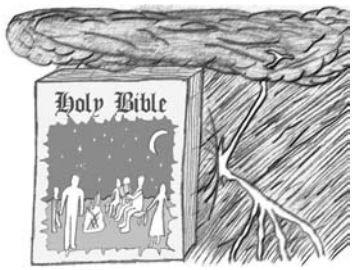
Shelter in the Word



He who dwells in the shelter of the Most High will rest in the shadow of the Almighty. You are my refuge and shield: I have put my hope in your Word. ***—Psalm 91:1; 119:114***

Vol. 5, No. 4 Helping you become self-sufficient in the Word—for a lasting relationship with the Almighty **Nov-Dec 2002**

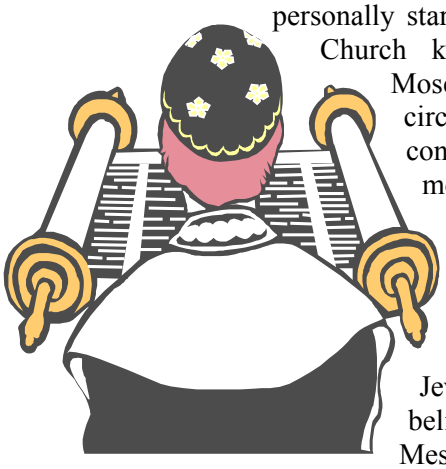
A Tale of Two Churches

By Toli Bohonik

The history of Christianity is the fascinating story of two very different Christian churches. It is a story that goes all the way back to the first century, the very beginning of Christianity. It is the story of the Jewish Christian church and the Gentile Christian church.

It is a tale of two churches. One church grew large, universal, and eventually came to dominate Christianity. The other church has remained small and persecuted.

The Jewish Christian church came first. Jesus personally started it. The Jewish Church kept the Law of Moses and practised circumcision, and continued to practice most of the customs of the Jewish nation. They did what Jesus taught them to do, they lived like Jews, but they believed in Him as Messiah.



The Gentile church came later. For decades the Jewish Church was large and dominant. At first it persecuted the new Gentile converts. Many in the Jewish Church insisted that their new Gentile brethren had to be circumcised and insisted that they also had to keep all of the Law of Moses. The Gentiles did not want to do either one. They did not want to be circumcised nor did they want to keep the Law of Moses, but they did want to accept Jesus. The Apostle Paul talks about those who were trying to bring Jewish practices to the Galatians in Galatians 5. He said of them: " As for those agitators, I wish they would go the whole way and emasculate themselves!" (Gal 5:12.)

The questions of whether the Gentiles had to be circumcised and keep the Law of Moses were settled at a meeting in Jerusalem. We read about it in Acts 15. The apostles, the elders, and the members all decided that the Gentiles did not have to live like Jews. They did not have to be circumcised nor did they have to keep the Law of Moses.

When the city of Jerusalem was destroyed by the Romans in 70 AD, the Jewish nation and along with them the members of Jewish church, were scattered. From that point on the influence of the Jewish Church was permanently diminished. It never recovered its early prominence.

The Gentile church was unaffected by the fall of Jerusalem, and unlike the Jewish Church, it continued to grow. It grew dramatically. Over the centuries the Gentile church went on to change Sabbath observance to Sunday keeping. It changed the Biblical Holy Days to Christmas and Easter. And it accepted the theory of the trinity. The Gentile Church made a clear and purposeful distinction between its theology and that of the Jewish church. It did not want to be Jewish, it did not want to even appear to be Jewish, so by the end

Also In This Issue:

A separate article, *Love That Lasts*, is included at the end of this issue. Please share it with someone.

of the fourth century the two churches had completely changed positions. The Gentile church was now large and dominant, and it began to persecute the much smaller Jewish church. Over the centuries the Jewish Church remained small and persecuted, almost dying out at times.

Jesus started both churches. He worked in both churches. And today He continues to work in both of them. He answers the prayers of folks in the Gentile Sunday keeping church and the prayers of those in the Sabbath keeping Jewish church. They are both legitimate churches.

Today's Gentile Church consists primarily of the Catholic Church, the Protestant Churches, and the Eastern Orthodox Church. Today's Jewish Church consists of those Christian groups that keep the Sabbath and a wide variety of "Messianic Jews". They may also keep the Biblical Holy Days and try and observe the Law of Moses in today's society. These groups include the Churches of God, the Seventh Day Adventists, the Messianic Jewish Churches, and other independent Sabbath-keeping churches.

