

the Son of God.' What does that mean? It means, says Mr. Barber, that in me, degraded and obscure as I may be, with all the evil tendency which went to make me, there is something hidden, a power of righteousness, a power of seeing right and wrong, a grand tendency to God. And he thinks that we might do worse than go to the drunkard who quotes the proverb, 'the fathers have eaten sour grapes,' and ask him to carry his doctrine of heredity all the way—'which was the son of God.'

And then heredity has a fellow. It is not all our possessions. Heredity is within. There is also a force that touches life from without. Mr. Barber recalls the plot of *Elsie Venner*, that story into which Oliver Wendell Holmes poured his whole philosophy of life. Elsie Venner's mother is bitten by a rattlesnake before the child

is born. The snake-nature enters somewhat into the nature of the child. She struggles with that inheritance till she reaches womanhood. Would she have won or would she have lost? We are not told. But we are told that she was not left to struggle alone. With womanhood there came from without the pure love of the young man for the maiden. His love enfolds her, fights for her, fights with her, and they win together. 'I have been stung,' says Mr. Barber, 'by the scorpion sin. It has been a life's struggle. All through life I have felt it. I feel it still. But love comes and love enfolds me. I could not do it alone, but when the glorious love comes from the Cross and is thrown around me, and I feel the thrill of that strong power within me, then I can do it. I can do all things through Christ, which strengtheneth me.'

## The Spiritual Discipline of Science.

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'Lo, these are but the outskirts of His ways:  
And how small a whisper do we hear of Him!  
But the thunder of His power who can understand?'—Job xxvi. 14.

LIVING, as we do, in an age of science, we cannot escape the influences of our time. There may be dangers in these influences which we cannot avoid, but there are also elements of help and stimulus which we cannot afford to lose. These influences are not therefore to be deplored, but weighed and wisely used as a spiritual discipline for the perfecting of faith and the refining of Christian character.

When we were children we were told that the bread on our father's table was the gift of God. As we grew older we found that the bread came from the baker, that the baker had his flour from the miller, that the miller had his wheat from the farmer, and that the farmer got it by hard toil in ploughing and sowing. So in all directions in our later life God seems to hide Himself behind His works, until men begin to think that the more they know of other things the less can they know of God.

So in the history of intellectual growth. Men at first thought of God's intervention as direct

and immediate, and when they embarked on the scientific study of the world it was with the feeling that at every stage their researches would reveal to them God. At first, indeed, in such studies it seemed as if these hopes must be largely fulfilled. Beautiful adaptations, instances of design, marvellous correlations for beneficent purposes, immediately presented themselves, and men's conceptions of the power, the benevolence, and the wisdom of God were greatly enlarged.

But as these studies went more to the heart of things, unexpected difficulties arose.

One set of these difficulties was disconcerting when it first came into view, but has not proved to be of very permanent importance. It threatened to assail the authority of Scripture. God, speaking to men in the Scriptures, had of necessity accommodated His utterance to human thought and language. The references to His great works of creation and providence were made in the current

speech of those to whom He addressed Himself at the first. It was the language which all men everywhere have used, and which, with all our knowledge, we use still, assuming men's standpoint as resident on an apparently rigid earth, round which sun, moon, and stars appear to move. But when men like Galileo began to demonstrate the real movements of these bodies, and when it was found that the popular conceptions were far from the literal truth,—that the earth was but one among myriads of bodies, itself in constant and rapid motion,—then some minds were shaken by the thought that, if that be so, the language of Scripture also is inconsistent with the literal fact. At first attempts were made on the one side to crush the new philosophy, and on the other to stifle the old faith.

But in time wiser counsels prevailed. Men began to see that if God was to speak to them at all, even He must speak in their own language. If the infinite grace of His self-revelation to men was ever to enter into human life it must be by His stooping in gracious condescension to their low estate, constraining His expressions within the narrow limits of their thoughts. He would leave them in the meantime their imperfect conceptions of the mechanism of His universe, because only by condescending to do so could He gain their ear for His great revelation in the region of the moral and the spiritual. He would at all risks establish spiritual relations between Himself and His children, throwing open to them at once the spiritual world, in the knowledge of which was the life of their souls; and He would be content to leave to them, as a fine intellectual discipline, the discovery for themselves of the profoundly interesting, but far less vital, truths of the natural mechanism of His glorious working in material things.

