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MICHAEL FARADAY'S BIBLES AS MIRRORS OF HIS FAITH

Herbert T. Pratt, New Castle, Delaware

A devout Christian's Bible is a cherished and very personal possession. Although after long usage its spine hinges crack, its covers loosen and its pages become dog-eared, the owner will not lightly put it aside for a newer one because it has become a familiar old friend. Part of its attraction is likely to be the markings, underlinings, and notes that have accumulated around passages which strike a familiar chord, support a cherished belief, note a fact to be recalled, or that are simply inspirational. I believe that to a great extent such marginalia mirror what the Bible owner holds relevant to his faith.

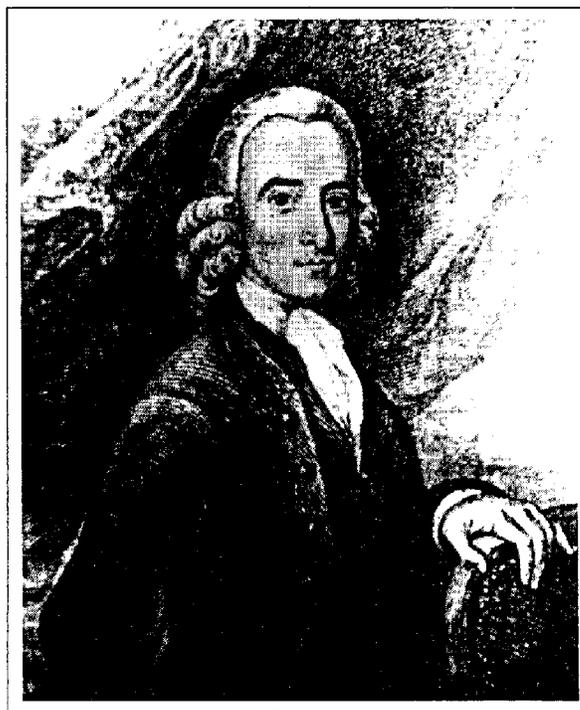
Two well-worn Bibles that belonged to Michael Faraday (1791-1867) are now in the archives of the Royal Institution in London. Both are heavily marked in pencil. Both are the King James version of 1611. One was published in 1776 and the other in 1817, but there are no handwritten dates or other direct clues to indicate when the bibles were used, or whether they were used consecutively or simultaneously. Although they were subsequently presented by Mrs. Faraday to relatives, there is nothing to indicate they were ever used by anyone other than Faraday (1).

In July 1990, I copied all of the markings in these Bibles into two new Bibles so as to duplicate, as nearly as possible, every mark, word change, underscore, marginal note, etc., given in the originals. Study of these copies provided the foundation for this paper, the purpose of which is to determine if the markings shed any light on what religious beliefs Faraday held near and dear.

In July 1821, Faraday, at age 30, made a profession of faith in the Church of Christ, popularly known as the Sandemanians and fully committed his life to the cause of Jesus Christ, a

commitment from which he never wavered (2). The Sandemanians were a small, virtually unheard of religious sect, having no more than a few hundred members in all of Great Britain. Faraday came by his choice naturally. His father James (1761-1810) had been a Sandemanian, as had his mother, an aunt and an uncle. Like himself, his wife, Sarah Barnard, whom he married on 12 June 1821, had been reared as a Sandemanian, and his father-in-law was an elder in the London congregation (3).

Sandemanianism, a name drawn from that of Robert Sandeman (1718-1771) (4), the sect's leading thinker, was an uncompromising, totally demanding, but unemotional religion (5). Of Sandemanian beliefs, the most important to this study are their beliefs about the Bible. They held the Bible to be the Word of God, turned to it for every item of faith and practice, and took what they found there at face value. Faith, to them, was simply an intellectual assent to the facts in the Bible. They needed no proof of the Bible's validity, never considered for a moment the possibility of human flaws in its translation and never desired to know how it compared with the oldest manuscripts. Fully believing the Bible to be its own best interpreter, Sandemanians supported the meaning of one scripture verse by



Robert Sandeman



Michael and Sarah (née Barnard) Faraday

citing another (6). As God's Word, the Bible was a living document through which God spoke directly to the hearts and minds of individual readers. Sermons, or exhortations as they were called, given by the elders as part of public worship, carried the full authority of God himself.

