# Calvin on the Sciences Nigel Lee

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CALVIN

ON

# THE SCIENCES

by

Nigel Lee, Th.D.

Job after taking an ample survey of the universe, and discoursing magnificently on the works of God, at length adds, "Lo, these are parts of His ways: but how little a portion is heard of Him ! "

—John Calvin, Institutes I: 17: 2.

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CALVIN ON THE SCIENCES

by Dr. Francis Nigel Lee

Dedicated to the immortal memory of John Calvin:

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CHRISTIAN STATESMAN CHRISTIAN AUTHOR

CHRISTIAN DIPLOMATIST CHRISTIAN SCHOLAR

CHRISTIAN CLASSICIST

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CHRISTIAN THEOLOGIAN

CHRISTIAN PHILOSOPHER

CHRISTIAN MAN

Sovereign Grace Union, England, 1969

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PREFACE

Nothing would have displeased the Reformer of Geneva more than if one were to write: Another publication inspired by John Calvin! If ever a man realized that he could be no true master, unless he had been instructed by the Master, it was Calvin. He indeed inspires and teaches because of his love for Him Who is the Truth.

There is a striking congeniality between the great Reformer and the author of this brochure: both are called of God; both accept the authority of Holy Scripture humbly and unreservedly; both are endowed with the keen, analytical mind of a lawyer; and both possess the ability to present what they have assimilated lucidly, coherently and very readably.

I am particularly happy that Professor Lee has undertaken this study in an age of confusion. Calvin, the well-balanced Christian philosopher and theologian, had a clear insight into the principles underlying the sciences. He was the first to formulate the doctrine of common grace and its bearing on science; but he also emphasized the significance of special grace and revelation for scientific investigation. I need only refer to Inst. I: VI: 1, where he compares Scripture to glasses, enabling man to read the book of depraved reality, that is, the object of the non-theological sciences, so as to advance a theocentric philosophy of life.

May this booklet, written in the light of the Word of God, by His grace enlighten intellects and set hearts ablaze to the glory of God !

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I. Foreword to Calvin

The following presentation makes no attempt to be original. In an age when so many professing Christians either revile or revere "Calvinism", yet so few have ever even read Calvin, my only concern here has been to present the unadulterated views of that most typical of all Calvinists—John Calvin himself. And from this presentation it will, I think, be established that "Calvinism" is no human innovation devised by Calvin or his followers, but that it is nothing other than the consistent application of Biblical and historical Christianity itself.

With a view to the academic training of my philosophy students, I have restricted this material to Calvin's doctrine of the sciences, which merely embraces his principles of theology, philosophy and the various special sciences. Anyone interested in the specific details of his theology, will be blessed by meticulously studying his Institutes in particular.

In my quotations from Calvin, I have used Beveridge's translation of the Institutes and the Calvin Translation Society's version of his Commentaries, my only changes being the capitalization of the first letters of pronouns referring to the Deity (thus: His, Him, Who, etc.), which I always do for reasons of clarity and especially of piety. The translations of all other quotations cited are my own, including those from the work of Prof. Dr. F. J. M. Potgieter, my beloved and esteemed doctoral promoter, whose excellent Die Verhouding tussen die Teologie en die Filosofie by Calvyn (The Relationship between Calvin's Theology and Philosophy—Amsterdam, 1939) has been invaluable in writing this essay. And I am also greatly indebted to that other great Calvin scholar, the late Dr. E. A. Venter, Professor of Philosophy at the University of the Orange Free State in South Africa, with whom I corresponded about Calvinism and who sent me much usable material for this booklet just prior to his sudden death.

May Almighty God abundantly grant that Christians in general and professing Calvinists in particular will always seek to live up to the motto and favourite text of John Calvin himself—"The fear of the Lord is the beginning of knowledge" (Proverbs 1 : 7).

FRANCIS NIGEL LEE

Il. Introduction to Calvin on the Sciences

Born into the Roman Catholic Church in 1509 in Noyon in Picardy, from his fourteenth year onwards, the Frenchman, John Calvin, received a thorough education in French, Latin, Hebrew, Greek, law, philosophy and theology at the feet of some of the best West-European professors of his day. Influenced by Lutheranism, he was forced to flee from Paris and its University after his friend, Nicolas Cop, incurred the wrath of the Church of Rome by delivering his famous 1533 Rectoral Oration which, according to Calvin's successor, Beza, and others, had been written by Calvin himself, and which, significantly, had dealt with the subject of Christian philosophy.

Settling in Switzerland in 1535, Calvin completed his "Institutes of the Christian Religion" in the following year. Most of the rest of his life was spent in Geneva, where he not only preached, promoted missions and wrote numerous Bible commentaries, but where he also glorified God by simultaneously playing a leading role in other spheres of human endeavour outside of the institutional church, such as: in politics, where he pressed for better health laws in the city; in social life, where he crusaded against cardgames and dancing; in economic life, where he promoted the expansion of employment opportunities in industry; and in education, where he established the Genevan Academy in 1559 with thoroughly Christian faculties of law, medicine, theology, philosophy and the humanities. In this way Calvin broke the Roman Church's ageold stranglehold over all the non-ecclesiastical fields of human endeavour and led them towards Christian maturity. Truly, Calvin was determined to put the idea of Christian philosophy into practice—to try to understand and develop every atom of the created universe to the glory of the Triune God.

Although much influenced especially by the early Biblebelieving Christian thinkers in general and by Augustine in particular, Calvin's ideas are basically formulated from Holy Scripture alone and from Holy Scripture in its entirety—sola Scriptura, tota Scriptura! Living during a fast-moving age when available time both for theological and philosophical reflection was severely limited, Calvin, although offering us considerable philosophical and especially theological material, nowhere gives us a comprehensive systematic philosophy (or even a complete systematic theology). Instead, he addresses his writings primarily to the simple believers and chiefly for pastoral reasons. Accordingly, his works are characterized more by a common sense style than they are by a technical and scientific articulation—even though his exegesis of many Bible texts evidences an exacting knowledge and scientific frame of mind, and even though his commentary on the great philosopher Seneca's "De Clementia" contains quotations from literally scores of early thinkers such as Cicero, Horace, Ovid, Virgil, Aristotle, Plato, Plutarch, Pliny, Arian, Strabo, Tacitus, Xenophon and Herodotus, etc., etc. (Cf. Potgieter, p. 173).

Calvin nowhere gives us a definition of "science". It is clear, however, that to Calvin the term "science" covers systematized knowledge not only of the natural sciences, but also of the cultural sciences or humanities as well, and even of the sciences of theology and philosophy. For Calvin describes both the traditional mediaeval trivium (grammar, logic and rhetoric) as well as the quadrivium (arithmetic, geometry, astronomy and music) as "scientiae" (Cf. Potgieter, p. 191).

These "scientiae" are all designed to glorify God, for "in attestation of His wondrous wisdom, both the heavens and the earth present us with innumerable proofs . . proofs which astronomy, medicine and all the natural sciences are designed to illustrate" (Inst. I: 5: 2). "It must be acknowledged, therefore, that in each of the works of God, and more especially in the whole of them taken together, the divine perfections are delineated as in a picture, and the whole human race thereby invited and allured to acquire the knowledge of God, and in consequence of this knowledge, true and complete felicity" (Inst. I: 5: 10).

Calvin most earnestly warns those of us who are Christians, that as "the Lord has been pleased to assist us by the work and ministry of the ungodly in physics, dialectics, mathematics, and other similar sciences, let us avail ourselves of it lest, by neglecting the gifts of God spontaneously offered to us, we be justly punished for our sloth" (Inst. Il: 2: 16). And therefore, he enjoins: "In reading profane authors, the, admirable light of truth displayed in them should remind us, that the human mind, however much fallen and perverted from its original integrity, is still adorned and invested with admirable gifts from its Creator. If we reflect that the Spirit of God is the only fountain of truth, we will be careful, as we would avoid offering insult to Him, not to reject or condemn truth wherever it appears. In despising the gifts, we insult the Giver" (Inst. Il: 2: 15). For "natural perspicacity is a gift of God, and the liberal arts, and all the sciences by which wisdom is acquired, are gifts of God!" (Comm. on 1 Cor. 3: 19).

Calvin not merely has great respect for the value of the special sciences such as astronomy, medicine and art, but he also has even more esteem for the science of philosophy, the science of all the sciences, the general science which surveys all the special sciences. Writing to Bucer, he asserts that "it is also sinful to pass bywithderision the gifts of God, and to attribute to man that which is peculiar to God Himself is even more godless. Philosophy is therefore an excellent gift of God, and learned men in every century who zealously devoted themselves thereto were influenced by God Himself, so that they would give to the world the information of the knowledge of the truth" (Cf. Potgieter, p. 192). And as "some grains of piety were always scattered throughout the whole world", one must conclude that "God sowed, by the hand of philosophers and profane writers, the excellent sentiments which are to be found in their writings" (Comm. on John 4: 36).

In the light of these profound views, then, it is not surprising that Calvin strongly opposes all anti-intellectuals who, while professing to be "spiritual" Christians, deprecate the value of the sciences they call "secular". These anti-intellectuals "furiously declaim against all the liberal arts and sciences, as if their only use were to puff men up, and were not of the greatest advantage as helps in common life". Calvin rejects their views with holy disgust, and does not hesitate to label them as "fanatics" (Comm. on 1 Cor. 8: 1b).

Ill. Calvin on Man's Scienüfic Task

If theology is the lofty science of God's Self-revelation, and if philosophy is the general science which systematizes all the special sciences, and if the special sciences each separately study a part of God's creation, then their legitimacy and necessity are rooted in the essence and purpose of man himself as the very crown of creation.

For, according to Calvin, "man is, among other creatures, a certain pre-eminent specimen of Divine wisdom, justice, and goodness, so that he is deservedly called by the ancients mikrokosmos, 'a world in miniature' And when the Triune God made the first human beings and appointed them to "have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth" (Gen. 1: 26), then, according to Calvin, "He decreed to honour man, namely, that he should have authority over all living creatures. He appointed man, it is true, lord of the world", and "this authority was not given to Adam only, but to all his posterity as well as to him" (Comm. on Gen. 1: 26).

