huxley, though freely admitting that none of the supposed cases of this sort will bear the tests of a rigorous examination, thinks that such an event may have occurred at an early period of the earth's history, when things were in a formative state. He frankly says, however, that his belief is an act of philosophic faith for which he can assign no sufficient reason. The higher orders of plants and animals are claimed, under this hypothesis, to have been developed from the lower through the operation of natural causes; and yet not a single new species has been produced within the period of reliable observation, although the tendency of nature has been seconded by the efforts of man continued through many centuries.

All the phenomena of mind are in like manner assumed to be evolved by a material organism out of material reactions. So far from this assumption resting on any solid basis of observed facts, it is seen on examination to involve what is impossible in thought, — the transmutation of mere neural tremors into sensibility, intelligence, and will. Between the materialistic form of the development hypothesis, thus embarrassed with difficulties on every side, and the belief in an intelligent Author of nature, to which all its arrangements point, our choice lies. Need we be long in making it?

OF SOME OF THE DIFFICULTIES WITH WHICH THEISM IS PRESSED.

LECTURE III.

I SPOKE in my last lecture of the embarrassments of logical and consistent materialism. But is theism, it may be asked, free from embarrassments? Although not meeting difficulties of the same kind as those encountered by materialism, are there not others equally great lying in its path? Do we not see in the world around us much that is irreconcilable with the idea of a benevolent, wise, and all-powerful Creator? How shall we explain, on such a theory, the origin and continuance of physical and of moral evil, which cast their dark shadows to so appalling an extent over human society? How account for so much of accident, and disorder, and failure in the attainment of proposed ends, and perversion of faculties from their intended uses, and, finally, for the very imperfect accomplishment of any conceivable object of the creation? Before proceeding to a special examination of these difficulties, I wish to premise one or two general truths which it is important to bear in mind while considering them.

The teleologist, when he surveys the outward world, in the same way as when he examines a creation of man, sees means, ends, and incidents. All things and events come under one of

these categories, and not a few have a place at the same time under two of them. The ends alone reveal the will and character of God. The means are simply devices for the attainment of the end. The incidents are collateral, and flow from other properties associated with the available one in the means. The mistaking of incidents for ends has given rise to much bad theology, and the failure to distinguish clearly between incidents and ends to not a little loose theology. Teleology depends upon this distinction. Ignore it, and the science becomes impossible. Teleological deductions are reliable in proportion as this distinction is recognized and kept steadily in view.

What are ends considered in reference to one group of contrivances may hold this place in another group of means to higher ends, and these higher ends may in their turn become means to yet higher, and the series may continue to advance indefinitely. The heart and arteries are means to the circulation of the blood. The circulation of the blood is a means to the proper nutrition of the various tissues; and the proper nutrition of the tissues is a means to health and vigor; and, finally, health and vigor are means to the well-being of the individual. Gravity is the agency employed for putting the winds in motion. The winds are the bearers of the clouds. The clouds water the earth. The earth ministers sustenance to plants, and plants provide food for animals. It is the ultimate sum of the series, the last and highest end, that discloses most fully the character of the Author.

In the works of nature as well as in human devices, in the works of God as well as of man, obstacles of an incidental character may stand in the way of the ends sought. If their obstructive tendency be but inconsiderable, they may be allowed

to remain, and impair to that extent the perfectness of the result. If the obstruction opposed by them be more serious, fitting instrumentalities are provided for their more or less complete removal.

THE DOCTRINE OF THE INCIDENTAL.

Every species of matter, so far as it is known to us, consists of a group of properties united to one another by indissoluble ties. Whenever we desire to avail ourselves of one of these properties for any purpose, we are obliged to take the other properties along with it. These associated properties, carrying into the device activities of their own, always interfere to a greater or less extent with the object in view. If the interference is slight, we allow it to continue; if of a more serious character, we employ such means as may be at our command for controlling it.

Thus friction, from the very constitution of matter, is inseparable from the working of all machinery. We may reduce it by polished surfaces and lubricating fluids; but we cannot entirely remove it. Enough still remains, not only to absorb a very considerable portion of the transmitted force, but in the end to destroy the machinery itself. This friction emerges directly from the cohesion which confers upon the machinery, while it lasts, its solidity and strength. In other relations, friction becomes an important means to ends. We provide for it in hard and roughened surfaces. Without friction locomotion would be impossible. The air would oppose no resistance to the wing of the bird; the earth would offer no reaction to the foot of man or of beast; the wheel of the locomotive would whirl idly upon the rail.

All the other primary forces of matter are equally ready with cohesion to lend us their friendly assistance in the accomplishment of our purposes, and not less ready in different relations to aid in defeating those purposes. Gravity finally pulls down the columns and temples to which for ages it has imparted stability. Chemical affinity takes to pieces the beautiful structures, organic and mineral, which it has assisted in building. Vishnu and Siva are only different appearances of the same god.

If we examine any of the most successful of human inventions, we shall perceive them to be full of defects and limitations, arising from the source here indicated. Take the steam-engine, for example. Throughout its entire structure, from the ash pit to the walking-beam, we find it looking to a single end, — the generation of force. Every part is so formed, and of such material, as to fit it most perfectly for its use. The bars of the grate are of iron, and are made thin and deep. The walls of the furnace are built of bricks, as nearly fire-proof as possible. The boiler is constructed of heavy and thoroughly wrought sheets of the strongest known metal. Every part is made to last. Guards are, moreover, set at all points where danger of accident is apprehended. The builder has omitted nothing which could tend to insure its safe and continuous working.

And yet the bars of the grate melt or burn out. The walls of the furnace crumble away. The boiler leaks, or, becoming weak, explodes, and spreads destruction on every side; or, if such a catastrophe do not occur, the engine gradually wears out, and at length falls into a mass of ruins.

But was any one of these accidents or events intended to

happen? Were these provisions in the structure of the engine looking to it as an end? Was it a part of the design of the builder? Or was it not rather incident to the nature of the materials in which the design was embodied? — materials, too, selected with the most careful regard to uses which they were to subserve. Would it be just to the builder of the engine to say he meant that the boiler should explode, that the walls of the furnace should crumble, that the bars of the grate should burn out? — that he made special provision for all this in the construction of the engine? Surely there can be but one answer to this question.

In all human contrivances, that which tasks the inventive faculty most severely is not the origination of the design, but the overcoming of the difficulties met with in its practical embodiment. The former is often the work of but a single moment. The latter may require the labor of years. Finally, incidents obstructive to the object of the device from which they immediately flow, instead of being controlled by further devices, may, through the complex relations of things, be made subservient to other and higher ends, provided for by a more extended circle of agencies. This obtains very widely in both the natural and the moral worlds. It is the divine method of bringing good out of evil.

Permit me to illustrate by example the three different cases enumerated. Take first an instance of the imperfect attainment of the end sought through causes incidentally connected with the means employed for reaching it. I have referred to the machinery of vapor, wind, and cloud, by which water is lifted from the ocean and borne over the continents, to be distilled in gentle rain upon mountain and valley, upon field, meadow,

and forest. No one can doubt that the object of the beautiful contrivance is the fertilization of the earth. And yet is this object fully accomplished? Does rain always fall where and when it is needed? Is not a large part of the water thus lifted from the ocean returned again to its bosom, without ever reaching the continents? Do not droughts occur in all lands? On the two largest of the continents are there not vast deserts, where rain never falls, — limitless regions of perpetual barrenness? Can any one doubt that these droughts and deserts are incidents of the plan adopted for watering the earth, — that they are immediately dependent upon the physical conformations of its surface, which conformations were evolved under wide and far-reaching laws? Does any one suppose that they were specially provided for, and are in themselves ends? Could we, by opening a channel between the Atlantic Ocean and the interior of the African desert, convert that vast Sahara into a garden, should we be deterred from doing so by the fear that we might be thwarting the divine purposes? Was irrigation ever objected to by any intelligent man on such a ground? Again: gravitation is a fundamental law of matter. Its reign is as wide as the universe. It is the principle of stability throughout nature. On the earth, it is the preserver of order. It gives fixedness of position to bodies. By restraining locomotion it enables us to direct and control it. It underlies all other provisions for our happiness, and in ordinary circumstances ministers constantly to our safety and well-being. Can any one doubt the beneficent purpose of its ordination? And yet, in certain emergencies which are liable to arise, it becomes a destroying agent. It seizes upon the incautious or too venturesome traveler, and drags him over the precipice, to be

dashed to pieces at the bottom. It hurls the avalanche down the side of the mountain upon little villages sleeping at its foot. It gives direction to the molten rock as it issues from the mouth of the volcano, and hurries the fiery torrent on its wrathful way towards the devoted city. In the midst of darkness and tempest it whelms the noble ship, and carries the vessel down with its living freight to the depths of ocean. Does any one believe these events were among the ends contemplated in the institution of the law of gravitation, or that the circumstances were specially arranged for bringing them about? Could the danger have been foreseen in any of the cases supposed, who would have hesitated, from such an idea, to do all in his power to avert the calamity? I do not ask whether these events were foreseen by God, or whether the constitution of things to which they were foreseen to be incidental justified itself to the divine wisdom, and was adopted as the best constitution, but whether the foreseeing of these events weighed in favor of its adoption, or, to vary slightly the language of the question, whether the constitution chosen embodied provisions looking specially to these events, and such embodiment was one of the grounds of the divine choice. Now, I hold that no man in his sober senses can or dare answer the question in the affirmative.

To prevent any possible misunderstanding, I desire to say, before proceeding further, that the questions which we are now considering are all teleological. They have no relation whatever to God's providence. The providential question is of an entirely different character, and depends upon different evidence. It is a question of God's procedure after having established a constitution of things. It is whether He does not, in goodness, see fit to interpose in behalf of His creatures, and ward off evils which

would otherwise befall them under that constitution, or confer, it may be, special blessings. This question comes under an entirely different category, and will be included in the subject of my next lecture.

Numerous examples of preventive and remedial provisions are found in the human organization. Such provisions, in fact, make up no inconsiderable portion of it. They attest, in the strongest manner possible, the reality of the distinction between incident and end, not kept sufficiently in view, as I think, by most theologians, and wholly ignored by the disciples of the Darwinian and Positive schools of philosophy. My first illustration shall be from the eye. The front part of the outer coat or envelope of this organ is transparent, as every one knows, for the admission of light. It retains its transparency, however, only so long as it continues moist. The opaqueness which gathers upon the eye so soon after death is owing simply to the drying of its surface. During life the same thing would happen, were there no provision against it. To prevent an occurrence that would prove fatal to vision, a small gland is placed just within the outer angle of the orbit, having for its office the secretion of tears. These, constantly oozing out upon the inside of the upper lid, are conveyed by its rapid passes over the eye to all the exposed parts of its surface. Fresh quantities of moisture are in this way continually pouring into the eye, to supply the place of that which is lost by evaporation. Thus we see that the volatility of the tears, which belongs to them as much as their lubricating and clarifying properties, and which, were there no protection for averting the end, would wholly defeat the purpose of the eye, is met and rendered harmless by the introduction of an additional organ specially assigned to that office.

Nor does the provision for securing the eye against the effects of evaporation stop here. If the tears which are continually flowing in upon the organ were suffered to dry away upon its surface, there would soon be an accumulation of residual matter, consisting of various animal and saline substances. This gradually thickening, and becoming charged with particles of dust, of which the air always contains a greater or less quantity, would presently induce inflammation in the organ, and in the end destroy it. As a protection against this evil, there is provided a large excess of the lachrymal fluid over and above what is needed to supply the evaporation ; enough, in fact, to wash the eye and preserve it free from every impurity. But then this excess of fluid must be disposed of. If allowed to accumulate in the eye until it should flow over the lid, besides the inconvenience of a constant trickling down the cheek, it would in time occasion disease in the organ itself, as is shown from experience. To meet this new difficulty, a still further contrivance is resorted to. A very delicate tube is inserted just at the inner angle of the eye, terminating above by a bifurcation in the edges of the upper and lower lids, and below in the adjacent passage of the nose. The tears, as fast as they accumulate, are taken up by this tube and conveyed to the nose, where, spread over a large surface, they quickly evaporate, and pass off with the other exhalations attendant on respiration. So complex is the lachrymal apparatus appended to the eye for the express purpose of meeting liabilities incidentally connected with its structure and use.

Can any one who believes in an intelligent Author of nature suppose for a moment the drying of the cornea and the thickening of the tears by evaporation, to be ends contemplated in the formation of the eye ? the object of contrivance, as much

so as the means devised for preventing the evils that would arise from them? to be as much provided for, and as truly included in, the design and purpose of the organ, as vision? Such an idea could surely not be entertained except by those who reject the doctrine of final causes, and refuse to see indications of mind in nature.

Take another example. The frail and delicate materials of which our bodies are formed render them liable to injuries of various kinds, while their complex structure exposes them to disorders almost without number. Muscles may be cut. Ligaments may be torn. Bones may be broken. Limbs may be severed. Teeth decay. The lungs inflame. The heart enlarges, or its valves ossify. The stomach is disordered. The secretions of the liver become obstructed. These, and ten thousand other accidents and disorders, are incident to our constitution and the circumstances in which we are placed. We cannot, however, on this account, suppose them to enter in any way into the purpose intended to be accomplished in our creation, — to have been specially provided for in our organization, and sought as ends. Such an idea is wholly irreconcilable with the remedial provisions which we find incorporated in the structure not only of man, but of all the lower animals, — provisions for the reparation of injuries, and the reproduction even of those parts which have been lost by accident or disease. These evils grow out of the nature of the substances of which organized beings are composed, and from which they derive all their powers. Matter continuing what it is, the beings formed of it must be liable to injury; and in proportion as their organizations are complex and the circumstances of their existence variable, they must be liable to disorder. Among the lowest races we find

animals with structures so simple, and living under conditions so uniform, that they are scarcely more liable to disease than the elements of which they are formed. As their faculties are proportionally limited, they have little power of avoiding danger, and are consequently peculiarly exposed to mutilation and injury. As a compensation for this, they are endowed (the simplicity of their structures admitting it) with the most astonishing powers of recovery, entire limbs, and in some instances the eyes even, being reproduced in a short time after they have been lost. As we rise in the scale of organized life, we meet with animals of a more complex structure, possessing a wider range of faculties, and having greater powers of avoiding the dangers to which they are exposed. These suffer less frequently in the integrity of their parts. Their power of repairing injuries and supplying losses is also less remarkable. At the same time they are more liable to disease, on account of the greater number and delicacy of the relations subsisting between their several parts; and the *vis medicatrix naturæ* is stronger in them, owing, it is probable, to the same cause. This type of character is most strongly exemplified in man, who stands at the head of the animal creation, and who, besides combining in his structure a greater number and variety of parts than any other animal, is also endowed with intellectual and moral faculties, which add still further to the elaborateness of his constitution. His life is also more varied, and takes in a far wider range of both character and circumstances than that of any other animal. We accordingly find him more liable to disease, oftener suffering from organic and functional derangement. At the same time his system, including within it a greater number of checks and balances, possesses greater recuperative powers; so that disor-

ders, though more various and more frequent, do not so generally prove fatal with him as with the lower animals.

Could there be stronger proof of the incidental character of the physical evils complained of than is thus afforded? If in themselves intended, or if the result of want of thought or care, whence the preventive and remedial devices so numerous and striking not only in man, but in all living beings? Indeed it may be doubted whether more of the contrivances embodied in the animal organs are for rendering the available properties of matter tributary to their varied functions, or for holding in restraint other accompanying properties which tend to impede and obstruct those functions. So difficult was the problem of rearing for the earth out of its own dust fitting inhabitants! If the practical solution reached is not unattended with evils, the provisions made in so many cases for checking or remedying these evils are sufficient to vindicate the divine goodness from aspersion on that account. If there is limitation, of which I see no proof, it must be limitation in power.[1]

[1] There are other difficulties encountered by the Christian theist, which, if we adopt the modern theory of evolution, the doctrine of the incidental assists us in clearing away. I refer to the origin of the innumerable parasites which infest the bodies of animals both internally and externally, and of the hosts of destructive insects which prey upon the fruits of the earth and bring to naught so often the labors of man. It is hardly compatible with any idea we can form of God to imagine Him occupied with the formation of many of these beings. Mr. Kirby, author of one of the Bridgewater treatises, supposes them to have been created after the fall of man, and to be among the instrumentalities devised for his punishment. Such a notion, however, in the present state of our geological knowledge, is scarcely tenable. But if we suppose the varied forms of life on our globe, instead of being directly created, to have been evolved under organic and physical laws so adjusted as to provide for the earth at each successive stage in its history appropriate inhabitants, we may then conceive a multitude of beings, which we can hardly imagine God to take pleasure in forming, to have been wrapped up in the folds of these compre-

But I have not yet done with the doctrine of the incidental. If I mistake not, it is the key to most of the difficulties with which theism is supposed to be embarrassed. It is in this doctrine that moral evil, as well as physical, so far as the problem comes within the grasp of the human understanding, finds its true explanation. The liability to injury and disease inseparably connected with man's physical organization has its parallel in the liability to do wrong inseparably connected with his constitution as a moral agent. This will, I think, appear, if we consider the elements which enter into that constitution.

There is first the personality or will, free and in equipoise. Around this, and acting upon it as motive powers, are the affections, the appetites, and the passions. To these may be added the reason, or self-love, and the conscience, which, enlightened by the intelligence, may act either as impelling or as guiding and restraining forces. The affections, appetites, and passions, when quickened into activity by the presence, either real or imagined, of their appropriate objects, awaken desire and prompt to action. The same is true of the reason and conscience considered as impelling forces. To insure right conduct, these several principles of action must be properly adjusted to one another, and also to the circumstances in which the being is placed. So long as the required adjustments, internal and external, continue undisturbed, — that is, so long as the nature and the environments, the two factors entering into motion, remain without change, — such a being would be incapable of a wrong action. He would

hensive laws, however wisely and beneficently ordained. The waste of destructive insects and the annoyance of bodily pests, like disease and accident, are only incidents, and not ends, in the divine plan. The further back we suppose evolution under law to be carried, the more room is opened for collateral effects not in themselves intended, and the greater becomes the explanatory power of the principle which it is the object of the lecture to set forth.

be a perfect moral machine. He would, however, be only a machine. He would have no self-regulating power; nor could he need any. His action would be as certain, and, with the requisite knowledge of the two factors of the motive or motives prompting it, might be as certainly predicted, as that of any other machine.

But such are not the conditions of man's being. He is himself not only liable to change, but is continually changing, through the influence of habit. Every act either strengthens an old habit or tends to form a new one. It is upon this power of forming habits that his capacity for growth depends. Without it he would be incapable of progress, either individually or as a race. His environments are no more fixed than his character. They, too, are continually changing. Hence, however perfectly we may suppose the active principles in man's constitution to be adjusted, without the addition of a self-regulating power such nicety of adjustment could not long continue. By change of character or change of circumstances, or of both, the balance of forces would quickly be deranged, and when derangement had once taken place it would tend constantly to increase, until at length the machine would become so disordered as no longer to answer the ends. To remedy as far as possible this defect, and also to convert the machine into a responsible agent, the power of choice is added. By virtue of this endowment he may select from among the courses of action offering themselves. He may choose that which seems to be the highest and most worthy, although urged by a stronger impulse towards one lower and less worthy. He may adhere steadfastly to the right, however tempted by interest to swerve from it. He may obey the dictates of reason and conscience in opposition to the clam-

ors of appetite and passion. By the right exercise of this power of choice and by correspondent courses of action he may gradually change his whole character, and bring it into harmony at the same time with the ends of his being and with the circumstances in which he is placed, whatever those circumstances may be: and the responsibility of doing this is laid upon him by the Creator. The power conferred is the ground of the obligation. In a similar way he may fit himself for special spheres of life and action, however much he may have lacked by nature the requisite qualifications. The power of choice, together with the gradual change of character through its continual exercise, opens to man all moral possibilities, — possibilities of evil as well as of good. Both are dependent upon the same constitution, and so far as we can see are inseparable from it. Nay, more than this, the evil is incident to the very features of that constitution which render the good possible. It grows immediately out of the provisions for the good, — out of endowments which lie at the foundation of man's capacity for improvement, which give to his being its chief dignity and worth, which open to him all his highest sources of happiness, which constitute by far the most important distinction between him and the lower orders of the animal creation. The very idea of an accountable being involves the power of choice, and without that of growth existence to a finite intelligence would before long lose its zest.

That moral evil appeared and continues in the world as an incident, and not by special design, might be inferred, even if the fact were not so apparent on looking at its source, from the restraint imposed on it by natural as well as human laws. Still further proof that it was not purposed nor desired is found in the costly provision made for remedying it. This to the believer in

Christianity must alone be a sufficient answer to any charge preferred against the divine goodness on account of a constitution of things permitting it; while its manifestly incidental character, as well as the checks and hindrances naturally opposed to it, should forever silence the cavils of those who do not accept the teachings of our holy religion.

But, after all, it may be said that the great extent to which moral and physical evil has always prevailed in the world argues limitation in either the divine goodness or the divine power; or in the less reverent but more forcible language sometimes used, "Either God could n't make a better world or He would n't." Let us look a little more closely at this short-hand logic, and see whether the supposed dilemma in the sense implied is really forced upon us; whether the facts in the case afford evidence of limitation in any of the attributes of Deity.

In the first place, I think it will be admitted that inability to do that which in the nature of things is impossible implies in no proper sense limitation of power. That God cannot make Himself, or the universe created by Him, or any part of that universe, — never to have been; that He cannot make right wrong, or wrong right, good evil, or evil good; that he cannot alter axiomatic truths, and cause the whole to be less than the sum of its parts, or a straight line to be other than the shortest distance between two points; or two and two to be more or less than four, does not touch the question of His power. It has no relation whatever to any intelligent or intelligible conception of the divine omnipotence.

In the second place, the inability to reconcile incompatibles and cause them to coexist does not arise from lack of power. Neither does it in any way imply or suggest lack of power.

That God cannot make a thing to be and not to be at the same time; that He cannot make a body at the same time both round and square, both rough and smooth, both hard and soft, both light and heavy, or both at rest and in motion, or do a hundred other things including like incompatibles, is in no way derogatory to the divine nature. The reconcilement of the essentially irreconcilable comes no more within the compass of infinite than of finite power.

When revising our opinions and beliefs, to be sure that they are well founded, are we more startled at the discovery of incompatibles, not so glaring, indeed, as those instanced, but as real, which may have lain in the mind side by side for years, or perhaps a lifetime, without our having noticed them? Is it not one of the chief ends of logic to bring our ideas into consistency with one another by the elimination of incompatibles which enter, I am persuaded, far more largely into our ordinary trains of thought than most persons are aware? Now, when the subject upon which we speculate is so large and embraces so much of detail as the universe, would it be strange if any imagined improvement of ours on the existing constitution of things, any modification of that constitution with a view to lessening the evils springing incidentally from it, — would it be strange, I say, if such imagined improvement should include incompatibles without our perceiving them? Would it be strange if, in carrying out the imagined improvement, practical difficulties should be met with which would quite defeat the end proposed? — that instead of diminishing the evil, the change should increase it at the expense of the good? Would it be strange if, with the ability to look through the universe and comprehend it in all its parts and conditions, we should discover innate difficulties in the

way of any imagined or imaginable improvements beyond the power of omnipotence to remove? The remarks of Bishop Butler on this point are so apposite and just that I gladly avail myself of them. Notwithstanding the great advance that has been made since his day in knowledge of the physical world, they are as true and weighty now as they were then.

Suppose, then, a person boldly to assert that the constitution of nature remaining as it is, the things complained of, the origin and continuance of evil, might easily have been prevented by repeated interpositions, — interpositions so graduated and circumstanced as would preclude all mischief arising from them; or if this were impracticable, that a scheme of government is itself an imperfection, since more good might have been produced without any scheme, system, or constitution at all, by continued single unrelated acts of distributive justice and goodness, because these would have occasioned no irregularities; and further than this it is presumed the objections will not be carried. . . . Were these assertions true, yet the government of the world might be just and good notwithstanding; for, at most, they would infer nothing more than that it might have been better. But, indeed, they are mere arbitrary assertions; no man being sufficiently acquainted with the possibilities of things to bring any proof of them to the lowest degree of probability. For, however possible what is asserted may seem, yet there are many instances, in things much less out of reach, of suppositions absolutely impossible and reducible to the most palpable self-contradictions, which not every one by any means could perceive to be such, nor, perhaps, any one at first sight suspect. From these things it is easy to see distinctly how our ignorance, as it is the common, is really a satisfactory answer to all objections against the justice and goodness of Providence. . . . There would, indeed, be reason to wish — which, by the way, is very different from their right to claim — that all irregularities were prevented or remedied by present interpositions, if these interpositions would have no other effect than this.

But it is plain they would have some visible and immediate bad effects. For instance, they would encourage idleness and negligence, and they would render doubtful the natural rule of life, which is ascertained by this very thing, that the course of the world is carried on by general laws. . . . Upon the whole, then, we see wise reasons why the course of the world should be carried on by general laws, and good ends accomplished by this means; and, for aught we know, there may be the wisest and best reasons for it and the best ends accomplished by it. We have no ground to believe that all irregularities could be remedied as they arise, or could have been precluded by general laws. We find that interpositions would produce evil and prevent good; and, for aught we know, they would produce greater evil than they would prevent, and prevent greater good than they would produce.

I will only add to these acute remarks of Bishop Butler that the government of the world by general laws, out of which the good and the evil alike spring, — the good directly, and the evil indirectly, — may have relation not solely to the ends in view, but also to the divine nature. One mode of government may be more in consonance with that nature than the other. I suggest this merely as a thing possible. I see nothing tending either to prove or to disprove it. The fact that God has chosen one method rather than the other is equally well accounted for by supposing it more congenial to His own nature, or better fitted to secure the ends sought. It is not improbable that both considerations had part in determining the choice.