Precisians and pedants might scorn the popular language of common men, but the invisible God, as later the incarnate Christ, felt it sufficient for the purposes of His grace.

As some recognition of these things entered into men's minds they began to perceive that when God spake to them as to sons He necessarily left many things unsaid, and in things which did not touch vital spiritual issues He conformed to their own childish speech. For the time the fear of collision between faith in Scripture and scientific theories of the universe was allayed. Men saw

that a Scripture which spoke of the sun as rising and setting, and of the earth as the centre of things, was none the less a trustworthy revelation of God and of His great salvation in Jesus Christ. The new thoughts of science were accepted, and still the Bible stood fast as God's authoritative voice to men in spiritual things.

Again, in living memory the old fears were aroused at the birth of the modern science of geology. The record of the rocks had not remained till then wholly unread. But it was now read with fresh interest and with a more earnest scrutiny. Vast worlds of life and vast spaces of prehistoric time came into view. Strange orders of beings in marvellous succession linked forgotten eras with our own time. Soon men began to contrast the enormous scale, both in space and time, of these intricate processes of development with the simple conceptions of the supposed history of life in our world which they had hitherto been carrying in their minds. These simple conceptions, again, they had read into their Bible, and fancied they had derived them from it. Again the cry was raised that science and religion were at variance; that geology had challenged Genesis, and that men must choose between scientific truth and Christian faith as between two irreconcilable alternatives. But once more a calmer temper at last prevailed. On second thoughts it became apparent that the old preconceptions which gave a simple account of the history of life were only the natural conjectures of the childhood of humanity, and had no divine warrant in the revelation of God. Men had indeed, in the days of their pupilage, read the Book of Genesis in the narrow sense which alone their minds were then able to grasp. But now they began to see that they had too narrowly interpreted God. It was they themselves who had made the apparent contradiction. When the majestic utterances of the earlier Scriptures were read again in the new light it began to appear that the God who had spoken to prophets and patriarchs was speaking with the same voice in the opened record of the rocks. His interpreters had been put to shame, but not He Himself. Faith was not silenced or overthrown, but was taught to read God's Word more humbly, to interpret it with a more open mind, and to recognize deep answering to deep in the word and the works of God.

Again the new truths of science were accepted,

and yet the record of God's loving care in creation and providence stood fast. God reveals Himself in many ways, and each has its appropriate record. It was not that the two records were reconciled. Rather it was seen that they had never been at variance, and that the apparent discrepancy had been due only to the hasty misreading of men. Genesis and geology had each of them a message, harmonious and helpful to the growing minds of God's children.

Such were some of the phases of what used to be called 'the conflict of Science and Religion.' A book was published under that most misleading title, but, believe me, there is no such conflict. The time has surely for ever gone by when some men thought the meeting of the British Association a fit time for a blast against the Christian faith, and others took occasion for a counterblast in reply.

Behold how good and how pleasant it is  
For brethren to dwell in unity!

Let that be our motto, whether as men of science or as men of faith.

Revelation and nature, theology and physical science, are our guiding lights in two great departments of life, and these are not lights that neutralize each other. They reinforce each other, and each has its discipline for the soul. He who follows the one with manly patience and modesty may at the same time follow the other in reverence and godly fear.

But while I deny the existence of the alleged conflict between the two great departments of our intellectual and our spiritual life, I fully recognize the growing difficulty of rightly adjusting their relations to each other. But the difficulty is no longer of the old kind. It is now far more serious, deeper, wider, more far-reaching, more vital in its issues.

It is no longer, as in the two instances of which I have spoken, that a few of the facts in some particular department of science seem, or even are, inconsistent with certain words or passages of Scripture. To continue to deal with questions on the borders of science and religion as if they were still of this nature is to mistake the situation altogether. The day of compromises, partial explanations, and petty reconciliations is past.

The difficulty now is that the whole mental attitude of men has changed. We may thank God

that the old vulgar infidelity, with its cheap sneers, has disappeared from literature and from serious discussion. It is not extinct, but it has to content itself with a lower and narrower platform. It now discredits, in the eyes of thinking men, any cause with which it seeks to associate itself.