Now men "were created to employ themselves in some work", and so "God ordained that man should be exercised in the culture of the ground". "Moreover", enjoins Calvin, "that this economy, and this diligence, with respect to those good things which God has given us to enjoy, may flourish among us, let every one regard himself as the steward of God in all things which he possesses. Then he will neither conduct himself dissolutely, nor corrupt by abuse those things which God requires to be preserved" (Comm. on Gen. 1: 28).

When man fell into sin, he became totally depraved and alienated from God. "Pain" now stands in antithesis to "the pleasant labour in which Adam had previously employed himself", in which "there had been sweet delight". But henceforth, under sin, "servile work is enjoined upon him, as if he were condemned to the mines. And yet the asperity of this punishment also is mitigated by the clemency of God, because something of enjoyment is blended with the labours of men", in that "God mercifully softens the exile of Adam, by still providing for him a remaining home on earth, and by assigning to him a livelihood from the culture—although the laborious culture—of the ground" (Comm. on Gen. 3: 17, 23).

This mitigation of the sinner's punishment was only possible on the basis of the ultimate fulfilment of the promise contained in the protevangel or first Gospel promise gven to man right after the fall. For when He promises that the Seed of the woman and the last Adam (or "second man") will crush the serpent's head, it is clear that "God leaves some remains of dominion to man", and even in Eden "He promises, under the reign of Christ, the complete restoration of a sound and well-constituted nature" (Comm. on Gen. 3: 14-15).

Now "the divine magna charta for all true scientific and material progress" (as even the New Scofield Reference Bible describes Gen. 1: 28) was in principle repeated after the fall and even after the great flood, which "magna charta", as Calvin comments, "has chiefly respect to the restoration of the world, in order that the sovereignty over the rest of the animals might remain with men. And although, after the fall of man, the beasts were endued with new ferocity, yet some remains of that dominion over them, which God had conferred on him in the beginning, were still left. He now also promises that the same dominion should continue . . . Therefore, the fact that oxen become accustomed to bear the yoke; that the wildness of horses is so subdued as to cause them to carry a rider; that they receive the pack-saddle to bear burdens; that cows give milk, and suffer themselves to be milked; that sheep are mute under the hand of the shearer; all these facts are the result of this dominion, which, although greatly diminished, is nevertheless not entirely abolished?' (Comm. on Gen. 9: 2).

This magna charta theme as to man's philosophical task is taken up again in Psalm 8, where, when David asks "what is man, that Thou art mindful of him?" the Spirit of God infallibly declares through him as he answers his own question: "Thou madest him to have dominion over the works of Thy hands; Thou hast put all things under his feet: All sheep and oxen, yea, and the beasts of the field; the fowl of the air, and the fish of the sea, and whatsoever passeth through the paths of the seas." Here Calvin remarks that "the Prophet, it is true, especially mentions 'fowls of heaven', 'fishes of the sea', and 'beasts of the field', because this kind of dominion is visible, and is more apparent to the eye; but at the same time the general statement reaches much farther—to the heavens and the earth, and everything that they contain" (Comm. on I Cor. 15: 27, referring back to Ps. 8).

However, Calvin also remarks that although "what is here said

by David will not be perfectly accomplished until death be abolished", nevertheless "from the dominion over all things which God has conferred upon men, it is evident how great is the love which He has borne towards them", and how "He has destined all the riches, both of heaven and earth, for their use", and that "although, by the fall of man, that happy condition [Gen. 1: 260 has been almost entirely ruined, yet there is still in him some remains of the liberality which God then displayed towards him, which should suffice to fill us with admiration" (Comm. on Ps. 8: 8).

Now from Hebrews 2: 6-8, where the magna charta is repeated and applied to Christ the Second Adam, "it is evident that God's bounty belongs not to us until this right lost in Adam be restored by Christ . . so that we may enjoy the whole world, together with the favour of God'?. Now "the dominion mentioned in the Psalm [Ps. 8] was lost to us in Adam, and . . on this account it must again be restored as a donation. Now the restoration begins with Christ as the Head. There is, then, no doubt but that we are to look to Him whenever the dominion of man over all creatures is spoken of . It hence now appears that here the 'world to come' is not that which we hope for after the resurrection, but that which began at the beginning of Christ's kingdom; but it will no doubt have its full accomplishment in our final redemption" (Comm. on Heb. 2: 5).

Whereas "out[side] of Christ all things were disordered", at least in principle "through Him they have been restored to order", for, by gathering "both angels and men . . . into His own body, Christ hath united them to God the Father, and established actual harmony between heaven and earth", so that as "Head of the Church", He is now invested with "the entire command and government of the universe" (Comm. on Eph. 1: 10, 22). Hence "the Scripture testifies, that Christ now holds dominion over the heaven and the earth in the room of the Father" (Comm. on I Cor. 15: 27). For although "our salvation is still the object of hope, yet in Christ we already possess a blessed immortality and glory", which "illustrates the change which has taken place in our condition, when we were led from Adam to Christ. It is as if we had been brought from the deepest hell to heaven itself" (Comm. on Eph. 2: 6).

Yet all this is only in principle. For eschatologically "the end has not yet come, when all things will be put into a right and tranquil state, because Christ has not yet subdued all His enemies. Now that must [still] be brought about, because the Father has placed Him at the right hand with this understanding, that He is not to resign the authority that He has received, until they have been subdued under His power" (Comm. on I Cor. 15: 25). Indeed, "His enemies are not subdued till the last day" (Comm. on Heb. 2: 8).

At that future time, "all creatures shall be renewed, . beasts as well as plants and metals", for "there is no element and no part of the world which, being touched, as it were, with a sense of its present misery, does not intensely hope for a resurrection"; for "all creatures, seized with great anxiety and held in suspense with great desire, look for that day which shall openly exhibit the glory of the children of (Comm. on Rom. 8: 190. And "God is constantly urging nature forward to its goal and perfection" (Inst. 111: 25: 11).

According to Calvin, then, man's scientific and philosophical task was given him in Eden, very greatly impeded by the fall, reenjoined to Noah and David, principally fulfilled in Christ (Who was promised right after the fall and in Whom the believers have been engrafted), and will be perfected eschatologically only after the end of this present and still sinful dispensation. Nevertheless, God calls His children even to the philosophical and scientific task right here and now, for "there is no part of our life, and no action so minute, that it ought not to be directed to the glory of God" (Comm. on I Cor. 10: 31).

1. Calvin on Sin and the Sciences

In addition to Calvin's warm promotion of the scientific task as such, we must not fail to notice his strong warnings against the perverting power of sin—even in the Christian's pursuit of the sciences. For "no science is truly and justly so called but that which instructs us in the confidence and fear of God; that is, in godliness" (Comm. on I Tim. 6: 20).

As a result of "the fall of Adam, all mankind fell from their primordial state of integity, for by this the image of God was almost entirely effaced from us, and we were also divested of those distinguishing gifts, by which we could have been, as it were, elevated to the condition of demigods; in short, from a state of excellence, we were reduced to a condition of wretched and shameful destitution. In consequence of this corruption, the liberty of God . . . ceased, so far, at least, as that it does not at all appear in the brilliancy and splendour in which it was manifested when man was in his unfallen state. True, it is not altogether extinguished; but alas! how small a portion of it remains amidst the miserable overthrow and ruins of the fall" (Comm. on Ps. 8). In fact, the results of sin are of cosmic proportions, for "the condemnation of mankind is imprinted on the heavens, and on the earth, and on all creatures" (Comm. on Rom. 8: 19).

Consequently, if "the liberal arts and all the sciences . . . set themselves in opposition to Christ, they must be looked upon as dangerous pests and, if they strive to accomplish anything of themselves, as the worst of all hindrances" (Comm. on I Cor. 4: 19). Even these "choice gifts of God—expertness of mind, acuteness of judgment, liberal sciences and acquaintance with languages—are in a manner profaned in every instance in which they fall to the lot of wicked men", because "the vanity of the wisdom of this world rests in the mere elements of the world, and does not reach heaven" (Comm. on I Cor. 1: 20), for "vain is that man in whom the knowledge of God is not, what knowledge soever he have besides. Yea, the sciences and faculties themselves which in themselves are good, yet are made but vain in us, if they want this foundation" (Comm. on Rom. 3: 11).

1. Calvin on Common Grace and the Sciences

Even though sin has besmirched the cosmos, God has not surrendered His universe to the devil, and neither does He cease to care for it nor to reveal Himself to man through it by means of His common revelation. For "in the order of nature there is a certain and evident manifestation of God, in that the earth is watered with rain; in that the heat of the sun doth comfort it, [and] in that there cometh such abundance of fruit out of the same yearly, it is thereby gathered for a surety, that there is some God Who governeth all things" (Comm. on Acts 14: 17). Indeed, "the demonstration of God, whereby He maketh His glory apparent in His creatures, in respect of the brightness thereof, is clear enough" (Comm. on Rom. 1: 20).

All sinful men are enabled to understand something of God's common revelation through this sin-stained universe, by means of His common grace which they all receive, albeit in different degrees. Hence the development of the sciences is not the monopoly of Christians alone, for by God's common grace (operating through the primordial revelation in Eden, through later contact with the covenant people, and/or through God's general revelation in nature and conscience) even unbelievers are enabled to obtain some true insights into scientific truth, for "in regard to the constitution of this present life, no man is devoid of the light of reason" (Inst. Il: 2: 13), and "in every age there have been some who, under the guidance of nature, were all their lives devoted to virtue", so that "we ought to consider that, notwithstanding the corruption of our nature, there is some room for divine grace, such grace as, without purifying it, may lay it under internal restraint" (Inst. Il: 3: 3).

Calvin correctly points out that "in the sad disorder which followed the fall of Adam, the whole of the world would have instantly been deranged, and all its parts would have had not some hidden strength supported them" (Comm. on Rom. 8: 19). This "hidden strength" supporting the world was obviously the Second Person of the Triune God, the pre-incarnate Christ, "the first-born of every creature'? or "the substance or foundation of all things" (Comm. on Col. 1: 15). He it was Who, as the promised Seed of the woman, sustained and in principle rejuvenated the cosmos even right after the fall and for ever since (Gen. 3: 15f.; Rom. 16: 20), for "the Logos of God was not only the Source of life to all creatures, so that those which were not began to be, but . . 