But if so much of evil is necessarily incident to existence under conditions the most favorable that could be devised, does not the fact bring into question the wisdom and benevolence of creation? Would it not be better if the world had never been made? Such seems to be the opinion of John Stuart Mill. In an essay on theism, the last considerable work

which he completed, and given to the public since his death, after admitting that the indications of design in nature afford some slight probability of an Intelligent Author, he proceeds to say: —

> If the motive of the Deity for creating sentient beings was the happiness of the beings He created, his purpose, in our corner of the universe at least, must be pronounced, taking past ages and all countries and races into account, to have been thus far an ignominious failure; and if God had no purpose but our happiness and that of other living creatures, it is not credible that He would have called them into existence with the prospect of being so completely baffled. If man had not the power, by the exercise of his own energies, for the improvement both of himself and of his outward circumstances, to do for himself and other creatures vastly more than God had in the first instance done, the Being who called him into existence would deserve something very different from thanks at his hands.

It is not a little remarkable that a man so acute as Mr. Mill should take for granted that to an omnipotent Being there can be neither impossibilities nor incompatibilities; that everything proceeding from such a Being must be in exact accordance with His will and an immediate expression of that will. This assumption runs through the entire argument of the essay, and determines beforehand its conclusions. In the close of his chapter on the divine attributes he says: —

> These, then, are the net results of natural theology. A Being of great but limited power, how or by what limited we cannot conjecture; of great and perhaps unlimited intelligence, but perhaps, also, more narrowly limited than his power; who desires and pays some attention to the happiness of His creatures, but who seems to have other motives of action which He cares more for, and who can hardly be supposed to have created the universe for that purpose alone, — such is the Deity

whom natural religion points to, and any idea of God more captivating than this comes only from human wishes or from the teaching of real or imaginary revelation.

But to return to our question: If existence be necessarily attended by so many liabilities to suffering, should it not be regarded as in itself an evil, and should not escape from it, as taught by the Buddhists, be sought as the highest good?

I do not think a fair survey of life, mixed as are its conditions, tends to such a conclusion. Notwithstanding the considerable amount of evil, there is a large overplus of good with man as well as with the animal tribes below him; happiness is the perpetual sunshine of existence, while suffering is the occasional and passing cloud. The love of life, so strong in everything that breathes, is the love of its continued flow of enjoyments, and attests in the strongest manner possible their reality and sweetness. The words of Tennyson are as full of truth as they are of poetical feeling: —

> "Whatever crazy sorrow saith,
> No life that breathes with human breath
> Has ever truly longed for death.
>
> "'T is life, whereof our nerves are scant,
> O life, not death, for which we pant;
> More life, and fuller, that I want."

There is the same preponderance of good over evil in the moral world as in the natural. In every well-conditioned community, although vice may exist, there is a large excess of the virtues. Instances of chicanery, fraud, and evil doing may occur, but they are exceptional; while justice, integrity, and fair dealing are the rule. Crime by its comparative rareness as well as by its enormity makes an impression upon the imagination

quite disproportioned to its actual place in society. The virtues escape our notice from their commonness. The benevolent and social affections as well as the social charities of home are everywhere. We meet with a hundred kindnesses where we receive one injury. Such is the experience of the traveler in all lands, civilized and savage; under all faiths, Christian, Mahometan, and pagan. Man is not the degraded being we are apt to suppose him. To no work of the Creator is injustice so often done as to human nature; and the most remarkable thing is that God is supposed to be honored, instead of being profaned, by its depreciation. Were man in reality what he is sometimes represented, and were the world such as it is not unfrequently pictured, they might well be a cause for repentance on the part of Him who made them.

Permit me in conclusion to refer briefly to the last case mentioned, that of incidental evils, after reduction as far as possible by preventive and remedial agencies, being made subservient to ends outside of the special provisions from which they spring. Instances of this are very numerous, and especially illustrate the wise and beneficent ordering of Providence. Indeed, there is no species of physical evil that may not, and if allowed to have its proper and intended effect does not, become either to the sufferer himself, or to others, or to both himself and others, a source of moral benefit. Misfortunes, disappointments, trials, sickness, and sorrow, — these are the discipliners of humanity. Out of the midst of them are reared the noblest virtues. It is their prevalence, mingled with moral evil and to a greater or less extent caused by it, that makes the world so fit a theatre for man's probation. Without them it might be a scene of innocent enjoyment, but it would be no place for building up

lofty and heroic character. Even death, the king of terrors, considered with reference to this world only, is not an unmixed evil. It is the great equalizer of the diversities of human fortune. It at the same time reconciles the poor man to his poverty, and makes the rich feel of how little value is his wealth. It chastens aspiration, moderates desire, subdues selfishness, quickens benevolence, strengthens duty, and disposes to the exercise of every Christian virtue. It is the moral ballast of society. But for its restraining and steadying effect, the noblest human institutions, freighted with the hopes of the race, would quickly be dashed to pieces on the rocks of interest, or whelmed beneath the billows of passion.

These evils, inseparable from man's bodily structure and earthly condition, are by a divine alchemy converted into goods and become tributary to the higher ends of his moral being. The more elementary constitution of the lower orders of the animal creation renders such conversion in their case impossible. The evils incident to their existence as organized beings are attended by no alleviations, and result in no good to them. The actual benefits experienced by man from this provision of his higher and more complex nature will depend much upon his own conduct. Hence the proper question, in regard to this entire class of evils where they arise is not, Why God has sent them? which would be natural and right if they were directly purposed by Him; but another, very different and far more important question, How God would have us behave, under them? with what temper meet them, and what lesson learn from them? It is hardly necessary to add, that if they are seen on examination to have proceeded from causes within our control, our first business is to remove such causes.

Finally, to recapitulate, we have seen that the evils complained of, where existence is thought to imply imperfection in the divine goodness or limitation of the divine power, are incidental only and not the object of contrivance and design; that they grow out of provisions in man's constitution looking solely to beneficial ends; that by no conceivable modification of that constitution could their possibility be excluded and these ends at the same time secured; that inability to reconcile incompatibles and cause them to coexist implies in no proper sense limitation of power; that the evils incident to man's earthly condition are reduced as far as possible by inventive and remedial devices; and that after this reduction such as still remain are made subservient to the higher ends of his existence as a moral and accountable being. How appropriate, with a larger application, the question put through the mouth of the prophet: "What could have been done more for my vineyard that I have not done in it?"

THE RELATION OF GOD TO THE NATURAL AND MORAL WORLDS.

LECTURE IV.

On subjects which do not admit of positive knowledge we are obliged to content ourselves with probabilities. These may be of a higher or lower order according to the nature of the facts or analogies upon which they rest. They may amount to hardly more than a possibility, or they may rise to a presumption that is little short of certainty. The relation of God to the natural world is one of these subjects. We can only form opinions concerning it; and one man has just as good a right to his opinion, if it is honestly and reverently formed, as another. That view of the relation which seems to any one most worthy of the divine character, and which stirs within him the deepest feelings of reverence, provided it be in harmony with all the known facts, is for him the best view; and I would not seek to change it. But while saying this with all frankness, I should be untrue to my convictions if I did not express the belief that there is valid ground for choice among the opinions held upon the subject, whether considered with reference to their probable truth, or judged of by the influence which they are fitted to exert. Let us pass in review some of the most common of them, and see, if we can, which has the most to commend it. We will begin with that which is the oldest and has prevailed

the most widely. It supposes matter to be eternal. Under this hypothesis two views of God's relation to it are possible, and have actually obtained to a large extent among philosophers. One supposes matter to be not only coeval with God but in correlation with Him. Matter is the outward form. God is the indwelling spirit. As in man, the body obeys the soul; so, throughout nature, matter yields obedience to the divine will. God is the *anima mundi*, the soul of the universe. All its movements are immediately dependent upon His volitions. The other view supposes matter to be only the plastic material upon which God works. In shaping it to His purposes He avails Himself of its natural qualities. He selects the particular kind or kinds of matter which are best, and employs them just as any other being of adequate intelligence would employ them. The structures of plants and animals are appealed to in support of this view. In building up these, it is said, matter is used by the Creator as if it already existed, and was, so to speak, furnished to His hands. It is taken just as it is. Its properties are made use of but not modified. Even when the most complex arrangements and combinations are necessary to attain a proposed end in accordance with its laws, those laws are not changed, but the combinations and arrangements are uniformly resorted to. In a word, matter is employed by God in the same manner as we ourselves, with the requisite power and skill, should employ it for like purposes. Granting all this, as I think we may, does it prove or tend to prove that matter was not originally created by God? Does it in reality afford any ground for such an opinion? I cannot see that it does. We should naturally expect that, having formed matter and endowed it with properties, He would employ it in such a way as to make those properties

available to the purposes of creation. Any alteration of them, the resort in any emergency to new elements or new properties, would imply either defect in the constitution of matter or want of skill in employing it. We can, therefore, gain no light concerning its origin, from the way in which it is used.

The vast scale upon which matter exists, the sublime ends to which it ministers, as well as the ceaseless round of changes through which it is constantly passing without itself undergoing change or diminution, naturally impress the mind with the idea of permanence, and it is not surprising that those who derived their light solely from nature should have generally believed it to be eternal. Such appears to have been the opinion of the ancient Egyptian philosophers. They were accustomed to trace the world back through a series of transformations to an original chaos, in which the materials composing it already existed, though enveloped in profound darkness, and without relation, order, or end. In this state they believed matter to be coeval with God, and limited the work of creation to educing from its chaotic elements the beauty, order, and harmony of the universe. How like is this to some of the theories put forth at the present day by acknowledged authorities in science, except that in the modern teaching God is left out. These cosmological ideas, although originating on the banks of the Nile, like many other of the Egyptian doctrines, passed over to Greece and Italy, where they were incorporated, with slight alterations, into the prevailing mythological and philosophical systems. The highest conception of Deity, which seems to have been formed on either side of the Mediterranean, was that of a power intimately pervading all matter, and continually evolving from it life, motion, order, and beauty. For the sublime idea of a

Being who was able, by the simple exertion of His power, to give existence to matter, who "spake and it was," who "commanded and it stood fast," who said: "Let there be light: and there was light," we are indebted to the Hebrew Scriptures. Dictated originally by inspiration, the idea has come down to us through the channel of these writings, along with other conceptions of the divine character, as far surpassing in grandeur anything we find in heathen mythologies.

What led the ancients so very generally to regard matter as self-existent and eternal, was, no doubt, their inability to conceive of it as coming into existence. They could in imagination carry its existence forwards or backwards indefinitely, but they could not think of it either as beginning to exist, or as ceasing to exist. For a like reason many moderns have found difficulty in admitting the absolute creation of matter. Some of the best thinkers of the age believe that it must always have existed either actually or potentially. Sir William Hamilton thinks the causal judgment requires this. "Creation," he says, "is conceived, and by us conceivable, merely as the evolution of a new form of existence by the fiat of Deity." "Let us suppose the very crisis of creation. Can we realize it to ourselves, in thought, that the moment after the universe came into manifested being there was a larger complement of existence, in the universe and its Author together, than there was the moment before in the Deity Himself alone?" "All that there is now, actually, of existence in the universe, we conceive as having virtually existed, prior to creation, in the Creator; and in imagining the universe to be annihilated by its Author, we can only imagine this as a retraction of an outward energy into power." Such is Sir William's view of creation. Although not disposed

to question its adequacy, I am by no means sure that it is all that the principle of causality, properly understood, allows. With his derivation and interpretation of that principle, he could not consistently go further.

Another consideration, which seems to have had weight with the ancients in assigning to matter an independent existence, is the supposed facility offered by it for explaining, consistently with the divine perfections, the origin, and continuance in the world, of evil. This they attributed to the refractoriness of matter, to its imperfect obedience of the will of God, or to its want of entire plasticity under His hand, according to the one or other view taken of its relation to Him. It is hardly necessary to say that an equally satisfactory solution of what is confessedly one of the most difficult of problems is found in the government of the world by general laws, which, however wisely arranged, would seem to be inadequate to meet and provide for all individual cases arising under them.

A second theory of the relation of God to the universe, which with the first has substantially divided the world, goes to the opposite extreme. It denies to matter an existence separate and distinct from that of Deity. The universe is God acting. It is evolved by the ceaseless exertion of His power. It is a perpetual creation. It is the continuous product of the volitions of Deity. The universe, thus emerging from the bosom of God, may be conceived to embrace matter as commonly understood, with its inhering forces, or to include only the forces without the matter, or to be limited to the mere outward phenomena without either matter or forces back of them, or finally to be restricted to ideas in the mind, directly awakened without material antecedents.

On the first supposition we have theistic realism, on the second theistic dynamism, on the third theistic phenomenalism, and on the fourth theistic idealism; or, to express the same thing in a different way, the first hypothesis gives us a universe of matter supported each moment through all its parts by the direct volitions of Deity; the second, a universe of forces sustained in like manner by the immediate local and voluntary exertions of the divine power; the third, a universe of appearances similarly maintained; the fourth, a universe of ideas immediately created by God in the mind of the percipient. All of these different views of the relation of Deity to the universe have been more or less extensively entertained, and some of them have found supporters among the best thinkers of the race. However widely they differ among themselves, they all agree in this, that they refer the universe, whatever it may be, whether real, or virtual, or phenomenal, or ideal, to the immediate volitions of Deity. They suppose it to be, through all its parts, and in all its activities, the expression, representative, and product of those volitions.

The considerations urged in favor of this theory are, first, that will-power is the only kind of power of which we have any knowledge, or of which we can form any conception. Secondly, that this theory of the universe converts it from an inflexible machine into a pliant instrument in the hands of God, adapted to the ends of His moral government.

The first consideration will, I think, be seen, on reflection, to have little weight. It is true that will-power is the only kind of power which we know by consciousness, for the good reason that it is the only kind of power that we consciously exert. But have we not evidence of the exertion of power outside of our-

selves? Do we not witness its effects? Are they not continually before us? Do we doubt their reality, or the reality of the cause producing them? And is there anything clearer or more familiar to us than the distinction between voluntary and involuntary power? between the power of a man or a horse, and wind-power, or water-power, or steam-power? Are we in any danger of confounding in thought, or of mistaking in reality, these two kinds of power? Are not the laws of their manifestation different? Is not one brought into exercise by the presentation of motive, and the other determined to action by the supply of physical conditions? In their varied exhibitions around us, do we not distinguish them as readily as we distinguish light from darkness? Is it quite just, then, to say that will-power is the only power of which we have any knowledge?

But what is will-power? How much and what does it include? Is the force of the blow dealt by a strong arm will-power? Does will-power extend beyond the mere act of volition? The arm is paralyzed. The act of volition is performed as before. But does the arm move? Does the act of volition in any case do more than liberate and give direction to material forces already stored in brain and muscle? more than touch the key of the telegraph? or hoist the gate of the water-mill? or open the valve of the steam-engine? or apply the match to the loaded cannon? Is power of body or limb exerted in obedience to the will, in any proper sense, will-power? any more than the flash of electricity along the telegraph wire, or the thrust of the piston, or the strain of the wheel, or the force of the exploding cannon, is man-power?

Yet further. Are all our actions voluntary? Are not the larger part of them performed without conscious effort? Is

any one of our faculties of much use to us till it has been trained by habit to what closely resembles automatic action? Is our best work ever done under the flagellations of the will? Does not the mind, when most active, quite ignore our power over it? Do we not apply the brake in vain? Does not the train of thought still move on in spite of our effort to stop it? If volition, then, has so small a part in any of our actions, and if in the performance of the greater number of them it does not consciously intervene, surely our own experience can afford but a slender basis for the generalization of will-power over the whole universe.

Nor is the other consideration presented in favor of this of more weight. The inflexible character of physical events is due solely to the unvarying order of their occurrence. This order, which we learn from experience, remains the same, whether we suppose them to depend immediately upon the volitions of God, or to grow out of the constitution of things which He has established. Nor is there any more difficulty in supposing Him, for wise reasons, to interpose from time to time and change the order of events on one theory than on the other. No additional facilities are offered for the administration of either the moral or the providential government of the world by supposing all physical events to be immediately dependent upon the divine will.

On the other hand, the argument for an Intelligent Author of nature is greatly weakened, if not wholly destroyed, by such a supposition. It does away entirely with the idea of second causes in the physical world, and with that, equally, the idea of devices, contrivances, instrumentalities, means, ends, and incidents, all of which presuppose second causes, and are impossible

without them. The immediate dependence of material changes upon the divine will precludes their dependence upon one another. Their occurrence in a fixed order is not on account of any connection between them. They arise each one by itself, in perfect isolation, and hold to one another only a serial relation. The tie between them must be in the divine nature, from which they are supposed to proceed directly, subject in their appearance, as we know, to fixed laws; that nature in evoking them must act in obedience to these laws, and not for the attainment of material ends, the very idea of which is excluded by our theory. The originating cause of all things is thus placed as far beyond the reach of our faculties, and becomes as inscrutable to us as Mr. Spencer and men of his school would make it. The immediate reference of all natural events to the divine will in reality destroys the distinction between God and nature, and makes them both the same thing; makes God nature, or makes nature God, whichever way we may prefer to express it. We have, in fact, Tyndallism and Spencerism, only reached by a different road.

Permit me now to state briefly what I believe to be the best view of the relation of God to the universe; the view which is most philosophical, as I think, and more in accordance with the teachings of Scripture and of common sense. I suppose matter to have been created by God. I suppose it to have a real and not a merely phenomenal existence. I suppose the energies manifested by it to be inherent. I suppose God to have created it for wise and good ends, and to have fitted it for entering into structural devices adapted to the attainment of these ends. In accordance with this view of its constitution and purpose, I see around me a whole universe of such devices; and it is from the

beneficent ends to which they are everywhere ministering that I learn the character of their Author. These innumerable structures, as we have already seen, are built up in strict accordance with the known laws of matter. Moreover, their sole object is the utilization of material properties and forces. It is only on the supposition that matter has a real existence and possesses properties that it can be employed as a means or used as an instrument. It is only on this supposition that the marvelous contrivance making up so large a part of the structures of all animals can subserve any purpose, or have any significance, or afford any ground for the deductions of natural theology.

But must we not suppose matter, after its creation by God, to be still dependent upon Him? Undoubtedly: to such an extent that He can at any moment annihilate it as readily as He brought it into being; and in such a way that if we could suppose His existence to come to an end, the existence of matter would come to an end with it. But is not a constant exertion of the divine power necessary to sustain matter in being? I do not know. I see no good reason, however, for supposing it. If the act of creation was complete, why should further effort be required on the part of the Creator? Why should the continued exertion of His power be necessary to keep in being what He has made, more than to keep Himself in being? According to Sir William Hamilton's view of creation, which is, perhaps, as intelligible as any that has been suggested, the universe, before it came into manifested being, was virtually included in the divine essence. Why should it require support more than that essence? Is it objected that such an idea would leave the Infinite One, after having finished the work of creation, without further occupation? Do we know that the work of creation is

finished? Is not space large enough to receive continually new creations from the hand of the Almighty? Do not astronomers discover indications of such new creations? Does not the telescope reveal the existence, on the outskirts of the visible universe, of mighty expanses of vaporous matter, out of which worlds and systems of worlds are believed to be forming? May not the creation, and pouring into space, of material for new worlds, together with the moral cast of those which He has already made and peopled, be supposed a fitting and sufficient occupation? Would it add to the dignity or grandeur of our conception of Him to suppose that besides this He is each moment holding in existence every atom of matter in the universe?

Having presented for your election these different views of God's relation to the natural world, I will venture a few thoughts on his relation to the moral world. I will premise that I suppose the natural world to have been created for the moral, and in subordination to it. I suppose that all material provisions, of whatever nature or wherever found, look ultimately to the welfare of intelligent and sensitive beings.

But is it certain that the requirements of a moral and providential government can be fully answered by an administration conducted solely by general laws? May not emergencies be supposed to arise which such an administration would be inadequate to meet, and of so important a character as to justify special Divine interpositions? Such emergencies are certainly conceivable, and, when all the facts are considered, would seem not unlikely to arise.

Now, in case of their actual occurrence, is there any reason, in the known constitution of things, why God should not interpose, and by the direct exertion of His power secure the impor-

tant and desired ends? No reason whatever. Does science reveal any difficulties in the way of such interposition? None at all; not the slightest difficulty; supposing always the existence of a personal God, distinct from nature, and not a mere nature divinity. But has not modern discovery, by extending the reign of law, increased the embarrassments attending the doctrine of miracles and of special providences? Not at all. There are no scientific embarrassments attending these doctrines. Both miracles and special providences suppose the reign of law, and would be impossible without it. There can be no suspension nor modification of a law, unless the law exist. The whole significance of a miracle depends upon its manifest want of conformity to law. Special providences, if anything more is meant by them than God's general providence in its relation to individuals, imply equally departure from law, but under circumstances that preclude observation. Special providences and answers to prayer come, in respect to this, under the same category. There are no scientific difficulties lying in the way of either. Our knowledge of the conditions which control the ordinary events of life is so imperfect, that interpositions might be continually taking place all around us without our being in a single instance able to detect them. The only question concerning them is a question of fact. Does God in reality thus intervene, and change the course of physical events, in furtherance of the interests of his moral government? The question is to be settled, like any other question of fact, upon evidence. There are no *a priori* objections to be met, no antecedent improbabilities to be overcome. The proper appeal, and only proper appeal, is, first, to the sacred Scriptures. For those who acknowledge their authority, the teachings of these are ul-

timate as to the general doctrine. They throw no light, however, upon the question of actual interposition in any given case. The probability of this can be judged of only from the attendant circumstances.

Secondly. To experience. This, for reasons already stated, can at most furnish but presumptive evidence. As the suspension of law or departure from it is assumed to take place under circumstances precluding observation, — otherwise it would be a miracle, and not a special providence, — it is alike impossible either to prove or disprove it. Probability is the most that can be attained in either direction. Even in those cases where the evidence of interposition seems clearest, there are always so many unknown elements that a wise man will be cautious in forming, and still more cautious in expressing, an opinion. What most strikes one, in the plan proposed by Mr. Tyndall a short time since for testing the efficacy of prayer, is its inadequacy, in a scientific point of view. No man knows better than he the necessity, in conducting a chemical investigation, of perfect control over all the conditions of the problem. And yet, to settle a question of the Divine procedure in the government of the world, he suggests an experiment in which not a single one of the conditions determining the result is fully known or controllable.

But while the doctrine of special providences, including answers to prayer, has nothing to fear from the assaults of science, it is liable to have dishonor cast upon it by unwarrantable interpretations of God's purposes in the ordinary events of life. In fact, the readiness with which many good men discern the ends of Providence in human affairs has a tendency to weaken confidence in final causes generally, and thus to unsettle the

foundation of all religious faith. If, instead of seeking to penetrate the purposes of God, men would occupy themselves with endeavors to learn His will, their studies would be more fruitful of both wisdom and piety. The design of the Scriptures, so far as I am able to understand them, is to assure us of God's care, and of His willingness to hear our prayers, and to answer them in such way and to such extent as He may see best. When these teachings are pressed further than this, and made to justify special interpretations of His providence, it is done, as it seems to me, quite without warrant.

It should be further remembered that frequent interpositions in respect to physical events may not be necessary for securing the ends of the Divine government. As the manner in which these events affect us will always depend much upon our own and other men's actions, God may as easily turn them to His purposes by touching human wills as by changing the action of natural causes and intercepting the lines of antecedent and consequent in the outward world. Although the avalanche pause not in its precipitous descent, the traveller may be removed from the place overwhelmed by it. Although the tempest sweep onward, abating not a jot of its fury, the vessel may be turned from its track, and reach in safety the desired haven.

The attempt is sometimes made to show how God may intervene in human affairs without suspension of natural laws, or interruption of the orderly flow of events. In endeavors of this sort recourse is had to human analogies. These, however, fail to meet the requirements of the problem. Moreover, the use that is made of them often discloses a painful misconception in regard to the sources of material phenomena. Why talk of the manipulation of laws, or of an arrangement far back out of

human sight, for changing the course of physical events similar to that by which the direction of the locomotive, with its train of cars, is changed? Is it not far better to state and maintain, as taught by the Scriptures, the simple doctrine of interposition, without attempting to explain the mode? Are not infinite resources at the Divine command? May not God as easily touch by the finger of His power, in the atoms themselves, the source of all natural phenomena as manipulate laws, whatever we are to understand by the expression? If it is meant that God may employ natural agents for accomplishing His purposes in the same manner as man employs them for the accomplishment of his purposes, namely, by means of appropriate contrivances such as the water-wheel, the windmill, the steam-engine, and the magnetic telegraph, does this tend to simplify, or in any manner facilitate our conception of the Divine interposition? How much better, how much more dignified, how much safer every way, to leave the doctrine just as the Scriptures leave it, without an attempt at explanation! Occupying a position that is impregnable, it needs no support from human analogies.

But does not the prevalence of law in the natural world, it will be asked, render petitions touching physical events of doubtful propriety? Not if the conditions determining them are unknown to us. Any future event in which we, or our friends, or our country, or the world, is interested, so long as the will of God concerning it is unknown, is, I think, a proper subject for prayer. After that will has become apparent, we cease to pray. Our duty, then, is submission. Let me illustrate. A friend is sick. Surely it is proper for us to ask God that He will restore him to health. The symptoms increase in gravity. Not knowing the will of God, we still pray for his re-

covery. At length a stage is reached in the disease beyond which recovery, without a miracle, is impossible. We no longer pray for his restoration to health, but ask that he may be prepared for the change awaiting him. All this is as reasonable and Christian as it is natural. The impulse to pray springs from a sense of our dependence, and its propriety under given circumstances depends much upon the state of our knowledge. What, indeed, are any of our petitions but the requests of weakness and ignorance preferred to an Almighty and Omniscient Intelligence? There should run through them all the refrain of submission, not my will, but thine be done.