The Sunday keeping Gentile church continues to persecute the much smaller Sabbath keeping Jewish church. It mistakenly teaches that the Law of God is done away and it continues to try and force its theology on the Sabbath keeping Jewish Church.

At the same time, many in the Sabbath keeping Jewish church believe they are " the one true church" and that the Gentile church is the " great false church" of Bible prophecy.

The two church communities are still at odds with one another after almost 1900 years of conflict.

The Jewish Christian Church

In the beginning there was only one church and it was Jewish. When it started Christianity was just one of many sects of Judaism. Paul wrote, "But he is a Jew, which is one inwardly; and circumcision is that of the heart, in the spirit, and not in the letter; whose praise is not of men, but of God" (Rom 2:29). The very first Christians felt Jesus had come to straighten out the problems and corruption in the first century Jewish religion.

When Jesus started His ministry He preached only to Jews and Israelites. Notice Jesus' words to a gentile woman who had asked Him for help:

> Matt 15:23 But He answered her not a word. And His disciples came and urged Him, saying, " Send her away, for she cries out after us."
>
> 24 But He answered and said, " I was not sent except to the lost sheep of the house of Israel."
>
> 25 Then she came and worshiped Him, saying, " Lord, help me!"
>
> 26 But He answered and said, " It is not good to take the children's bread and throw it to the little dogs."

The founder of Christianity was Jewish and most of the early church leaders were also Jewish. Like their Master, the apostles preached only to " the lost sheep of the house of Israel" During Jesus' lifetime He and the other leaders did not preach to Gentiles, that was not their mission field. The apostle Matthew tells us:

> Matt 10:5 These twelve Jesus sent out after instructing them, saying, 'Do not go in the way of the Gentiles, and do not enter any city of the Samaritans
>
> 6 but rather go to the lost sheep of the house of Israel.
>
> 7 And as you go, preach, saying, 'The kingdom of heaven is at hand.'"

Jesus forcefully stated " I am not sent but unto the lost sheep of the house of Israel" (Matt 15:24).

Shelter in the Word is designed to help people become self-sufficient in their Bible study, so that they may be able to serve the Almighty Creator, and receive salvation through His Son. *Shelter* is not affiliated with any denomination, and teaches that eternal life is available to **individuals** who live by the Bible, regardless of their belonging to a church organization.

Bible truth should be given freely (Matt 10:8). This publication is free and is designed to be copied easily. You have permission to copy part or all of it, as long as you do not change it. Reader's articles and letters for *Shelter in the Word* are welcomed. (Please realize that there is no guarantee that items submitted will be published or returned.)

Shelter in the Word is published 6 times a year by Church Bible Teaching Ministry; 3690 Bath Rd, Perry, Michigan 48872 (this is not a mailing address) Issues are sent free to people who request the publication and are genuinely interested in it. Church Bible Teaching Ministry reserves the right to refuse service for any reason. Postmaster: send address changes to Shelter in the Word, PO Box 107, Perry, Michigan 48872-0107.

Circulation: 2300

Shelter in the Word staff: Bill Buckman, Norm & Marleen Edwards, Missi Lara, David Meidinger; Jon D. Pike

You may receive *Shelter in the Word* and other literature by mail or e-mail. Please send requests to the nearest location, below. (If you want to help with our expenses, please write cheques to the name shown below).

Church Bible Teaching Ministry
PO Box 107 • Perry, Michigan 48872-0107
517-625-7480, Fax: **517-625-7481**, **info@ShelterInTheWord.com**

Australia: Dale Heslin; 9 Alice Jackson Crescent; Gilmore, ACT 2905
e-mail: dale@pcug.org.au

Canada: C. Zimmerman, 268 Pennswood Wy SE, Calgary, AB T2A 4T3

Philippines: Cesar Lumbuan; 2298 Flerida St.; Balagtas, Pandacan; Manila
e-mail: maxen@skyinet.net

U.K.: Jenny Whiteman; 2 Warren Rd; Narborough, Leicester, LE9 5DR
e-mail 100623.734@compuserve.com

For a time the vast majority of mankind had been purposely left out of Christianity, but it was only for a time.

Christianity started out as a branch of Judaism, and the early Christian church was Jewish.