His life-giving power causes them to remain in their condition; for were it not that His continued inspiration gives vigour to the world, everything that lives would immediately decay, or be reduced to nothing" (Comm. on John 1: 4).

Christ it is Who is "the light of the whole world; . out[side] of Christ there is not even a spark of true light . . the fountain of all knowledge and wisdom is hidden in Him" (Comm. on John 8: 12), for "the light which still dwells in corrupt nature consists chiefly of two parts; for, first, all men naturally possess some seed of religion; and secondly, the distinction between good and evil is engraven on their consciences . . man especially was endued with an extraordinary gift of understanding; and though by his revolt he lost the light of understanding, yet he still sees and understands, so that what he naturally possesses from the grace of the Son of God is not entirely destroyed" (Comm. on John 1 : 5). "In this sense it is said (John 1: 5), that 'the light shineth in darkness, and the darkness comprehended it not'; these words clearly expressing that in the perverted and degenerate nature of man there are still some sparks which show that he is a rational animal, and differs from the brutes, inasmuch as he is endued with intelligence" (Inst. 11: 2: 12).

Christ, then, is the root of common grace. Had it not been for His immanence in the universe right from its very creation onwards, and had it not been for His direct intervention (and His promise to heal the universe, Gen. 3: 15f., cf. Rom. 8: 19f.) right after the fall, man and his cosmos would right then have disintegrated, and even Cain and the Cainites would never have been born.

Now in respect of these very Cainites, Calvin has much to say on the subject of common grace. He stoutly insists that "with the evils which proceeded from the family of Cain, some good has been blended. For the invention of arts, and of other things which serve to the common use and convenience of life, is a gift of God by no means to be despised, and a faculty worthy of commendation. It is truly wonderful, that this race, which had most deeply fallen from integrity, should have excelled the rest of the posterity of Adam in rare endowments. I, however, understand Moses to have spoken expressly concerning those arts, as having been invented in the family of Cain, for the purpose of showing that he was not so accursed by the Lord but that He would still scatter some excellent gifts among his posterity . Moses, however, expressly celebrates the remaining benediction of God on that race, which otherwise would have been deemed void and barren of all good. Let us then know, that the sons of Cain, though deprived of the Spirit of regeneration, were yet endued with gifts of no despicable kind; just as the experience of all ages teaches us how widely the rays of divine light have shone on unbelieving nations, for the benefit of the present life; and we see, at the present time, that the excellent gifts of the Spirit are diffused through the whole human race. Moreover, the liberal arts and sciences have descended to us from the heathen. We are, indeed, compelled to acknowledge that we have received astronomy, and the others parts of philosophy, medicine, and the order of civil government, from them. Nor is it to be doubted, that God has thus liberally enriched them with excellent favours that their impiety might have the less excuse" (Comm. on Gen. 4: 20).

Calvin develops his doctrine of common grace in relation to the various sciences particularly in the second chapter of Book Il of his Institutes. There he teaches, amongst other things, that "to charge the [fallen] intellect with perpetual blindness so as to leave it no intelligence of any description whatever, is repugnant not only to the Word of God, but to common experience", for "the human mind . . is naturally influenced by love of truth" (Il: 2: 12), especially with reference to "matters of policy and economy, [and] all mechanical arts and liberal studies", with the result that "we see that the minds of all men have impressions of civil order and honesty" (11: 2: 13).

It is, however, in the "manual and liberal arts?' in which "the full force of human acuteness is displayed"; and although "all are not equally able to learn all the arts, . . there is scarcely an individual who does not display intelligence in some particular art", which fact "should lead every individual for himself to recognize it as a special gift of God" (Il: 2: 14).

It must not be forgotten, then, that "there are most excellent blessings which the Divine Spirit dispenses to whom He will for the common benefit of mankind", for indeed, God "fills, moves and invigorates all things by the virtue of the Spirit" (Il: 2: 16). In the light of this profound truth, Calvin rhetorically asks: "How then, can we deny that truth must have beamed on those ancient lawgivers who arranged civil order and discipline with so much equity? Shall we say that the philosophers, in their exquisite researches and skilful description of nature, were blind? Shall we deny the possession of intellect to those who drew up rules for discourse, and taught us to speak in accordance with reason? Shall we say that those who, by the cultivation of the medical art, expended their industry in our behalf, were only raving? What shall we say of the mathematical sciences? Shall we deem them to be the dreams of madmen? Nay, we cannot read the writings of the ancients on these subjects without the highest admiration; an admiration which their excellence will not allow us to withhold. But shall we deem anything to be noble and praiseworthy, without tracing it to the hand of God? Far from us be such ingratitude; an ingratitude not chargeable even on heathen poets, who acknowledged that philosophy and laws, and all useful arts, were inventions of the gods. Therefore, since it is manifest that men whom the Scriptures term 'natural', are so acute and clear-sighted in the investigation of inferior things, their example should teach us how many gifts the Lord has left in possession of human nature, nothwithstanding of its having been despoiled of the true good" (Il: 2: 15).

So, therefore, concludes Calvin, "let us not forget that . . the knowledge of those things which are of the highest excellence in human life is said to be communicated to us by the Spirit" (Il: 2: 16). For "in this diversity we can trace some remains of the divine image distinguishing the whole human race from other creatures" (11: 2: 17).

VL Calvin on the Necesity of Special Grace as the only True

Basis for Science

In spite of all his great appreciation of the value of God's common grace extended to unbelieving scientists and philosophers, however, Calvin does not for one moment forget that special grace (and its resultant faith in Christ) is not only indispensable to salvation, but that it is also essential for the pursuit of true science. For all "the liberal arts and all the sciences must be looked upon as empty and worthless, until they have been entirely subjected to the Word and the Spirit of God" (Comm. on I Cor. 4: 19). Indeed, "without Christ, sciences in every department are vain, and the man who knows not God is vain, though he should be conversant with every branch of learning" (Comm. on I Cor. 1: 20).

In order to pursue science in a true\* and Christian way, the scientist must be born again, be of high intelligence, and submit to the Word of God in general and the "foolishness of the cross" in particular.

Firstly, the true scientist must be born again. This is essential, because, as Calvin writes, "where Christ is not known, men are destitute of true wisdom, even though they have received the highest education in every branch of learning; for all their knowledge is useless till they truly 'know God' " (Comm. on Isa. 33: 6).

But secondly—because it is not sufficient for the true scientist only to be born again—he must also be a man of high intelligence, for in respect of "astronomy, medicine, and all the natural sciences, those who are more or less intimately acquainted with those liberal studies are thereby assisted and enabled to obtain a deeper insight into the secret workings of divine wisdom . To investigate the motions of the heavenly bodies, to determine their positions, measure their distances, and ascertain their properties, demands skill, and a more careful examination; and where these are so employed as the providence of God is thereby more fully unfolded, so it is reasonable to suppose that the mind takes a loftier

\* Only God's knowledge is absolutely true, for man's total depravity as a result of the fall has rendered all human knowledge only relatively true. Nevertheless, the human knowledge of regenerated scientists, though progressive in its expansiveness, is adequately correct and in principle true and reliable.

flight, and obtains a brighter view of His glory The same is true in regard to the structure of the human frame. To determine the connection of its parts, its symmetry and beauty, with the skill of a Galen (Lib. De Usu Partium), requires singular acuteness" (Inst. 1: 5: 2).

Yet thirdly, however intelligent the true scientist may be, he must needs submit to the Word of God in general and the "foolishness of the cross" in particular. And so, believed Calvin, "we must therefore not begin with the elements of this world, but with the Gospel which Christ Alone places before us with His cross— and we must be guided thereby. . . it is truly vain to philosophize about the origin of the world unless those humbled by the preaching of the Gospel have learned to submit their whole intellectual insight to the foolishness of the cross (as Paul expresses it in I Cor. 1: 21)" (Argumentum in Gen., Opera XXIII, col. 9).

The aim of true science, felt Calvin, must be to search for the truth, for "we see that there has been implanted in the human mind a certain desire of investigating the truth, to which it never would aspire unless some relish for truth antecedently existed" (Inst. Il: 2: 12). Yet although even the non-Christian aspires to the truth, he is incapable of really understanding it. This is because the truth is only to be found in one's recognition of Jesus Christ, Who Alone is "The Truth" (John 14: 6) and "The Wisdom of God" (I Cor. 1: 24). Regeneration by God's special grace is therefore absolutely necessary for the pursuit of true science.

VII. Calvin on Theological Science

Theology, the scientific study of the revealed truths of God Himself, was very helpful indeed in the development of Calvin's life and world view. Yet even theology must not be permitted to go astray. Theology must not be scholastic, unintellectual, ecclesiocentric, speculative, mystical or literalistic, but it must be thoroughly theocentric if it is to answer to its true purpose.

Theology must not be scholastic: it must not be cast in the mould of the mediaeval Romish theologians who sought to synthesize the Bible with heathen Greek philosophy. "The Papists"s writes Calvin, "have not been afraid to give so great authority to Aristotle, that the apostles and prophets were silent in their schools rather than he" (Comm. on Acts 17: 28). And the great Genevan openly deprecated "that diabolical art of disputing which has obtained the appellation of Scholastic Theology" (Comm. on I Tim. 1: 4). Furthermore, commenting on Titus 1: 10, Calvin pointed out that the word "mataislogia (vain talking) is contrasted with useful and solid doctrine, and therefore includes all trivial and frivolous speculations, which contain nothing but empty bombast, because they contribute nothing to piety and the fear of God. And such is the scholastic theology that is found, in the present day, in Popery".

Again, theology should not be unintellectual. For "the intelligence and reason which we have is as it were a spark of the Spirit of God" and "even a mark of His image and likeness which is given to us, when He Who calls us reasonable creatures made us" (Serm. on Il Sam. 1). Commenting on Romans 12: 2a, Calvin asks us to "note here what kind of innovations is required of us, namely, not of the flesh only, as the [Romish] Sorbonnites which take this word for the inferior part of the soul; but [also] of the mind, which is the most excellent part of us, and whereunto the philosophers attribute the principality. For they call it hëmemonikon, that is, the prince or principal spirit, and reason is feigned to be a very wise queen". God's ways are not contrary to reason as such, but only to fallen (rationalistically) absolutized reason, for "if with sedate and quiet minds we were disposed to learn, the issue would at length make it manifest that the counsel of God was in accordance with the highest reason" (Inst. I: 17: 1).