From what is known about Faraday, it is reasonable to infer that he read these Bibles for knowledge, inspiration, and encouragement, in family devotions, in front of his congregation as an elder and as a participant in public worship, in preparing sermons delivered to his and other congregations, in following sermons and devotionals given by others, and in ministering to the needs of members of his congregation (7).

Faraday used at least 11 types of markings in his Bibles (Table 1), the most prevalent, by far, being one or more vertical lines beside a verse or group of verses. The basic assumption of this paper is that the greater the number of vertical lines, the greater the importance Faraday attached to the passage. To quantify his ideas of importance, the total number of verses marked by one or more vertical lines was tabulated for each Bible and the percentage of marked verses calculated for each chapter and book. Also, the number of verses marked with seven or more vertical lines was tabulated for each chapter and book. Commentary in this paper will be confined to the vertical lines, primarily those from the New Testament of the 1776 Bible. A detailed study and analysis of all markings is in preparation.

Of the 31,483 verses in the bible, Faraday placed vertical marks by more than 4300 in the 1776 printing, or about 14%

(Table 2). He marked 10% of the verses in the Old Testament and 25% in the New Testament. The percentages of verses marked in the various books varies from zero to 53%. Only about half as many verses are marked in the 1817 Bible, which suggests that either it was not used for as many years or was used only on special occasions. The character or nature of the verses marked is relatively consistent between the two Bibles.

Faraday lived by the precepts and examples of the New Testament. Therefore, it is here that one would expect to find the key to his beliefs. Markings in the various books (Table 3) show that he was most interested in the stories of Jesus' life and Paul's letters to churches and least interested in the apocalyptic book of Revelation. Subject matter of marked verses indicates that Faraday was more concerned with the practical aspects of religion than with the theoretical. For example, he marked two thirds of all the verses in Chapters 5, 6, and 7 of the Gospel of Matthew, the so-called Sermon on the Mount, which contain the very essence of Jesus' teachings.

Faraday's New Testament markings can be broadly classed as scriptures relating to God, scriptures relating to Jesus, and scriptures relating to the Christian life. Sandemanians did not believe in creeds, and Faraday would have been aghast at the idea of writing one. However, statements of his beliefs, when strung together from passages he marked in his Bibles, certainly have a creed-like quality. In the discussion that follows, subscript numbers following passages cited indicate the number of vertical marks.

God existed from the beginning (John 1:1₁), is Spirit (John 4:24₁), and only He can be called good (Mark 10:18₆). With God nothing is impossible (Luke 1:37₄). He sent Jesus as a Light into the world (John 1:5-7₁; 2 Cor. 4:6₁) to deliver man from the power of sin and darkness (Col. 1:13₇). This is God's

Table 1. Types of markings and marginalia in Faraday's Bibles.

1.	One or more straight vertical marks beside a verse or verses
2.	Keyed vertical marks to identify passages of scripture used by others (1776 Bible only)
3.	Short horizontal lines that set off a group of verses (1817 Bible only)
4.	Wavy vertical lines beside a verse or verses
5.	Notes, comments and word changes
6.	Corrections of printer's errors in the text
7.	Cross-references
8.	Underscored words
9.	Question marks, asterisks, and check marks by verses or words
10.	Consecutive numbers denoting lists or series
11.	Accent-like marks in the margin at the first and last lines of verses

Table 2. Bible verses having vertical marks.

Data	1776 Bible		1817 Bible	
	OT	NT	OT	NT
Total no. books	39	27	39	27
Total no. verses	23,561	7922	23,561	7922
Verses marked	2354	1978	1721	460
Verses marked, %	10	25	7	6
Range among books, %	0-23	0-53	0-19	1-23
Key verses *	39	49	6	2

* Defined as those have seven or more vertical marks

free gift to mankind (Eph. 2:8₄). God's Word was also in the beginning (John 1:1₁). It is quick and powerful, sharper than a two-edged sword, and is a discerner of the thoughts and intents of man's heart (Heb. 5:12₂). The Word is the helmet of salvation and the sword of the Spirit (Eph. 6:17₁).

God is to be worshipped in spirit and in truth (John 4:24₁), is to be praised (Acts 2:47₆), and is to be accorded blessing, glory, wisdom, honor, power, and might forever (Rev. 7:12₂). By either command or example, the Bible tells exactly how God is to be worshipped. Man's ideas about worship are not to be followed, for the Lord had said, "But in vain they do worship me, teaching for doctrine the commandments of men" (Matt. 15:9₄).