Jesus Calls the Gentiles

The Gentiles had to wait. Jesus' ministry was directed at the twelve tribes of Israel. The Gentiles were purposely second. They did not hear the Gospel until long after Jesus died.

It was about a decade after Jesus' resurrection that He started calling Gentiles into His church. He used the Apostle Peter to begin the process. In the book of Acts we read that Jesus personally revealed to Peter that no man was common or unclean, the Jews had viewed the Gentiles in just that way, as unclean. Jesus told Peter that all people were welcome to come to Him and accept him as Messiah. Peter tells us:

> Acts 10:28 " Then he said to them, "You know how unlawful it is for a Jewish man to keep company with or go to one of another nation. But God has shown me that I should not call any man common or unclean."

Jesus sent James, Peter, and John to preach to Jews and Israelites. He sent Paul and Barnabas to preach the Gospel to the Gentiles:

> Gal 2:9 and when James, Cephas, and John, who seemed to be pillars, perceived the grace that had been given to me, they gave me and Barnabas the right hand of fellowship, that we should go to the Gentiles and they to the circumcised.

Paul's and Barnabas' preached to Gentiles all over Asia Minor and up into Italy. They travelled to places like Corinth, Ephesus, Philippi, and Rome. The Gospel spread quickly. Large numbers of Gentiles accepted Jesus as Messiah and many Gentile congregations came into being. Paul wrote letters to these congregations. One of Paul's most important letters was written to Christians in Rome. The congregation in Rome consisted mostly of Gentiles; Rome was to have a profound impact on all of Christianity.

Early Jewish Gentile Conflict

There were enormous differences between these two church communities. The Jewish Church taught that the Gentiles were unclean and that Jews must live separate from the Gentiles. The Jews traced their ancestry back to Abraham and lived by the Law of Moses.

The Gentiles were generally pagan. They worshipped many gods and often lived immoral lives. So when the Gentile church was started, there was an almost immediate conflict between Jewish Christians and Gentile Christians. The cultures they came from were so very different.

The roots of the conflict centered on the Jewish practice of circumcision and on the fact the Jews observed the Law of Moses. They sought to keep all of the Law of Moses. Over time the Jews developed a love-hate relationship with the law. They realised they were expected to keep the law but they found it hard to keep. One solution was to add " fences" — more laws designed to prevent people from even getting close to breaking the true law. (An example of this is beginning the Sabbath a certain number of minutes early, so as not to break the true Sabbath.) However, these hundreds of extra "fences", humanly devised laws, just added to the burden. So they stumbled at the demands of the Law.

> Rom 2:17 Now you, if you call yourself a Jew; if you rely on the law and brag about your relationship to God;
>
> 18 if you know his will and approve of what are superior because the law instructs you;
>
> 19 if you are convinced that you are a guide for the blind, a light for those who are in the dark,
>
> 20 an instructor of the foolish, a teacher of infants, because you have in the law the embodiment of knowledge and truth—
>
> 21 you, then, who teach others, do you not teach yourself? You who preach against stealing, do you steal?
>
> 22 You who say that people should not commit adultery, do you commit adultery? You who abhor idols, do you rob temples?
>
> 23 You who brag about the law, do you dishonour God by breaking the law?
>
> 24 As it is written: "God's name is blasphemed among the Gentiles because of you."

As more and more Gentiles began to accept Jesus and enter the church, many in the Jewish Christian community demanded that the Gentile converts be circumcised and that they also keep all of the Law of Moses. Many Jewish teachers insisted these were

unchangeable requirements for salvation. The wanted the Gentiles to live like Jews.

The question was whether the Gentiles had to keep the Law of Moses given to the nation of Israel at Mount Sinai and whether they needed to be circumcised as Abraham was circumcised. The controversy was not over keeping the Ten Commandments, because the Ten Commandments had all existed prior to the Law of Moses. The early church understood that the Ten Commandments should be kept by everyone, Jew and Gentile alike.

The controversy raged on and became the most divisive issue in the first century church. Should the church require Gentiles to be circumcised and to keep all the Law? Some said yes and others said no. There was no unified position in the churches of God.

The Meeting at Jerusalem

The question was so divisive that the elders in Antioch decided to send men to Jerusalem where the apostles, the elders, and the brethren could discuss the matter. The question was so important to all generations, that we read a record of this church meeting in Acts chapter 15. This is the only recorded church conference in all of the New Testament. They gathered in Jerusalem and discussed whether the Gentiles should be forced to live like Jews.