Take another illustration. With our present meteorological knowledge, I think there can be no doubt of the propriety of asking God for the genial sunshine, for timely rains, and for fruitful seasons, as well as for exemption from devastating storms on land and at sea. I do not see how any intelligent, thoughtful man can question either the suitableness or the piety of such prayers. They are as right as they are natural. Should the conditions determining the movements of the atmosphere ever be brought within calculable formulas, so that the phases of the sky could be predicted with as much certainty as an eclipse of the moon, or a transit of Venus, — which is not at all probable, — then our relations to the weather would be entirely changed. God having given us the power of foreseeing atmospheric changes, it would be but reasonable that He should require us to accommodate our movements to them. To neglect doing this, and then ask Him to work a miracle for us, would be an act of presumption. It would not be prayer, but a tempting of God. Warm years and cold years, rainy seasons and dry seasons, winds and calms and floods and tempests, being as cer-

tainly foreknown by us as the alternations of day and night, or the orderly succession of spring, summer, autumn, and winter, would cease to be subjects for prayer, and the department of nature to which they belong would no longer be a theatre for special providences. It is not the certainty of any future event, nor the Divine decree in regard to it, but our knowledge of that certainty, and of the Divine decree, that makes petitions concerning it unallowable.

The thoughts which I have ventured to offer on the relation of God to the natural and moral worlds are: That matter was in the beginning created by God.

That it has a real existence, and possesses inherent energies.

That it is dependent upon God to such an extent that He can at any moment annihilate it; and in such a way that, could we suppose His existence ever to come to an end, the existence of matter would come to an end with it.

That there is no sufficient reason for supposing matter to be dependent for its continued existence or for its powers upon the immediate and ceaseless volitions of Deity.

That matter is used by God as an instrument, and always in strict accordance with its properties.

That it is from the innumerable devices resorted to, for making these properties available for special ends, that we gain a knowledge of the divine existence and character; or, in other words, God, the great first cause, reveals to us His being and attributes through the use which He makes of second causes in accomplishing His beneficent purposes. But for such use of second causes we should have no evidence of a powerful and intelligent existence back of them. They would be to us ultimate causes.

That there is no reason in the known constitution of things why God, in the administration of His moral government, should not secure, by the direct exertion of His power, important ends not otherwise provided for.

That science reveals no difficulties in the way of such interpositions.

That when manifest and addressing the senses, we call them miracles; when hidden from our sight, special providences.

That whether such interpositions ever have occurred, or do now occur, is simply a question of fact, to be settled on evidence. Science has nothing to do with it.

That what the doctrine of interpositions, whether miraculous or otherwise, has most to fear from is the want of boldness and consistency in its maintenance. And, finally,

That any future event in which we are interested, so long as the will of God concerning it is unknown to us, is a proper subject for prayer.

COLLATERAL PROOFS OF THE ARGUMENT FROM DESIGN.

LECTURE V.

We have seen thus far in the course of our inquiry that the physical world is written all over with the evidences of intelligence and design; that these do not appear only in the structure and endowments of organized beings, but are still more strikingly exhibited in the delicate adjustments of the vast system of machinery by which, out of materials the most unpromising, such beings are everywhere in process of formation; that the innumerable contrivances which are seen in nature, or, more properly speaking, which constitute nature, all look to beneficent ends; that when without additional provisions these ends would be imperfectly attained, or trouble and annoyance would be caused by the instrumentalities employed in reaching them, such supplementary provisions, remedial or preventive, are as far as practicable appended to the main design; that incidental evils, so largely checked or remedied, do not suppose either imperfection in the divine goodness or limitation of the divine power; that the relation of God as Creator to the natural world supposes the ability to change at His pleasure the order of material phenomena, but does not necessarily suppose the dependence of those phenomena, as they ordinarily arise, upon His immediate volitions; that the only alternative to natural and revealed theism, which are substantially one, is

materialism or pantheism, which differ from one another in little but nomenclature; that materialism is embarrassed at every step with the gravest difficulties; that these difficulties are met by a succession of hypotheses having no foundation in ascertained facts and with but the slenderest support from analogies; and that some of them involve not merely what is incomprehensible, but what is absolutely unthinkable.

I now proceed to inquire whether beyond the evidences of intelligence and purpose in nature, — using this term in its broadest sense, including man as well as the external universe, — whether beyond the evidences of mind in nature there be not other facts which, though not in themselves proving the existence of a personal God, are more readily explained on that supposition than on any other, and so far support and strengthen the argument from design. I will first ask your attention to the proportion and harmony existing among the infinities which lie all around us, which the imagination cannot indeed grasp, but of whose reality the reason and observed phenomena give us assurance. I do not here refer to space and time; these are conceived by us as necessary. We cannot in thought annihilate them. Neither can we in thought affix any limits to them. Though the whole universe were blotted out of existence, these would still remain. They have been made the basis of a direct argument for the existence of an Infinite Being to whom they are supposed to hold the relation of attributes. The argument was first proposed, if I remember rightly, by Dr. Samuel Clarke. It afterwards received a *quasi* indorsement from Bishop Butler. It is, however, founded on a misapprehension of the nature of space and time. They are not conceived by us as existences, or as the attributes of any existence, but as antecedent conditions of all

being. They are necessary ideas of the human intelligence. We cannot divest ourselves of them nor of the belief in corresponding outward realities.

However the ideas of space and time may have found their way into the mind — and about this philosophers are not agreed — they have been vastly extended by the revelations of science; and it is through these that we have become acquainted with another order of infinities — less absolute, it may be, but equally transcending our powers of thought — an order of created infinities occupying space and time, and, possibly, commensurate with them. It is through these created infinities that the greatness and power of the Creator are disclosed: nor is it possible to form a sublimer conception of Him than these under the light of modern discovery are fitted to impart. The finite everywhere opens into the infinite. Whichever way we turn, there stretch out before us limitless vistas of being. If we direct our gaze backward, it is met by an endless line of events which finally loses itself in the depths of a past eternity. Wherever we are, to whatever part of creation we in imagination transport ourselves, fathomless abysses of power still open beneath and around us. It is true science is directly concerned only with second causes. But by widening continually the visible empire of these it opens to us larger and more sublime views of the first cause. Instead of hunting God from the universe as it has sometimes boasted, and as timid minds have feared that it would do, it has been constantly discovering new grandeurs and glories which only reflect more brightly the divine perfections. How do our minds dilate with conceptions of the power of God, when, on a serene winter night, we gaze into the heavens in the light of all that modern discovery has made known to us; when we recall

and in imagination try to realize the magnitudes and distances of the countless orbs above and around us which illumine the far-off depths of space; when we remember that the whole visible firmament is but the hem of the garment of materiality in which it hath pleased the Infinite One to enrobe Himself; that beyond the utmost reach of our unaided vision are other firmaments equal in magnitude and splendor to our own, which the telescope alone reveals to us; and that still more distant, on the outskirts of the visible creation, are discerned tracts of faintly luminous matter out of which new worlds and systems of worlds are believed to be in process of formation. The microscope, too, discloses to our wondering gaze equal marvels of the divine handiwork, — beings so minute that thousands of them together can scarcely be perceived by the naked eye; and yet every one perfectly organized, built up of parts, and these parts again composed of myriads of atoms, each one of which, in the light of the most advanced teaching of science, expands into a cluster of worlds. The infinitely little and the infinitely great equally transcend the powers of human thought. To God they are alike easy and are alike characteristic of the works of His hand.

In proportion to the vastness of God's plans is the length of time embraced in their execution. A thousand years are with Him as one day. How impressive an illustration of this truth do we have in the past history of the earth; in the slow progress of the changes by which He prepared it, step by step, for human habitation! Although the end must have been distinctly in view from the beginning, periods of time were occupied in reaching it which appall and bewilder when we try to realize them. And yet, what is the entire lapse of the geologic ages but a point on the dial-plate of that eternity which He inhabiteth!

Equally in harmony with the comprehensiveness of God's plans and the vast periods of time involved in them are the exhaustless provisions of energy for ceaselessly carrying them forward. We hear much in these days of the conservation of force, of its indestructibility, of its disappearance in one form only to be followed by its reappearance in another and equivalent form. From the manner in which it is often referred to, we might imagine that this law alone was sufficient to account for the uninterrupted flow of events in the natural world, without supposing continual upwellings of fresh energy from the bosom of matter. Let us consider for a moment what is really embraced in the doctrine of the conservation of force, and what, should the doctrine ever be established, it would be adequate to explain.

Force is known to us under two essentially different forms; the most familiar of these, as well as the best understood, is that exhibited by a moving body. It is not inherent nor fixed, but free to pass from the body in which it for the time appears to any other body. This second body may in turn transmit it to a third, and so on indefinitely. Matter thus serves as a mere vehicle of this kind of force; and if, as is believed, its ultimate molecules are perfectly elastic, it will receive and transmit it without loss. This force of matter in motion may be transferred from mass to mass, or from mass to atoms, or from atoms to mass, or from atoms to atoms. After all these transfers, the force or the quantity of motion by which it is measured will remain the same, supposing always the perfect elasticity of the ultimate constituents of bodies. Such, neither more nor less, is the doctrine of the conservation of force, including its convertibility.

The force of matter in motion is as widely diffused as matter itself; for matter is nowhere at rest. Its masses are in motion.

Its atoms are in motion. The sun, with its attendant worlds, is ceaselessly urging its way through unknown regions of space. Even the stars, so long regarded as fixed, are believed to be slowly changing their positions. In the case of many of them, movement has already been demonstrated, and we may presume it would be discoverable in all but for their vast distances from us. Indeed, the law of gravitation would seem to necessitate movement in all the aggregated masses of matter within its embrace. The earth, besides turning daily upon its axis, and partaking of the common motion of our system through space, makes its annual journey round the sun, traveling at the rate of more than a thousand miles per minute. Every particle of matter in it has its own movement, vibrating, gyrating, or rotating, according to the nature of the impulse communicated to it. All matter is restless. To ears sufficiently delicate, there would be atomic music as well as the music of the spheres. "A grain of dust," says President Wurtz, in his late address before the French Association for the Promotion of Science, "is full of innumerable multitudes of material unities, each one of which is agitated by movements. All vibrates in the little world. In that as well as the great, motion is the universal law." This motion is both transferable and convertible, the quantity always remaining the same. The gentle pulses of the solar beam put the winds in motion. These beat upon the ocean and communicate a portion of their force to its waves. The waves, dashing for a time against one another, and breaking, it may be, upon adjacent coasts, at length sink to rest. In doing so, they evolve as much heat as was expended in raising them. Their visible motion, which has disappeared, is replaced by an equal amount of invisible molecular, or heat motion. The steam-engine derives

its power from the incessant bombardment of its piston by the imprisoned molecules of steam. There is a loss of invisible or heat motion equal in amount to that which appears in the working of the engine and attached machinery. Were the earth to be arrested by a sudden shock in its course round the sun, all its motion would be converted into molecular or heat motion, and would be sufficient, it has been estimated, to raise the temperature of the entire mass through 11,200 degrees, and turn the greater part of it into vapor. If, when brought to rest in its orbit, it were allowed to fall upon the sun, as it would, if left to itself, with continually increasing velocity, the heat evolved, it is calculated, would be four hundred times greater. If all the stellar suns, including our own, with their accompanying worlds, were suddenly brought by the fiat of Omnipotence to a state of rest, their motions of rotation and translation, converted into molecular or heat motion, might be sufficient to cause a return to their original nebulous condition, or, without change of temperature, to carry them back to the regions of space where they first appeared.

In all of these supposed cases, it will be perceived, we have only the conversion of one kind of motion into another; and if, as assumed, it takes place without loss of motion, it is because, as already stated, of the perfect elasticity of the constituent molecules of bodies. But upon what does the elasticity of these molecules depend? Upon each molecule being held in its position, by an exact balance of attractive and repulsive forces, unceasingly in action, but varying in intensity with the distance of the molecules, though not according to the same law. These forces, unlike the force of matter in motion, are fixed, incommunicable, untransferable. They may originate motion, but

experience no loss of energy in doing so. The motion originated by them may be either molecular or heat motion, or motion of masses, that is, motion of translation. Chemical affinity gives rise to the first, and the attraction of gravitation to the second. When motion of either kind has been produced by these inherent forces of matter, it may be converted into the other without loss. But the conversion is effected, it should be remembered, only through the agency of these permanent underlying forces, inscrutable as they are exhaustless. There is, in fact, no proper conversion of motion. There is the arrest of one kind of motion and the origination of another equal in amount. A little reflection will show this.

In every molecular vibration there is alternate destruction and renewal of force. At the limits of the vibratory movement the molecule has its motion taken from it, and is brought to a momentary state of rest. A new motion is then communicated to it, equal in amount, but in the opposite direction. The phenomenon is analogous to that of the shuttlecock playing between two battledoors. The continual playing of this, backwards and forwards, might as well be taken as an instance of the conversion of force. All that we have, however, in either case, is the destruction and renewal of force following one another in rapid succession. The shock of the avalanche is received by the elastic molecules of its own mass, and of the rocks and earth upon which it sticks. These molecules approximate one another until the increase of repulsive energy is sufficient to balance the force of the descending mass, and thus arrest its motion. The more energetic repulsion produced by the momentary approximation of the molecules intensifies these vibratory movements, and causes a proportionate rise in tem-

perature. In all cases where one form of motion disappears, and another comes into view and takes its place, we shall find, on examination, that it is by the intermediation of these underlying forces of attraction and repulsion, in comparison with which the force of moving bodies, however vast it may be, or however widely diffused through the universe, is but a grain of sand on the sea-shore, or a single drop amid the oceanic waters.

Gunpowder, nitro-glycerine, or the fulminates of mercury and silver, may serve to give us some idea of the forces, attractive and repulsive, embosomed in all matter. They are not greater in these than in other substances, but only in less stable equilibrium. Every cubic inch of earth, or rock, or wood, or flesh, holds in disguise forces as great, attractions and repulsions as intense, as the most explosive compound ever invented by man. We have seen with what velocity — a thousand miles per minute — the earth flies along its orbit; and yet the sun, at the distance of nearly a hundred millions of miles, by its silent attraction, takes from it all its motion, and imparts to it an equal amount in an opposite direction, twice every year. The sun is, in like manner, bending all the other planets into curvilinear movements above itself. And although it has been doing this enormous amount of work during the entire geologic ages, it shows no signs of exhaustion nor decline of power. These mighty forces of attraction and repulsion, in ceaseless operation, as active and fresh and full of energy now as on the morning of creation, profoundly mysterious, as inscrutable as they are mighty, which no thoughtful man can contemplate without awe, and which, embodied in nature, some of our scientific friends would have us worship as the only and true God: these forces, I say, are not limited to the material universe, but extend out

into the surrounding ether. Indeed, it is in this thin fluid, if it be a fluid, that energy is most conspicuously manifested. So great is its tenuity, that wavelets are formed in it only the sixty thousandth part of an inch in breadth; and with such intensity do its particles repel one another, that these wavelets are propagated through it with the amazing velocity of two hundred thousand miles per second; or about a million times faster than sound-waves travel through the air. We have in this subtle essence as near an approach to pure force, or force without matter, as it is possible for the mind to conceive.

How insignificant, then, is the mere force of moving bodies, to which alone the law of convertibility and conservation applies, by the side of mighty, living forces, pervading all matter, emerging apparently from its atoms, taking on the forms of attraction and repulsion, or at least most readily conceived by us under these forms, ever active, not only originating all motion, but converting and conserving it when originated! Or what is this same force of moving bodies in comparison with the ocean of ethereal energy, embosoming the material universe, and stretching on, it may be, through the infinitudes of space? It is in these ever living forces, pervading all things, sustaining all things, encompassing all things, — the source of all motion, tireless, exhaustless, infinite, — that the power of the Omnipotent One is most distinctly adumbrated. They are only, however, in due proportion to the vast plan for whose execution they were provided, — a plan embracing the whole visible and invisible creation, and reaching down through the cycles of eternity. They illustrate the harmonious perfections of Him who is in all and over all.

I proceed to notice very briefly certain endowments of the

human mind or soul which might be expected if it were formed by a personal God, but which are not so readily explained on any other supposition. There can be no doubt that a sense of duty, the feeling of dependence, the sentiment of reverence, and an impulse to worship, belong essentially to the nature of man. Equally universal with these, however originating, is the belief in a superior Intelligence, or superior Intelligences, towards whom the religious sentiments are directed. As the testimony of Mr. Herbert Spencer on this subject cannot be thought prejudiced, I give it. "That the countless different," I quote his words, "and yet allied phenomena, presented by all religions, are accidental, or factitious, is an untenable supposition. A candid examination of the evidence quite negatives the doctrine maintained by some that creeds are priestly inventions. Even as a mere question of probabilities, it cannot rationally be concluded that in every society, past and present, savage and civilized, certain members of the community have combined to delude the rest in ways so analogous. To any who may allege that some primitive fiction was devised by some primitive priesthood before yet mankind had diverged from a common centre, a reply is furnished by philology; for philology proves the dispersion of mankind to have commenced before there existed a language sufficiently organized to express religious ideas. Moreover, were it otherwise tenable, the hypothesis of an artificial origin fails to account for the facts. It does not explain why, under all changes of form, certain elements of religious belief remain constant. It does not show us how it happens that, while adverse criticism has from age to age gone on destroying particular theological dogmas, it has not destroyed the fundamental conception underlying these dogmas. It leaves us with-

out any solution of the striking circumstance that when, from the absurdities and corruptions accumulating around them, national creeds have fallen into discredit, ending in indifferentism or positive denial, there has always by and by arisen a reassertion of them, if not the same in form, still the same in essence. Thus the universality of religious ideas, their independent evolution among different primitive races, and their great vitality, unite in showing that their source must be deep-seated instead of superficial. In other words, we are obliged to admit that if not supernaturally derived, as the majority contend, they must be derived out of human experiences, slowly accumulated, and organized.

"Should it be asserted that religious ideas are products of the religious sentiment, which, to gratify itself, prompts imaginations that it afterwards projects into the external world, and by and by mistakes for realities; the problem is not solved, but only removed further back. Whether the wish be father to the thought, or whether sentiment and idea have a common genesis, there equally arises the question, Whence comes the sentiment? That it is a constituent in man's nature is implied by the hypothesis, and cannot be denied by those who prefer other hypotheses."

This view of the human constitution, so forcibly presented by Mr. Spencer, is borne out by the teachings of history. All the great faiths which have swayed mankind are believed to have been originally monotheistic. The belief in one God, eternal and omnipotent, the Source and Author of all things, would seem to be native to the human soul; or, if not native, to be an immediate inspiration of the reason and conscience. Idolatry and polytheism appear as corruptions of this belief. In

Buddhism and Brahminism, as we first find them, and also in that marvelous faith which prevailed so many thousand years ago on the banks of the Nile, the fundamental truths of natural religion stand out with scarcely less prominence than in Judaism or Christianity. The spiritual needs of man are recognized, and provision in different ways is made for them. The moral law is promulgated under divine sanctions. Some of its noblest utterances are anticipated by the founders of the early faiths and philosophies. Confucius, who lived between five and six hundred years before our era, is said to have enjoined the doing unto others as we would have them do unto us. At a still earlier period, the obligation to love God, and to do good to man, to give food to the hungry, drink to the thirsty, clothing to the naked, and shelter to the outcast, was recognized by the devout Copt. Many of the precepts of Buddha call to mind the inspired wisdom of Solomon, and even the more divine words of Him who spake as never man spoke. The late Bishop Cotton, in an address to the students of a missionary institution at Calcutta, advised them to use a certain hymn of the Rig Veda, the most ancient of the Hindu Scriptures, in their daily prayers. Socrates, who lived at a later period, but still more than four hundred years before Christ, thought it was noble to forgive injuries, and do good to enemies, but knew that men were not prepared for so unselfish and God-like a virtue.

I do not refer to this universal recognition of a supreme Being, and of the duty of rendering obedience and homage to Him, as a proof of the actual existence of such a Being, although it has been so considered, but simply as showing that man is constituted precisely as we should expect him to be con-

stituted on that supposition, — that the endowments of his nature are in harmony with that supposition, and more readily explained upon it than upon any other supposition. They thus support and corroborate the argument from the marks of design, so apparent in every part of nature. Had the constitution of man been different, an explanation would have been demanded, which theism could hardly have furnished. As it is, theism, and theism only, satisfactorily accounts for his constitution.

But the most important support to all the truths of natural religion — the fullest confirmation of them — is derived from Revelation. More light was needed than nature alone can give. So strongly was this felt by Socrates that he looked for some communication from an immediate and divine source. Indeed, if God had never spoken, if the grave had remained forever silent, the very fact would shroud in deeper mystery the problems of man's origin and destiny. In moments when faith is weak, and a world of matter and sense presses hard on every side, and God holds Himself from us; when we go forward, but He is not there, and backward, but we cannot perceive Him; on the right hand where He doth work, but we cannot behold Him; and He hideth Himself on the left hand that we cannot see Him, and there is no audible or visible response to our most passionate yearnings after Him; we need all the assurance of His presence and care that a direct revelation from Him can give us.

Christianity both supplements and confirms natural religion. By assuming the fundamental truths of natural religion, it lends to them the support of its own evidences, internal, historic, and miraculous. Natural religion, in turn, renders to

Christianity scarcely less important services. They mutually strengthen and support each other. Natural religion has inherent and necessary defects; Christianity supplies them. Natural religion contains within it a prophecy of better things to come; Christianity is the fulfillment of that prophecy. Natural religion reaches out into the darkness, and with uncertain hand feels after immortality; Christianity brings it to light. Natural religion, under a sense of guilt and ill-desert, piles its altars with costly sacrifices, in the hope of averting the divine wrath, and propitiating the divine favor, but neither peace nor joy comes through them; Christianity offers free pardon for sin, and the joy of innocence and hope of heaven, through an infinite and divine atonement made by God's own Son, sufficient for the whole race. Natural religion has exhausted its resources in endeavors to make men better; with what success the history of the world, and of the faiths which have prevailed in it, sufficiently shows. These faiths, although generally founded on the truths of natural religion, have utterly failed to purify and elevate humanity. Nay, they have themselves sunk, one after another, under the weight of corruptions with which they were overlaid by human interests and human passions, and which they had not vitality and strength enough to throw off. Christianity has at command new forces, and employs a different method. It does not attempt to reform merely; it regenerates. It does not seek to gather grapes from thorns, nor figs from thistles. It puts the grape in place of the thorn, and the fig in place of the thistle. It reaches conduct through character, and character through its hidden sources in the soul. It renovates, purifies, and elevates society, by renovating, purifying, and elevating all the members of society. It is, moreover, endowed

with an intensity of life and vigor which enables it not only to free itself from the rubbish of error and abuses which time collects about it, but to burst the forms in which men would imprison it, and snap the withes of creeds with which they attempt to bind it.

Many of the difficulties of natural religion disappear under the light of Christianity. How, for instance, does the revealed fact, that this world is intended as a place for moral probation; that all its arrangements bear upon that end; that the chief purpose of life is the formation of character, and that our existence here is only preparatory to another and higher existence beyond this world, — how do these revealed facts change the aspects of our earthly being and condition? Mysteries are resolved; fears are dissipated; darkness gives place to light; good comes out of evil; and suffering, disease, and death are turned into angels of mercy.

I have said that natural religion is best understood when studied in the light of Christianity, — that there is much in God's Book of Nature which Christianity alone interprets. Permit me to add, that I think it almost equally important that the truths of revelation should be studied in the light of natural religion. Unless so studied, our conceptions of them are liable to be narrowed and distorted by the medium through which they are presented. In the Book of Nature God speaks to us in His own language, and says what is unutterable in any form of human speech. In the Book of Revelation, He speaks to us in a human language, and under human forms of thought. The communication must be adapted to the limited and imperfect vehicle through which it reaches us. Who can gaze into the heavens, or look out upon the ocean, without feeling how

inadequate any combination of mere words must be, to embody and express the divine thought! It is by studying the Word of God and the works of God, each in the light of the other, that we may hope to arrive at the truest and fullest knowledge of His character, and learn more of His will and purpose concerning us. Not a little of the breadth and strength and power of Bishop Butler was due to his having drawn so largely from both sources.

I have not thus far spoken of the bearings of the important question which we have been considering upon the interests and destinies of humanity. In closing, I may be permitted briefly to refer to them, though not in the character of argument. The doctrines of a personal God and a human soul stand or fall together. No God, no soul, no hereafter. The grave is our end — the bound of all our hopes and fears and joys. We lie down in it, in eternal forgetfulness. Indeed, it is the perception of this consequence of materialism and pantheism that commends these faiths to some of our scientific friends. They see in them deliverance for mankind from the fears of a hereafter. How different is the spirit of Mr. Edward B. Tylor, as manifested in his work on "Primitive Culture," one of the ablest and saddest books which I have ever read, — sad, from the constant reflection by its pages of struggle with unbelief. At the close of one of his chapters on animism, he speaks of the doctrine of a future state as follows: —

> He who believes that his thread of life will be severed once and forever by the fatal shears, well knows that he wants a purpose and joy in life which belongs to him who looks for a life to come. Few men feel real contentment in the expectation of vanishing out of conscious existence, henceforth, like the great Buddha, to exist only in their

works. To remain incarnate in the memory of friends is something. A few great spirits may enjoy, in the reverence of future ages, a thousand years or so of "subjective immortality;" though, as for mankind at large, the individual's personal interest hardly extends beyond those who have lived in his time, while his own memory scarcely outlives the third and fourth generation. But, over and above these secular motives, the belief in immortality extends its powerful influence through life, and culminates at the last hour, when, setting aside the very evidence of their senses, the mourners smile through their tears and say it is not death, but life.