Jesus of Nazareth was Son of God (John 1:34₂), was pleasing to God (Matt. 3:17₆, Mark 14:61-62₇), and came into the world to take away man's sin (Mark 10:45₂, John 1:24₇, John 3:16-17₂, 1 Cor. 15:3₁).

Although Jesus lived the perfect life, he was arrested by the Roman authorities, tried on trumped up charges (Mark 14:55₇), and executed as a common criminal after being accused of being King of the Jews (Matt. 27:37₇). Even though he was tortured and demeaned, Jesus did not lash out at his captors (Mark 14:61₆).

God raised Jesus from the dead, a fact that became the cornerstone of the preaching in the early church (Acts 2:30-31₅, 13:33₄, 17:31-32₄, Romans 11:9₉, 1 Cor. 15:4₁, Col. 2:12₄). By his death, Jesus purged our sins (Heb. 1:3₄) and was raised for our justification (Rom. 4:25₄).

After his resurrection, Jesus returned to the Father (John 16:28₈), where he sits at the right hand of God (Heb. 1:3₄). Although he was dead, he is now living with God (John 16:28₈) and holds the keys of hell and death (Rev. 1:18₃). He will come to earth again (1 Thes. 4:13-18₁), but no one knows when (Mark 13:26₁). Meanwhile, his followers are to be prepared and to watch and wait (Mark 13:37₃).

The end result of sin is death, but man can escape both sin and death by becoming a follower of Jesus (Rom. 6:33₁₀). To

become a Christian, one must turn away from sin (Matt. 4:17₃), believe that Jesus is the Son of God through faith in the testimony of the word (2 John 5:5₃, Acts 16:30-31₄), believe that God raised Jesus from the dead, and say so in public (Rom. 10:9₇), and, finally, be baptized (Mark 16:16₇). Through faith one is buried with Jesus in baptism and raised with him as a new person, and thus saved (1 Peter 3:21₄), not because of anything he has done, but because God is merciful (Col. 2:12₄, Titus 3:5₄). Upon baptism, the Spirit of God comes into the believer's life and the Lord adds him to his church (Acts 2:47₆). Bodies once dead because of sin are now alive because of righteousness (Rom. 8:9-10₄). And those led by the Spirit of God are the sons of God (Romans 8:14₄).

The Christian is to live so that his life glorifies God (Matt. 5:16₄), and to find God's will for his life through study of the Word (2 Tim. 2:15₇). Christians are to be the best persons they can be (Matt. 5:48₅), realizing that God provides strength to do all things (Phil. 4:13₃).

Some attributes of the Christian are humility (Acts 20:19₆), love of right living, mercy, ability to withstand ridicule for one's beliefs (Matt. 5:3, 6, 8, 10, 11₁), steadfastness (Heb. 3:14₇), and never tiring of doing good (Gal. 6:9₄).

Christians are to forgive completely those who wrong them (Matt. 18:35₇), are not to take note of other people's faults, but to be introspective of their own (Matt. 7:1-5₁). They are to work for a living, not to be busy bodies or disorderly (1 Thess. 3:11-12₇), and avoid senseless arguments, particularly those over religion (1 Tim. 6:20₇).

Not only should they not kill people, which is forbidden by the law, but they should not even get angry or call people names. Rather, they should do their utmost to reconcile

differences (Matt. 5:24₁).

Christians should not be caught up in the race to acquire things, but should be content with what they have (Heb. 13:5₄). Living for wealth as an end unto itself is of no value in God's sight (Matt. 6:19-20₁). One is to ask God for daily needs (Matt. 6:25-34₁) fully trusting and believing that He will supply them (Matt. 7:7-8₆).

Others are to be served with humility (John 13:15₃) without affectation (Matt. 6:1₂). Likewise, prayers are to be simple and not showy (Matt. 6:5-8₂).

In no case is a woman to be regarded as only an object for sexual gratification (Matt. 5:28₁₀). In the family, husbands are to love their wives (Col. 3:19₁₁). Parents are to be held in honor (Eph. 6:2₆); children are to obey parents (Col. 3:20₁), and servants, their masters (Col. 3:22₁). Parents are not to provoke their children to anger (Col. 3:24₁). Christians are to comfort one another, edify one another (1 Thess. 5:11₄), be at peace with one another, and hold the elders of their congregation in high regard (1 Thess. 5:13₆). They are to beware of heretical teaching (2 John 2:7₃) and be wary lest they accept man-made philosophies as truth (Col. 2:8₆).