Theology should not be ecclesiocentric: not the Church or ecclesia, but the Triune God should occupy the central position in all religious thought. "A most pernicious error has very generally prevailed", writes Calvin, "namely that Scripture is of importance only in so far as conceded to it by the suffrage of the Church; as if the eternal and inviolable truth of God could depend on the will of men . Nothing, therefore, can be more absurd than the fiction, that the power of judging Scripture is in the Church, and that on her nod its certainty depends. When the Church receives it, and gives it the stamp of her authority, she does not make that authentic which was otherwise doubtful or controverted, but, acknowledging it as the truth of God, she, as in duty bound, shows her reverence by an unhesitating assent. As to the question, 'How shall we be persuaded that it came from God without recurring to a decree of the Church?' it is just the same as if it were asked, 'How shall we learn to distinguish light from darkness, white from black, sweet from bitter??

"Scripture bears upon the face of it as clear evidence of its truth, as white and black do of their colour, sweet and bitter of their taste" (Inst. 1: 7: 1-2).

Theology should not be speculative. Declares Calvin: "the godly with one consent will . . avoid perplexing questions which they feel to be a hindrance in their way, and thus keep within the prescribed limits. In regard to myself, I not only individually refrain from a superfluous investigation of useless matters, but also think myself bound to take care that I do not encourage the levity of others by answering them. Men puffed up with vain science are often inquiring how great the difference will be between prophets and apostles, and again, between apostles and martyrs; by how many degrees virgins will surpass those who are married; in short, they leave not a corner of heaven untouched by their speculation But as such alluring speculations instantly captivate the unwary, who are afterwards led farther into the labyrinth, until at length, every one becoming pleased with his own view, there is no limit to disputation, the best and shortest course for us will be to rest contented with seeing through a glass darkly until we shall see face to face" (Inst. 111: 25: 11).

And neither should theology be mystical: it should not irrationally and unscripturally build on the mystical experiences of man rather than on the sure foundation of the written Word of God. "For what apparent resemblance is there between the Pope and the \*Anabaptists?" writes Calvin. "And yet—that you may see that Satan never alters his appearance nimbly enough not to betray himself to some extent—the most important weapon with which we resist both is one and the same. For when they excessively rave about the Spirit, the meaning is certainly not anything else than that they, in suppressing and burying the Word of God, make room for their own falsehood" (Responsio ad Sadoleti Epist., opera V, col. 393).

Elsewhere Calvin asks us to observe all things which Jesus promised that the Spirit will teach. The Spirit will suggest or bring to your remembrance, said Christ, "All that I have said". Here it follows, that "the Spirit will not be a builder of new revelations. By this single word we may refute all the inventions which Satan has brought into the Church from the beginning, under the pretence of the Spirit. Mahomet and the Pope agree in holding this as a principle of their religion, that Scripture does not contain a perfection of doctrine, but that something loftier has been revealed by the Spirit. From the same point the Anabaptists and Libertines, in our own time, have drawn their absurd notions. But the spirit that introduces any doctrine or invention apart from the Gospel is a deceiving spirit, and not the Spirit of Christ" (Comm. on John 14: 25).

There is, however, a place in theology for a healthy mystique, as opposed to false and absolutized mysticism. "For frequently in our prayers, if we are stirred as we should be, we will be as beggars or as the deaf, and speech will fail us, so that when we wish to pray, we do not know where to begin. And then, when we have received the grace of God as we should have received it, we will then think: And what will I say and ask? Then there is an endless number of benefits which I have received and which my senses cannot contain; but Thou dost know Lord, what I am, what I want to say and what I am striving after. Then, when we have reached that

\* By "Anabaptists" Calvin did not, of course, mean those true Christians who reject the practice of infant baptism for what they consider to be Scriptural reasons. The fact that Calvin himself married a godly Baptist woman abundantly proves that he clearly distinguished between Biblebelieving "Baptists" (in our modern sense of the word) and Bible-denying "Anabaptists", by which latter he meant those sixteenth century wildcat sects which sought to overthrow all civil government, to practise polygamy, and (incidentally ! ) to insist on a second baptism.

point, we glorify God more than we do if we were to have fine rhetoric and beautiful words" (Serm. Il on Sam. 1). And Calvin elsewhere remarks that "the knowledge of God which we are invited to cultivate is not that which, resting satisfied with empty speculation, only flutters in the brain, but a knowledge which will prove substantial and fruitful wherever it is duly perceived, and rooted in the heart . . And, as Augustine expresses it (in Psalm cxliv), since we are unable to comprehend Him, and are, as it were, overpowered by His greatness, our proper course is to contemplate His works, and so refresh ourselves with His goodness" (Inst. I: 5: 9).

Again, theology must not be literalistic. While theology must be Biblical, it must not worship certain Bible texts rather than the God of the Bible Himself. The Bible is infallible because it has been in-breathed by the infallible God. Any literalistic interpretation of the infallible Bible in which the infallible God of the Bible is not absolutely central, is the product of an unsound and an unspiritual exegesis. For Christ reproved the Jews "for their foolish boasting, because while they acknowledged that they had life in the Scriptures, they perceived nothing in them but the dead letter. For He does not absolutely blame them for seeking life in the Scriptures, since they were given to us for that end and use, but because the Jews thought that the Scriptures gave them life, while they were widely opposed to its natural meaning, and—what is worse—while they quenched the light of life which was contained in them; for how can the Law bestow life without Christ, Who Alone gives life to it? . we ought to read the Scriptures with the express design of finding Christ in them" (Comm. on John 5: 39).

Calvin's theology is never an individualistically selected collection of literalistically interpreted texts extracted from the infallible Scriptures and divorced from their contexts, but it is always based on a sound exegesis of the whole Bible in the original languages, which exegesis does not forget to reckon with the interpretation of the true Church, with the history of Christian doctrine, and with the history of theology. This is apparent from Calvin's plentiful appeals to the great Bible-believing Church Fathers for the support of his exegesis of Scripture—for example, his appeals to the writings of Ambrose, Chrysostom, Gregory the Great, Hilary, Jerome and especially Augustine.

But first and last, theology should be solidly theocentric, felt

Calvin. Not only is Calvin's theology characterized by the famous points of "TULIP" (Total depravity, Unconditional election, Limited atonement, Irresistible grace and Perseverance of the saints), nor merely by the glorious doctrine of the covenant of grace and its sacraments, nor even by its political implications (Inst. IV, q.v.), but pre-eminently by its insistence on the total sovereignty of God in all spheres of life and over every inch of the universe. Theology should above all assert the aseitas or independence or sovereignty and the "Eternal Wisdom of God, Who is the fountain of light and life" (Comm. on Matt. 28: 19).

The SUBJECT or pursuer of theological science should be a person who is both spiritually and academically equipped. Spiritually, "whatsoever a man knows and understands is mere vanity, if it is not grounded in true wisdom; . . a knowledge of all the sciences is mere smoke, where the heavenly science of Christ is wanting; and man, with all his acuteness, is just as stupid for obtaining of himself a knowledge of the mysteries of God, as an ass is unqualified for understanding musical harmonies" (Comm. on 1 Cor. 1: 20).

But the theologian or interpreter of Scripture must also be academically qualified. "Fanatics object that 'After the coming of Christ everyone is to teach his neighbour; away, then, with the external ministry, that a place may be given to the internal inspiration of God!' But no small part of our wisdom is a teachable spirit. And what is the way of making progress if we desire to be disciples of Christ? This is shown to us by Paul when he says that Christ gave pastors and teachers (Ephesians iv, 11). It hence appears that nothing less was thought of by the mind of the prophet than to rob the Church of such a benefit" (Comm. on Heb. 8: 11). Indeed, continues Calvin, "I acknowledge that whereas Scripture did not come through the private will of men, it is accordingly not fitting to interpret it according to the private view of anyone (Il Pet. 1: 21). Yet, if there is doubt about a dark place, as to the meaning to be adopted, there is even no other better way of penetrating through to the true meaning, than when devout theologians jointly institute an investigation into a religious discussion" (Acta Synodi Trid., cum Antidoto).

The OBJECT investigated by theology is God's Self-revelation in nature and especially in Scripture. "Since the perfection of blessedness consists in the knowledge of God, He has been pleased, in order that none might be excluded from the means of obtaining felicity, . to manifest His perfections in the whole structure of

the universe" (Inst. I: 5: 1). Yet "the unerring standard both of thinking and speaking must be derived from the Scriptures; by it all the thoughts of our minds, and the words of our mouths, should be tested" (Inst. I: 13: 3).

Calvin's theological science, then, is not scholastic, unintellectual, ecclesiocentric, speculative, mystical and literalistic, but theocentric or God-centred—of Him and through Him, and to Him, to Whom be honour and glory. Amen! (Cf. Rom. 11: 36).

VIM. Calvin on the  of Philosophy and the Special Sciences

Both the principles and the content of theological science, then, are to be derived directly and almost entirely from the Scriptures. However, in respect of the non-theological sciences (the general science of philosophy and all the special sciences), the position is different in that Scripture is hardly more than a guideline in the pursuit of such sciences, which derive their basic content from nature and/or culture rather than from Scripture. As Calvin remarks of the Scriptural references to astronomical phenomena: "The Holy Spirit had no intention to teach astronomy [here]: and, in proposing instruction meant to be common to the simplest and most uneducated persons, He made use by Moses and other Prophets of popular language" (Comm. on Ps. 136: 7). "He who would learn astronomy, and other recondite arts, let him go elsewhere" (Comm. on Gen. 1: 6). "Moses wrote in a popular style things which, without instruction, all ordinary persons, endued with common sense, are able to understand; but astronomers investigate with great labour whatever the sagacity of the human mind can comprehend . If the astronomer inquires respecting the actual dimensions of the stars [or heavenly bodies—N.L.], he will find the moon to be less than Saturn; but this is something abstruse, for to the sight it appears differently. Moses, therefore, rather adopts his discourse to common usage" (Comm. on Gen. 1: 16).