If, turning away alike from the teachings of nature and the teachings of revelation, we refuse to believe in a personal God, in what shall we believe? If, deaf to the innumerable voices which come from without and from within, we reject theism, what shall we take in its place? Shall it be atheism, or materialism, or pantheism? Not atheism, surely; not shallow, unreasoning atheism. Anything better than that. Better the rehabilitation in nature of her ancient divinities. Better for head, better for heart, better for soul. Better that Apollo should again curb with his strong arm the fiery steeds of the Sun, — the swift-footed Hours dancing in faithful attendance around his flying car. Better that Neptune should once more traverse the ocean in his dolphin-drawn chariot, ruling by his trident the waves, with a huge train of gamboling monsters in his wake. Better that the forests should be still peopled by dryads, and that every river and brook and fountain should have its naiad. Better that the features of a god should look out from every knoll and rock and tree than that a blank, dead atheism should spread over and empale all nature.

Shall it be materialism, with its vast masses and mighty forces

and eternal processes? Better this than atheism. Shall we worship masses and forces and processes? if we can; it is better than no worship. Shall we say to nature, embodying those masses and forces and processes, but irradiated by no light of mind, Thou art our God? Better a Nature God, unconscious and without intelligence, than no God. But let us look at materialism a little more nearly, and what it really is; what it gives us; how it evolves the order and harmony of the universe, and what and for what man is made by it. It may be profitable to listen a moment to its teachings. Whence this fair world, with all its provisions for the support of such myriads of joyous existences? "It was self-evolved. Mind had no part in its production. All its apparent array of means was the mere result of chance — one of the possible issues of an original chaos of atoms, every one of whose movements was determined by blind law. Nature, not God; Nature, herself blind and unconscious, is the author of all these nicely-adjusted arrangements — of all this furniture of life in the heavens above us, and in the earth under us. After countless ages of unconscious struggle, of combinations and recombinations, of constructions and reconstructions innumerable, this grand result was at length blindly reached." Whence the innumerable tribes of plants and animals by which the earth is tenanted? "Nature, after having by a whole past eternity of unconscious struggles accidentally effected the organization of our planet, continued her blind efforts, and at length, by a chance combination of the right elements, gave birth to the first living being. A starting-point was thus secured for a new series of developments. From this starting-point life was carried upwards, partly by fortunate accidents rewarding the uninterrupted struggles of Nature, partly

by the conscious and voluntary efforts of the individual to adapt himself to new conditions, and partly by natural selection or the survival of the fittest. Millions of ages roll away. The molluscan, ichthian, reptilian, and mammalian types are successively reached. At length the persevering efforts of unconscious Nature, seconded by favoring circumstances and happy chances, are rewarded by the appearance of one of the quadrumana." And what of man? "Man comes next. He is a monkey of larger growth; with cranium more developed, and extremities more specialized, — but still a monkey. His parentage is revealed in every feature. His life, too, shows it. He is born and grows up. He eats; he drinks; he sleeps; he loves; he hates; he hopes; he fears; he dies. His intelligence is greater, owing to the larger size of his brain. Hence he clothes himself; he builds houses; he plants trees; he rides; he dances; he buys; he sells; he talks about philosophy and law, free-will and foreordination, and evidence of design, and causes efficient and final, and essences material and spiritual. But after thus riding and dancing and talking away the brief span of his existence, he dies like the monkey, and, like the monkey, transfers the life, which he had received from others, to the worms that feed upon him. His dust goes to feed the roots of a neighboring tree, or clothe with fresh beauty the flowers that bloom over it." And is that all? That is all. Such is undisguised materialism. Shall we embrace it, and give up the worship of God and hope of heaven?

Nor has pantheism more to recommend it. In fact, it differs from materialism in little but name. The substance of things remains the same, whether we call it matter or whether we call it God. Both deny the existence of a personal Intelligence

(with the attributes of will and character), and it is only such a Being that can awaken our love and reverence, or that we can draw near to in worship. Pantheism is as much at variance with the evidences of design in the external world as materialism. It is also as far from satisfying the demands of our spiritual nature. What is it to me, when my heart reaches out after God, and I fain would know Him, to be informed that He is all around me, in everything which I see and handle; that the food which I eat, the water which I drink, the garments which I wear, and the ground upon which I tread, are parts of Him? What is it to me, when my soul is filled with dread and horror at thought of falling into naught, when I pant for life — for "more life and fuller" — for life immortal? What is it to me to be assured that death is only a change; that, though I shall personally cease to exist, the elements of my being will continue; that they will enter into new combinations and minister to new forms of life; that they will cut the air in wing of bird, or cleave the water in fin of fish, or blush in the rose, or exhale in fragrance from the lily, or flutter in the breeze, or dance in the sunbeam, or vibrate in ether, or seek, it may be, enduring repose in bed of limestone or block of granite? I turn indignantly away from all this impertinence, to listen to the voices of nature and the voice of revelation, and receive from all around, within, and above me, the assurance of a personal God and Heavenly Father, who knows and loves me, and whom I, made in His likeness, may know and love and dwell with forever.

A DISCOURSE

COMMEMORATIVE OF

FRANCIS WAYLAND,

DELIVERED BEFORE THE ALUMNI OF BROWN UNIVERSITY, SEPTEMBER 4, 1866.

Alumni of Brown University:

Since we last gathered on this consecrated spot, to extend to one another the hand of cordial greeting, and to receive afresh the benediction of our Alma Mater, a great sorrow has fallen upon us. He whose presence was so intimately associated with these scenes, who more than any one else attracted hither our annual pilgrimages, whom we so honored and loved, our early instructor and guide and friend, whose prayers ceased not daily to ascend for us, and whose blessing ever followed us, the great, the good, the venerated Wayland is no more. How did the sad tidings, when first borne by telegraph over the land, smite upon our hearts! How did pursuit for a time pall, and desire slacken, and motive fail! A part of our very being seemed taken from us. The same sky was no longer over us. A light, which had beamed so long and so benignantly upon us, had gone out. The same atmosphere was no longer around us. A great heart, with such power of sustaining and comforting by its sympathies, had ceased to beat. A grand and heroic nature, whose simple

presence was an inspiration to every virtue, had passed from the earth.

But the loss and grief were not ours alone. We have a large companionship in sorrow. The exalted character of him whom we mourn, his great public services, and his long life of unselfish devotion to the highest interests of humanity, made him very widely known, and gave him a place in the affections and respect of the community, such as few are permitted to hold. Of this the various organs through which popular feeling is accustomed to express itself have given evidence. The press all over the land has borne witness to the sincerity and depth of the public grief. Numerous benevolent associations have recorded their profound sense of the loss which the interests of virtue and the cause of philanthropy have everywhere sustained. The pulpit, while it has mourned the removal of one of its chief ornaments, has paid spontaneous and fervid homage to his exalted worth and to the power of his Christian character. Literature has hastened to embalm in her own frankincense his name, that it may go down to posterity among the benefactors of the race.

And now we have assembled to mingle our grief with the general sorrow; to recall the more prominent events in the history of one whose life was so true, so beneficent, so worthy; to review his eminent services, extending over a period of almost half a century, and reaching in their influence every interest of society; to trace anew the lineaments of his grand character, and to hang the picture forever in the chambers of memory.

In the discharge of this grateful office the duty of speaker has devolved upon me. Although I am fully aware of the magnitude and difficulty of the task assigned me, and painfully

conscious that I am wholly unequal to it, in obedience to your commands, as well as from love of the service, I shall endeavor to perform it as I best may, relying upon your indulgence for my many, and, as I fear, grievous shortcomings. I am the less embarrassed, when I remember that the portrait which I would have you contemplate is already in your minds, and that I have only to touch aright the chords of association in order that it may stand out before you in all the massive strength and beauty of the original.

Francis Wayland was born in the city of New York, March 11, 1796. He was the son of Rev. Francis and Sarah Wayland, who came from England to this country a short time previous to his birth. His father was a clergyman of the Baptist denomination, remarkable rather for the goodness of his heart, and the guilelessness, simplicity, and purity of his Christian character, than for those more brilliant qualities which dazzle and captivate in the popular preacher. His mother was a woman of high intellectual endowments and great force of character. Of her as well as of his father, he always spoke with the deepest filial reverence. While he was still a boy, the family removed to Poughkeepsie. At the academy in that place, under the care of Mr. Daniel H. Barnes, he took his first lessons in the Latin and Greek languages. He remained there until the spring of 1811, when at the age of fifteen years he entered the sophomore class, in Union College, Schenectady, New York. Of his college course I have little knowledge. He was accustomed in after life to speak of it as having embraced too much reading and too little study. But, from the fact that he was subsequently invited to become a member of the faculty, I infer that his scholarship must have been at least satisfactory.

Soon after leaving college, he commenced the study of medicine under Dr. Hale, of Troy, with whom he remained about six months. He then entered the office of Dr. Eli Burritt, of the same place, and continued with him until his medical studies were completed. A more than usually intimate relation seems to have grown up between instructor and pupil. The Doctor, who was an able man, and genial companion, as well as skillful physician, took delight in opening to the enthusiastic young student the rich stores of his professional reading and experience. He also extended to him freely the opportunities which a large practice offered for the actual study of the different forms of disease, taking care to guide him aright in making observations and in deriving conclusions from them. It was under these favoring influences that he first awoke to a consciousness of his powers, and that his mind acquired those practical tendencies by which it was ever afterwards characterized. I am inclined to believe that no period of his life was richer in memories, or more fruitful in results, than the two years which he passed as a student of medicine in the office of Dr. Burritt. He never mentioned the name of this early friend and instructor but with expressions of affectionate respect and gratitude.

But the foundation that was so carefully laid for success and eminence in his chosen profession was destined to serve other and different purposes. He had but just been admitted to practice, when a change took place in his views of life and his convictions of duty, which caused him to abandon it. Believing himself to be called by the Master to labor in His spiritual vineyard, he at once began preparation for the new employment. In the autumn of 1816, three years after graduation, he entered

the Theological Seminary at Andover, Mass. Professor Moses Stuart had for some time previous occupied the chair of Sacred Literature in that institution. He was now in the full maturity of his powers, though not yet at the height of his fame. He had already commenced that reform in biblical study which was to constitute the most important work of his life. Casting off the shackles of a dogmatic theology, and freeing himself from the trammels of immemorial usage, he applied the same rules of interpretation to the Scriptures as to other ancient writings, and accepted the unqualified meaning which they gave him. In the preparation of his courses of instruction he drew largely from new and hitherto unopened sources. The stores of German philology and criticism were unlocked by him, and made available for the first time to the American student. By his rare gifts of language and illustration, by the novelty and boldness of many of his views, and by the ardor with which he pressed them, and more especially by the earnestness and eloquence with which he vindicated the simple, unadulterated Word of God as the only and sufficient rule of faith and practice, he kindled in his classes an enthusiasm which knew no bounds. "Some of his pupils," I quote the words of one of them, "almost looked upon him as a being from a higher world. The hour when they first saw him was a kind of epoch in their history."

Under this great master, the recently awakened powers of the medical student received a fresh stimulus, and he entered with the utmost zeal upon his new field of study. He soon found it to afford scope for the freest and most expansive exercise of every faculty. Embodying a literature of great variety and richness, containing truths the grandest and the most momentous that the human mind ever contemplated, and sup-

ported in every utterance by the authority of inspiration, the Bible, studied under such a teacher, became incomparably the most interesting of all books. Grammar, philology, geography, and history, local and general, were in turn pressed into the service of developing and elucidating its meaning. Every day enlarged the field of his mental vision. Every week brought with it a conscious increase of power. Every month found him with a deeper knowledge of the Word of God, and a profounder reverence for its teachings. During his residence at Andover, he learned what, if he had accomplished nothing else, would have made it an important era in his life: he learned how to study and how to teach the Bible — two things which he never afterwards forgot. I have listened to many able and eloquent expounders of the Scriptures; but I have never heard any one, who, whether in pulpit or class-room, unfolded their meaning with so great naturalness, simplicity, and power as President Wayland. Few of the pupils of Professor Stuart caught more of his spirit, and none of them in after life cherished for the great biblical interpreter a profounder respect and admiration.

In the fall of 1817, after a year's residence, he left the Theological Seminary, to accept a tutorship in Union College. This new position introduced him to relations most favorable to growth and culture. His teaching embraced a large variety of subjects. It was not confined to a single department, but extended, at different times, to nearly the entire college course. In the academic circle he was brought into daily intercourse with minds of large experience and rich and varied culture, at a time of life when such intercourse is most improving. It was during his tutorship that he first really knew President Nott, and that the mutual love, respect, and admiration was awak-

ened which continued to grow for half a century. The four years spent in these happy relations he ever after recalled with the liveliest interest, and was accustomed to speak of them as the most important in his life. It was during this period that his character especially took its form and pressure, and that he first gave assurance of the brilliant future that was before him.

Although chiefly occupied with the duties of instruction, he continued to a certain extent his theological studies under the immediate direction of Dr. Nott. He also preached occasionally in the neighboring towns and villages. In August, 1821, he received ordination and accepted the pastoral charge of the First Baptist Church in Boston. The advantage of his long, varied, and thorough training preparatory to entering upon the field of labor to which he believed himself called, became at once apparent. His sermons from the commencement showed marked ability. They were characterized by a range and elevation of thought, an eloquence of diction, and a depth and fervor of feeling, which raised them far above the level of ordinary pulpit discourses. Soon he became known through them to the public. Hardly had two years elapsed, when his eloquent defense of missions extended widely his name and fame, and gave him a place among the first orators of the land.

Nor did he, in the care with which his preparations were made for the pulpit, forget the humbler duties of the pastor. He was much among his people. He learned their characters and circumstances. He put himself in personal relations with them. He sought occasions and opportunities for seeing them and pressing upon their attention the obligations and duties of religion, ever remembering that it was individual souls that were to be saved; that it was individual human souls, and not con-

gregations of men and women, that he must account for to the Master. Besides the direct personal influence which he thus exerted, he was enabled, by the knowledge of character gained, to adapt his public ministrations more perfectly to the wants of his people. It was a maxim with him, that a minister who performs with fidelity his pastoral duties will never lack for subjects when he enters the pulpit.

Mr. Wayland remained with the church in Boston five years. In the autumn of 1826 he returned to Union College, having accepted an appointment to the chair of mathematics and natural philosophy. His stay here was destined to be but of short duration. About this time the presidency of Brown University became vacant. The Rev. Dr. Messer, who had held that office for nearly a quarter of a century, and who, as tutor, professor, and president, had given to the institution a whole life of honorable service, beginning to feel the weight of years press upon him, sent in his resignation. In looking for a successor, the corporation soon turned their attention to Professor Wayland, who, during the brief period of his ministry, had established for himself the reputation of a profound thinker and brilliant orator. At a meeting held December 13, 1826, he was unanimously elected to fill the vacancy, and the February following he entered upon his presidential duties. He was now in the first prime of life, with all his powers in their full vigor, and with a work before him of sufficient magnitude to suitably task them.

In the later years of his predecessor's administration the discipline of the college became relaxed, and the spirit of study among the undergraduates declined. The instruction in several of the departments was given by persons having other occupa-

tions, who saw the young men only in the recitation or lecture room, and who had no share in the responsibilities of government. In these circumstances a disposition to license had shown itself, which, however unfriendly to order and the diligent pursuit of learning, the authorities found it difficult to suppress. The necessity of reform was deemed urgent by the friends of the college. This may be inferred from a resolution passed by the corporation at the same meeting at which the election took place, declaring "it to be the duty of the President of this University to see that the laws are executed, and that the officers of instruction, and others immediately connected with the institution, do their duty." At a subsequent meeting it was further resolved, "that no salary or other compensation be paid to any professor, tutor, or other officer, who shall not, during the whole of each and every term, occupy a room in one of the colleges, and assiduously devote himself to the preservation of order and the instruction of the students, and the performance of such other duty as may belong to his station."

President Wayland proceeded with his accustomed promptitude and energy to carry out the important reforms indicated. In doing so he met, as was to be expected, with opposition, both without and within the college. Ideas long entertained were disturbed. Immemorial customs were rudely jostled. Time-honored shelters, under which mischief had found protection, were broken down. The various disguises and coverings by which indolence had contrived to make itself respectable were plucked off. Diligent application to study, and a laudable ambition to excel, were stimulated by new, and, as was claimed, invidious honors. The traditions of the college were unceremoniously set aside, and others, from a foreign source, it was said,

were substituted for them. It is not in human nature — certainly not in student nature — tamely to suffer encroachment upon prescriptive rights and privileges. Angry feelings were aroused. Indignant protests were made against the innovations. Soon a spirit of resistance to authority manifested itself in all the protean forms which ingenuity could devise, and the circumstances of life in college would permit. One of the mildest of these modes of expressing public sentiment was delineation on the wall of the halls, and the lecture rooms when these could be entered. I recall a spirited sketch executed by a classmate, which represented very well the prevailing current of opinion and criticism. It comprised two figures. Dr. Messer, seated in his old chaise, with reins fallen, and whip lost, was jogging leisurely on. Directly before him and in clear view lay the gulf of perdition. Near by was Dr. Wayland, in a buggy of the newest fashion harnessed to an animal on whose build and muscle two-forty was plainly written. He was headed in the same direction, and, with taut rein and knitted brow and kindling eye, was pressing with all his might forward.

But the students soon learned with whom they had to deal. Opposition was vain. Remonstrance, however passionate, proved useless. Resistance to authority, whatever form it might assume or whatever strength it might acquire from combination, availed nothing. It was the wave dashed against the rock, only to be beaten back in spray. In some of the fiercer assaults, individuals were thrown in the recoil to so great a distance that they never found their way back. They left their college for their college's good. The greater number presently became reconciled to the new order of things, and forgot their angry feelings in the general enthusiasm for study, which already began to be

awakened. Before a twelve-month had passed, all were conscious of new impulses and higher aspirations, and a quickening and invigoration of every faculty, from the wholesome discipline to which they were subjected. And as conscious injustice is not a vice of students, those who had been the most bitter in their denunciations were now the loudest in their praises. The profoundest eulogiums which I have ever heard pronounced upon President Wayland as an instructor and officer of government have come from men who were in college at this time, and who formed their estimate from the character and ability exhibited in these circumstances. The opposition outside of the college continued somewhat longer; but having its origin for the most part in misconceptions, it, too, soon passed away.

Having placed the government and discipline of the University on a satisfactory footing, President Wayland next sought to improve the instruction and raise the standard of scholarship and character. The use of books, except in the languages, was prohibited in the recitation room. The lessons assigned were required to be mastered, by both teacher and pupil, before entering it, so that the topics embraced might be freely and fully discussed by them. The pupil was expected to do something more than answer questions, or repeat the words of the text-book, or recite in their order the successive paragraphs. He was required to give, as far as he might be able, in his own language, the course of argument, or the train of thought; to separate it into its component parts; to distinguish the principal from the subordinate, the essential from the accidental, the substance from the form; in a word, to discriminate sharply between the important and the unimportant in each paragraph, section, and chapter, and to present the former divested of the latter, with a due regard to order and connection.

This mode of conducting recitations proved, in the hands of able and skillful teachers, a most efficient means of culture. Besides bringing into constant activity some of the most important faculties, it accustomed the mind to processes presupposed in all good writing or effective thinking. It also tended strongly to break up that pernicious habit of mere word-learning, which from the training of boyhood so many bring with them to college. The effect was soon apparent in a larger intellectual growth and in a more manly character. Judge Story, when professor in the Cambridge Law School, was accustomed to say, as I have been informed, that he could distinguish a graduate from Brown University by his power of seizing upon the essential points of a case and freeing it from all extraneous matters.

This new mode of teaching introduced by President Wayland was known in college at the time as the analytic method. The student was said to recite by analysis. As in the case of all other modes of instruction, its success depended greatly upon the character of the teacher. With incompetence in the chair, or stupidity behind the desk, it was liable to degenerate into an unmeaning and worthless formalism. I recall an extreme case. A graduate, who had left the institution a short time previous to engage in the business of instruction, called upon me, partly, I suppose, for sympathy, and partly to afford me the pleasure of knowing how admirably he was succeeding in his new employment. He had adopted fully, he informed me, the university methods. He taught everything by analysis. As I had had the honor of instructing him in geometry, he drew his illustrations from that study. He made his pupils, he said, commence at the beginning of each book, and repeat the propositions in their order to the end; and then commence at the end and re-

peat them backwards to the beginning. He particularly asked my attention to the latter exercise as an extension of the principle of analysis and an actual improvement upon the teaching in college.

The prevalence of a higher spirit and better methods of study prepared the way for extending the established courses of instruction, and also for introducing new courses. Advantage was taken of the openings thus made, as fast as the means of the institution would permit. The French language, in which instruction had not previously been given, was first made a part of the curriculum. Afterwards the German was introduced as an elective study. Courses were also established in political economy, in history, and in several of the physical sciences. The means of instruction were at the same time greatly enlarged, in the form of apparatus, books, specimens, maps, models, and other aids of a similar character. The fruit of these augmented resources of the university was seen in larger acquisitions and in a more varied and richer culture.

To reach the characters and quicken the moral impulses of the young men, President Wayland availed himself of every channel that was open to him. He saw them often in private. His usual appellation of "my son," while it was a simple expression of his interest in them, and of the care and responsibility which he constantly felt for their welfare, had the effect of softening the severer official relation, and investing with something of a paternal character his suggestions and counsels. These personal conversations were always most salutary in their influence, and not unfrequently marked an epoch in the history of the young man, from which his life took a new reckoning.

He attended frequently, and during periods of special interest constantly, the religious meetings that were held in college. Some of his prayers and exhortations at these meetings will be long remembered. Under their influence the light of a new life for the first time broke upon many a one who has since become himself a light and a power in the Christian Church. For a long series of years, he met every Sunday evening a class for the study of the Scriptures. This was always well, and at times, numerously attended. Many were attracted by the intellectual excitement and stimulus which it afforded. The great doctrines of Christianity were unfolded with a freshness, beauty, and power which made them seem like new revelations. Its practical teachings were enforced by arguments more cogent, and appeals more eloquent and thrilling, than any to which I have elsewhere listened. The spell of the senses was broken. The mind awoke as from a dream. The material and tangible melted away under the power of the invisible. This world became shadow, and the other world substance. Character, character, character was everything; all beside, nothing. With the hope of influencing larger numbers, President Wayland, at a later period, substituted for the Bible class preaching in the chapel on Sunday afternoons. To this change, the world owes his University sermons. They were delivered, with others not published, to an audience made up partly of students and partly of citizens. They are unquestionably among his ablest and most eloquent productions. They were listened to with profound, and, at times, thrilling interest. But I do not think their moral or religious effect was so great as that of the humbler service whose place they took.

Another channel through which he sought to reach and affect

character was the daily instructions of the recitation and lecture room. The sciences which he taught — intellectual and moral philosophy — were peculiarly favorable to this, and he shaped his courses in them with special reference to it. Little time was occupied with the metaphysical inquiries which underlie and cluster around these sciences. Questions of a merely speculative interest, having no practical bearing, were quickly disposed of. Whether the mind be simple or complex, whether it act immediately or through faculties, whether its knowledge of the external world be intuitive or representative, what force is, and how originated, whether it be inherent in matter, or external to it and only exerted upon it, whether creation was a completed act or the first moment of an exertion of power ever since continued, the origin of moral evil, the nature of right, the reconciliation of human accountability with the divine Sovereignty, and other similar problems, were either passed by altogether, or referred to merely in indicating the bounds of possible knowledge; or they were mentioned as illustrations of the yearning with which the mind, shut up in the prison-house of the senses, reaches out towards the illimitable expanse of being around it, or were pointed out as hopeless inquiries upon which the highest efforts of the most gifted intellects of the race have, for the last thirty centuries, been vainly expended. The respective spheres and offices of the different mental powers or faculties, the laws by which they are governed, their combined action in the higher intellectual operations, their proper use, discipline, and culture, conscience, obligation, duty, the moral law, its divine sanction, the consequences, both here and hereafter, of its violation, — these were the themes upon which he discoursed with such earnestness in the lecture-room, and which are presented so clearly and so forcibly in his admirable text-book.

But President Wayland liked the concrete better than the abstract. He preferred to consider man as a living, thinking, acting person, rather than as an assemblage of powers and sensibilities. He was more interested in studying the forms of intellectual and moral development growing out of the varying activities of the several faculties, than in the study of the faculties themselves. His mind was wonderfully rich in conceptions of character. Ideals of commanding power, of exalted goodness, of sublime virtue, were ever floating through its chambers of imagery. These he scattered like gems, in lavish profusion, along the whole pathway of his instructions. It was the quickening, inspiring, educating power of these that was most felt by his pupils, and that kindled to the greatest ardor their enthusiasm. It was by the contemplation of these chiefly that they were so "inflamed with the study of learning and the admiration of virtue; stirred up with high hopes of living to be brave men and worthy patriots, dear to God, and famous to all ages." It was these ideals which they especially carried from the halls of the University out into the world, to be always present with them, rebuking indolence, lifting from the debasements of mammon and sense, and soliciting ever to a higher and worthier life.

Another means employed by President Wayland for awakening impulse, and correcting, guiding, and elevating public sentiment in college, was addresses from the platform in the chapel. These were most frequent and most characteristic in the earlier days of his presidency. They occurred, usually, immediately after evening prayers, and took the place of the undergraduate speaking, which at that time formed a part of the daily college programme. The occasions which called them forth were some

irregularity, or incident, or event, which seemed to render proper the application of the moral lever to raise the standard of scholarship or character. We all knew very well when to expect them.