In summary, Christians are to focus their hearts and minds on those things that are true, honest, just, pure, lovely, virtuous, praiseworthy, and of good report (Phil. 4:8₁).

The essence of Faraday's deeply entrenched commitment to Christianity can be distilled into three words: faith, hope, and love. In faith, he believed that the Bible, as God's word, was true in all respects. Through its pages, he was convinced that his life would not end with the grave, but that God had promised something beyond. Because of that hope, he believed that he could best show his love to God by loving and honoring other people.

As already mentioned, Sandemanians held that faith was simply intellectual assent to the facts in the Bible about God and Christ. The just, namely, those who have been rightly treated by God, shall live by faith (Rom. 3:28₃, Gal. 3:11₃). Great works will not save a person, but only God's grace working through faith (Eph. 2:8₄):

... without faith it is impossible to please him; for he that cometh to God must believe that he is, and that he is the rewarder of them that diligently seek him (Heb. 11:6₃).

Faraday's treatment of passages relating to miracles performed by Jesus are indirectly a commentary on faith. Of the 33 miracles, Faraday marked one or more verses in 13 (39%) in the 1776 Bible and 8 (24%) in the 1817 Bible. Three miracles are marked in both Bibles: dumb son healed (Matthew 9:14-27₁), finding a school of fish (Luke 5:1-11_{2,3}), and healing of lepers (Luke 5:12-13₁).

Among the 15 miracles not having at least one verse marked in either Bible are some of the best known: Jesus' turning water into wine at the wedding feast (John 2:1-11), his

Table 3. Verses marked in New Testament grouped according to subject matter of books.

Nature of Book	Percent Verses Marked		Key Verses*	
	1776	1817	1776	1817
Gospels	24	3	24	1
Historical	27	6	2	1
Letters of Paul:				
To churches	28	11	16	0
To persons	15	7	2	0
Letter to Hebrews	27	2	1	0
Catholic Letters	17	12	2	0
Apocalyptic	12	4	2	0
Total			49	2

* Defined as those have seven or more vertical marks. All counts are averages.

walking on water (Matt. 14:25-26, Mark 6:48-51, John 6:19-21), healing of a demoniac (Mark 1:23-26, Luke 4:33-35), and feeding of 5000 people with five loaves and two fish (Matt. 14:19-20, Mark 6:35-44, Luke 9:12-17, John 6:5-13).

One common thread running through 14 of the 15 miracles that Faraday did not mark is that Jesus acted voluntarily on his own because he saw a need. By contrast, of all the miracles that Faraday marked, the recipient of Jesus' action, or someone acting for the recipient, first believed that Jesus could do something or intervene in the course of events. The one miracle that Faraday marked that did not require such personal belief was his withering of a fruitless fig tree by cursing it (Matt. 21:18-22). But belief was involved indirectly since he said he did it to teach his disciples that by simple trust in God's power, they could do as much or more, even move mountains into the sea.

In opening a lecture on education at the Royal Institution in May 1854, Faraday sharply distinguished between ordinary and religious beliefs, between scientific truth, which man can learn by applying one's mind, and truth about a future life which he said, "cannot be brought to his knowledge by any exertion of mental powers, ... [but] is received through simple belief in testimony given". The means of educating oneself about science, he said, were not applicable to educating oneself about "the hope set before us, as if men by reasoning could find out God". Then, quoting part of verse 20 from chapter one of the Apostle Paul's letter to the church in Rome, he continued, that in earthly matters he believed that "the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even His eternal power and Godhead" [Romans 1:20] (8).

On the surface, the quotation suggests that Faraday drew spiritual strength from natural theology, namely, that God can be found through the study of nature; that an intricate design demands a designer (9). No doubt, his use of Romans 1:20 was more than an offhand comment, since he also had used it in the same way in a lecture in 1847 (10).

Faraday's usage of Romans 1:20 takes on new meaning when it is looked at in the context of other verses he marked in the first chapter. The content of the chapter runs like this - After a lengthy salutation (verses 1-14), the Apostle says (verses 10-15) that he hopes to find a way to visit Rome so that he can strengthen the church's faith. In verse 16 he testifies to the power of the gospel, and in verse 17, he argues that the righteousness of God is revealed in the Gospel and that the just shall live by faith. Then, starting at verse 18 through the end of the chapter, he berates unbelievers for their unbelief, concluding (verse 32) that the ungodly and sinners are worthy of death.