Although philosophy and the special sciences as such, then, do not derive their basic content from Scripture, they are nowhere condemned by Calvin, provided they are pursued in accordance with Scriptural principles. But ungodly \*philosophasters and scientivists, who pervert philosophy and the sciences, are strongly

\* By "philosophasters" is meant those philosophers who absolutize or distort or exaggerate the value of philosophy and ignore the value of nonphilosophical sciences such as theology and physics and who also ignore the value of common sense knowledge. By "scientivists" is meant those scientists who absolutize or distort or exaggerate the value of scientific knowledge (and particularly the value of the natural sciences) and ignore the value of common sense knowledge. Both philosophasters and scientivists pervert philosophy and science, because they both deny that the Triune God is the deepest Ground of all philosophy and science.

reprehended. For example, in respect of the rainbow, Calvin remarks that "if any philosophaster, to deride the simplicity of our faith, shall contend that the variety of colours arises naturally from the rays reflected by the opposite cloud, let us admit the fact; but at the same time, deride his stupidity in not recognizing God as the Lord and Governor of nature, Who at His pleasure, makes all the elements subservient to His glory" (Inst. IV: 14: 18). Again, "In the writings of philosophers we meet occasionally with shrewd and apposite remarks on the nature of God, though they invariably savour somewhat of giddy imagination" (Inst. Il: 2: 18).

Calvin, then, is not in any way opposed to the pursuit of true philosophy, but only to the falsification thereof. Hear Calvin's commentary on Colossians 2: 8 —a text so often yet so wrongly appealed to by anti-philosophical Christians—where Paul enjoins: "Beware lest any man spoil you through philosophy and vain deceit after the tradition of men, after the rudiments of the world, and not after Christ." Writes Calvin: "As many have mistakenly imagined that philosophy is here condemned by Paul, we must point out what he means by this term . . . He points out more precisely what kind of 'philosophy' he reproves, . because it is not according to Christ." And it will be recalled that Calvin remarked in writing to his friend the Reformer Bucer: "Philosophy is therefore an excellent gift of God, and the learned men in every century who zealously devoted themselves thereto, were inflamed by God Himself, so that they would give to the world the information of the knowledge of the truth" (Cf. Potgieter, p. 192).

It is true that some of the inspired statements of Scripture are of great importance even for the Christian pursuit of the various non-theological sciences (for example, Gen. 1: 21-25 is important in respect of biology, and Ps. 104: 5-8 in respect of geology). Nevertheless, unlike theology, the science of philosophy and the various special sciences do not derive the vast bulk of their actual content from Scripture. Like theology, these non-theological sciences can certainly be misused against Scripture, and to avoid such misuse, the correct pursuit of these non-theological sciences certainly requires that they should harmonize with Scripture and derive at least their principles from Scripture.

What then, to Calvin, are the Scriptural principles which should govern the Christian pursuit (not only of theology but also) of philosophy and of the special sciences?

The Christian principles for the pursuit of philosophy and the special sciences may perhaps be distinguished into "thetical" and "antithetical" principles—the first positively developing a Christian philosophy, and the second negatively combatting non-Christian philosophy.

The THETICAL PRINCIPLES are many in number. To Calvin there are several mutually irreducible principles which are all of philosophical validity. For the universe exhibits a pluriformity amidst its unity: "Not only is there a difference between heavenly bodies and earthly, but even the heavenly bodies have not all the same glory; for the sun surpasses the moon, and the other stars differ from each other" (Comm. on I Cor. 14: 41). Indeed, "the world was set in order by God's wisdom; for it is wonderful how the waters mingle with the earth, and yet retain their own habitation, and are restrained from covering the earth: in the earth itself there is also amazing variety: we see in one part mountains, and in another small hills; there are meadows, forests, and fields of com. Indeed, man's industry contributes to this variety; but we see how God hath fitted the earth for different purposes. Here then shines forth the wonderful wisdom of God. When again he [Jer. 10: 12] speaks of the heavens, he says, that they have been expanded by God's knowledge. He indeed employs various expressions, but he means the same thing—God's singular wisdom may be seen in the earth and in the heavens" (Comm. on Jer. 10: 12).

There is, then, a pluriformity of philosophical and special scientific principles, for God "fills, moves, and invigorates all things by the virtue of the Spirit, and that according to the peculiar nature which each class of beings has received by the Law of Creaüon" (Inst. Il: 2: 16). Unity amidst the variety in God's creation, yet variety in the unity. The heavenly and earthly manifestations of God's "power, wisdom, goodness and righteousness, . . . are clearly exhibited, although they are too vast for our limited understandings to comprehend" (Comm. on Ps. 77: 14), for there are many "important principles in divine philosophy, . things of a deep and momentous nature" (Comm. on Ps. 49: 1). Indeed, to "make a full enumeration of the works of God . would be an endless task . . If a small portion of the works of God make us amazed, how inadequate are our feeble minds to comprehend the whole extent of them ! " For "there is nothing in the world confused, . the vast variety of things mixed together in it are arranged with the greatest wisdom?' (Comm. on Ps. 104: 24).

Hence Paul correctly attributes to God a "manifold wisdom, because men are accustomed to try it by a false standard, confining their view to a particular department, and thus, forming a most inadequate conception of the whole" (Comm. on Eph. 3: 10).

Let us then look at some of the several principles which Calvin believes constitute the "manifold wisdom" of G(XI.

Firstly, there is the principle of deity or "theontology" (the philosophical study of Independent Being). To Calvin, "the chief thing in philosophy is to have regard to God" (Comm. on Jer. 10: 13). "He is called Jehovah, because He has existence from Himself, and sustains all things" (Comm. on Ex. 6: 2). "God attributes to Himself Alone divine glory, because He is Self-existent and therefore eternal; and thus gives being and existence to every creature . . . the one and only Being of God absorbs all imaginable essence . all things in heaven and earth derive at His will their essence, or subsistence, from One, Who only truly is" (Comm. on Ex. 3: 14). Hence we should not "glory in any good thing of our own against God, seeing we were created by Him [out] of nothing, and in Him have our present being". Indeed, "the whole order of nature is everted and overthrown, if the same God Which is the beginning of all things be not also the end" (Comm. on Rom. 11: 36).

Accordingly, even though philosophy studies the creationrevelation rather than the Creator's Self-revelation (as does theology), yet "so to devote yourself to the investigation of the secrets of nature that you never lift up your eyes to the Maker, is a perverse study" (Comm. on Gen., Opera XXIII, col. 7). And as "nothing in this world is so durable that it may not be dissolved by the breath of God", it follows that "we ought never to be overwhelmed by the sight of any creature, so as not to render to God the honour and glory that are due to Him" (Comm. on Isa. 40: 22), for "we need not pierce our way above the clouds for the purpose of finding God, since He us in the fabric of the world" (Comm. on Ps. 104: 3).

Secondly, there is the principle of trinity. To Calvin, it is clear that "from eternity there were three Persons in one God" (Inst. I: 13: 29). Calvin approves of Augustine's description where the latter calls "the Father the Beginning of the Godhead" (Inst. I: 13: 29). He points out that "the world was framed by God's Eternal Word, His only begotten Son" (Comm. on Ps. 33: 6). And he also states that "the power of the Spirit is spread abroad throughout all parts of the world, that it may preserve them in their state; that He may minister unto the heaven and earth that force and vigour which we see, and motion to all living creatures" (Comm. on Acts 17: 28).

Thirdly, there is the principle of predetermination or the counsel of God. God's eternal decree covers not only everything that comes to pass in man's life and destiny, but also in every aspect of the entire universe. "There may indeed be found causes in nature why now the air is tranquil, and then it is disturbed by winds", declares Calvin in his Commentary on Jonah (4: 8), "but God's purpose regulates all these intermediate causes so that this is ever true—nature is not some blind impulse, but a law settled by the will of God. God then ever regulates by His counsel and hand whatever happens". In fact, God "so overrules all things that nothing happens without His counsel" (Inst. I: 16: 3).

Fourthly, there is the principle of creation or "exnihilation" (the creation of the universe out of nothing). Commenting on the words "In the beginning God created the heaven and the earth" in Genesis (1: 1), Calvin points out that Moses there "teaches by the word 'created' that what before did not exist, was now made; for • he has not used the term (yatsar), which signifies to frame or form, but (bara), which signifies to create. Therefore his meaning is, that the world was made out of nothing" (Comm. on Gen. l : 1). Here Calvin rejects all pantheistic viewpoints, and also all nihilistic (or destructive) and all "anti-existontological" (or reality-denying) theories.

Fifthly—and flowing from the above—there is the principle of unity. Obviously, if the whole universe was originally created out of nothing in the same moment of time at the "beginning", it must have an original and therefore basic unity, in spite of and even after the coming into being of any variety now found within it as a result of God's six days' work after creation. Hence Calvin records that "after the workmanship of the world was complete in all its parts, and had received, if I may speak, the last finishing touch, He pronounces it perfectly good; that we may know that there is in the symmetry of God's works the highest perfection, to which nothing can be added" (Comm. on Gen. 1: 31).

Sixthly, and subsequent in temporal development to the aforegoing and initial creation, there is the principle of formation or ordination of the previously created raw materials of the universe, for "the eternal Spirit . . cherished and sustained the confused materials of heaven and earth before they possessed order or beauty" (Inst. I: 13: 22) As Calvin remarks in respect of the universe's initial creation, "this rude and unpolished, or rather shapeless chaos, . . before God perfected the world . . was an indigested mass; . the power of the Spirit was necessary in order to sustain it . . [But] we now behold the world preserved by government, or order . . . It was proper that the light, by means of which the world was to be adorned with such excellent beauty, should be first created; and this was the commencement of the distinction [among the creatures]" (Comm. on Gen. 1: 2-3).