As the students, then, with few exceptions, lived within the college buildings, and took their meals in Commons Hall, they constituted, much more than at present, a community by themselves. They were more readily swayed by common impulses, and more susceptible of common emotions. When gathered in the chapel, they formed a unique, but remarkably homogeneous, audience. President Wayland was at that time at the very culmination of his powers, both physical and intellectual. His massive and stalwart frame, not yet filled and rounded by the accretions of later years; his strongly marked features, having still the sharp outlines and severe grace of their first chiseling; his peerless eye, sending from beneath that Olympian brow its lordly or its penetrating glances, he seemed, as he stood on the stage in that old chapel, the incarnation of majesty and power. He was raised a few feet above his audience, and so near to them that those most remote could see the play of every feature. He commenced speaking. It was not instruction; it was not argument; it was not exhortation. It was a mixture of wit and humor, of ridicule, sarcasm, pathos, and fun, of passionate remonstrance, earnest appeal, and solemn warning, poured forth not at random, but with a knowledge of the laws of emotion to which Lord Kames himself could have added nothing. The effect was indescribable. No Athenian audience ever hung more tumultuously on the lips of the divine Demosthenes. That little chapel heaved and swelled with the intensity of its pent-up forces. The billows of passion rose and

fell like the waves of a tempestuous sea. At one moment all were burning with indignation; the next they were melted to tears. Now every one was convulsed with laughter, and now as solemn as if the revelations of doom were just opening upon him. Emotions the most diverse followed one another in quick succession. Admiration, resentment, awe, and worship in turn swelled every bosom. At length the storm spent itself. The sky cleared, and the sun shone out with increased brightness. The ground had been softened and fertilized, and the whole air purified.

When the resources of appeal, both private and public, had been exhausted, President Wayland did not hesitate to employ other and more potent means for maintaining order, good government, and a high spirit of study. He was a vigorous disciplinarian. The very fullness of his energies disposed him to strong measures; and he may sometimes have resorted to them when milder ones would have succeeded. In treating the diseases of youth, especially college youth, he inclined to the heroic practice. He did not believe in administering remedies in homœopathic doses. He aimed not at a mere alleviation of the graver symptoms of the malady, but sought its radical cure. Although here and there a feeble constitution may have suffered under this vigorous treatment, by far the greater number were vastly benefited by it. How many are now able to look back to good habits formed and manly purposes strengthened through his wholesome discipline; to sterility turned into fruitfulness by the subsoiling received at his hand.

President Wayland identified himself in a remarkable degree with the college. That was always his first interest. To that everything else was subordinate. For that he gave himself to

the most unwearied and unremitting labors. During periods of irritation and disturbance, it was out of his thoughts neither night nor day. When there were grounds for apprehending mischief or any moral irregularity, every part of the buildings was subject at all hours to his visits. He was especially jealous, both in himself and in those associated with him, of any other interest that might *ablactate*, to use his own strong language, the college. All labor, all time, all thought must be given to that. His ideas of professional obligation in this respect were unusually stern and exacting; but as he illustrated and enforced them by his constant example, they became the ideas of his faculty. Their spirit also passed by a sort of contagion to the undergraduates, and developed in them a more earnest and manly type of character.

Besides this high sense of duty evinced by him in everything which he did, he brought to the work of teaching a noble enthusiasm. It was in his estimation a high employment. No other surpassed it in true dignity and importance. Of no other were the results greater or more beneficial. The boundless wealth of a universe was the birthright of mind; but only by the proper training of its faculties was it enabled to enter into possession of the rich heritage. Education was one of the plastic arts. The material wrought upon was finer than alabaster, more enduring than brass or marble; capable of being moulded into forms of imposing grandeur or bewitching grace or subduing beauty. He who worked at this art worked not for time only, but for eternity. Receiving a spiritual instead of a material embodiment, his conceptions became immortal.

These inspiring ideas constantly animated his zeal, and quickened to the highest activity every faculty, while they imparted

to his instructions an earnestness and fervor which neither dullness nor indifference could resist. All associated with him in the care and oversight of the college caught something of his ardor, and put forth in their several spheres fresh efforts for advancing its interests. His noble conceptions of the instructor's office and work, carried out from the University by his pupils, and spread still more widely through his writings, did much to raise teaching in public estimation, through all its grades, to the dignity of a profession. They also drew upon him the attention of the country, and placed him, by universal consent, in the first rank of educators, without a superior, if not without an equal, in the land.

In 1833, six years after coming to Providence, Dr. Wayland published his first volume of discourses. This included his two sermons on the "Duties of an American Citizen," so widely read and so justly admired when first given to the public; his famous sermon on the "Moral Dignity of the Missionary Enterprise," numerous editions of which had already gone out, bearing his name wherever the English language was spoken; and also his discourse on the "Philosophy of Analogy," delivered before the Phi Beta Kappa Society of Rhode Island on its first anniversary. The last, although of a less popular character than the others, is remarkable for a rare felicity of conception and treatment, for the fine vein of original thought which runs through it, for the grace and beauty of its illustrations, and for the classic finish of its style. It is pervaded throughout by a highly philosophic spirit, and contains passages of the loftiest eloquence.

In 1835, two years later, his work on Moral Science appeared. This was succeeded in 1837 by his Political Economy,

while his Intellectual Philosophy was delayed till 1854. These works were especially designed for text-books, and embody substantially the instructions which he had previously given to his classes by lecture. They do not claim to be complete and exhaustive treatises on the sciences to which they relate, but only to present so much and such portions of these sciences as may properly find a place in the collegiate course. While sufficiently elementary to meet the wants of the ordinary student, they discuss with great ability some of the highest and most difficult problems which human nature and society present. Their style is purely didactic, direct, simple, and perspicuous, but without ornament. They are books to be studied rather than to be read. But instructive and admirable as they are, they give but a faint idea of the marvelous interest with which the same truths were invested when unfolded and illustrated by the living teacher under the inspiration of the class-room. The appearance of the Moral Science was opportune. The need of such a work had long been felt. It was almost immediately adopted by a large number of the colleges, academies, and high schools of the country; and although thirty years have since elapsed, it still holds its place in them with hardly a rival. The use of the Political Economy and Intellectual Philosophy, though quite extensive, has, I think, been less general.

While thus indefatigably laboring within the walls of the University, President Wayland was continually called upon to render various and important public services. There was hardly an association in the country, whether for educational, philanthropic, or religious objects, of which he was not a member, and which did not look to him for advocacy, counsel, and support. To the cause of Christian missions, which was ever dear

to him, he gave more than the service of an ordinary life. His commanding eloquence, and the great weight of his opinions, caused him to be in constant requisition as a public speaker. His orations and other occasional discourses, all productions of marked ability, and many of them models of the species of literature to which they belong, would, if collected, swell into volumes. By these outside labors he greatly extended, not only his own fame, but that of the institution over which he presided; securing for it a rank and position not previously enjoyed, and attracting young men in larger numbers to its courses. Under his fostering care all its resources were greatly augmented, and its interests, external as well as internal, advanced. On coming to Providence, he found the college with three professors, the president not included; he left it with eight. He found it with scarcely a hundred students; he left it with more than two hundred. He found it with its courses of study quite elementary and limited; he left it with these courses greatly enlarged and extended. He found it without either a library or a philosophical apparatus deserving the name, and without buildings for their accommodation; he left it well cared for in respect to all these essential endowments of an institution of learning.

In effecting these great changes, Dr. Wayland had the benefit of able and efficient coadjutors. The scholarly Elton, who, at the time of his entering upon his presidential duties, was abroad, gathering inspiration beneath the shadow of the Parthenon and among the columns of the Forum, returned home soon afterwards to commence his courses of instruction enriched from the garnered stores of ancient learning. The genial and classic Goddard, whose appointment to a professor's chair was

of a somewhat earlier date, rendered to the University, during the period of his connection with it, most valuable services. By infusing something of his own exquisite taste and love of elegant letters into the minds of undergraduates, as well as by the models of a graceful and finished style which he set before them, he greatly elevated the standard of excellence in composition, and gave to rhetorical training, as a part of a liberal education, that deserved prominence in the college course which it has ever since held. Of almost equal value was the sound practical sense which he brought to every question of discipline and government. To the aid of his rare wisdom in the counsels of the faculty, Dr. Wayland was always prompt to acknowledge his large indebtedness. And after the retirement of Professor Goddard from the duties of instruction, he upon whom the mantle of seniority fell, to whom I owe so much, to whom a whole generation of pupils owes so much, as an able and faithful teacher and a wise counselor and friend, — would that I might speak of him as my heart prompts; but such words are not permitted now; they would seem too much like personal adulation; they must be reserved for another, and, I trust, far distant occasion, — he upon whom the mantle of seniority so worthily fell, the honored and beloved Caswell, for a period of nearly thirty years brought to the administration of President Wayland his undivided strength and his large influence. Other and younger officers of instruction and government coöperated in advancing the interests of the institution, if not with equal ability, with equal zeal and equal singleness of purpose. One of these, too early withdrawn from academic labors — much too early for his associates and for the interests of the University — by the attractions of "learned leisure" and the "still air of

delightful studies" rendered an uninterrupted service of more than a quarter of a century, whose value and importance can hardly be estimated too highly. A pupil of President Wayland, and recipient of the choicest benefits of his unequaled training, growing from youth up to ripe manhood under his immediate eye and influence, possessing many of the rare qualities which fitted him so preëminently for the instructor's office, inspired by the same ardor and the same spirit of untiring and unsparing devotion to the high duties imposed by it, he made his mark upon the successive classes as they passed under him, beside the ever-during impressions received from the great master.

Aid of a different kind, but no less important, came from without. Soon after the accession of Dr. Wayland to the presidency, a spirit of greater liberality began to prevail in the community, and juster ideas were entertained of the claims of institutions of learning upon the benefactions of the citizens. As a consequence of this, contributions, some of them large in amount, flowed from time to time into the treasury. Buildings, the need of which had long been felt, were erected. New and improved apparatus was provided. Additional professors were appointed, and the courses and means of instruction in nearly every department were greatly enlarged. The names of Brown and Ives, ever memorable in the history of the University, recall a succession of benefits and services, transcending in value even the munificent endowments with which they are indissolubly associated. To the wise and thoughtful care, to the almost parental interest and affection, with which the bearers of these honored names have ever watched over the institution, providing often from their own private resources for its more pressing

wants, and encouraging constantly by their sympathies all who were laboring for it, is to be ascribed, in no small degree, its measure of prosperity and success.

Reference to these important and coöperative agencies was demanded by the truth of history. They are not to be considered as detracting at all from the claims of President Wayland. Clustering about his administration, they confer upon it additional lustre. No man can be great nor can accomplish anything great alone. It is in that superior wisdom, and that ascendency and force of character, which enable the master spirits of the race to impress themselves upon their age, — to mould and shape the minds of other men, and to draw them into their own lines of thought and action, — that we recognize the highest form of power.

It had long been the desire of President Wayland to make the advantages of the college more generally available, and especially to adapt its courses in a greater degree to the wants of the manufacturing and mercantile classes. Such a change in our educational system, he thought, was demanded by the increasing numbers and growing importance and influence of these classes. It was also demanded by the character and circumstances of our country, whose material developments were destined to be magnificent beyond anything which the world had ever seen. He thought it the duty of colleges, as the guardians and dispensers of the benefactions intrusted to them for the good of the community, to heed this demand of the times, and make the changes necessary for meeting it. Unless they did so, they would lose their hold upon the public, and fail to accomplish, in full measure, the beneficent ends for which they were founded. He also ventured to imagine that knowl-

edge having practical applications might be made as valuable a means of culture as studies lying more remote from human interests, and recommended especially by what has been denominated their "glorious inutility."

These views commending themselves to the corporation and friends of the college generally, an effort was made in 1850 to provide the means necessary for their adoption. Through the liberality and public spirit of the citizens, one hundred and twenty-five thousand dollars were raised and paid into the treasury. This sum, though highly honorable to the donors, was quite insufficient for the institution of independent courses of instruction, with separate classes, on the extended plan contemplated. The best that could be done was to substitute for these inter-dependent courses, with classes more or less mixed. Such an organization of the University, though not free from objections, would have the advantage of throwing it open most widely to the public. It was accordingly adopted. The change was almost immediately followed by a large increase in the number of students. The attendance upon some of the courses was nearly doubled. Many who had previously been excluded from the benefit of an academic training gladly embraced the opportunity now offered for obtaining it. An unusually large proportion of these were young men of ability and character, who have since risen to distinction in their several avocations. But notwithstanding this apparent and real success of the new system, as the altered arrangements were termed, I do not think that the expectations of President Wayland were fully realized. This was owing mainly to defects of organization which the command of larger means could alone have remedied. The fundamental idea was just and important. The want felt and

indicated was a real one. It has since been recognized by the other colleges of the country, a large number of which have made provision in one form or other for supplying it. In a neighboring state, two institutions — both largely endowed, and embracing numerous departments of instruction — have just been established for the sole purpose of furnishing a suitable education and training to the industrial and commercial classes. The recent examples of a noble munificence by several of our wealthy and honored citizens afford ground for the hope that, under more favorable conditions, the broad and catholic design of President Wayland may yet be carried out among us on a plan even more extended and comprehensive than he in his most ardent moments dared to conceive; that our neighbors of Massachusetts and Connecticut will not for a long time be permitted to appropriate to themselves the exclusive benefit of ideas originated here, and finding in our compact communities of highly intelligent manufacturers and merchants so appropriate a field for their application.

In the summer of 1855, wishing to devote himself more exclusively to the pursuit of literature and to labors of benevolence, Dr. Wayland retired from the University over which he had so long and so ably presided. *Sol occidet; sed nulla nox succedet.*

We should form but an inadequate idea of the public services of our venerated friend and instructor, if we omitted to consider what he did for the city of Providence and the State of Rhode Island. Had he been a native born son, he could not have identified himself more perfectly with all their interests. Ancestral associations from the time of Roger Williams downwards could have added nothing to his pride in their fair fame.

When he first came to Providence, it was just passing from the dimensions of a thriving town to the larger proportions of a wealthy and prosperous city. While it was in this transition state so favorable to the reception of formative influences, he threw himself without reserve into its institutions, educational, benevolent, and religious. In his wise care and forethought many of these had their origin, while all were moulded to a greater or less extent under the influence of his efforts and counsels. In every enterprise of public spirit, in every plan for social improvement, in every effort at moral reform, in every labor for ameliorating the condition of the unfortunate, from whatever cause, the citizens habitually looked to him as their leader. On all occasions of public interest, it was his views that were most sought; it was the opinions expressed by him that had the greatest influence.

The charities of the city and state, the humbler as well as the nobler, found in him not only an earnest advocate, but, in proportion to his means, a most liberal contributor. To some of the more important of these he gave largely of his time. He was a trustee and frequent visitor of the Butler Asylum for the Insane, from its foundation down to near the close of his life. He was for many years one of the inspectors of the State Prison. At his suggestion and through his influence, mainly, important changes were introduced, which greatly improved the condition, both physical and moral, of its inmates. From a mere place of confinement, it was converted into a well-ordered disciplinary institution. Previously its maintenance had been a heavy expense to the State. It now became, through its work-shops, a source of no inconsiderable revenue. During a large part of the last twenty years of his life, he conducted every week

a Bible-class composed of convicts. The spectacle presented was most impressive, one which angels might desire to look upon, as with heart full of love to God and man, and thought intent on serving one and doing good to the other, he took his way on the quiet Sabbath morning towards yonder prison, to seek there the outcasts from society, the children of shame and sin and crime, to gather them around him, and to tell them in language of indescribable simplicity and tenderness of a Saviour who loves them and who has died for them; of an atonement so large and so free that each one of them, however guilty, may have pardon and cleansing; to lift them, by his broad overflowing sympathies, from their sense of forsakenness and isolation; to kindle repentings within them; to awaken anew their moral affections; and to restore their broken relations to humanity, to God, and to Heaven. He may have done many things of which the world will think more and longer, but his great life offers nothing surpassing in moral grandeur these almost divine labors.

The poor everywhere found in Dr. Wayland a friend and helper. He was known to a very large number of this class through his private benefactions. He was continually sought by persons of all classes for his advice, his counsel, and his sympathy. He probably held more numerous personal relations than any other man in the city. Every one of these he made the channel of some species of benefit. The nobleness of his nature was manifested no less strikingly in the ordinary walks of daily life, than in the more prominent and public situations to which he was called. In heroic and self-denying labors, in unceasing care and thought for the public good, in largeness of views and in breadth of interests and sympathy, in weight of

character and influence, in intellectual resources and power, and in all the elements of moral greatness, he was by universal consent the foremost citizen of Rhode Island. *Nec viget quicquam, simile aut secundum.*

A few months before his death, an occasion arose for a touching exhibition of the respect in which he was held by the whole community. The country had in an instant been plunged from the height of joy into the deepest mourning. Its honored and beloved chief magistrate, at the moment when he was most honored and most beloved, had fallen by parricidal hand. The greatness of the loss, the enormity of the crime, and the terrible suddenness of the blow, bewildered thought and paralyzed speech. It seemed as if Providence, which had just vouchsafed so great blessings, was, from some inscrutable cause, withdrawing its protective care. In this hour of darkness, to whom should the citizens go but to him who had so often instructed and guided them? As evening draws on, they gather from all quarters, and with one common impulse turn their steps eastward. Beneath a weeping sky, the long dark column winds its way over the hill and into the valley. As it moves onward, the wailings of the dirge and the measured tread are the only sounds which fall upon the still air. Having reached the residence of President Wayland, it pours itself in a dense throng around a slightly raised platform in front of it. Presently he appears, to address for the last time, as it proves, his assembled fellow-citizens. It is the same noble presence that many there had in years long gone by gazed upon with such pride and admiration from seats in the old chapel. It is the same voice whose eloquence then so inflamed them, and stirred their young bosoms to such a tumult of passion. The speaker is the same;

the audience is the same. But how changed both ! and how altered the circumstances! That hair playing in the breeze has been whitened by the snows of seventy winters. That venerable form is pressed by their accumulated weight. The glorious intellectual power which sat upon those features is veiled beneath the softer lines of moral grace and beauty. It is not now the Athenian orator, but one of the old prophets, from whose touched lips flow forth the teachings of inspired wisdom. The dead first claims his thought. He recounts most appreciatively his great services, and dwells with loving eulogy upon his unswerving patriotism and his high civic virtues. Next the duties of the living and the lessons of the hour occupy attention. Then come words of devout thanksgiving, of holy trust, of sublime faith, uttered as he only ever uttered them. They fall upon that waiting assembly like a blessed benediction, assuaging grief, dispelling gloom, and kindling worship in every bosom. God is no longer at a distance, but all around and within them. They go away strengthened and comforted.

Notwithstanding the multiplicity of his labors, President Wayland found leisure for much reading. I have known few men who would absorb the contents of a book in so brief a space of time. Turning over its pages, he took in at a glance their import and meaning ; and so tenacious was his memory, that what he had thus rapidly gathered he rarely if ever forgot. In his selection of books, he was determined more by what interested him, than by any deliberately formed plan of study. As his interests were broad, his reading embraced an unusually large variety of subjects. Travels, biographies, history, science, art, and literature furnished the ample materials from which his mind, by a sort of elective affinity, amassed its wealth of knowledge.

As might be expected, from the manner in which they were made, his acquisitions were characterized rather by breadth and comprehension than by minute accuracy of detail or systematic thoroughness. He was not a learned man in the proper sense of that term. There was perhaps no subject which others had not studied more exhaustively than he. But the field which he had explored was wide, and his gatherings from it were large. It has not been my fortune to become acquainted with any man who had, stored away in a capacious memory, more that one would desire to know, or less, I may add, that was not worth knowing.

Another consequence of his habit of varied and somewhat discursive reading was the absence of any controlling order or system in his acquisitions. The separate facts, instead of being connected by formal relations, lay in his mind in associations determined very much by his own individual tastes, interests, and habits of thought. It was this subjective grouping, this mental assimilation of the materials of his knowledge, that imparted to it such vitality, and made it not so much a possession as a part of himself, — which gave to his ideas on the most ordinary subjects the freshness and force of originality.

In early life he was a diligent student of Johnson. The vigorous thought, stately periods, and brilliant antitheses of the great English moralist awakened his youthful admiration, and exerted a marked influence upon his style. Later both his taste and his manner of writing became more simple. At all periods of his life the Bible was his constant companion. From that he drew inspiration. Through that he entered into a deeper knowledge of the character of God, and the nature of man. Daily and hourly he drank in wisdom from it. After Shake-

speare, Milton and Cowper were his favorite poets. Of the writers of romance he preferred Scott. His graphic descriptions of scenery and his life-like delineations of character, as well as the historic element which pervades his writings, raised them, in his estimation, quite above the pages of mere fiction. He had a quick sense of the ludicrous, and enjoyed with a keen zest the whimsical fancies of Hood, the delicate humor of Irving, and the broader comic scenes of Dickens.

In that struggle which is ever going forward between the *retiring* and the *coming* under the banners of conservatism and progress; in that ceaseless war which, from the very elements of human character and condition, must be waged in one form or another between the past and the future, on the battle-ground of the present, Dr. Wayland was always found, no less in his later than in his earlier years, in the advance of the party of progress. No man had a sublimer faith in the destinies of the race. No one, in anticipating those destinies, clothed them in the drapery of a more gorgeous imagination. The failures of the past could not shake his confidence in the future. From the mournful teachings of history even, he gathered an inner lesson of encouragement and hope. At no time had anything been really lost. The best forms of civilization which the world had seen had indeed fallen into decay, or yielded themselves a prey to violence; but out of their ruins had emerged new civilizations embodying all the best elements of the old, together with some higher principle which in them was wanting. The thread of progress, which for a time seemed broken and turned backwards, reappears to guide our steps anew through the historic labyrinth.

It was not, however, from the prophecies of the past, nor

from the tendencies of the present, that he chiefly derived his hopes of the race. Neither was it from man's intellectual endowments, however exalted, nor from the magnificent attendance of material agents and forces which stand ever ready to do his bidding. Nor yet was it from his unaided moral nature. This was too weak to bear the strain to which it was necessarily subjected. It succumbed under pressure. Through all time its failure had been most lamentable — the fruitful source alike of individual and national disaster and ruin.

It was only in the moral nature of man supplemented by the new forces imported into it by Christianity that he found assured ground for faith in his continued progress. Upon this turned, as he believed, the destinies of the race, both in this world and in the world to come. Hence his unceasing labors in all ways and by all means, in season and out of season, amid the most varied public services and under the pressure of constant professional duty, — labors continued without intermission or remission through a whole lifetime, for spreading a knowledge of the Gospel, and bringing men in heart and in life under the sway of its principles. Speaking of Christianity as the only pillar upon which his hopes for himself and for his race rested, he once said, with great earnestness, "Any doubt concerning that would be to me a greater calamity than the sinking of a continent."

Of the numerous works given by President Wayland to the public, two are biographical and one is controversial. The remainder are educational, didactic, and religious. The latter are all eminently practical in their aims. I am unable to recall a single question, of a purely speculative character, discussed or even formally stated in them. Important truths pertaining to

man's higher interests, whether revealed in consciousness, or made known by the teachings of inspiration, or resting upon the broader basis of human experience, are unfolded, illustrated, and enforced. Rarely is much time given to the discussion of principles. These in ethics and for the most part in metaphysics approximate so closely to intuitions, that little is needed beyond their exact and clear statement. Truths which lie so remote from the common sense of mankind, that they can be reached only by long trains of reasoning, will be found practically inoperative. The more immediately the doctrines of philosophy, of morals, and of religion are made to spring from that common sense, the stronger will be their hold upon the conduct and the life. No one comprehended this fact more fully or knew better how to avail himself of it than President Wayland. The most extended inference to be found in all his writings is covered by his favorite word "hence." To this direct emergence of his teachings from truths recognized by all, is due in no small degree their power over the popular mind. Occasionally it diminishes somewhat their interest by imparting to them a too elementary character.

In the leading tenets of his intellectual philosophy he conforms most nearly to the doctrines of Stewart and Reid. Although he had evidently perused with great care the philosophical writings of Sir William Hamilton, and lost no opportunity of testifying the profoundest admiration for his genius, we find in his work fewer traces of the peculiar views of the latter than might have been expected. On neither perception nor original suggestion does he follow his doubtful teachings. In truth, however well fitted for understanding and appreciating one another, the American President and the great Scottish Professor

possessed minds cast in different moulds, and characterized by different tendencies. In one, the moral predominated over the intellectual; in the other, the intellectual over the moral. One sought truth from a conviction of its inestimable value; the other rather for the pleasure of the excitement attending the pursuit. "Fruit" was the motto of one; "activity" and "life" were the watchwords of the other. Both conceive with great strength and vividness. Both hold their conceptions with a steadiness that never wavers. Both mark with unerring precision their contents. Both know equally well how to draw them from their several momenta. If the philosophical perceptions of Sir William are more varied and profound, those of Dr. Wayland are instinct with a deeper and more living earnestness. If the discriminations of the former are sharper and more penetrating, those of the latter follow with a finer sense the natural cleavages of thought. If the former deals in larger, bolder generalizations, the latter conducts us to truths of greater importance — of more immediate and practical value.[1]

I do not think that processes of pure and simple ratiocination had great attraction for Dr. Wayland. It was not so much that they tasked too severely the logical faculty, as because they held in restraint the imagination, with him unusually active, and offered nothing that addressed the moral and æsthetic sensibilities, forming so large and important a part of his nature. The habit of his mind was inductive rather than deductive. Analysis was the instrument which he chiefly used in the search for truth, and illustration the means habitually employed by him in conveying it to others.