The story begins in Acts 15:1-4:

> Acts 15:1 And certain men came down from Judea and taught the brethren, "Unless you are circumcised according to the custom of Moses, you cannot be saved."
>
> 2 Therefore, when Paul and Barnabas had no small dissension and dispute with them, they determined that Paul and Barnabas and certain others of them should go up to Jerusalem, to the apostles and elders, about this question.
>
> 3 So, being sent on their way by the church, they passed through Phoenicia and Samaria, describing the conversion of the Gentiles; and they caused great joy to all the brethren.
>
> 4 And when they had come to Jerusalem, they were received by the church and the apostles and the elders; and they reported all things that God had done with them."

Here we read that this question raged on until the issue was finally brought to the apostles in Jerusalem. The problem was that Jewish Christians, who were still Pharisees, were commanding the Gentiles converts to be circumcised and to keep the Law of Moses. Here the problem is clearly defined:

> Acts 15:5 But some of the sect of the Pharisees who believed rose up, saying, "It is necessary to circumcise them, and to command them to keep the law of Moses."

We can go on to read the decision, the consensus of those in attendance:

> Acts 15:6 Now the apostles and elders came together to consider this matter.
>
> 7 And when there had been much dispute, Peter rose up and said to them: "Men and brethren, you know that a good while ago God chose among us, that by my mouth the Gentiles should hear the word of the gospel and believe.
>
> 8 "So God, who knows the heart, acknowledged them by giving them the Holy Spirit, just as He did to us,
>
> 9 and made no distinction between us and them, purifying their hearts by faith.
>
> 10 Now therefore, why do you test God by putting a yoke on the neck of the disciples which neither our fathers nor we were able to bear?"

The decision was that the Gentiles did not have to be circumcised nor did they have to keep the Law of Moses. In other words, the Gentiles did not have to live like Jews. This was a radical decision, and for many, a totally unexpected decision. But it was what Jesus wanted for the Gentiles. He did not expect them to live like Jews. It was not necessary for them.

When the conference ended the leaders of the church sent copies of the same letter to all the churches and told them of the collective decision:

> Acts 15:23 They wrote this letter by them: The apostles, the elders, and the brethren, To the brethren who are of the Gentiles in Antioch, Syria, and Cilicia: Greetings.
>
> 24 Since we have heard that some who went out from us have troubled you with words, unsettling your souls, saying, "You must be circumcised and keep the law"; to whom we gave no such commandment;
>
> 25 it seemed good to us, being assembled with one accord, to send chosen men to you with our beloved Barn-

abas and Paul,

26 men who have risked their lives for the name of our Lord Jesus Christ.

27 We have therefore sent Judas and Silas, who will also report the same things by word of mouth.

28 For it seemed good to the Holy Spirit, and to us, to lay upon you no greater burden than these necessary things:

29 that you abstain from things offered to idols, from blood, from things strangled, and from sexual immorality. If you keep yourselves from these, you will do well. Farewell.

From this point on there were **two distinct Christian churches**. There was the Jewish Church that continued to circumcise, to keep the Law of Moses, and to observe Jewish traditions. And there was the Gentile Church that maintained the core of biblical righteousness and focused on faith in Jesus. The Gentiles generally did not keep the Law of Moses, but they did keep the Ten Commandments and the biblical clean food laws. Verse 29, above, mentions one of each of those laws—probably the ones most "in question" at the time. It was understood that the Ten Commandments and the clean food laws were in force since the creation of man.

Jewish Church Unaffected by Ruling

It is important to emphasis that the Jewish Christian church continued to keep the Law of Moses and to circumcise their baby boys. The ruling that came out of the Jerusalem conference didn't effect the Jewish congregations. They continued to practice Christianity as they always had. They continued to live as Jesus had personally taught them to live. Jesus lived like a Jew and the Jewish Church continued in His steps, even after the Jerusalem conference.

The Jewish Church stressed keeping the Law. It was only natural for them. They lived by it for centuries.

At this point in history Jewish Christians out numbered Gentile Christians. They had been around longer and they were dominant. In fact, it was the Jewish Christians who were persecuting Gentile Christians and it was that persecution that had precipitated the Jerusalem conference.