In his 1776 Bible, Faraday marked verse 16 on the power of God, apparently on two different occasions (figure 1), and verse 17 on faith, he emphasized with a seven marking. But verse 20, which implies that anyone could know that God

11. For I long to see you, that I may impart unto you some spiritual || gift, to the end ye may be established;

12. That is, that I may be comforted together with you by the mutual ||| faith both of you and me.

13. Now I would not have you ignorant, brethren, that oftentimes I purposed to come unto you, (but was let hither to,) that I might have some fruit among you also, even as among other Gentiles.

14. I am debtor both to the Greeks, and to the Barbarians; both to the wise, and to the unwise.

15. So, as much as in me is, I am ready to preach the gospel to you that are at Rome also.

16. For I am not ashamed of the gospel of Christ: for it is the power of ||| God unto salvation to everyone that believeth; to the Jew first, and also to the Greek.

17. For therein is the righteousness of god revealed from faith to faith: ||||| as it is written, The just shall live by faith.

18. For the wrath of God is revealed from heaven against all ungodliness and unrighteousness of men, who hold the truth in unrighteousness;

19. Because that which may be known of God is manifest in them; for God hath shewed it unto them.

20. For the invisible things of him from the creation of the world are |||| clearly seen, being understood by the things that are made, even his eternal power and Godhead; so that they are without excuse:

21. Because that, when they knew God, they glorified him not as God, || neither were thankful; but became vain in their imaginations, and their foolish heart was darkened.

22. Professing themselves to be wise, they became fools, ||

23. And changed the glory of the incorruptible God into an image made || like to corruptible man, and to birds, and four-footed beasts and creeping things.

Figure 1. The marking of Romans 1:11-23 in Faraday's Bibles (1776 Bible left, 1817 Bible right).

exists by looking at his creation, is not marked at all! Note that in quoting verse 20 in the lecture, Faraday omitted the last phrase, "so they [e.g. the ungodly and unrighteous from verse 18] are without excuse," thus removing the verse from its context. This pattern of marking in the 1776 Bible is essentially repeated in the 1817 Bible, except that verse 20 is marked (11).

From this evidence, it seems that Faraday's interest in Romans I was not so much in what it said about creation, but what it said about faith. His reference in the lecture to "simple belief in testimony given" is virtually the Sandemanian understanding of the meaning of the word faith, and, as he used the phrase, refers not to testimony about God as seen in the creation, but to that testimony about God found in the Bible. Does that mean that those who don't believe the Bible have an excuse for their ignorance of God? No, he says, because they could know about God simply by studying the order of the world around them. Thus, Faraday was using verse 20 not as evidence of his reasons for believing in God, but, as had the Apostle Paul, was directing unbelievers to examine the evidence for God in the creation all about them. Sandemanians generally believed that only they were true Christians. If Faraday also held to this narrow view, and there is some evidence that he did not, then verse 20 was not a statement of his own beliefs, but rather was directed at his audience of unbelievers (12).

Further evidence of Faraday's lack of interest in natural theology is his failure to mark in either Bible any verse about

the creation in Genesis 1 and 2, or other well-known passages, such as Psalm 19:1:

The heavens declare the glory of God; and the firmament sheweth his handiwork.

To Faraday, God was not an unknown but a given. He knew that God existed and had created the earth. His Bible, the Word of God, told him so, as he had marked in the Gospel of John (1:1-3):

In the beginning was the Word, and the Word was with God, and the Word was God. The same was in the beginning with God. All things were made by him, and without him was not anything made that was made ...

With such assurance from scripture, Faraday did not need to look for evidence of God in nature; he had no need for natural theology.

Of all the passages which Faraday marked in his Bibles, one of the most intriguing is in the Old Testament and concerns King David's plans to build the temple, ca. 1000 B.C. It is found in 1 Chronicles 28:9-19, is marked in both the 1776 and 1817 Bibles, and raises a profound question about how Faraday perceived his mission in life.