[1] The above paragraph is substantially from an article by the author in the *North American Review*, July, 1855.

If mere argument was little to his taste, still less so was controversy, whatever the subject or with whatever of chivalrous courtesy it might be conducted. With Milton he preferred to contemplate "the bright countenance of truth" rather than to meet and battle with error. When, however, he consented to enter the lists, he proved no mean combatant. His great strength and his advantages of stature more than compensated for any want of practice or skill in the use of weapons. If he was not always sufficiently on his guard, if he sometimes incautiously opened himself to an unexpected thrust from a more agile foe, the well-wrought mail of principles with which he was panoplied saved him from any serious injury. If he did not insert the keen blade of an Ajax into the joints of his antagonist's armor, he crashed in that armor by the Titan-like blows which he dealt upon it. But these knightly passages-at-arms were foreign to his inclination and habits, and he rarely allowed himself to be drawn into them.

The intellectual processes disclosed in his writings are genuine and thorough. They are characterized by breadth rather than subtlety. His words, always well chosen, are woven into periods which render with scrupulous fidelity his meaning. His paragraphs move steadily forward. There is no pause, no tergiversation, but constant progress in the thought. Each sentence goes with the directness of an arrow to its mark; and when the exposition of the law or the discussion of the topic is finished, there is left on the mind an impression of singular completeness. Not a word employed could have been spared; not another word was needed. Perspicuity is the most striking quality of his style. His ideas, always clear and well defined, clothe themselves in language having the transparency of crystal. The

thought is self-luminous and the expression is irradiated by its light. This is true of his plainest and most ordinary writing. When he rises above the merely didactic, when he approaches the higher themes of human welfare and destiny, when with powers fully aroused he pours around his subject the boundless wealth of an exuberant imagination, his periods kindle and blaze with surpassing splendor. No mere phosphorescent glow then marks the track of his thought. It is the lightning's flash, instantly illuminating every object and flooding the whole air with its dazzling brightness. There are passages in his writings which for brilliancy are hardly surpassed by anything in the language.

President Wayland possessed an emotional nature of great depth and richness. No man was more profoundly stirred by the forms of material grandeur presented in the outward universe. No bosom glowed with a more generous admiration of high intellectual power, or kindled with a livelier enthusiasm at the exhibition of lofty virtue. No soul bowed in deeper reverence before God, or lifted itself more adoringly to the contemplation of His being and attributes. No heart was more easily moved to sympathy or responded more warmly to the claims of charity, of friendship, and of country. He had all the affections and impulses of a noble nature. He loved justice and right and truth, and hated and despised their opposites. In proportion to his admiration of disinterestedness and generosity was his loathing of selfishness, the meanness of it affecting him even more than the sin. His detestation of injustice and wrong had the strength of a passion. Systematic and banded oppression of the weak by the strong awakened in him an intense and burning indignation, to which, though a master of the language of emotion, he could give but feeble expression.

It was this depth and fervor of feeling that fitted him so eminently for the treatment of moral themes and made his tributes to virtue so inspiring, and his denunciations of vice so withering and terrible. It was this which gave such power to his exhortations, his appeals, his rebukes, and his warnings. It was feeling welling up from its deep sources that quickened his intellectual faculties into their finest action, which put his mind on wing and imparted to it, in its higher flights, such breadth and clearness of vision, which kindled to its brightest effulgence his imagination, and inspired his loftiest strains of eloquence.

This warmth of temperament, while it was the source of so much that was generous in character, and while it contributed so largely to his power and influence, occasionally betrayed him into hasty judgments which were not always just towards others. When, however, he discovered the wrong, though it were in thought only, he was most prompt in reparation. The same ardor also sometimes showed itself in too impetuous action. In carrying out a principle with whose importance he had become impressed, he was liable not to keep sufficiently in view its intersections by other general truths of equal moment. Gravity is coextensive with the material universe. In our world it is met at innumerable points by other coördinate forces which modify indefinitely its manifestations.

Although by no means a stranger to the lighter forms of emotion usually termed sentiment, these did not, like the deeper pulses of moral feeling, pervade and control his whole nature. They were not the atmosphere in which he lived and moved and had his being. When under their influence, no one could give them more graceful expression. The extreme delicacy of the language in which he breathes forth sentiment in some of his

more touching tributes to friendship and exalted worth, makes us almost regret that these tender effusions do not more frequently grace his pages. As an example, I would instance his discourse on the life and character of the Hon. Nicholas Brown, the introductory portion of which contains passages of great pathos and beauty ; also his address to Dr. Nott, of Union College, on the fiftieth anniversary of his presidency, in which he pays, in accents so moving, the grateful homage of a pupil to a beloved and venerated instructor, closing with those almost daring words, which, if they ever had fitting application among the sons of men, found it in him who, in the fullness of his heart, so pathetically uttered them : " Heaven will account itself richer as it opens its pearly gates to welcome thy approach ; but where shall those who survive find anything left on earth that resembles thee ? "

There is a force in the natural world which has received the designation of catalytic. It is sometimes called the power of presence. Bodies in which it resides have the marvellous property of transmuting other bodies by mere contact into their likeness. The force is too subtile for analysis, and has hitherto defied all attempts at explanation. Philosophers have contented themselves with simply noting and naming it. The fact has its analogy in the moral world. There are men who possess a similar power of presence. An influence goes out from them equally controlling and alike incapable of analysis or philosophical explanation. President Wayland presented a most striking example of this. It was felt by all who came near him. His power as a speaker and as a teacher depended largely upon it. The same utterances might come from others, but how slight, comparatively, their effect! The same truths might be im-

pressed by others, but how unlike their moulding influence! The same principles might be inculcated by others, but how different their transforming power! Behind the utterances, back of the teachings, was a living soul from which proceeded emanations entirely distinct and separate from ideas and quite independent of language. The subtile influence poured through the eye. It streamed from the features. It flowed through the voice. Gesture, posture, and form were its silent vehicles. It emphasized thought; it energized expression; it vitalized ideas. It awoke aspiration; it kindled enthusiasm; it developed power. It was the direct efflux of spiritual energy by which a great nature transformed other natures, in proportion to their capacities, into its own likeness. It is the want of this incommunicable power which is most felt by his pupils in the perusal of his writings, and which makes them unwilling to admit that he has produced anything equal to himself.

To rare intellectual and moral endowment was united in our venerated friend a nature profoundly religious. To this was added a temperament of great earnestness, exalted by a certain intense realism. Life was to him no holiday. It was full of grave interests and high trusts and great responsibilities, with issues more momentous than the human mind could conceive. The distant and the future, presented through his vivid imagination, were as real as the present. God, heaven, the immortal life, and death eternal, were something more than vague ideas or remote possibilities; they were great, overshadowing facts; instant and pressing realities. At the market, in places of assembly, by the wayside, everywhere, he saw men having undying souls, which, if not saved through faith in Jesus Christ, must be forever lost; for whose welfare, both here and hereafter, he, in

proportion to the ability given him, would be held accountable. Life under such conditions and with such surroundings could not but be earnest. No fanatical elements, however, mingled in it. It was free even from Puritanic severity. His nature was a healthy one, full of genial and kindly impulses. He was joyous, and at times sportive even, but trifling never. In early and middle life he was much sought by society, and was the pride of every circle in which he moved. His brilliant conversation, his sparkling wit, and his quick repartee made him the charm of the dinner table. But these social pleasures he never allowed to interfere with life's work. They were only silver facings on the garments of duty which he always wore. To meet the approval of the great Taskmaster, in whose eye he ever acted, was his constant endeavor. His motives were drawn from the unseen world. To that his aspirations continually tended. Of that, as years advanced, he became more and more a denizen, so that when the time of his departure came, it seemed but a slight removal.

In estimating the permanent results of President Wayland's life, we should consider, I think, not merely or principally his writings, important and valuable as these are. We should look rather to the characters which he moulded, and to the moral and religious forces which he set in action. These, as well as the productions of his pen, still live, and will continue to live. Where in all the land can be found a place in which to-day he is not working, directly or indirectly, through those whose minds he formed and inspired? In how many halls of learning is he now giving instruction! from how many pulpits holding forth the word of life! on how many benches dispensing justice! at how many bars defending the rights of citizens! In how many

pagan lands is he imparting to minds darkened by superstition and idolatry a knowledge of the only true God, and of the way of salvation through Jesus Christ! Nor will his influence terminate with the lives of those who were its immediate recipients. Moral forces never die. By a law of their nature they perpetuate and extend and multiply themselves indefinitely. When the marble in yonder hall, to which, through your thoughtfulness, those noble features have been committed, shall have crumbled, and the unborn generations that will look upon it shall have mingled in common dust, the impulses which proceeded from him will be still acting in circles of influence ever widening and reaching larger and yet larger numbers.

Friend of our youth, our instructor, exemplar, and guide! we shall see thy face and hear thy voice no more. Thou hast done with earth. Its dusty ways are trodden by thee no longer. The impenitence and perversity of sinful men have ceased to grieve thee. Thou now walkest the streets of the golden city. Angels are thine attendants, and the spirits of the just made perfect are thy companions. The mysteries which, while here, thou didst desire to look into, are resolved. Thou hast opened thine eyes upon the beatific vision. The throne of God and of the Lamb is before thee. Thou gazest with unstricken sight upon the effulgent, unutterable Glory. We wait on earth yet a little, and then will follow thee.

THE REALM OF FAITH.

Few things would at first view seem to be more unlike, or in less danger of being confounded, than knowledge and belief; and yet they are so blended in consciousness, and, moreover, in some of their forms approximate one another so closely in character, that to draw the line of demarkation between them and determine their respective values as grounds of action is no easy task. It is one, however, that should be undertaken. The times demand it. In these days of vaunted science, when men are seeking to depose faith in the interest of positivism, which they would place on her throne, it behooves the friends of truth to examine the claims of the new favorite; to see whether all that we have been accustomed to deem holy and sacred must be buried with the dead past, or whether there be not something still remaining to which our reverence and affection may cling; whether the highest interest and true glory of man must henceforward be sought in the progress of the arts and triumphs of electricity and steam, or whether virtue, God, heaven, and the immortal life may not after all be more than empty words; whether, to borrow an illustration from one of the leaders of this school, everything lying beyond the sphere of the senses is but "lunar politics," of which we know nothing and can know nothing, and concerning which it is a waste of time to specu-

late, or whether the realm thus excluded from thought be not the true home of the soul, where alone it finds free scope for the exercise of all its faculties; whether we shall adopt the advice of the great English skeptic quoted by the same authority with fullest indorsement, who says, "If we take in hand any volume of divinity or school metaphysics, for instance, let us ask, Does it contain any abstract reasoning concerning quantity or number? No. Does it contain any experimental reasoning concerning matters of fact or existence? No. Commit it then to the flames; for it contains nothing but sophistry and illusion;" or whether we shall look especially to these repudiated sources for light on the problems of duty and destiny, which press upon us and have ever pressed upon the race for solution. To such an examination and inquiry we invite the attention of the reader. We would that we came to it with larger preparation and a clearer sight; but the result of such thought as we have been able to bestow we offer, relying upon the importance of the subject to justify, however imperfectly successful, our endeavor.

We think it will be seen, on a little reflection, that positive knowledge is limited to our own mental states; to the thoughts, purposes, feelings, desires, and volitions of which we are conscious. We know these absolutely. They are precisely what we conceive them to be. No skeptic ever doubted concerning them. Even Hume, although he questioned everything else, admitted the reality of his own mental experiences. For these he had the best of vouchers, consciousness. All besides which men call knowledge lacked this voucher. And here we think he was right. We have no power of direct cognition beyond ourselves. Between the world within and the world without, or,

in metaphysical phrase, the me and the not me, is a mighty chasm, spanned only by the bridge of faith. If we refuse to trust ourselves to this, we must remain forever cut off and isolated from the rest of the universe.

We are aware that Sir William Hamilton has attempted to establish a different doctrine. He has sought to make external existences the subjects of direct knowledge by bringing them within the field of consciousness. Dispensing with faith's bridge, he has courageously undertaken to throw up a causeway along which we may pass to the outward world on solid ground. Dr. Noah Porter, following in his footsteps, has striven to add strength and completeness to the work. Both, however, must, we think, be admitted to have signally failed in their endeavors. The yawning gulf will not be filled. We enter upon their laboriously raised way. For a time our progress seems secure. At length the ground gives way beneath our feet, and we are lost in the fathomless depths below. For a knowledge of aught without ourselves, we are dependent upon the senses. For the truthfulness of these, our only guaranty is the character of Him who formed them. The natural and the supernatural, so far as made known, are alike revelations from God, reaching us indeed through different channels, but resting their claim to reception equally on our faith in Him.

If we pass from the phenomenal to the real, from the outward form and sensible properties of bodies to their indwelling powers, from the regulated succession of events in the world around us to the underlying causes by which the orderly movement is determined, we find ourselves still further removed from the domain of knowledge and still further advanced in the encompassing realm of belief. Of the essences of things we

know and can know nothing. God has denied us the faculties necessary for their apprehension. He has so constituted us, however, that by a law of our intellectual being we are compelled to believe in their existence. We are as sure of it as if they were palpable to the senses, and could be felt and handled. Of the material forces evolving the changes of the outward world we have no knowledge. By careful and long continued observations we may indeed ascertain the order and conditions of their manifestations. But to grasp the forces themselves exceeds our utmost endeavor. They are too subtle for apprehension. They elude every attempt to lay hold of them. We have no doubt, however, as to their existence; we are as certain of it as we are of our own existence. A belief imposed by the laws of our mental structure is ground for as perfect assurance as knowledge. We act as confidently upon it in the ordinary affairs of life. It is, moreover, on such beliefs that all philosophy must rest to afford any hope of permanence. The folly of seeking for it a basis in positive knowledge the experience of the last thirty centuries has abundantly demonstrated. The history of philosophy during that period has been a history of failures; not, as Mr. Lewes would have us suppose, because philosophy is impossible, but because of the mistakes of the builders. Rejecting with one accord faith as its foundation and chief corner-stone, they have reared its successive structures on the shifting sands of opinion. Hence their instability. However fair the proportions in which they may have arisen, or whatever appearance of strength and solidity they may have assumed, for want of adequate support, they have, one after another, tumbled into ruins.

In this connection we beg to call attention to what we deem

another grave error of Sir William Hamilton. We allude to his derivation of the causal judgment. Instead of recognizing it as a direct affirmation of the reason, an immediate revelation of the intelligence, he traces it to a source which deprives it of all authority, a source in the mind's impotence. We believe that every change must be produced by some cause, not from any apprehended necessity in the case, but from our inability to conceive the contrary; an inability which, for aught we know, may arise solely from the limitation of our faculties. However far from intending it, he thus saps the foundation alike of philosophy and religion, and opens wide the door for the entrance of atheism.

If we extend further our observations in the world around us, we discover evidences, not merely of power, but of power under the direction of intelligence. The elementary particles of matter do not exist in a state of isolation, having each its own separate and distinct sphere of action. On the contrary, they are united into groups, and these groups are again united into larger groups, and these larger groups are so conjoined as to form systems; and these systems constitute parts of larger systems, and these of yet larger, from a molecule of water up to the sidereal universe. Each one of these innumerable systems, whatever its magnitude or degree of complexity, we see working out, through the coördinated and harmonious action of its several parts, results worthy from their importance to be the objects of intelligent effort. What then is the necessary inference? That each one of these systems is the work of mind; that it was devised and constructed for the purposes which we see accomplished by it. This is absolutely demanded by the causal judgment. Power alone will not explain the facts. It

must have been associated with intelligence; and as these systems have interdependencies innumerable, and together constitute one single whole, they must be the work of one and the same intelligence. There is no escape from this conclusion, unless we throw away one of the clearest intuitions of our nature, and abandon all reasoning on the subject. Nebular hypotheses and theories of development are of no avail in lessening the force of the argument. If the design was not in the oak, it was in the acorn. If it was not in the elaborately organized man, it was in the germ from which he sprung. If it was not in the completed earth, it was in the vaporous matter out of which the earth in process of time grew. Away with the senseless babble about star dust, and protoplasm, and laws of development, and natural selection. Concede to these hypotheses, which they at best are, whatever of probability may be claimed for them, they do not advance us a single step in solving the problem of creation. They have no more power for this than Lucretius' fortuitous concourse of atoms, or Plato's archetypal ideas, or the numbers of Pythagoras, or the mundane egg of the Egyptian mythology. Should they ever be placed on a sufficiently broad basis of induction to entitle them to be regarded as facts and laws, they will then be only outgrowths of an original constitution of things which design alone can explain. That the framers of these hypotheses should press them beyond their proper limits is not remarkable. That others of atheistical tendencies should make use of them for strengthening their faith is equally natural. But that men of the highest intellectual endowments, who have spent their whole lives in the study of nature, should from lack of moral vision be insensible to the light of mind everywhere shining through it, is passing strange.

How pitiable to see these blind Titans, instead of walking freely abroad amid the glories of a divinely-formed and God-illumined world which was their birthright, now grinding, Samson-like, in the mill of inexorable, unvarying law, and now struggling to wrench away the pillars of the moral firmament, that they may bury themselves and all humanity beneath the ruins!

The innumerable arrangements and adaptations in nature which disclose intelligence afford at the same time equal proof of benevolence. The contrivance everywhere looks, either immediately or remotely, to the welfare of sentient beings. Whatever be its range or comprehension, whether it embrace in its provisions the entire animal creation or be limited to a single species, ministry to happiness is its manifest purpose. Evil appears in the world only as incidental to the good. It is not like the latter, the object of contrivance and design. No provisions are found looking to it as an end. On the contrary, we meet, in numerous instances, with supplementary contrivances, intended solely for its counteraction. Why the Omnipotent One should resort to the use of means for the attainment of ends, why He does not directly *will* whatever He desires, is not for us to inquire. A solution of that problem can come only from the depths of the divine nature. We may, however, observe that it is through this mode of working that He has made known to us His existence and attributes. It is also through this mode of working that He has enabled us to become co-workers with Him. But the plan of constituting a few general agents, and of employing them through special devices for the attainment of particular ends, having been adopted, there was a necessary committal to all which the plan involved. The incidental evil could not be separated from the purposed good. Were the former

many times greater than we find it, standing in the relation which it does to the latter, it would not weigh a feather against the argument from universal nature for the divine benevolence.

But we tarry too long in this lower realm of belief, which lies so close to the domain of knowledge that it scarcely affords opportunity for the exercise of faith in its more characteristic and distinctive form. Ye believe in God. Ye do well; the devils believe also, and tremble. The existence of an intelligent Author of nature, who has ordered all its beneficent arrangements, is a demand of the causal judgment so imperative that only the most extraordinary mental obliquity can resist it. But not so with his moral perfections, His truth, His justice, His holiness. These rest on a different foundation. We go to external nature in vain for evidence of them. The depth saith, It is not in me; and the sea saith, It is not with me. The fowl of the air saith, It is not in me; the beast of the field saith, It is not in me. The earth, as it hastens on in its appointed course, saith, It is not in me. The starry firmament saith, It is not in me. The grounds for belief in these higher attributes of the Creator, aside from revelation, must be sought in the sentiments and intuitions of the human soul. This having been formed by Him, though we do not suppose it to bear his image, must, of necessity, reflect his character.

That God, whose existence and natural perfections are so clearly revealed in the outward creation, is true must be regarded as a moral axiom. With infinite resources of power and wisdom at command, it is inconceivable that He should have recourse to deception for the fulfillment of his purposes. The Scriptures everywhere assume the divine veracity, and rest their claims to reception solely upon it. Dark indeed must be

the soul of him who refuses to accept this fundamental truth. It underlies, as we have seen, all our constitutional beliefs, and gives to them whatever validity they possess. It is the only guaranty for the truthfulness of the senses, the sole ground of assurance that life is not a dream, and everything in it illusory.

That God is just, is another moral axiom. All rightly constituted minds at once admit it. So strongly is the conviction implanted that the apparent want of accordance between treatment and desert under the government of God in this world has universally led to the belief in a future state of existence, in which the wrongs of this life will be righted; in which a righteous government, only begun here, will be carried on to completion. Doubt concerning the divine justice would argue mental or moral obliquity.

The holiness of God, or his completeness in moral perfections, should, we think, be placed on the same basis. We do not ask for proof of it. We at once accept it as an indubitable truth. "Our whole nature," says Bishop Butler, "leads us to ascribe all moral perfections to God, and to deny all imperfection in Him; and this will forever be a practical proof of his moral character to such as will consider what a practical proof is, because it is the voice of God speaking in us."

Were further evidence of the divine perfections needed, we should find it in the structure of our moral natures. God has so constituted us that we approve and honor truth, and despise and abhor falsehood. Must we not see in this constitution an adumbration of his character? God has so made us that we instinctively love justice and right, and hate injustice and wrong. Must we not see in these feelings a reflection of his sentiments? Can we suppose Him to have endowed us with a faculty for

moral discriminations not made nor recognized by Him? He that formed the eye, shall He not see? He that planted the ear, shall He not hear? God has made us capable of perceiving the beauty of holiness. Has He given us this faculty without anything in Himself to call it into exercise?

But these intuitive beliefs, thus strengthened by disclosures of the divine character in the constitution given us, are confirmed by an external revelation attested by miracles, and supported by a body of evidence of various kinds, such as can be adduced for no other historical fact of like antiquity. This revelation, moreover, contains many things additional to the teachings of the light within, but so in harmony with these teachings that we should be prepared to receive them on testimony less weighty. Faith, taking within her embrace the truths of both revelations, jealously guards them as her most precious treasures, treasures which, unlike all others, grow continually brighter with keeping.

Between these beliefs in relation to God and human duty and destiny, whether immediate or derived, and our moral states and habits, there exists, we hardly need say, an intimate connection whereby they exert a reciprocal influence upon one another. If the beliefs be strong, they will invigorate the moral sentiments, and these in turn will prompt to more energetic action. If the beliefs be feeble, the moral sentiments will become languid or obscured, and lose their power over the life. If, on the other hand, the conduct be habitually wrong, it will react on the moral sentiments. These become weakened and disordered, and faith dies out in the soul.

From this connection between faith and the moral tempers and dispositions from which it springs, it is taken in the Scriptures as the evidence and exponent of character. The highest

spiritual blessings are promised to it. "He that believeth on me," that receives with a hearty and loving faith the truths which I teach, "hath everlasting life." "He that heareth my word and believeth in him that sent me, hath everlasting life, and shall not come unto condemnation, but is passed from death unto life."

Having thus rapidly glanced at the domain of knowledge, and the realm of faith which lies around it, let us now examine them somewhat more in detail, and see what they respectively offer us. By such an examination and comparison, we shall be able to judge of the boasted superiority of positivism; to see whether its advantages are such as to justify us in turning our backs upon philosophy and religion, and joyfully enrolling our names on the list of its votaries. The guerdon promised for giving up our most valued possessions in this world, and all that we hope for in the next, should not be a slight one.

Let us first turn to external nature, and see how the teachings of this new philosophy enhance its value. Instead of the old-fashioned, useless, and cumbrous hypothesis of real existences, we have a mere assemblage of appearances, — a phantasmagoria on a large scale, in which sun, moon, and stars, earth, oceans, mountains, trees, and men, are seen on the magic screen: or a moving panorama whose varied figures, whether of larger or smaller size, whether singly or in groups, pass in orderly procession before us. Back of these appearances there is absolutely nothing. They come into existence uncaused; they continue in existence without support; they go out of existence through no agency. Any speculation as to their origin, nature, or purpose is but dreaming. All that we can rationally do is to observe, compare, and classify them. Although the figures pass

before us on the painted canvas with the most perfect regularity, so that when we have learned the law of their movement, we can predict the time and place of the reappearance of each with unerring certainty, there is no connection between these figures, and no machinery behind them by which the orderly movement is determined. Any inquiry concerning the cause of this movement would be worse than idle; for it has no cause. The only object worthy of rational effort is to ascertain, by sufficiently extended observation, the law which governs it, and thus acquire the power of prevision. Prevision is the measure and test and sole fruit of positive science. He is the greatest philosopher who can see farthest in advance the movements of the several figures in the panorama; or, to change the illustration, who can tell what forms will be presented to the eye after the greatest number of rotations of the kaleidoscope, or say, in the case of Mr. Babbage's calculating engine, what number will be brought up at the ten thousandth or ten millionth or ten billionth turn of the wheel.

If, in condescension to our weak prejudices, or mental infirmities, if you please, the new philosophy recognize the principle of faith to the extent of admitting the reality of external existences, it gives us but a dead Nature. No indwelling spirit animates her frame nor breathes its quickening influence through her members. No intelligence beams in her countenance. No light of mind shines through her features. There are, indeed, vast masses of matter, — mighty suns and huge and ponderous planets revolving about them. On one of the smallest of these planets are wide oceans and broad continents, and lofty mountains and extended plains, presenting accommodations and the means of sustenance for the most diversified forms of life.

But what of this? The fact is of no significance. It proves nothing. It indicates nothing. This apparent array of means was not brought into existence for the attainment of any end, — was not designed for the accomplishment of any purpose. Intelligence had no part in it. It was the mere result of chance; one of the possible issues of an original chaos of atoms, every one of whose movements was determined by blind laws. Nature, and not God, Nature, herself blind and unconscious, is the author of all these nicely adjusted arrangements, all this furniture of life in the heavens above us, and in the earth under us. After countless ages of unconscious struggle, of combinations and recombinations, constructions and reconstructions innumerable, this grand result was at length attained.