What we have to face now is a wholly different experience. Modern education, social forces, and the pervasive influence of the scientific temper, have changed the whole atmosphere in which both our intellectual and our spiritual life is lived. Men no longer bow readily to authority. In all departments of study questions long closed are reopened and freshly investigated. Habits and methods of study originally adopted for the investigation of material things are applied to the study of history, psychology, ethics, and religion. We have, in consequence, not merely results in the shape of new facts and conclusions, in view of which we have to readjust our statements of belief, but new impressions and experiences which change our whole intellectual outlook, and are absorbed into the very fibre and substance of our religious thinking and our spiritual life. It is not only that the times have changed; we ourselves have changed with them.

Are these changes, then, for good or evil? I know that to many devout minds they seem a lost, unmixed evil. Such minds deplore the disappearance of old landmarks and bulwarks of the faith, and they fear that, in the new and shifting scenes on which we have entered, the old certainty of assured faith will never again be possible to us. One sympathizes with these apprehensions, but we ought not to give way to them. 'Say not thou, What is the cause that the former days were better than these? for thou dost not enquire wisely concerning this.'

I am anxious, on the contrary, to urge upon you the conviction that science, in all its variety, so far from being a foe to Christian faith, is furnishing a splendid discipline, not only for the intellect, but for religious and spiritual life.

It wonderfully enlarges our thoughts of God. It teaches us to look at His works as did the Hebrew poet of our text, and in view of all that it has shown us, to use with tenfold meaning his devout words of wonder—

Lo, these are but the outskirts of His ways:

And how small a whisper do we hear of Him!

In enlarging our knowledge science, has at the

same time, intensified a hundredfold our sense of our own ignorance, and how fine a discipline is that for the human spirit!

But how comes it that there is an impression that science, and especially physical science, is peculiarly self-satisfied, confident, and aggressive, not only speaking with authority in its own domain, but claiming, by its rash *obiter dicta*, to pronounce on questions of faith and spiritual experience, as if it were sole master of human thought? It must be admitted that there have been men, not a few, calling themselves men of science, who have loved to play this unlovely part. But these are to be criticised, not as men hostile to Christian faith, but rather as men who have been disloyal to science itself. Science revenges herself upon them, for such men never reach her seats of highest honour nor hold rank with her immortals.

The great makers of science have been men of another type, and have learned humility and self-restraint as the first lessons of their craft. When a man sets himself to unravel some one of the mysteries of physical nature, he tries by observation, by experiment, by theoretical reasoning from the known to the unknown, to push gradually back the boundaries of knowledge. He spends weeks and months in unrewarded toil, and counts himself happy if at the last he can bring back out of the shadowy realm of the unknown one fact or bit of truth,—happier still if what he has brought is a hint or clue to the discovery of a law, or a key to some hitherto closed pathway of research.

All this teaches a man modesty, patience, self-restraint, and perseverance, with a readiness to endure boundless labour as the price of one morsel of truth.

In my student days I had the privilege of receiving a lesson of this kind under the direction and inspiration of a prince of science. A friend and myself were set to investigate one single phase of one physical property of a single substance. At first it seemed to us, I suppose, that the task might fill up the spare hours of a week or two. But week followed week, month followed month, and some three years were gone before the result was attained and the determination reached. Our great chief directed our work with unwearied persistence and endless resource, and when the result was gained gave to us the whole credit of it. So we had for three years before us a living example of the patience, persistency, resource,

modesty, and generosity of the true scientific spirit; and we received for ourselves something of the discipline involved in such researches. It was one of the best parts of our preparation for our work on the mission field.

But it is the men who give their lives to scientific research who reap the full fruit of its discipline. They not only gather facts,—they co-ordinate them as laws, and interlink them in chains of causation. So there grows before their minds a world of infinite and complex beauty. There is nothing random in it, nothing of the waywardness of human will, nothing of the unreason of human perversity, of the weakness or the audacity of human sin. All is ordered, calm, and abiding. So, in this school of God, men learn veracity and humility, and are bowed down before the majesty, the beauty, and the complex harmony of the thoughts of God. Men may, through their own fault, fail to receive these impressions, but assuredly the lessons of science are not irreverence or captious unbelief, but reverence, humility, and faith.