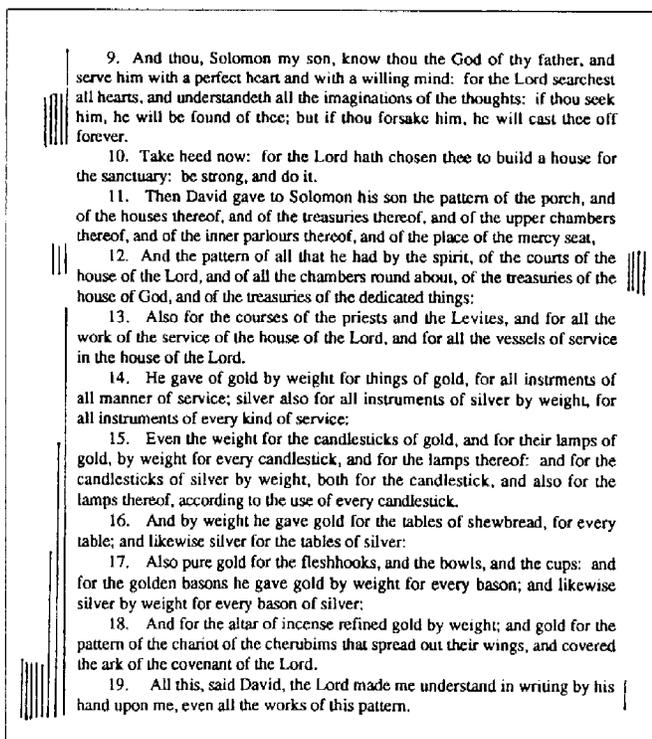


Figure 2. The marking of 1 Chronicles 28:9-19 in Faraday's Bibles (1776 Bible left, 1817 Bible right).

In a rousing speech before the nation's most important citizens, David tells about how he had planned to build a temple for the Lord God, but had been stopped because the Lord had condemned him as a man of war. Nevertheless, the temple will be built, he says, because the Lord has found favor with Solomon, David's son, and has chosen him to carry out the work. Then, charging Solomon to serve God "with a perfect heart and a willing mind" (28:9), David turns over to him a complete set of blueprints for the new building, or, as verse 12 says:

... the pattern of all that he [David] had by the spirit, of the courts of the house of the Lord, and of the chambers round about and of the treasures of the house of God and of the treasury of dedicated things.

Verses 13 through 18 continue with specifications for the temple's candlesticks, figurines, and other furnishings, and the story climaxes at verse 19 with:

All this, said David, the Lord made me understand in writing by his hand upon me, even the works of his pattern.

As Faraday was reading, he was also marking the verses (figure 2): five lines by verse 9; three by the first line of verse 12, a long sweep past 13 through 19, then a second line beside 15 through 19, a third by 17 through 19, and finally, as the full meaning of what he was reading hit him, a burst of five more lines beside verse 19! The blueprints and specifications were not the product of David's "own" genius; rather, they were drawn by the "Spirit of the Lord" working through David!

The question is this - Did Faraday, as he was reading, suddenly sense that the same hand of God which had worked through David to draw the blueprints of the temple was also working through Michael Faraday to reveal the unknown laws of God's creation? If so, it provided him with a driving force and sense of purpose, which, in the privacy of his faith and in his humility, he would have never shared with another living soul.

Faraday fully believed in, and looked forward to, a future life - a life after death. As Romans 8:24 put it, "We are saved by hope". He knew that, as Jesus had been raised from the dead, so will those be who have faith in him (1 Cor. 15:16-17₂). Death will be destroyed (1 Cor. 15:26-28₂) and Jesus' followers will take on a new body (1 Cor. 15:49-53₂). Death will lose its sting because the grave cannot hold them (1 Cor. 15:55₄). All men must appear before the judgment seat of Christ and answer for the way they have spent their lives, whether it be good or evil (2 Cor. 5:10₂). To his niece, Faraday wrote in 1859 (13):

Though death be repugnant to the flesh, yet where the spirit is given, to die is gain. What a wonderful transition it is! ... Though the fear of death be a great thought, the hope of eternal life is far greater ...

Three days before his 70th birthday, he wrote to his old friend August de la Rive (1801-1873) that, although he had no science to write about, he could write of a stronger bond (14):

The future life that lies before us. I am, I hope, very thankful that in the withdrawal of powers and things of this life, - the good hope is left with me, which makes the contemplation of death a comfort - not a fear.

Several months before his death, on being asked how he was, he replied, "Just waiting" (15).