Seventhly, and as a result of the formation of the cosmos, there is the cosmological principle of variety, whereby God created and sustains each of His creatures "according to its kind". "There are some, indeed, even among philosophers", declares Calvin, "who make God to be the Master builder of the world in such a manner as to ascribe to Him intelligence in framing this work. So far they are in the right, for they agree with Scripture" (Comm. on John l : 3). But "as soon as we acknowledge God to be the supreme Architect, Who has erected the beauteous fabric of the universe, our minds must necessarily be ravished with wonder at His infinite goodness, wisdom and power" (Comm. on Ps. 19: 1). For "Moses declares animals were created 'according to their species': for this distinction carried with it something stable", in that it could be asked: "To what purpose do distinct species exist, unless that individuals, by their several kinds, may be multiplied?" (Comm. on Gen. 1: 25). Now this principle of cosmological variety even extends to the smallest of creatures, such as tiny plants, for "there is certainly nothing so obscure or contemptible, even in the smallest corners of the earth, in which some marks of the power and wisdom of God may not be seen . When a man, from beholding and contemplating the heavens, has been brought to acknowledge God, he will learn also to reflect upon and to admire His wisdom and power as displayed on the face of the earth, not only in general, but even in the minutest plants" (Comm. on Ps. 19: 1). [See too the first two paragraphs under "Thetical Principles" under section VIII, above.]

Eighthly, there is the principle of law and order, which regulates each different aspect of God's creation in its own way. God, Who created the heaven and the earth, "Who fixed all the laws of nature which remain unchangeable", promises that His "faithfulness as to the laws of nature changes not?' and that "He gave that law to them which remains inviolable" (Comm. on Jer. 35: 25 and Comm. on Ps. 148: 5). This can, in fact, clearly be seen on closer observation, so that "philosophers, who have more penetration into these matters than others, understand how the stars are arranged in such beautiful order, that notwithstanding their immense number there is no confusion", for "the course and revolutions of the sun, and moon, and stars, are regulated by the marvellous wisdom of God" (Comm.



And seeing that God does "All things decently and in order" in His universe, He enjoins that even in human affairs this "is a rule by which we must regulate everything that has to do with external polity" (Comm. on I Cor. 14: 40).

Ninthly, there is the principle of sustentation or providence. By this is meant God's superintendence over and maintenance of His universe, which necessarily proceeds from His eternal predetermination of all things and, by virtue of His immanence in His creation, from His upholding of the laws He has instituted to govern the various parts of and creatures in His creation. For, as Calvin anti-deistically remarks, "it were cold and lifeless to represent God as a momentary Creator, Who completed His work once for all, and then left it", and there are indeed even many heathen "philosophers [who] teach, and the human mind conceives, that all the parts of the world are invigorated by the secret inspiration of God" (Inst. 1: 16: 1).

This providence of God is absolute, having reference "both to the past and the future; and . . in overruling all things, it works at one time with means, at another without means, and at another against means" (Inst. I: 17: l). For "all things stand [only] so long as the Spirit of God upholds them, and . they fail as soon as He withdraws His support". Indeed, "the Lord maintains the world which He has created . He arranges and regulates every part of it" (Comm. on John 5: 17). Moreover, "it is certain that not a drop of rain falls without the express command of God" (Inst. 1: 16: 5).

Tenthly, there is the principle of individuality. This flows from the principle of sustentation or providence, for God not only sustains His universe as a whole, both in its unity and in its variety, but He also sustains each tiny part thereof. The fact is that "some mothers have full provision for their infants, and others almost none, according as it is the pleasure of God to nourish one child more liberally, and another more sparingly", whence we see "the singular goodness of God towards each individual" (Inst. I: 16: 3). For God "takes a special charge of every one of His works" in that "each species of created objects is moved by a secret instinct of nature" (Inst. I: 16: 4).

But eleventhly, this principle of individuality which implies the relative sovereignty of every creature as over against all other creatures, in no way undermines the equally true principle of interdependence, whereby each individual creature under God promotes the welfare of all the others. In Psalm 104, for example, "the Psalmist again treats of God's general providence in cherishing all the parts of the world . by the watering . the trees are satiated, or filled with sap, that, thus flourishing, they may be a place of abode to the birds" (Comm. on Ps. 104: 16). [Cf. too Inst. I: 16: 2, quoted from in Section IX: Biology, below.]

Twelfthly, there is the principle of sin. Says Calvin, "through man's fault a curse has extended above and below, over all the regions of the world'?, so that Adam "perverted the whole order of nature in heaven and earth" (Inst. Il: 1: 5). "For since Adam by his fall destroyed the proper order of nature, the creatures groan under the servitude to which they have been subjected through his sin" so that creation has now been reduced to "shapeless ruins" (Inst. Ill: 25: 2). Consequently, the philosopher must remember that the universe is now abnormal, and that even man himself is now "subjected as a slave of the devil, to sin" (Comm. on Gen. 8: 21, cf. too section IV, above).

But thirteenthly and fourteenthly—as pointed out in section V above (q.v.)—attention must also be drawn to the principle of common revelation whereby reveals Himself to all men in history, nature and conscience (Cf. Acts 14: 17 and Rom. 1-2), and to the principle of common grace whereby God gives even the unbelievers sufficient (non-saving) grace with which to understand His general or common revelation.

On the principles of common revelation and common grace in general, we can hardly do better than to quote excerpts from Calvin's Institutes (I: 14: 21): "It is unnecessary to dwell at length on the end that should be aimed at in considering the works of God . . . Were one to attempt to speak in due terms of the inestimable wisdom, power, justice and goodness of God, in the formation of the world, no grace or splendour of diction could equal the greatness of the subject. Still there can be no doubt that the Lord would have us constantly occupied with such holy meditation, in order that, while we contemplate the immense treasures of wisdom and goodness exhibited in the creatures, as in so many mirrors, we may . . dwell long upon them. . . How great the Architect must be Who framed and ordered the multitude of the starry host so admirably that it is impossible to imagine a more glorious sight; so stationing some, and fixing them to particular spots that they cannot move; giving a freer course to others, yet setting limits to their wanderings; so tempering the movement of the whole as to measure out day and night, months, years and seasons, and at the same time so regulating the inequality Of days as to prevent everything like confusion . . . These few examples sufficiently explain what is meant by recognizing the divine perfections in the creation of the world. Were we to attempt to go over the whole subject we should never come to a conclusion, there being as many miracles of divine power, as many striking evidences of wisdom and goodness, as there are classes of objects, nay, as there are individual objects, great or small, throughout the universe."

Fifteenthly and sixteenthly—as pointed out in section VI above (q.v.)—recognition must be given to the principle of special revelation whereby God reveals His saving acts only to some men (such as Moses and Pharaoh or Simon Peter and Judas Iscariot), and to the principle of special grace whereby God gives only His elect (such as Moses and Simon Peter) the saving grace to believe His special revelation. And these principles (or the lack of them ! ) will inevitably be demonstrated even in a person's philosophy—cf. Calvin on Colossians 2: 8 at the beginning of section VIII, above !

The importance of knowledge of the Bible as God's special revelation in understanding even creation itself, is adequately illustrated by Calvin where he testifies that: "the first book of Moses deserves to be held as an inestimable treasure which, to say the least, gives us infallible certainty about the creation of the world: without which certainty we do not deserve to be sustained by the world" (Comm. on Genesis, Grand Rapids, 1948, 1, xxxi). Consequently, "it is of importance to attend to the history of the creation, as briefly recorded by Moses . From this history we learn that God, by the power of His Word and His Spirit, created the heavens and the earth out of nothing; that thereafter He produced things inanimate and animate of every kind, arranging an innumerable variety of objects in admirable order, giving each kind its proper nature, office, place and station . . . Heaven and earth being thus most richly adorned, and copiously supplied with all things, like a large and splendid mansion gorgeously constructed and exquisitely furnished, at length man was made—man, by the beauty of his person and his many noble endowments, the most glorious specimen of the works of God" (Inst. I: 14: 20).

Seventeenthly and lastly, there is the principle of cosmic renovation. "Of the elements of the world", states Calvin, "I should only say this one thing, that they are to be consumed, only that they may be renovated, their substance still remaining the same, as it may be easily gathered from Romans 8: 21 and from other passages" (Comm. on Il Pet. 3: 10). And on Romans 8: 19f., Calvin comments that the "obedience in all created things . . springs from hope", for God has "implanted inwardly the hope of renovation" into "the alacrity of the sun and moon, and of all the stars in their constant courses, . the earth's obedience in bringing forth fruits, . the unwearied motion of the air, . . [and] the prompt tendency to flow in water". In one word, the whole universe is teleologically orientated (see too the end of section Ill, above).

The ANTITHETICAL PRINCIPLES of Calvin's philosophy may perhaps be considered as (firstly) a general antithetical principle and (secondly) as many particular antithetical principles as there are false philosophies to be opposed.

The general antithetical principle is the principle of rejecting all false philosophy. In Colossians 2: 8, where Paul warns Christians "Beware lest any man spoil you through philosophy . . not after Christ", Calvin comments that here '"philosophy' is nothing else than a persuasive speech which insinuates itself into the minds of men by elegant and plausible arguments. Of such a nature, I acknowledge, will subtleties of philosophers be, if they are inclined to add anything of their own to the pure Word of God". Hence Calvin rejects the views of syncretists as "a certain kind of philosophy mixed of the gospel and their own invention; namely, because this mixture is more delectable [to them]" (Comm. on Acts 20: 26f.). Accordingly, Calvin enjoins all Christians to "adhere to the Word of God, and let us detest sophistry and all useless subtleties, because they are abominable corruptions of religion" (Comm. on 1 Tim. 6: 21).

Calvin's particular antithetical principles were directed against specific schools of false philosophy, and especially against Platonism, Aristotelianism, the Epicureans, and Manichaeanism.

To Calvin, even "Plato, the soberest and most religious .

[and] the most distinguished of the philosophers" lost himself in substituting "monstrous fictions for the one living God" (Inst. I: 5: 11). Indeed, even the doctrine of pantheism "was not unknown to Plato, who everywhere defines the chief good of man to be an entire conformity to God; but as he was involved in the mists of errors, he afterwards glided off [in]to his own inventions" (Comm. on Il Pet. 1: 4). Plato's doctrine of memory that "knowledge was nothing but recollection", Calvin rejects as an "erroneous idea" (Inst. Il: 2: 14); he also does not hesitate to repudiate "Plato's error, in ascribing all sins to ignorance" (Inst. Il: 2: 25); and as for the angelology of Romanistic scholasticism: "Away, then, with that Platonic philosophy of seeking access to God by means of angels, and courting them with a view of making God more propitious (Plat. in Epinomide et Cratylo)—a philosophy which presumptuous and superstitious men attempted at first to introduce into our religion, and which they persist in even to this day" (Inst. I: 14: 12).