Lord Kelvin's is, without rival, the greatest name in the science of our day, and he has recently expressed the mature convictions of his life in a memorable utterance. He said—

He could not say that, with regard to the origin of life, science neither affirmed nor denied creative power. Science positively affirmed creative power. Science made everyone feel a miracle in himself. It was not in dead matter that they lived and moved and had their being, but in the creative power which science compelled them to accept as an article of belief. They could not escape from that when they studied the physics and dynamics of living and dead matter all around. . . . They only knew God in His works, but they were absolutely forced by science to admit and to believe with absolute confidence in a directive power—in an influence other than physical, dynamical, electrical forces. Cicero had denied that they could have come into existence by a fortuitous concourse of atoms. There was nothing between absolute scientific belief in creative power and the acceptance of the theory of a fortuitous concourse of atoms. Was there anything so absurd as to believe that a number of atoms, by falling together of their own accord, could make a sprig of moss, a microbe, or a living animal? People thought that, given millions of years, these might come to pass, but they could not think that a million of millions of millions of years could give them, unaided, a beautiful world like ours. They had a spiritual influence, and in science a knowledge that there was that influence in the world around them.

A few days later he added, in a supplementary letter, the following:—

I desired to point out that, while 'fortuitous concourse of atoms' is not an inappropriate description of the forma-

tion of a crystal, it is utterly absurd in respect to the coming into existence, or the growth, or the continuation of the molecular combinations presented in the bodies of living things. Here science is compelled to accept the idea of creative power. Forty years ago I asked Liebig, walking somewhere in the country, if he believed that the grass and flowers which we saw around us, grew by mere chemical forces. He answered, 'No, no more than I could believe that a book of botany describing them could grow by mere chemical forces.' Every action of human freewill is a miracle to physical and chemical and mathematical science.

It is strange that the idea should have gone abroad that science itself or men of science are hostile to Christian faith. The really creative minds in the first rank of scientific work have usually, in our own country at least, been believers in God. It has not been their habit, nor perhaps their duty, to make large public professions of their faith. But when a list is made of the greatest names,—not popular exponents of the second rank, but the men of original formative minds, like Newton and Herschell, Faraday, Clerk Maxwell and Stokes, and others who were their fellow-workers and worthy to rank with them,—it is a list of men who one and all were reverent believers. Darwin is often spoken of as the father of all those who, in the name of science, assail Christian faith. But Darwin did no such thing. He both began and ended his great book, *The Origin of Species*, with a clear profession, the more weighty because it is almost unconscious, of his belief in a Divine Creator.

The graces of the Christian life have never shone more brightly than in the lives of Faraday and Clerk Maxwell, and there is no sweeter or more inspiring record of the calm and beauty of a saintly death than the touching story of Maxwell's last days.

Without the quickening Word and Spirit of the living God all else is vain, but where these are, the pursuits of science have a singular power to elevate and purify and strengthen the soul. The daily work of the scientific man is, as a great philosopher has said, to think out and to think over the thoughts of God. This daily effort ought, surely, to bring a man nearer and nearer to his God. And how pleasing to the Father heart of God must be the efforts of His children to learn His thoughts and trace His ways, and to recognize, with loving adoration, the operation of His hands!

I have spoken of difficulties in the relations of science to faith, difficulties of growing complexity and seriousness, and have indicated how, on the

other hand, some of the operations of science become the means of discipline to heart and soul. But there is another aspect of the difficulty of faith in our time, which specially needs to be noted. Our God is a God who hideth Himself.

He hides Himself so wondrously,  
As though there were no God!  
He is least seen when all the powers  
Of ill are most abroad.

Or to quote again from this Book of Job—

Behold, I go forward, but He is not there;  
And backward, but I cannot perceive Him:  
On the left hand, when He doth work, but I cannot  
    behold Him:  
He hideth Himself on the right hand, that I cannot  
    see Him.