In 1 Corinthians 13, the so-called "love chapter", Faraday marked ten (77%) of the chapter's 13 verses. It is here that the Apostle Paul defines a loving person as one who is long suffering, kind, does not put self first, is not easily provoked, does not think evil, finds no joy in sin, rejoices over finding truth, bears all burdens, and never fails others. That definition certainly is in accord with everything Faraday's contemporaries said about the kind of person he was.

Throughout the Bible, Faraday marked passages containing the word love more intensely than those on any other subject. Of 21 chosen at random from the New Testament, he marked ten in his 1776 Bible, three of which follow:

Ye have heard that it hath been said, Thou shalt love thy neighbor, and hate thine enemy. But I say unto you, Love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you, and persecute you; That ye may be the children of your Father which is in heaven: for he maketh his sun to rise on the evil and on the good, and sendeth rain on the just and the unjust (Matt. 5:43-45,).

A new commandment I give unto you, That ye love one another; as I have loved you, that ye also love one another. By this all men know that ye are my disciples, if ye love one another (John 13:34-35,).

[There is one God] and to love him with all the heart, and with all the understanding, and with all the soul, and with all the strength, and to love his neighbor as himself is more than all burnt offerings and sacrifices (Mark 12:33,).

First Corinthians 13 ends with the thought that of the great concepts of the Christian life - faith, hope, and love - the greatest is love. And so it seems to have been in Faraday's life.

Following Faraday's death, Dr. Bence Jones, Faraday's first biographer, wrote to Mrs. Faraday wishing to know more about her husband's religious beliefs. She replied that she felt inadequate to speak for Faraday, but remembering how he often said that we should be "always ready to give a reason for the hope that is within us with meekness and fear" [1 Peter 3:15], she wished that Jones had asked him. She continued (16):

... I only point to the New Testament as being his *guide and rule*; for he considered it as the Word of God (as you know) and equally

binding on Christians today as when written, so that such scriptures as the following were continually on his mind:

If ye love me, keep my commandments - [John 14:15]

Whosoever shall confess me before men, him I confess also before my father who is in heaven - [Matt. 10:32]

Do unto others as you would they should do unto you - [Matt. 7:12, Luke 6:31]

Perhaps Faraday's personal values are best summed up in a letter written in 1860 to his friend of many years, German chemist Christian Schönbein (1799-1868). Faraday's memory was failing and he confessed that he could not remember the contents of Schönbein's previous letter, but added (17):

Though your science is much to me, we are not friends for science sake only but for something better in a man, something more important in his nature, affection, kindness, good feeling, moral worth; and so, in remembrance of these, I now write to place myself in your presence ...

So as we honor Faraday in this 200th anniversary year of his birth, let us believe that those qualities of affection, kindness, good feeling, and moral worth that placed him in the presence of his friend Schönbein so long ago, also place him in our presence today.

References and Notes

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1. A Bible belonging to James Faraday, Michael Faraday's father, is in the Cuming Museum in London, as well as one given by Michael Faraday to a niece in 1865. So far as can be determined by the museum staff, neither of these Bibles was used by Michael Faraday.

2. H. T. Pratt, "Brother Faraday", *Restoration Quarterly*, **1989**, *31* (4), 219-229.

3. S. P. Thompson, *Michael Faraday: His Life and Work*, Macmillan, New York, 1898, pp. 245, 254, 286, 290-299. L. P. Williams, *Michael Faraday: A Biography*, Chapman and Hall, London, 1965, pp. 102-106.

4. Sandeman moved to America in 1764 and is buried in

Danbury, Connecticut. See W. Walker, "The Sandemanians of New England," *Ann. Report Am. Hist. Assoc.*, 1901, 1, 131-162.

5. L. A. McMillon, *Restoration Roots*, Gospel Teachers Publications, Dallas, 1983.

6. Although this style of preaching has largely disappeared, it can still be heard in many of the more conservative Churches of Christ, particularly in the southern states of the United States. Churches of Christ, like the Sandemanians, are rooted in restoration principles that sprang from Scottish Presbyterianism.

7. Seventeen sermons by four Sandemanian elders, including four by Faraday, first published by James Rorie in 1910, are discussed by P. Eichman in "Selected Exhortations: Sermons From a Lost Branch of the Restoration Movement", *Restoration Quarterly*, 1990, 32 (1), 23-35. An undated sermon by Faraday taken down by shorthand is in the archives of The Royal Institution. Examples of two of Faraday's sermon note cards are given in Jones, reference 9, Vol. 2, p. 101. Several other note cards are in the archives of The Royal Institution.