Let us next turn to the domain of life, and see what the new philosophy offers us in this department of the Creator's works. May we not look for its superiority here? May it not here disclose the attractive features that are to win us to its embrace? Alas! we are again doomed to disappointment. It is here that it especially shows its weakness; that it darkens counsel by words without knowledge; that it repels us alike by the hideousness of its portrayals, and the absurdity of its doctrines. Nature, after having, by a whole eternity of unconscious struggles, accidentally effected the organization of our planet, continues her blind efforts, and at length, by a chance combination of the right elements, gives birth to the first living thing. A starting-point is thus secured for a new series of developments. From this starting-point life is carried upward, partly by fortunate accidents rewarding the uninterrupted struggles of nature, partly by the conscious and voluntary efforts of the individual to adapt himself to new conditions, and partly by natural selec-

tion, or the surviving of the fittest. Millions of ages roll away. The molluscan, ichthian, reptilian, and mammalian types are successively reached. At length, the persevering efforts of unconscious Nature, seconded by favoring influences and happy chances, are crowned by the appearance of a quadrumane. Man comes next. He is a monkey of larger growth, with cranium more developed and extremities more specialized, but still a monkey. His parentage is revealed in every feature. His life, too, shows it. He is born, and grows up. He eats, he drinks, he sleeps, he loves, he hates, he hopes, he fears, he dies. His intelligence is greater, owing to the larger size of his brain. Hence, he bedecks himself, he builds houses, he plants trees, he rides, he dances, he buys, he sells, he gibbers about philosophy, and law, and fate, and free will, and foreordination, and evidences of design, and causes efficient and final, and essences material and spiritual. But after thus riding and dancing and gibbering through the brief span of his existence, he dies like the monkey, and like the monkey transfers the life which he had received from others to the worms that feed upon him. His dust goes to feed the roots of a neighboring tree, or to clothe with fresh beauty the flower that blooms over it.

And is this all? This is all. Is there no resurrection? no life to come? No resurrection; no life to come. Can Nature, with her mighty array of means, her vast apparatus of worlds, every one of which contains within itself inexhaustible resources, — can she do more than this? No more than this. Or, as time is endless and chances are infinite, possibly she may do more. By continuing without remission her blind efforts for a few million or a few hundred million years, she may at length succeed in producing a quadrumane of yet higher development,

and yet larger intelligence, who shall eat and drink and sleep more luxuriously, who shall array himself in finer apparel, and rear for his accommodation more sumptuous palaces; who shall ride more gayly, and dance more gracefully, and discourse in fitter terms of man and nature and destiny, and who, when he comes to die and be buried, shall be fed upon by worms of better appearance, and whose dust shall go to nourish trees of a finer port and flowers of brighter colors. And is this all? All, absolutely all. Nature no further can go.

But may we not find some alleviation to our humbled and wounded pride in the moral nature of man, — the last refuge of our hopes? May we not discover here his true nobility? Although allied by his bodily and mental structure to the beasts of the field, and destined like them to perish, may he not impart dignity to his existence, brief though it be, by a life of virtue and self-sacrifice, of high resolves and noble aims and heroic endeavors? Alas! alas! virtue is only a name. High resolves and noble aims and heroic endeavors are of no more worth than fig leaves, or fennel seed, or apple blossoms. Man is not a responsible agent. His imagined consciousness of freedom is illusory. His good and bad actions are no more subjects for praise or blame than the ascent of a rocket and the descent of the stick. The creature of blind chance, he is the victim of an implacable destiny. Prometheus like, he is bound by an adamantine chain to the rock of fate, while the vulture conscience gnaws at his vitals. Lines of antecedent and consequent, extending from the first movement in the original chaos of atoms, across the cycles of planetary evolution to the newly formed earth, and thence, with continuity unbroken, down the geologic ages to man, run through all his actions, binding them

to one another by indissoluble ties. Every thought and desire and purpose were predetermined from the beginning. He can no more change his character or his life than he can change his person. He is a mere puppet, obeying in every movement an unalienable necessity. He is the football of destiny, the plaything of fate. He is morally of no more worth than a worm, a tree, or a stone.

And is this all that the boasted philosophy can give us? Is it for such a mess of pottage that we are asked to part with our spiritual birthright? For so beggarly a possession are we to open faith's treasury and pour out of her riches? How unlike these dreary, dismal wastes of positivism are the visions which meet us when we cross the border and enter *her* dominions! How different the sights and sounds which everywhere greet our senses! How changed is the aspect of all around us! Nature has risen from her deadly swoon, and sits arrayed in her beautiful garments. A celestial intelligence beams in her countenance, and from every one of her myriad tongues comes up the voice of praise. The heavens declare the glory of God, and the firmament showeth his handiwork. Day unto day uttereth speech, and night unto night showeth knowledge; and there is no speech nor language where their voice is not heard. Earth, with all in it and on it, joins in the great acclaim. The sea roars, the waves lift up their voice, the mountains break forth into singing, the trees clap their hands, the little hills rejoice on every side. God is in all the beneficent agencies of Nature. He sendeth the streams among the valleys. He watereth the hills from his chambers. He causeth the grass to grow for the cattle, and with oil, bread, and wine rejoiceth the heart of man. All living things wait upon Him, that He may give them their

meat in due season. The earth is full of His riches; so is the great and wide sea. His providential care is over all the creatures which He has made. He heareth the young ravens when they cry. Not a sparrow falls to the ground without His notice. The hairs of our head are numbered. The manifestations of power are everywhere His. God thundereth marvellously; the lightnings go before Him. He giveth snow like wool; He scattereth hoar frost like ashes. The earth trembles, and the hills melt like wax at His presence. He is in all, and through all, and over all. The world is full of God.

Man is no longer a worthless link in an adamantine chain of necessity. He is a free moral intelligence, bearing in every lineament the image of his Maker. Though a little lower than the angels, he is crowned with glory and honor, and dominion is given him over all God's works. Nothing is too great for his power. He putteth forth his hand upon the rock; he overturneth the mountains by their roots; he cutteth out rivers among the rocks, and his eye seeth every precious thing. He bindeth the floods from overflowing, and the thing that was hid he bringeth to light. He setteth an end to darkness, and he searcheth out all perfection.

In his higher nature, man is raised above all terrestrial analogies and relationships. He possesses a soul of boundless aspirations and capacities, made for endless progress in knowledge, in virtue, and in happiness. He is of more worth than the whole shining firmament of material worlds. Dear to the Father, beloved of the Son who came down from heaven to die for him, ministered to and rejoiced over by angels, enlightened, instructed, and comforted by God's holy Spirit, he is but a sojourner on the earth; his kindred and home are in the skies. There pre-

pared mansions in his Father's house wait for him. Thither cherubic bands convoy him. As the pearly gates of the celestial city open to admit him, a deeper thrill of joy pervades heaven. He is now an immortal among immortals. Bodily impediments and incumbrances have been laid aside. He has no longer need of the light of the sun or the moon. He is perpetually bathed in the effulgence which pours from the throne of God and of the Lamb. His material wants have ceased. He slakes his thirst with the water of the river of life. He satisfies his hunger with the immortal food that grows upon its banks. An eternity of worship, of knowledge, of life, of joy, is before him.

Such are the pictures presented by faith on the one hand, and positivism on the other. Is it difficult to choose between them?

But it is not from the direct influence of positivism, deadly as is the atmosphere which envelops this moral upas, that we have most to fear. Its aspect and surroundings deter and repel us. We are conscious of the mephitic vapors with which the air is laden, and hasten our retreating steps. It is the outgrowths of positive knowledge, — the forms of material and social development that have sprung from its marvelous expansion during the past century, — that are fraught with the greatest perils. Although not directly attacking our faith, they undermine the qualities of character upon which it depends, and strengthen every opposing principle. They intensify the desire for material good, by multiplying indefinitely the means of its gratification. They make life worldly, by widening immensurably the area of our knowledge and interests. Steam, the telegraph, and press have endowed us with a sort of ubiquity. No

important event, physical or social, political or financial, can occur in any part of the civilized world, but we are immediately cognizant of it. There is spread out before us each morning an amount and variety of knowledge, to gather which, in the palmiest days of Greece and Rome, would have required a lifetime of travel. We sit in our own parlors and view at leisure whatever round the wide earth is grand or beautiful, in nature and art.

Our facilities for action are equally increased. The work of a month is done in a day. The experience and activities of a year are crowded into a week. A decade of years is practically equivalent to a lifetime. Amid the whirl of occupation and the excitement of business, the demands of our higher natures are unheeded. There is no time for thought or reflection, no leisure for contemplation and self-communing, deemed by the old divines so important a means of religious culture. The pleasures of sense, of intellect, and of taste, in forms ever new, vie with one another in drowning the inward sense of need and quenching all spiritual aspiration. The moral intuitions, those windows of the soul, become darkened, so that the light of heaven is no longer admitted through them. If two thousand years ago, when wealth had comparatively few uses, it was easier for a camel to go through the eye of a needle than for a rich man to enter the kingdom of God, what must be its perils at the present day, when, through the multiplication of every species of art and device, its power to minister to the lust of the flesh, and the lust of the eye, and the pride of life, has been a hundred-fold increased.

It is not, however, in the gratifications afforded by wealth, nor its ministry to every form of worldliness, that lies the chief

danger. Grave as this is, it is trifling in comparison with the perils attending the struggle for its acquisition. The desire of wealth becomes intense in proportion to the number and variety of its uses. Never before, since the world began, were these so great; and never before were men so eager and absorbed in its pursuit. No labors are too arduous, no sacrifices too great, no devotion too unremitting, if but *its* visions dance before their eyes. When lawful means fail, unlawful are tried. Manhood and conscience for a time remonstrate; but soon their voice is silenced. Interest and the selfish passions become the sole guides to action. The requirements of honor and truth, of justice and right, are alike disregarded. Sentiments the most atrocious, and principles the most despicable, are avowed and acted upon. Faith, unable to endure such companionship, takes her upward flight. The soul becomes darkened and deformed by evil passions. It has exchanged the bright plumage of an angel for the bat-wings of a devil.

Such is the moral havoc wrought by the fruits of positive science; by that abounding wealth which an explored and subjugated nature is pouring into the lap of society. And is there no remedy? As our knowledge of material agents and forces is extended, and these are brought more largely into the service of man, must the evil go on increasing? Must Christianity at length fall through the instrumentalities which she herself has created? Must the dove of Christian faith sink down, transfixed with an arrow winged by a feather from her own bosom? Does God defeat His own purposes? Does He call into existence beneficent agencies simply in order to their destruction? Has He in these last days opened to man inexhaustible resources of happiness and power, only that they may demoralize and

ruin? Are the new-born hopes of our race so soon and so miserably to perish? Is there no corrective in the treasures of divine wisdom by which the threatened evil may be averted? No weapon in the divine armory by which the malign power may be met and turned backwards? Has God suffered the world to acquire the means of redoubling its assaults on the hearts of men, without adequate provisions for counteracting its influence? In the natural world, every bane has its antidote; every disease its remedy. Are the disorders of the moral world alone uncared for? Are there here no antidotes, no remedies? Yes, there is one sovereign remedy adequate to the cure of all diseases; one mighty weapon capable of beating back the assaults of all enemies. That remedy, that weapon, is faith, — faith in God, and faith in man as the child of God, and destined hereafter to dwell with Him; faith in moral law and the divine government; faith in virtue and justice and goodness and truth; faith in right and duty; faith in doing unto others as we would that they should do unto us; faith in all the precepts and doctrines of the gospel of Jesus Christ; that faith which gives substance to things hoped for, and is the evidence of things not seen; which sets the two worlds in their proper relations to one another; which takes off the glare from one, and dissolves the mists that obscure the other; which dwarfs one into its native littleness, and discloses the other in its true magnitude and importance; which reckons character above station; honor from God as of more worth than the good opinion of men; heavenly treasures as of greater value than earthly possessions; in whose estimation the gain of the whole world would be but a poor equivalent for the loss of the soul; according to whose teachings it is better to give than to receive, to suffer wrong than to

do wrong, to be a poor and humble disciple of Jesus of Nazareth than the possessor of all earthly riches and honors; which thinks God mightier than steam or electricity, death stronger than title deeds, and eternity longer than time. Faith, such a faith, is needed in the individual to elevate and fortify personal character, and to impart to it just proportions and true dignity. It is only when encased in the mail of strong convictions that he can safely or successfully engage in the battles of life. Faith, such a faith, is needed to permeate and purify society; to give it strength and courage, and the will to rid itself of the profligacy and corruption with which its highways and byways are filled, and to enable it to convert the boundless resources which a prodigal nature offers, from instruments of evil into the means of unlimited good. And faith is adequate to this. It can cause the camel to go through the eye of the needle. It deprives wealth of its power to harm by disclosing its proper value and true uses; by making it tributary to a higher and better culture, and a fairer and nobler development of all the humanities; by finding in it the means not only of alleviating physical suffering, but of causing the moral desert to blossom as the rose, and preparing and fertilizing the fields of earth for the harvests of heaven. Resources however limitless, under such guidance, are without danger. Were Nature to uncover all her hidden treasures of wealth and power, and lay them at the feet of man, thus strengthened and fortified, he would be able not only to bear the moral strain, but to turn this mighty accession of means to the direct advancement of the highest interests of the race.

The special need, the fundamental necessity, of our modern civilization, — that which alone can give it permanence, — with-

out which it will only repeat with exaggerated features the story of all past civilizations, is not popular education, nor free institutions, nor republican forms of government, nor the harnessing of nature's forces to the car of human progress, but faith, a vital, operative faith, pervading all classes of society, and laying the only sure foundation for self-government, the essential condition of true liberty, and continued social improvement. Whatever tends to unsettle the moral and religious convictions of men loosens to that extent the bonds of society, and prepares the way for disorder, revolution, and anarchy, to end in the strong repression of despotism. Whatever strengthens those convictions tends to impart stability to the social fabric, and enable it to resist alike the hand of violence and the shocks of time. The work of the Christian teacher and preacher is more important than that of the philosopher, or statesman, or scholar. Back in the depths of the soul he reaches the springs of action; they only direct its course. His healing touch is applied to the sources of moral and social life; they only shape the channels in which it shall flow. It is his office to promote the temper and quicken the aspirations which lead to progress, and which alone render permanent progress possible; they only open paths, remove obstacles, and provide facilities for the advancing movement. He draws his most cogent arguments from the other world; their horizon is limited to this. He holds in his hand a power mightier than king or potentate ever wielded, — these alter only the condition of men; through his instrumentality their natures are changed; a power greater than science or art can boast, — these affect only a brief existence; upon his ministry waits everlasting life; a power which all earthly agencies combined cannot equal, — the power of a living, abiding, overcoming faith.

MAN A CREATIVE FIRST CAUSE.[1]

The thesis of Mr. Hazard, on first announcement, is startling and paradoxical. We are accustomed to regard creative power as exclusively an attribute of Deity. He alone can call into being that which was not. Man's power is limited to effecting changes in what already exists. Actual creation, or the production of something out of nothing, is so difficult of conception that some philosophers are led to question its possibility, and to limit the work of God to the construction of the universe from prëexisting materials. Sir William Hamilton takes this ground. He says matter must either be coeternal with God, or God must have produced it from his own substance. We cannot, he adds, suppose the sum of being ever to have been greater or less than it is now. Addition to it or subtraction from it is alike unthinkable. All the being now in existence must have always existed, either actually or potentially. It is evident, then, that man cannot be regarded by Mr. Hazard as, in this primary and absolute sense, a creative first cause.

But if we confine the idea of creation to mere changes of form, such as we see in progress everywhere around us, and, as

[1] *Man a Creative First Cause.* Two Discourses delivered at Concord, Mass., July, 1882, by Rowland G. Hazard, LL. D., author of *Language and other Papers*, etc., etc. Second edition. Boston: Houghton, Mifflin & Co. 1884.

we learn from the investigations of science, have been going forward from the remotest epochs of the past, man could with scarcely more propriety be styled a creative first cause. There are forces intimately connected with matter, upon whose varied activity the modifications which it undergoes immediately depend. These forces, although convertible into one another, are believed to be as indestructible as the matter in which they appear. Man can neither add anything to them nor take anything from them. The creation of any of these forces is as impossible to him as the creation of matter. In fact, matter is known to us only as the seat and the vehicle of these forces. All its changes from rest to motion and from motion to rest — all its myriad transformations — are due to these forces.

If, then, we restrict the idea of creation to the mere transformations of matter, man can have but little part in it. The most he can do is to supply the conditions for bringing the required forces in action. He may hoist the gate of the water-mill, or open the valve of the steam-engine, or apply the match to the cannon. It is the forces thus liberated by him that do the work.

But our author is an idealist. He does not allow the existence of matter as a separate and distinct entity, or the reality of the forces which make their appearance in connection with it. All the phenomena usually ascribed to it he refers to the immediate exertion of the divine will. Ideas existing in the mind of God are made by Him real and palpable to all finite intelligences. Creation is thus a perpetual work — the ceaseless impressing of the divine thought upon the consciousness of percipient beings. Surely the slight control which man has acquired over nature through the study of her laws bears no resemblance to this !

But Mr. Hazard is not yet content. He rises to a still bolder and more startling proposition. It is not enough that man is a creative first cause. In the sphere of his own moral nature, he is a supreme, creative first cause. His will, in which the creative power resides, is his own. No extrinsic force can reach it. He is self-moved and self-governed. He always acts or refrains from action in accordance with his own choices. He is free in willing, as God is free; free as it is possible for any agent to be. Under the guidance of the æsthetic and moral sense, he may create within himself a world more perfect than the world made known to him through the senses. In this creation, like God in His creation, he is supreme. He is subject to no limitations, as in the material world, either from his own nature or from forces without himself. By the habitual contemplation of this inner and more perfect world, and by constant effort to bring his life into harmony with it, he may build for himself a pure, virtuous, noble character. Whatever other advantages metaphysics may offer, this is their chief use and highest end.

The propositions which we have briefly indicated are treated by Mr. Hazard as not doubtful nor problematical. They are made to rest upon premises which, certain definitions being accepted, we are compelled to admit. In surveying the ground of these premises and in tracing the logical sequences from them, he shows a breadth and acuteness of vision not surpassed in any of his previous writings. He treats the subtle questions connected with the will and the almost equally perplexing difficulties involved in the doctrine of causation, with a keenness of analysis and a delicacy of discrimination which might have saved Edwards and Mill, two of the ablest thinkers of their times, from serious error. Although past fourscore years of age, his intel-

lectual eye is not dimmed nor his mental force abated. The language, too, is as admirable as the thought. It possesses in an eminent degree the two chief requisites of a philosophical style, clearness and precision. If he is not understood, the fault is not his, but in the reader.

Curiously enough, we chanced to be reading a theologico-philosophical work of Mr. Mulford, — "The Republic of God," — when, by the kindness of Mr. Hazard, this little volume was put into our hands. On laying aside the former and opening the latter, we were strongly impressed with the difference between the two books. In one we found propositions freely enunciated, appealing for support to principles assumed to be axiomatic, but to few of which the mind yielded an unqualified assent; in the other, premises carefully laid down and conclusions logically derived from them. It was like passing out from a region of mists and shadows into a land of unclouded day. Having placed upon a sure foundation his ethical doctrines, Mr. Hazard, in applying them, does not fear to draw upon the resources of an exuberant imagination. In this part of the work occur passages of singular grace and beauty.

The propositions maintained by Mr. Hazard are four: 1. Man is a cause; 2. Man is a first cause; 3. Man is a creative first cause; 4. Man, in the sphere of his moral nature, is a supreme, creative first cause.

The first of these propositions would seem to require no proof. We are conscious of putting forth effort, and we observe the change produced by that effort. We infer by the most extensive and satisfactory of all inductions, that other men put forth effort, and we see it in like manner followed by change. This effort is, in the truest sense, the cause of the change. It is not

the occasion of the change merely, it is not simply one of the conditions of the change, it is the true cause — the *causa vera* — of the change. I lift, for instance, a ten-pound weight, and hold it poised in my hand. In doing this, I put forth an effort of exactly ten pounds, and by that effort exactly balance the downward tendency of the ten-pound weight. The effort is neither more nor less than the downward tendency of the weight. It is wholly expended in resisting that downward tendency. The effort, therefore, is the true, efficient cause of the suspension of the ten-pound weight, and is exactly measured by the tendency of that weight downwards.

Again, the laborer takes a sack of grain and transports it a mile. In this case the effort is greater than the resistance of the sack to transportation. Besides bearing the sack, the laborer must carry himself, a weight, it may be, greater than that of the sack. The effort of the laborer is the true, efficient cause of the transportation of the sack, but is not measured by its resistance to transportation. Only a part of the effort is expended in carrying the sack; another part is expended in supporting the weight while carrying it, and in carrying himself. Still the laborer is the efficient cause of the transportation of the sack.

Again, the engineer opens a valve and lets steam on the piston of the locomotive, and quickly the train of cars attached to it is in rapid motion. In this case, is the engineer the cause of this movement? Does the force required for the continued motion of the train originate with him? He has simply opened a valve. He has put forth an effort equivalent to the resistance of the valve to being opened. He is the true and efficient cause of the opening of the valve. That is all. Other causes of great energy have come into action by which the train is hurled along

the track. Over these causes he has no control. He can neither add to nor take from their energy. When the proper conditions are supplied, their action is instantaneous and inevitable.

A few years ago an effort was made to widen and deepen the passage in the East River known as Hell Gate. The engineer to whom the work was committed, conceived the idea of perforating the bottom and sides of the channel with drilled holes, sufficiently large and deep to receive heavy charges of dynamite, and then of firing these at the same instant by means of electricity. Having made all his preparations for carrying out this idea, he gave public notice of the day and hour and minute when the terrific explosion might be expected. In the presence of a great multitude of spectators, his little daughter, away from all danger, touched a spring that closed the galvanic circle, and instantly huge masses of rock were torn from their base and thrown upwards, as if by the shock of an earthquake. What was the cause of this majestic phenomenon? Was it the touch of the child? Was that touch the equivalent of the mighty forces brought into action? Of course not. The child's touch was the equivalent of the slight resistance of the spring that closed the circle. It was the true and efficient cause of the closing of the circle, — only of that. For the gigantic forces evolved in the explosion we must look to the energies indissolubly connected with matter.

But let us return to the instance of causative power first suggested. Take the effort of which I am conscious in supporting in my hand a ten-pound weight. Bodily effort, as ordinarily understood, takes in, besides the volition, the swell and play of muscles of which we are at the same time conscious through what has been named the muscular sense. Effort is not synony-

mous with volition, as Mr. Hazard seems to suppose. It is volition and something more. It is the embodiment of volition in action. The question then becomes, Is the volition by which the effort is made the equivalent of the weight supported? Suppose the arm to be paralyzed. I may will as vigorously as before, but the arm is not raised, the weight is not supported. I am incapable of effort with the arm. Something more than volition is required to effect any outward change. The will must have a prepared instrument. Without such an instrument it can do nothing; it is powerless. In ordinary effort who can tell how much of the work done is due to the volition and how much to the forces liberated in and applied by the instrument? We must be careful not to mistake the child's touch for the cause of the explosion. The touch of the will in ordinary effort may bear as slight a ratio to the work accomplished. Still, the will is a force, and man has causative power — is a true cause, however insignificant a one when compared with the mighty energies which pervade his own frame and extend through all nature. It is these material forces without him and within him that man calls to his aid when anything is to be done, and it is through their agency that the work is accomplished.

According to the received teachings of science, these forces are all resolvable into two kinds of energy: kinetic energy, or the energy of moving bodies, mechanical force; and the energy of position, or chemical force, manifesting itself in forms of attraction and repulsion. These two kinds of energy are convertible into one another. In the never-ceasing phenomena transpiring around us they are undergoing such conversion, their sum always remaining the same. The principal agents by which this conversion is effected are the leaves of plants and the lungs

of animals. The great office of the vegetable kingdom is to change kinetic energy, as it pours from the sun, into the energy of position; which latter is in turn changed back again into specific forms of kinetic energy by the animal kingdom. Each of the two kingdoms thus supplies food and the possibility of life to the other. Besides the respiration of animals, there are processes of decay everywhere going forward, which also yield food for plants. The sun is the primary cause of all the transformations which are taking place on the surface of our planet. According as he shines or withholds his beams, he spreads over it a sheet of perennial verdure, or leaves it to ice and barrenness. In the sun is stored a supply of force which the geologic ages have failed to exhaust. Should it ever be expended by diffusion through space, all change upon the earth would cease. It might still turn daily upon its axis and trace its annual course along the same orbit, but not as now, clothed with beauty and the home of innumerable forms of life, but shrouded in darkness and locked in frost, the abode of eternal silence and death.

Mr. Hazard, it is hardly necessary to say, does not accept this view of nature. He does not allow to matter any causal power. He doubts the persistence of the first kind of energy,— the energy of moving bodies. His words are, "If the tendency of matter is to stop, then it can have in itself no power or force whatever;" and again, "I confess myself unable to find any solution of this radical question; but until it is settled, I do not see how matter, though in motion, can properly be regarded as a force."

He thus calls in question the postulate by which, in connection with the law of gravitation, Sir Isaac Newton explains the orbital motions of the planets, and upon which La Place built

his "Mécanique Céleste." The second kind of energy of which philosophers tell us — the energy of position — he wholly ignores.

For all the forces that appear in matter he substitutes the energy of the supreme will. According to him, the explosion in Hell Gate was the simple thought of God, timed by the imagined touch of the child, made palpable to the mind of each one of the multitude who supposed they were looking on and witnessing an unusual display of force.