Aristotle, in Calvin's opinion, did indeed draw more than one "very shrewd distinction" (Inst. Il: 2: 23), such as when he "not improperly called man a microcosm?' (Inst. I: 5: 3), but on the other hand, Calvin does not hesitate to condemn "the frigid doctrine of Aristotle" which Aristotelians employed "for the purpose both of disproving the immateriality of the soul and robbing God of His rights" (Inst. I: 5: 5). For "some of the greatest of philosophers were so mischievous as to devote their talents to obscure and conceal the providence of God, and, entirely overlooking His agency, ascribed all to secondary causes. At the head of these was Aristotle, a man of genius and learning; but being a heathen, whose heart was perverse and depraved, it was his constant aim to entangle and perplex God's overruling providence by a variety of wild speculations; so much so, that it may with too much truth be said, that he employed his naturally acute powers of mind to extinguish all light" (Comm. on Ps. 107: 43. See too "Scholasticism" under section VII, above).

Calvin's verdict concerning hedonism is abrupt. The "insensate Epicureans, whose insensibility was of the basest character?' (Comm. on Ps. 107: 43) were, to Calvin, "gross despisers of piety" (Inst. I: 5: 12), and "a pest with which the world has always been plagued" (Inst. I: 16: 4). And "that jejune speculation of . . . the licentious Lucretius . . is inaccurate and harsh [and] does harm to confound the Deity with the inferior operations of His hands" (Inst. 1: 5: 5).

But Calvin's strongest condemnations are perhaps reserved for Manichaeanism. "The Manichees", writes Calvin (Inst. I: 13: 1), "made the devil almost the equal of God", and their idea that "the soul, instead of resuming the body with which it is now clothed, will obtain a new and different body", he described as "equally monstrous" (Inst. Ill: 25: 7). With such language he cut off for ever any sympathy with a pietistic and spiritualistic playing-down of the value of the material realm.

IX. Calvin on the Various Special Sciences

It only remains to note some of Calvin's views on several of the various special sciences, both in the natural disciplines and in the humanities.

On time in general and chronology, Calvin is of the opinion that "nothing is more natural than for spring, in its turn, to succeed winter, summer spring, and autumn summer; but in this series the variations are so geat and so unequal as to make it very apparent that every single year, month and day, is regulated by a new and special providence of God" (Inst. I: 16: 2).

On numbers and mathematics, Calvin believes that the superstitious Chaldeans "abused an honourable name when they called themselves mathematicians, as if there were no scientific learning separate from those arts and diabolic illusions" (Comm. on Dan. 1 : 4). "To investigate the motions of the heavenly bodies, to determine their positions, measure their distances and ascertain their properties, demands skill, and a more careful examination; and where these are so employed as the providence of God is thereby more fully unfolded, so it is reasonable to suppose that the mind takes a loftier flight, and obtains brighter views of His glory" (Inst.

Regarding astronomy as a representative of the spatial sciences, Calvin greatly approves of the fact that "astronomers investigate with great labour whatever the sagacity of the human mind can comprehend. Nevertheless, this study is not to be reprobated, nor this science to be condemned, because some frantic persons are wont boldly to reject whatever is unknown to them. For astronomy is not only pleasant, but also very useful to be known: it cannot be denied that this art unfolds the admirable wisdom of God", so that those men "are to be honoured who have expended useful labour on this subject, so that they who have leisure and capacity ought not to neglect this kind of exercise" (Comm. on Gen. 1: 6).

Indeed, "when we behold the heavens, we cannot but be elevated, by the contemplation of them, to Him Who is their great Creator, and the beautiful arrangement and wonderful variety which distinguishes the courses and station of the heavenly bodies, together with the beauty and splendour which are manifest in them, cannot but furnish us with an evident proof of His providence" (Comm. on Ps. 19: 1), for "a simple survey of the world should of itself suffice to attest a Divine Providence. The heavens revolve daily; immense as is their fabric, and inconceivable the rapidity of their revolutions, we experience no concussion—no disturbance in the harmony of their motion" (Comm. on Ps. 93: 1).

As regards kinematics or the science which studies movement as such, Calvin claims that God "moves and invigorates all things by the virtue of His Spirit, and that according to the peculiar nature which each class of being has received by the Law of Creation" (Inst. Il: 2: 16). Yet the fact that the Spirit is the ultimate cause of all movement does not exclude His use of intermediate created agents such as angels to this end, for "there is no motion, no agitation under the heavens, unless He has inspired it by His angels" (Comm. on Ezek. 1: 21). And when God's scientists "investigate the motions of the heavenly bodies . the mind takes a loftier flight, and obtains brighter views of His glory" (Inst. I: 5: 2).

In the fields of physics and chemistry, "there is no element and no part of the world" which was not of interest to Calvin (Comm. on Rom. 8: 19). Calvin was deeply interested even in "dross and other impurities in metals" (Inst. Ill: 10: 2). "Seeing, then, that the Lord has been pleased to assist us by the work and ministry of the ungodly in physics . let us avail ourselves of it, lest, by neglecting the gifts of God spontaneously offered to us, we be justly punished for our sloth'? (Inst. Il: 2: 16).

The science of biology is also praised. Without the Logos or Word of God, "were it not that His continued inspiration gives vigour to the world, everything that lives would immediately decay, or be reduced to nothing" (Comm. on John 1 : 4). Yet the Logos also gives life through agents, such as the sun—"how admirably does it foster and invigorate all animals by its heat, and fertilize the earth by its rays, warming the seeds of grain in its lap, and thereby calling forth the verdant blade! This it supports, increases, and strengthens with additional nurture, till it rises into the stalk; and still feeds it with perpetual moisture, till it comes into flower; and from flower to fruit, which it continues to ripen till it attains maturity. In like manner, by its warmth, trees and vines bud, and put forth first their leaves, then their blossom, then their fruit. And the Lord, that He might claim the entire glory of these things as His own, was pleased that light should exist, and that the earth should be replenished with all kinds of herbs and fruits, before He made the sun" (Inst. I: 16: 2).

On the natural sciences in general, then, Calvin believed that "if we would avoid a senseless natural philosophy, we must always proceed with this principle, that everything in nature depends upon the will of God, and that the whole course of nature is only the prompt carrying into effect of His orders" (Comm. on Ps. 147: 15). "I do not want to reject the knowledge [l'art] extracted from the order of nature", he wrote, "but I prize it and praise it as a unique gift of God" (Advertissement contre l'astrologie judiciare, Op. Omn. VIl, 529). Calvin so promoted the natural sciences that even the anti-Calvinistic philosopher de Ruggiero had to admit that the mighty development of science and technology in the nineteenth and twentieth centuries is unthinkable without Calvin, for the Genevan rang in a new epoch, so that after his death the world could never again be the same as before.

In the psychic sphere, "whatever we conceive in our minds is directed to its end by the secret inspiration of God" (Inst. I: 18: 2). Yet even in the secondary sense, consciousness and knowledge does not proceed principally from the mind, but more fundamentally it proceeds from the soul and thence through the mind, for knowledge must not be ascribed "to man's intellect, or in other words, the faculty itself, . . [but] to the soul, which is endued with the power of understanding" (Comm. on I Cor. 2: 11).

Psychology or the science of the soul, then, is succeeded by logic or the science of correct reasoning and understanding, for "one of the essential properties of our nature is reason, which distinguishes us from the lower animals, just as these by means of sense are distinguished from inanimate objects. For although some individuals are born without reason, that defect does not impair the general kindness of God, but rather serves to remind us, that whatever we retain ought justly to be ascribed to the Divine indulgence" (Inst. Il: 2: 17). Now the chief reason why Christ is called the Word of God or the Logos, is "because He is the eternal Wisdom and Will of God" Who as the Light of the world created all men "to have understanding"—even unregenerate men—and Whose "light rays are [so] diffused over all mankind", that "there is no man, therefore, whom some perception of the eternal light does not reach" (Comm. on John 1: 14 and 1: 9).

Coming now to the cultural sciences in general—which, strictly speaking, also include the sciences of (human) psychology and logic referred to immediately above—it is of importance to note that to Calvin "agriculture, architecture, shoemaking, and shaving, are [all] lawful ordinances of God" (Inst. IV: 19: 33). When engaged in consciously to God's glory, these and other callings are not "secular" but "sacred" and holy. For example, with regard to "the function of magistrates, the Lord has not only declared that He approves and is pleased with it, but, moreover, has strongly recommended it to us"; to Calvin it is clear that magistrates have "a commission from God, [and] that they are invested with divine authority", so that "no man can doubt that civil authority is, in the sight of God, not only sacred and lawful, but the most sacred, and by far the most honourable, of all stations in mortal life" (Inst.



The science of history is highly valued by Calvin. "Thus it becomes the faithful", he writes, "to be employed in reflecting on the histories of all times, that they may always form their judgments from Scripture, of the various destructions which, privately and publicly, have befallen the ungodly" (Comm. on Gen. 18: 18).

As regards language, it is of interest to note that Calvin regards Christ as the "Speech" of God (Comm. on John 1: 1). "Language is the impress of the mind", and even after the confusion of the tongues and the separation of mankind into different nations at the tower of Babel, God "willed that the sacred bond of society among men far separated from each other should be retained, by their possessing a common language among themselves" (Comm. on Gen. 11: 1).

In sociology, Calvin would have us remember that "the term 'neighbour' comprehends the most remote stranger", although "the closer the relation the more frequent our offices of kindness should be. For the condition of humanity requires that there be more duties in common between those who are more nearly connected by the ties of relationship, or friendship, or neighbourhood" (Inst. Il: 8: 55). For "everyone should rather consider, that however great he is, he owes himself to his neighbours, and that the only limit to his beneficence is the failure of his means" (Inst. Ill: 7: 7).