8. Michael Faraday, "Observations on Mental Education", *Experimental Researches in Chemistry and Physics*, Taylor and Francis, London, 1859, p. 465.

9. Early biographers treated Faraday's usage of Romans 1:20 as no more than a simple affirmation of faith. More recently, Clark, Levere, and Cantor have seen Faraday as supporting natural theology, while Russell and Eichman have taken an opposing view. See H. Bence Jones, *The Life and Letters of Faraday*, Vol. 1, Longmans, Green, London, 1870, pp. 337-338; J. H. Gladstone, *Michael Faraday*, Harper, New York, NY, n.d., pp. 130-131; Thompson, reference 3, pp. 291-293; R. E. D. Clark, "Michael Faraday on Science & Religion", *The Hibbert J.*, 1967, 65 (259), 144-147; T. H. Levere, "Faraday, Matter, and Natural Theology", *Brit. J. Hist. Sci.*, 1968, 4, 95-107; C. A. Russell, *Cross-Currents: Interactions Between Science and Faith*, Eerdmans, Grand Rapids, MI, 1985, pp. 258-259; G. N. Cantor, "Reading the Book of Nature: The Relation Between Faraday's Religion and His Science", in D. Gooding and F. A. J. L. James, eds., *Faraday Rediscovered*, Stockton Press, New York, 1985, pp. 69-81; and P. Eichman, "Michael Faraday: Man of God - Man of Science", *Perspectives on Science and Faith*, 1988, 40(2), 91-97.

10. Cantor, reference 9, p. 71.

11. It can be argued that Faraday used the 1776 Bible in his youth and the 1817 Bible in later years. If so, his marking of Romans 1:20 in the 1817 Bible suggests that he found some value in natural theology later in life.

12. When asked once by Roman Catholic Cardinal Wiseman (1802-1865) if he believed that all of the Church of Christ was comprised in his little sect, Faraday replied, "Oh no! ... but I do believe from the bottom of my soul that Christ is with us." [Thompson, reference 3, pp. 297-298.]

13. Faraday to Mrs. Deacon, 12 August 1859, in Jones, reference 9, pp. 428-430.

14. Faraday to A. de la Rive, 19 September 1861, in L. P. Williams, ed., *The Selected Correspondence of Michael Faraday*, Vol. 2, Cambridge University Press, Cambridge, 1971, p. 1001.

15. G. Caroe, *The Royal Institution, An Informal History*, Murray, London, 1985, p. 67.

16. Letter, Sarah Faraday to Dr. H. Bence Jones, 22 November 1867, Archives of The Royal Institution.

17. Faraday to Schönbein, 27 March 1860, in Jones, reference 9, pp. 438-439.

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FARADAY'S HEALTH PROBLEMS

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In 1926 the German chemist Alfred Stock published a very interesting article in the *Zeitschrift für angewandte Chemie* (1). The title of the article was "The Danger of Quicksilver Vapor". Quicksilver is, of course, the common name for metallic mercury. In it Stock described his own experiences with mercury poisoning and suggested that Michael Faraday suffered the same affliction. Stock had very good credentials for making such a diagnosis about Faraday, who died in 1867.

Alfred Stock (1876-1946) is remembered for the Stock system of naming inorganic compounds. He invented the glass vacuum line to handle the very reactive silicon and boron compounds in which he was interested (2). He then proceeded to work for an extended period of time, over 25 years, with devices containing mercury: manometers, pumps, valves, etc.

Eventually Stock began to experience a series of health problems, including headaches, dizzy spells, and memory loss (3). For several years his problems were diagnosed as nasal in origin. He underwent treatment for ten years, including cauterization, electrolysis, and surgery. By 1924 his memory had gotten so bad that he could not deliver a lecture without an extensive set of notes. He found himself forgetting telephone numbers between looking them up in the directory and reaching the phone.

Stock began his 1926 article by describing his own ordeal with mercury (1):

For almost 25 years I suffered from maladies which were at first weak and appeared only occasionally, but became gradually worse and worse, until they became finally almost unbearable, so that I doubted whether I would be able to continue my scientific work.

When an assistant, Wolfhart Siecke, developed similar