This elusiveness of God is a great spiritual difficulty. It was hoped at first, as I have said, that science would reveal and explain God. What has been on the whole the result? Does it not seem sometimes as if God were farther off than ever? In the childhood of our race God seemed to be near. He was working behind a thin veil, which an effort would presently pierce and rend, and so, through the study of nature, God would stand revealed. Experience has disappointed this hope. On the contrary, the phenomena of nature have been traced back to physical causes, and each physical cause again has been traced to some remoter cause, and this to others remoter still. It is as if veil after veil has been lifted, and still we do not find God.

The chain of causation has been enormously lengthened. Its links have become more and more numerous and subtle, until men begin to think that matter is its own explanation, and that behind it all there is no room and no need for God. Nature is explained by chemistry and physics, the Bible by archæology and criticism, Religion by anthropology and history. All that once seemed but the vesture of a present God has been emptied of its divine content and significance, and nature is the explanation of nature. This is the difficulty and the trial of faith in our day. Unbelievers rejoice in the sweeping away of what they regard as moribund superstitions. Believers, uneasy and impatient, cry out, 'They have taken away my Lord, and I know not where they have laid Him.' It seems as if unbelief were more bold, and faith less courageous than ever before.

Brethren, be assured these are but nightmares.

of the passing hour, the weariness and impatience of a restless race, who feel well-nigh overwhelmed by the growing multiplicity of the objects of their knowledge.

Science has not emptied the world of God. It has taught us that the links of causation are far more numerous, far more subtle and refined than we had supposed, but it has done nothing to shake our assurance that no physical cause, however remote, can ever be the final cause of physical phenomena. A physical cause is of necessity a physical effect, and when we reach it it tells us by its very nature that it is not yet the end. The chain of causes is longer than we had supposed, but by the thrills of beneficent power that reach us through it we still know in our hearts that its farthest link, however far, is held in the hand of power, and controlled by the heart of love, of the living God. The steps which lead us to the footstool of His throne are far more wonderful and numerous than our fathers knew or we surmised. They seem now to rise up into cloudy regions where sight fails us, and even faith falters, but beyond them all the footstool still stands firm, and the eternal throne is unshaken.

This, then, is the supreme difficulty of faith which science has created for us. Physical facts have so multiplied, and physical laws have so encompassed us, that it is hard to remember that all these things are but the outskirts of God's ways, and that all this intricacy of physical things leaves the world of spirits as open and free as ever.

The difficulty is real and pressing, but it is not a mere barren difficulty, a danger only to be deplored. Nor is it a device of the enemy to rob us of our faith, nor a lamentable and fatal necessity of an advanced age. Nay, it is a great discipline, in which God deals with us as with children, to provoke us to a more strenuous search after Himself. 'This also cometh forth from the Lord of Hosts, who is wonderful in counsel and excellent in working.'

When we recognize that our difficulty is but part of a great discipline which He has ordered for us, the bitterness of this experience is already gone, and in patience we learn to possess our souls. When men trace for us the causation of the phenomena of nature, and carry us back from cause to cause, in apparently endless succession, we shall not lose heart and faith as if God were shut out. We shall only say that God, then, is greater than we knew. There is no searching of His understanding. He is not like some bungling mechanic, compelled to stand by his own defective work with key and lever to help out its action, to expedite here and retard there, ever watchful and active to avert imminent disaster. That is not the likeness of our God. His work is perfect, and part of its perfection lies here, that, while in its ordered course it reveals Him to those who look for Him, it also by its ease and sureness hides Him from those who desire not the knowledge of His ways.

God leaves men free to disbelieve, but the God who hides Himself so wondrously is a God also who reveals Himself to longing souls. To the great philosopher, as to the little child, or the common man, He makes Himself known, not in mighty marvels of created things, but by the whispers of His own Spirit to ours; and in Jesus Christ, His Son, flesh of our flesh, who dwelt among us for our redemption, and died for us on His cross, God has revealed the love of His inmost heart. Let our hearts but listen to that voice, and answer to that love, and then, assured of our God and of His love, we shall willingly consent to the sore and long training by which He is testing our faith, enlarging our thoughts of Him, and preparing that disciplined and glorified manhood which in higher worlds and vaster ages yet to come, shall set forth to all orders of being the manifold wisdom of God, and fulfil for Him ministries of service which as yet are inconceivable to us.

'Now I know in part; but then shall I know even as also I have been known.'