In economics, Calvin evidently believes in some degree of economic value inherent in the precious metals, as evidenced by his rhetorical question: "Has He [God] not given qualities to gold and silver, ivory and marble, thereby rendering them precious above other metals or stones?" Yet economics is not an end in itself. For God "created food . . not only for our necessity, but also for our enjoyment and delight", and "in clothing, the end was, in addition to necessity, comeliness and honour; and in herbs, fruits, and trees, besides their various uses, gracefulness of appearanee and sweetness of smell" (Inst. Ill: 10: 2. See too Calvin on Gen. 1: 28, under section Ill, above).

This necessarily leads to a consideration of aesthetics. For well does Calvin ask: "Has the Lord adorned flowers with all the beauty which spontaneously presents itself to the eye, and the sweet odour which delights the sense of smell, and should it be unlawful for us to enjoy that beauty and that colour? What? Has He not so distinguished colours as to make some more agreeable than others? Have done, then, with that inhuman philosophy which, in allowing no use of the creatures but for necessity, not only maliciously deprives us of the lawful fruit of the divine beneficence, but cannot be realized without depriving man of all his senses, and reducing him to a block" (Inst. Ill: 10: 2-3). For "sculpture and painting are gifts of God . which the Lord has bestowed upon us, for His glory and our good" (Inst. I: 11: 12), and "among the other things which are suitable as a means of recreation, and of giving pleasure, music has a primary place" (Opera VI, col. 170; and Vll, col. 469).

Calvin has much to say about law and the civil magistracy in the closing chapters of his Institutes (q.v.; and cf. under "cultural sciences" in section IX, above), and he has a very great esteem for legal science. But, he asks, "which of the [heathen] philosophers ever acknowledged that a politician is nothing else but an instrument guided by the hand of God? Yea, rather, they held that good management on the part of man constituted the chief cause of the happiness of the social body?' (Comm. on Ps. 127: 1).

And lastly, Calvin even treats of the science of ethics or moral philosophy. He concedes that the heathen "philosophers do intreat of manners very excellently and with great commendation of wit" (Comm. on Rom. 12: l). Yet "whatever the [heathen] philosophers may have ever said of the chief good, it was nothing but cold and vain, for they confined man to himself, while it is necessary for us to go out[side] of ourselves to find happiness. The chief good of man is nothing else but union with God, and this is attained when we are formed according to Him as our exemplar" (Comm. on Heb. 4: 10). This is achieved by being regenerated by the Spirit of Christ and by then following the Ten Commandments as the basis of all true ethics, a clear exposition of which Calvin gives us in his Institutes (Il: 8—q.v. I).

And so John Calvin liberated even the cultural sciences from

the Babylonian captivity of the Deformed Church. "All human labour is of equal value; after all, all [Christians] are in the Lord's service, and contribute towards the maintenance of human society" (Opera XXXVII, 14). "All craftsmen of whatever kind, who serve the needs of men, are ministers of God" (Opera XXXVI, 83). And even "agriculture is commanded by God" (Opera XXIII, 83). As even the modern critical philosopher Farrington had to concede, Calvin caused a complete revolution in the intellectual world of his day when he described even manual labour as a vocatio Dei—a "calling of God". Rome shook to its sacerdotal foundations. The Christian laity, the "people of God", re-asserted their Scriptural "priesthood of all believers" both inside and outside the institutional church, as enjoined by Peter of old (I Pet. 2: 9). And they asserted the kingship of all believers, too. Henceforth Christ would be served not merely in the institutional church, but also in every relatively sovereign sphere of this His universe. Hear Calvin's injunctions to all Christians in his Institutes (Ill: 10: 6) on "How to use this present life":

"The last thing to be observed is, that the Lord enjoins every one of us, in all the actions of life, to have respect to our own calling. He knows the boiling restlessness of the human mind, the fickleness with which it is borne hither and thither, its eagerness to hold opposites at one [and the same] time in its grasp, its ambition. Therefore, lest all things should be thrown into confusion by our folly and rashness, He has assigned distinct duties to each in the different modes of life. And that no one may presume to overstep his proper limits, He has distinguished the different modes of life by the name of callings. Every man's mode of life, therefore, is a kind of station assigned him by the Lord, that he may not be always driven about at random. So necessary is this distinction, that all our actions are thereby estimated in His sight, and often in a very different way from that in which human reason or philosophy would estimate them. There is no more illustrious deed even among philosophers than to free one's country from tyranny, and yet the private individual who stabs the tyrant is openly condemned by the voice of the heavenly Judge. But I am unwilling to dwell on particular examples; it is enough to know that in everything the call of the Lord is the foundation and beginning of right action. He who does not act with reference to it will never, in the discharge of duty, keep the right path. He will sometimes be able, perhaps, to give the semblance of something laudable, but whatever it may be in the sight of man, it will be rejected before the throne of God; and besides, there will be no harmony in the different parts of his life. Hence, he only who directs his life to this end, will have it properly framed; because, free from the impulse of rashness, he will not attempt more than his calling justifies, knowing that it is unlawful to overleap the prescribed bounds. He who is obscure will not decline to cultivate a private life, that he may not desert the post at which God has placed him. Again, in all our cares, toils, annoyances and other burdens, it will be no small alleviation to know that all these are under the superintendence of God. The magistrate will more willingly perform his office, and the father of a family confine himself to his proper sphere. Every one in his particular mode of life will, without repining, suffer its inconveniences, cares, uneasiness and anxiety, persuaded that God has laid on the burden. This, too, will afford admirable consolation, that in following your proper calling, no work will be so mean and sordid as not to have a splendour and value in the eye of God."

X. Summary of Calvin on the Sciences

Calvin's views concerning the pursuit of all the various sciences may perhaps best be characterized in terms of the basic religious motive of creation-fall-redemt)tion: the entire universe which the sciences study is subject to the laws of divine creation, to the effects of the fall of man, and to the consequences of the redemptive (or re-creative) work of Christ.

In section I, we wrote a foreword to Calvin. Here it was stated that this presentation of the ideas of John Calvin would be limited to a description of his doctrine of the sciences in general and his principles of theology, philosophy and the various special sciences in particular.

In section Il, we supplied an introduction to Calvin on the sciences. Here we gave certain biographical details of Calvin's break with Rome and with the Romish Church's domination of the non-ecclesiastical sciences. Here we also outlined the nature of Calvin's writings and illustrated the astonishing breadth of his learning. And here we also saw how Calvin highly values all of the various sciences and regards philosophy as "an excellent gift of God", while he strongly denounces those anti-intellectual Christians who "furiously declaim against all the liberal arts and sciences", as "fanatics".

In section Ill, we analyzed Calvin's views of man's scientific task. Here it was seen that Calvin believes that this task was presented to man before his fall, much aggravated as a consequence of sin, yet re-expressed to Noah and to David. The task was in principle fulfilled by Christ as the Son of man, is increasingly executed by those who are in Him, and will finally be perfected on the new earth.

In section IV, we observed Calvin's views on the relationship between sin and the sciences. It was noted how profound and degrading was the effect of sin on the pursuit of knowledge, and that its results were of cosmic proportions.

In section V, attention was drawn to Calvin's view of the relationship between common grace and the sciences. Here it was noted that Christ Himself gave non-saving grace to our first parents and their descendants and still gives it to all men in varying degrees. As a result, even unbelievers are enabled to understand the universe to some extent and to make scientific discoveries of value.

Yet—and as remarked in section VI—Christ's gift of common grace in no way abolishes the need for special grace. For special grace, given to the believers alone, is not only essential for salvation, but it is equally essential for the profound pursuit of true science. According to Calvin, the true scientist must be born again, be of high intelligence and be submissive to the Word of God and its Christ.

In section VII we presented Calvin's views on theological science. Here it was seen that he regards a knowledge of theology as very helpful indeed in the development of a Christian life and world view. But then again, even theology may fall into apostasy by becoming scholastic, unintellectual, ecclesiocentric, speculative, mystical, or literalistic. True theology is always—and exclusively—theocentric or God-centred.

In section VIII we enumerated Calvin's principles for the pursuit of philosophy and the special sciences. Here it was seen that Calvin does not monistically attempt to reduce these principles to only one or two presuppositions, but rather affirms a plurality of principles. Under his thetical principles we distinguished the principles of deity, trinity, predetermination, creation, unity, formation, variety, law, sustentation, individuality, interdependence, sin, common revelation, common grace, special revelation, special grace and cosmic renovation. And under Calvin's antithetical principles we distinguished his anti-Platonism, his anti-Aristotelianism (including his anti-scholasticism), his anti-Epicureanism and his antiManichaeanism (including his anti-pietism and anti-spiritualism).

In section IX we noted some of Calvin's opinions on several of the special sciences. First we looked at his descriptions of chronology, mathematics, astronomy, kinematics, physics and biology, and we concluded that he had a profound impact on the natural sciences of his day. And then we studied his references to psychology, logic, history, language, sociology, economics, aesthetics, law and ethics, and we concluded that his impact on the cultural sciences was, if anything, even more profound. To Calvin, each of the special sciences is worthy of respect, relatively sovereign in its own sphere, and a legitimate and sacred calling for the Christian when pursued to the glory of God.

In this present section X, we have in conclusion summarized John Calvin's views on the various sciences. Truly, we can do no better than to close by repeating the motto of this remarkable Christian, and with the sincere prayer that it may also be ours, namely: "The fear of the Lord is the beginning of wisdom".

## Calvin on the Sciences Nigel Lee

To most people today the name of John Calvin is the last they Would associate with the encouragement of scientific investigation. That Calvin had helpful things to say about science, mathematics, physics, culture, sociology or economics would come as a surprise, even to many selfconfessed "Calvinists." Many talk of Calvin, Out few read him and discover that, far from being narrow-minded, he applied his doctrines of revelation and grace to the sciences.

It is to remedy this situation that Dr Lee has culled from the writings of the French Reformermany references to scientific principles and the sciences, and put them in a consecutive form—Dr Lee is well qualified for his task. The possessor of several degrees and a lecturer in philosophy and religion, he is also a devoted student of the works of Calvin.

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