The Jewish Church continued to dominate Christianity until the Romans destroyed their capital city, Jerusalem.

Not One Unified Church

The Gentiles rejoiced in the decision coming out of Jerusalem conference. After the conference, the Gentile Christian community began to develop along different lines. It took a distinctly different path then the Jewish church. The Gentiles began to stress grace and salvation through grace. They relied very heavily on the teachings of the Apostle Paul. He was their guide and mentor. It was Paul who laid their foundation. Paul taught the Gentiles that salvation comes by grace through faith, and not through works of the law. They have held to this teaching.

Most of the other apostles did not address the issue of grace in the same way Paul did. Their teaching was to the Jewish Church based on the needs of the Jewish Church. The emphasis in the Jewish church was keeping the law, they continued to stress the need to keep the Law of Moses. Both churches are saved by grace through faith, but the emphasis in the Gentile congregations was living by faith, apart from keeping the Law of Moses.

Contrary to what many believe, there was never one unified church after the meeting at Jerusalem. They held many things in common, but complete unity never existed. The factions are shown to exist in 1 Corinthians 1 and 3. But the biggest division was between the Jewish and Gentile churches. They eventually developed two distinct theologies.

The church of God was never unified, with one common culture, after the meeting in Acts 15.

Gentile Dominance of Christianity

The Gentile church began a slow and steady rise to dominance. It was unavoidable. It was the natural result of the major geopolitical events of the time.

First, the Jews were a small minority in a world filled with multiple millions of Gentiles. The world was mostly Gentile. It was not Jewish. The shear numbers of Gentiles favoured the formation of a large Gentile church.

These millions of Gentiles had no interest in adopting Jewish culture and no desire to live like Jews. In time they brought into Christianity their own culture and their own traditions. The Gentiles brought a richness to Christianity that could not have come from the Jewish nation alone. While the Gentiles certainly brought **some sin** from their culture, **not everything was sin** Some Gentile customs did not conflict with the teachings of Jesus.

One example of this is sports. Jewish culture had almost no sporting events, but the Gentile cultures did. Paul frequently used sports analogies in his teachings to the Gentile churches (1Cor 9:24-26; Gal

2:2; Gal 5:7; Phil 2:16; 3:14; 2Tim 4:7; Heb 12:1).

The second major event that caused the demise of the Jewish church was the destruction of Jerusalem. In 70 AD the armies of the Roman General Tacitus destroyed Jerusalem. In doing so he not only destroyed the Jewish nation, but he also seriously damaged the Jewish church. Both Christian and non-Christian Jews were martyred and scattered all over the known world.

The fall of Jerusalem didn't impact the Gentile church in the same way. It continued to grow and spread throughout the Roman Empire, while the small scattered Jewish church struggled to maintain its culture and traditions.

The third major event that further separated the Jews and Gentiles was the ongoing uprisings of the Jews after the fall of Jerusalem, culminating in the Bar Kochba revolt in 132 A.D. Simon Bar Kochba was able to unite many of the Jews and take over Jerusalem for a brief period. However, he was eventually defeated and the Romans treated Jews even worse. The Gentile church, in order to avoid this ill treatment, further distanced itself from the Jews.

The tables had now turned. Where once the larger Jewish church persecuted the smaller Gentile church, now the larger Gentile church began a long and steady persecution of the smaller Jewish church.

The tables had truly turned.

The Gentile Congregation in Rome

Over time the church congregation in Rome assumed dominance of the Gentile Church. Rome was the most important city in the world. It was the centre of the Empire. When Emperor Constantine converted to Christianity, he virtually ensured the city of Rome would come to dominate Christianity. Church leaders eventually adopted the Roman form of government and the Gentile Church became politicised.

In the process of separating from the Jewish church, large parts of the Gentile church discarded some of the true doctrines that were taught in the scriptures. The Sabbath, Feast days and food laws were some of the early casualties, as they just appeared "too Jewish".

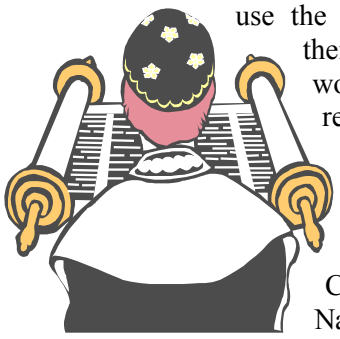
As the centuries passed, Rome continued its control of Christianity through church councils and a rigid hierarchical form of governance. It controlled the doctrine of the church. It controlled the selection of ministers and bishops. The church had become universal, or Catholic, and that is how it remained all the way up until the time of the Protestant Reformation.