"We know nothing of matter," he affirms, "except by the sensations which we impute to its agency, and these sensations are as fully accounted for by the hypothesis that they are the thought, the imagery, of the mind of God, directly imparted or made palpable to our finite minds, as by that of a distinct external substance in which He has embodied this thought and imagery." On this hypothesis, the action of the will, of whatever nature it may be, is transferred from the forces of matter to the mind of God. God, instead of these forces, does the work. A man travels, as he imagines, and visits different cities. God, in attendance, manifests to him, makes real to his consciousness, whatever he imagines that he sees, by awakening in him the proper sensations. God is doing this for every human being when, by change of place, he takes in new objects of sight. Nay, He is doing the same for all living things which have feeling and will, in all their infinite variety of movement. At the bidding of a million of human wills, God devised and daily makes palpable to the multitudes who pass over it the marvelous structure which, spanning the East River, joins the city of Brooklyn to the city of New York. In the same way He reared the elevated railways of the latter city, and every day

renews the vision, with cars whirling along the iron tracks, to half its population. The young lions roar and seek their prey from God. He satisfieth them by awakening the sensation of a repast upon human flesh or the flesh of some animal. The ravens cry unto God, and He feedeth them in like manner with sensations. The wants of the little ant, so active and industrious, are provided for in a similar way. The oyster, which is regarded by the author as "a creative first cause," and justly so on his definition of creation, on raising its movable valve to take in food, is obliged to be content with its imagined taste.

Idealism does not increase the causative power of the will. According to this theory, the imagination of the desired change is awakened in the mind by the direct act of God. According to the theory ordinarily received, the change itself is produced by the forces inseparably connected with matter. On neither theory is anything or can anything be done by the unaided will. On both theories, however great a deduction it may be necessary to make from the apparent efficiency of the will, it has a certain part in the production of changes in the outward world. This is true in the case of idealism, if we suppose that the human will acts causatively upon the divine will; that it is not merely an antecedent to the volition of God, but is the true and efficient cause of that volition. Mr. Hazard virtually says this, and it is necessarily implied in his teaching. For if the human volition were a mere condition of the change produced by God, and had no agency in the production of that change, it could not then be regarded as the "*causa causans*," the original and efficient cause of the change. With this understanding, therefore, whether we adopt idealism or

realism, man is a cause in the truest and strictest sense of the word.

2. Man is a first cause. By this is meant, not that he is first in point of time, but that he is an original and self-acting cause, in contradistinction from a cause that is acted upon, and simply transmits that action. The question really is whether man is a free agent, or whether his actions are controlled by a power without himself, as absolute as that which governs the course of physical events. Or, in other words, whether the mind is free in willing, or whether its volitions are determined by something beyond and outside of itself.

To this question there can be but one answer. The mind is free in willing. Its volitions are determined by itself. They are its own unrestrained, uncontrolled acts. This is the highest and most perfect freedom which we are able to conceive.

President Edwards, from the controversial character of his work on the will, was led to consider another and different question, "Is the will free?" This was supposed by his opponents to be essential to human accountability. He therefore argues this question, and maintains that the will is not free or self-determined in its action; that a man's volitions are controlled by the man himself; that they depend upon his character, and are consequently determined by that. The will, therefore, is not free.

Such is the argument of President Edwards. It is, as it was intended to be, a *reductio ad absurdum*. It contemplates a freedom which is impossible, — a freedom of the will, — the will acting independently of all motives, volition without choice, or preference, or end. It is of the very nature of will to act from motives and towards ends. It is this which distinguishes the

action of intelligent, voluntary agents from that of insensate matter. "A constrained or coerced willing," Mr. Hazard very justly and acutely remarks, "a willing that is not free, is not even conceivable. The idea is so incongruous that any attempt to express it results in the solecism of our willing when we are not willing." But when the proper question is put, Is man a free agent? and not, Is his will free? we are compelled to answer in the affirmative. His volitions are determined by himself, and this is the most perfect freedom that any being can have.

President Edwards lays too much stress upon what he calls the strongest motive. He seems to forget that into every motive there enter two factors, — the object to be obtained, and the desire on the part of the individual to obtain it; and that the latter is the determining factor. To say that a man is always governed by the strongest motive is simply to say that a man always adopts the course of action to which he is most strongly, inclined, or which, all things considered, he chooses and prefers to any alternate course of action. And this again is the same as saying that a man free from external restraint will, within the limits of his power, act just as at the time he chooses to act, — which is the highest and most perfect freedom that we can suppose any person to possess, the highest and most perfect freedom conceivable.

The principle of causality, one of the clearest intuitions of the human intelligence, precludes the supposition of a larger liberty of action. It connects conduct with character by an indissoluble tie. Even if we could suppress this intuition so far as it relates to volitions, and set them wholly free from dependence upon the agent, instead of enlarging his freedom we

should destroy it altogether. Every effort to establish a more perfect liberty than this, — which is conceded by all, — that a man is free to do just as he chooses, his choice depending upon his character, is a vain struggle against the causal judgment.

It is because a man's conduct depends upon his character — grows out of it — that he is responsible for his voluntary acts. Were there not a causal tie between the two, between character and conduct, a man would be no more accountable for his own acts than for the acts of his neighbor. This intimate connection between what a man is and how he conducts himself is recognized in the self-reproach inflicted when he is conscious of having behaved unworthily. All the phenomena of conscience recognize such a connection.

It might be desired, if it were possible, that a man should have direct voluntary power over himself, — that he should be able to change a bad character into a good one and a good character into one still better, by simply willing it. But such is not the prerogative of will. It can only act upon character indirectly, by long and continued exertion, under the guidance of the moral sense, as shown by Mr. Hazard in another part of his work.

In like manner the agriculturist might be glad, if such a thing were possible, to change his rocky and barren lands into rich and fertile fields, by simply willing the transformation. But he knows that it is not within his power. He is therefore content to take the more roundabout course ; to remove one after another the rocky obstructions, and gradually mellow and enrich the soil by careful tillage. He in this way arrives at the same result as if the change were under the immediate control of his will, or as if it were caused by the direct act of God.

There is in reality no difference between President Edwards and Mr. Hazard as to the nature of the connection between a voluntary agent and his unrestrained acts. It is the connection between cause and effect, — an intelligent and free cause acting out itself, and thus manifesting its true character. It is for this reason that such an agent is held responsible for his acts, and is praised or blamed on account of them. Did not his acts proceed from himself and reveal his character, he would not be a fit subject for moral government.

These acknowledged masters of thought agree in respect to all that is essential to human freedom and human accountability. They alike maintain that man is a free agent, having as perfect liberty of action as it is possible to conceive, and that at the same time there is a causal tie between his character and his conduct, such as to make him accountable for the latter, and therefore a fit subject for government by rewards and punishments. President Edwards places "Freedom of the Will" on the title-page of his work, and conducts the discussion throughout under that heading. Most of his arguments are designed for the refutation of that doctrine. He might have saved himself much tedious reasoning by stating at the commencement the true and proper question, "Is man a free agent?" instead of the improper and almost unmeaning question, "Is the will free?" He was aware of the incongruity of the language of the question, and particularly points it out, but conformed to the usage of those whose arguments he met. For this reason his work lacks the clearness and demonstrative vigor which characterize the briefer pages of Mr. Hazard.

But this perfect liberty of action does not put all men on the

same footing before God. A man is free to do as he chooses, but his choices will depend in part upon his original constitution, and in part upon his acquired habits of thought, feeling, and action, or, in other words, upon his character, which is the resultant of all these combined. His original constitution was not of his own choosing. Whatever it may have been, he is not responsible for it; he is only responsible for acting according to his best lights under it. For his acquired habits of thought, feeling, and action, by which the nature given him has become modified, he is to a certain extent, but by no means wholly, responsible. It is these differences among men, from the very start, together with their different surroundings, that make obedience to the moral law more or less easy, more or less difficult. It is their freedom to act as they choose that causes these differences to appear in their conduct. If a man's volitions were determined by a power without himself, he would be incapable of obedience or virtue, and whatever his conduct, he would be no more a subject for praise or blame than the material elements around him.

The second proposition of Mr. Hazard, therefore, we think fully established. Man is a first cause, first in the sense that he is not a cause acted upon, and simply transmitting that action, but an original, voluntary, and self-acting cause, capable of starting within the sphere of his activity a new order of events, which but for him would never have taken place. The argument, so far as I see, is unassailable, the conclusion incontrovertible; and this, too, whether idealism or realism be accepted as the theory of the universe.

3. The third proposition of Mr. Hazard, that man is a creative first cause, with his definition of creation, follows necessarily

from what has gone before. Creation is defined to be the alteration of the future by an intelligent, voluntary effort. No power can change the past. "Every being," he says, "that wills is a creative first cause, an independent power in the universe, freely exerting its individual energies to make the future different from what it would otherwise have been." "The creation of this future for each successive moment is the composite result of the efforts of every being that wills." "Whatever its grade of intelligence, if it make successful effort to produce change, it so far acts as an original creative cause in producing the future. The power and knowledge of such a being may be very limited, but within the limits of these attributes its action is as free as if it were omniscient and omnipotent." "Its effort must be to make the future different from what, but for such effort, it would be. Such a being is a co-worker with God and other connative beings in creating the future, which is always the composite result of the action of all such beings." "If we suppose an oyster with no other efficient power than that of moving its shell, and with the knowledge of only one mode of doing this, and this instinctive, still, when by its own effort, directed by its own knowledge, it effects this moving, it so far makes the future different from what it would have been, and so far performs a part in the creation of the future."

In all of these passages creation is not used in its primary sense to denote the production of something, whether real or ideal, out of nothing, but in a wider and more general sense, to denote the modification of what already exists. There is little advance, except in phraseology, upon the doctrine already set forth, that man and all other voluntary agents, whatever the degree of their intelligence, are original and efficient causes.

An oyster takes its evening meal, a bird constructs her nest, a man purchases a horse, another carries to the miller a sack of grain, a third plants a vineyard, a fourth invents a sewing-machine, a fifth makes a picture, a sixth carves a statue, a seventh writes a poem, an eighth, by thought and action, builds up for himself a virtuous and noble character. Under the wide generalization of Mr. Hazard these are all creators. They have all, by their voluntary efforts, acting as first causes, made the future different from what it would otherwise have been. In their capacity of original or first causes, they are by definition creative causes. All that is necessary to constitute a creative cause is original action. We do not see that the affix "creative" adds anything to "first cause." He seems to have been led to its use from the supposed resemblance of the work of an artist, or inventor, or poet to an act of the divine creation. But this supposed resemblance, as we shall see further on, can hardly be maintained, if his own ideal hypothesis be the true theory of the universe. Whether we adopt his view as to the nature of the divine act in creation or the one more commonly entertained, we are persuaded that, on a careful examination, there will not be discovered in any of the instances given, or in any work of man, a species of agency entitled to be regarded in philosophic discourse as creative. The word must be extended beyond its usual and proper meaning, to cover so wide a generalization. Its use, however, gives a picturesqueness to his doctrine, and as he expressly states that he applies it to all voluntary actions which change the future, there is no danger of its becoming a source of error.

Were the author a realist instead of an idealist, did he conceive matter, not as the creation of mind, but as the eternal, un-

formed substance out of which God has from the beginning been fashioning and peopling worlds, then there would be a real analogy between His works and the work of man. On this supposition the case would stand thus: Matter is employed alike in the divine creation and in human creations, as an instrument for accomplishing the purposes of mind. It is taken just as it is. Its unaltered properties are made, through special devices, available to these purposes. It is the innumerable contrivances looking to intelligible and important ends through all nature that furnish the surest basis for the theistic argument. It is similar contrivances in the constructions of man that show the human intelligence to be kindred to the divine. But the resemblance in the two cases, it should be observed, is limited to the device and employment of appropriate means for the attainment of desired ends. It touches only the intelligence. The human and divine power are too unlike to admit of comparison. The will of man is restricted in its influence to his bodily organization, and can effect changes in the outward world only through that. The will of God must be coextensive in its reach with the universe, and be capable of controlling by its exertion the subtlest forces of nature.

4. The fourth and last proposition of Mr. Hazard is that man, in the sphere of his own moral nature, is a supreme creative first cause. This is perhaps the most instructive and valuable portion of the work. It is an illustration of what he intimates in its opening pages, "that the special field of metaphysical utility is in our moral nature; that every one has within himself a domain as illimitable as that of the external world in which to exert his energies in the construction of a moral universe, and that within this domain the finite intelligence is not only a cre-

ative but a supreme creative power, and that therein, by exercising its faculties upon itself, it may devise new modes of forming and moulding the moral character, and supply a demand which, always important, has now, by our progress in other directions, become the prominent and urgent necessity of our time." He shows with admirable clearness how an elevated moral character may be acquired by one who was not fortunate in his original endowments; how, under the guidance of an infallible moral sense and with entire freedom in willing and action, he may check the wrong tendencies of his nature and encourage and strengthen the right tendencies; how, among his various and conflicting desires, he may, by power of will, give ascendency to those which favor virtue, and suppress and banish those which lead to vice; how the malevolent passions may be made to give place to the benevolent; how selfishness and greed may be converted into generosity; how one can mentally construct a moral world, better arranged and inhabited by beings more perfect than those around him; how he can without hindrance make efforts to realize such a world, and bring his conduct and life into harmony with it; how these moral efforts, persistently maintained, become at length habits; and how these habits, incorporating themselves with his very being, grow into character. In this way an elevated, pure, and noble character may be formed where it did not previously exist. Such a character is within the reach of every one if he will only put forth the effort for it. He is free to do just as he chooses. His volitions are under his own control. He has a monitor and guide which, so far as his actions are concerned, is infallible. Every effort he makes in obedience to its promptings is a virtuous effort, whatever may be its consequences. The virtue is in the

effort. No matter how imperfectly instructed his conscience may be, if he act in accordance with the best light he has, he performs an act of the highest virtue of which, under existing conditions, he was capable. Of the character he gains thereby he is the sole author. He is the supreme creative first cause of the change produced in himself, and of all the changes which subsequently spring from that change.

The author illustrates his fourth proposition at some length and with a variety of interesting and instructive details. The subject is so important that we need no apology for transferring to our pages some of his thoughtful and suggestive paragraphs. See page 63, section 18: "But it is in" . . . down to "Supreme creative first cause." The word "creative," we would remark, has a degree of propriety in this connection which it lacked in the previous cases, where the change effected was in the external, material world. A man who by his persistent, voluntary efforts has achieved for himself a lofty character may be said, with hardly a figure of speech, to have exercised creative power. He has brought into existence all that is best in himself.

The author adds certain cautions to be observed in the work of building up a virtuous character. Page 71. "We must be careful to distinguish between" . . . down to "all possible acquisitions."

In what the author says of the limitations of Omnipotence, he does not mean, as we understand him, that God could not change the character of a bad man so that he should become a good one, and his voluntary actions be virtuous; but that, the man's character remaining the same, God could not, by mere pressure upon his will, make his actions virtuous.

Incidental to the main discussion and subsidiary to some of the positions taken in it, are speculations not inferior in interest to the discussion itself. One of these is his theory of instinctive actions. He supposes these to be voluntary and intelligently performed. The knowledge, however, of the end to be attained and of the means of reaching it is innate or given in the constitution of the being. He has this knowledge prior to all experience, and is able to act intelligently without aid from that source. Instinctive actions, therefore, differ from rational and deliberative actions simply in the way in which the knowledge guiding the will is acquired. In the first case it is innate, or constitutional; in the second case it is gained from experience. In both cases the action is voluntary and the will is guided by intelligence. He is forced into this position by the dogma to which he constantly adheres, that matter is incapable of acting as a cause; that it cannot even put itself in motion; that original action can be affirmed only of mind; and that mind acts voluntarily under the guidance of its knowledge. If these instinctive movements could take place without the intervention of intelligence and will, then matter properly organized may put itself in motion.

Unfortunately for the theory of Mr. Hazard, it derives support from the teachings of neither psychology nor physiology. There are actions which take place not only without the stimulus of the will, but in direct opposition to its most strenuous exertion. Some of these, as laughing, weeping, coughing, sneezing, are described by physiologists as consensual, in distinction from voluntary actions. The muscular contractions and relaxations by which the infant first draws nutriment from the maternal breast are undoubtedly of this class. They are prompted

immediately by the sensation of hunger, without the slightest knowledge of the necessity of food or of means of procuring it.

There are other actions in which neither the will nor sensation has part. They are caused by the mere contact of the appropriate stimuli. Such are the alternate lengthening and shortening of the muscles upon which respiration ordinarily depends. Such is the combined action of the heart and arteries in forcing the blood in microscopic streams through all the tissues. Such are the peculiar motions of the alimentary tube which carries the food, as fast as it is prepared, along its devious way. Such are all the functions which serve for the immediate maintenance of life. They are traced to a connection with different parts of what is known as the excito-motary system of nerves. They are carried on in a state of profound unconsciousness. Were they dependent upon our voluntary powers, sleep, instead of bringing refreshment, would cause immediate death.

The author explains in a similar manner the philosophy of habit, — how habit becomes second nature; how the repetition of an action makes it easy, so that at length we perform it without conscious effort. The first time we perform the action there is necessarily thought and deliberation as to the best mode of accomplishing the object which we have in view. This occasions delay. The second time we perform the action the deliberation is shorter and the delay occasioned less. The third time the delay is still further diminished, and so on, until we at length come to act with the knowledge, although acquired by experience, as immediately present to the mind as if it were innate. This is part of the explanation of the influence of habit. But is it the whole explanation? We think not. The change is

not simply mental. It is corporeal too. Habit is a thing of the body as well as of the mind. It is the outcome of the law of association. This law may be thus stated: Whenever two acts, whether bodily or mental, have been either simultaneously or successively performed, one act has a tendency to introduce the other. This is why ideas flow through the mind in a train, the order of the train, unless interrupted by external perceptions, being determined by previous habits of thought. This explains why the fingers of the pianist fly over the keys of his instrument so rapidly and with touch so unerring. Each movement tends to produce the next in the train of movements which has been voluntarily established, but which, once commenced, is now continued with hardly a conscious volition. Indeed, it would seem, as some physiologists tell us, that actions associated by habit are transferred from the voluntary to the involuntary or automatic system of nerves, — that the work to which such actions are subsidiary was done for us rather than by us. Certainly we do not experience fatigue from it as from work which requires our continuous attention. Who does not know that the best intellectual work is done when thought, quickened by feeling, flows spontaneously, and the brain has not to be urged by the spur of the will?

We should not do justice to the volume if we did not refer briefly to the two modes pointed out so clearly, by which the mind seeks for and arrives at truth. They are by intuition and ratiocination; or, by direct insight and the drawing of inferences; or, as he prefers to designate them, by the poetic method and the prosaic or logical method. Before the prosaic or logical method can be practiced, objects must be classified, and the properties common to each class must be gathered up and repre-

sented by general terms or symbols. This process is called induction. If it has been correctly performed, the general truths arrived at are the major premises of syllogisms, and can be used as such till their contents are exhausted. Their employment in this way is called ratiocination. The truth is not directly seen and apprehended, but is simply inferred from a comparison of ratios. These ratios are expressed by general terms or symbols, and, in reasoning, we need not and do not usually extend our thought beyond the symbols to the things denoted by them. The science of algebra furnishes the purest illustrations of this mode of arriving at truth.

The other mode, by direct insight, has nothing to do with definitions or terms, but deals immediately with things. It contemplates these and apprehends directly their qualities and relations. The mind accepts nothing at second hand, but sees for itself. Percipiency is the attribute or faculty which it chiefly employs. It analyzes and distinguishes and separates. It notes resemblances and differences. It ascertains the contents, not of general terms, but of individual things. It cleaves to things, with little attention to the words denoting them. When attempting to convey an idea of them to others, it chooses the most simple and picturesque language at its command. This intuition, this marvelous insight, is the gift of the poet, of the philosopher, of the man of strong common sense in ordinary business affairs, and especially of woman, whose quick and clear perception of circumstances and sound judgment upon them is willingly acknowledged by the sterner sex in all the more delicate relations of life. Persons of this class, reaching conclusions by a species of intuition, are frequently unable to give reasons for them that are satisfactory to others. One party has

not the language, the other has not the sight. We cannot resist the pleasure of quoting one or two of Mr. Hazard's beautiful illustrations of his doctrine.

Page 57. "All general propositions must" . . . to page 60: "reason for their consequent action."

The personal freedom and moral accountability of man lie at the foundation of most of the propositions of Mr. Hazard. It is the establishment of these beyond the possibility of question that constitutes the chief value of the little volume. The various fallacies which have gathered about these truths, so as more or less completely to disguise them, he has unmasked and scattered to the winds. For this, no easy or unimportant work, we owe him a debt of gratitude.

Of his ideal theory of matter, which is interwoven with the entire discussion, we cannot speak with the same commendation. We do not see that it adds anything to the weight or clearness of his argument. No one of his conclusions rests upon it. They would be equally true on any other hypothesis, or without any hypothesis at all. The theory seems to be kept abreast with the discussion, not so much for lending support to the conclusions reached as for showing its compatibility with them. The author thinks that on the ideal hypothesis creation is more conceivable than on any other; is brought within the range of powers which we ourselves possess. He says that "we already have and habitually exercise all the faculties essential to material creation, and with the requisite increase in that of impressing our conception upon the minds of others, we could design and give palpable persistent existence to a universe varying to any extent from that which now environs us, which would be objectively as real and material to the vision, even of others, as the

heaven and earth they now look out upon." This seems to us wholly illusory. Whatever theory of intelligent creation we adopt, the conception of the thing to be created must precede the act of creation. The act of creation, on the ideal hypothesis, consists not in forming the idea, but in making that idea real and palpable to all intelligences. It is not, be it remembered, one idea that is to be made real and palpable to a single mind, but an infinite number of different ideas are supposed to be impressed at the same time upon an equal number of different intelligences; and that, too, not for one moment only, but for every instant of recorded time. Have we any power akin to this? Can the human mind even take in so vast and complex a conception? God creating each moment the infinitely varied perceptions of which his creatures are conscious, from an oyster's faint and glimmering apprehension of something without itself to the wonders of the starry heavens, as revealed to the eye and mind of a Newton!

The supposed analogy of creation, thus conceived, to the work of an artist, to which the author attaches importance, is, we think, wholly imaginary. There is no such analogy. There is not even the remotest resemblance between the two cases. The sculptor, for instance, chooses a block of marble — that is, a fragment of the divine thought, detached and raised from the quarry — in which to embody his ideal. By the continued application of the hammer and chisel, he prevails upon God gradually to change this fragment of the divine thought until it comes at length to represent his own thought, and serves to convey it more or less perfectly to others. Although thus modified, it is still God's thought; and it is God, and not the artist, that makes it real and palpable to all who look or imagine

they look upon the statue. The work is done by God in obedience to the will of the artist. God does everything; the artist nothing. The only capacity in which the artist can possibly act is that of a guide and assistant to God in modifying His original thought and bringing it into its present representative form.

There is but one theory of creation that seems to us more improbable, or with which we have less sympathy. It is that which supposes matter to exist, but to be in itself wholly inert. The forces that appear in it are not of it. They are dependent, each moment, upon the exertion of the divine will. Why, it may well be asked, suppose the existence of matter if it has no part in the production of the phenomena ascribed to it? All that we know of matter is through these phenomena.

Although we would not press any hypothesis on a subject so far beyond our comprehension, we are inclined to look upon matter not only as real and substantial, but as eternal, and as having possessed from all eternity the properties with which we now find it. These properties make it a fit material for the creations of mind, — creations which cannot transcend, but must conform to, the powers of that in which it works. This supposition is favored by the very wide distribution of matter having everywhere the same elementary constitution, and by the very remote epochs to which the worlds achieved from it look back. It will also go further, as we think, than any other hypothesis towards explaining some of the profoundest mysteries of the universe. As the subject is one of which we really know nothing, it is perhaps well that different minds should look at it differently. That view of the creative work which to any one seems the most worthy, and which fills him with the deepest reverence for the Author of nature, will be for him the best view.

For Mr. Hazard, idealism fulfills most perfectly this condition. He has been accustomed, in contemplating the changes of the outward world, to substitute for material causation the orderly movements of the divine will. This has become to him the most simple and natural mode of looking at the phenomena transpiring around him. It saves him from the unreasonableness, as he thinks, of ascribing active powers to a substance whose best known characteristic is inertia, and excludes the idea of physical necessity, so baleful in its influence, from the sphere of human conduct. It at the same time elevates and ennobles man by bringing him, in all the offices of life, into immediate intercourse and communion with the Author of his being. These ideas are presented with singular beauty in the closing pages of the work. Page 96, line 3: "It is clear, therefore," . . . to page 99, closing with "pronounce it good."

There can be no doubt of the immense superiority of idealism in every respect over a low and gross materialism. But is it necessary to choose between these two extreme views of nature? Is there no intermediate conception having more to commend it to the common sense of mankind, and at the same time answering better the requirements of a sound philosophical theory? Are the manifestations of mind and matter so identical in character that it is necessary to refer them to the same one essence? On the contrary, are they not as strikingly distinguished from one another as light from darkness? so unlike as to have nothing in common, except that they both exist? one making itself known to the intelligence only, the other palpable to the senses; one self-conscious, acting voluntarily under the guidance of knowledge, with reference to some desired end; the other unconscious, as we have every reason to believe, acting without

knowledge, or choice, or end, but determined in its manifestations of energy solely by antecedent conditions? Why place essences phenomenally so contrasted under the same category? Why insist upon unitarianism, *mind or matter*, when dualism, *mind and matter*, mind directing the activities of matter, making use of matter as an instrument for accomplishing the purposes of mind, building up from it worlds and peopling them with innumerable forms of life, is more simple and better fulfills the conditions of the sublime problem? But we will not argue the question. We have only desired to call attention to a remarkable book, full of original thought expressed in language so clear and simple as to be readily understood by all. The little volume deserves and will repay a careful perusal.