When there was opposition, the Catholic church used the military resources of the Empire to force its control and doctrine on all those who dared to believe differently. The Jewish Church was a main target of the Gentile Church in Rome. Sabbath keeping, Holy Day Observance, and the Law of Moses were strongly opposed by the Church in Rome. For over 1260 years, from Constantine to the Protestant Reformation, those who opposed Rome were often brutally martyred. The combination of Church and State wielded awesome and deadly civil power.

It was the Protestant Reformation that broke the dominance of the Roman Church. It happened slowly, over centuries. With the advent of printing, copies of the scriptures became much more common and the truth of the Sabbath, Holy Days, and the value of the Old Testament was rediscovered. New small congregations of the Jewish Church began to spring up. People of conscience returned to their Hebrew Roots, i.e. Sabbath, Feast Days, and a regard for the Law.

Modern Jewish Church

Beginning in the 1600's the modern day Jewish Church began a slow but steady period of growth. There have always been various Messianic Jewish groups that practised Old Testament laws as well as Jewish tradition, but also believed in Jesus as their saviour. This author would include modern groups that do not keep many Jewish traditions, but which use the Old Testament teachings in their doctrines. This author would include, as members of a revived "Jewish Church", the Seventh Day Baptists, the Church of God Seventh Day, the Seventh Day Adventists, the World Wide Church of God, "Sacred Name" groups, independent Sabbath-keeping groups, and offshoots. Most may not think of themselves as "Jewish"—some may even be offended at the term, but they would probably agree that their doctrine and practice is much more similar to original Jerusalem church than to the Gentile churches



Many of the groups mentioned above once claimed themselves to be the "the One True Church". However, because most of them have split into several similar groups, that claim has become much more difficult to make. Furthermore, many long-time Sunday-keeping groups are now beginning to examine the Feast Days, clean food laws and even the Sabbath. All of this cannot possibly be attributed to any one man or group.

Why is the "Jewish church" continuing its growth in the twenty-first century?

It is because Jesus wants the Jewish Church to grow and flourish as we approach the end of the age. He wants the small and persecuted Jewish church to once again exert influence over all of Christianity. This author believes that Jesus wants the truth of Sabbath, Holy Days, and the relevance of the Law to be widely known and understood before His Second Coming.

> Rom 11:13
> For I speak to you Gentiles; inasmuch as I am an apostle to the Gentiles, I magnify my ministry,
> 14 if by any means I may provoke to jealousy those who are my flesh and save some of them.
> 15 For if their being cast away is the reconciling of the world, what will their acceptance be but life from the dead?"

The time is coming when Jewish Church will no longer be cast away. It will be brought to life, as if being brought back from the dead. The Jewish Church is on the rise.

The Modern Gentile Church

Today's Gentile church consists of all the Sunday keeping denominations of Christianity. It includes the Catholic Church, the Protestant Churches, the Baptist Church, the Eastern Orthodox Church, and the many smaller Sunday keeping denominations.

The Gentile church has dominated Christianity these past 1800 years. Its shear size, its long history, and its scriptural roots give the Gentile Church legitimacy even though it has moved away from believing much of the teaching in the scripture. Its doctrinal base is shaky, because it holds onto historic traditions and the teachings of men rather then the message in the Biblical text. It still has considerable religious and political power, and continues to try and force its form of Christianity on the rest of the Christian world.

It is this author's opinion that we have been living in the "Times of the Gentiles". The Sunday-keeping Gentile Church has been allowed to dominate Christianity during the "Times of the Gentiles" so that salvation could be offered to the largest number of Gentiles possible.

> Rom 10:11
> For the Scripture says, 'Whoever believes on Him will not be put to shame.'
> 12 For there is no distinction between Jew and Greek, for the same Lord over all is rich to all who call upon Him.
> 13 For "whoever calls on the name of the LORD shall be saved".

We have been living in a time of grace and the Gentile Church has ministered to millions upon millions of Gentiles. Salvation comes by grace through faith, and anyone who now calls on the name of the Lord will be saved.

The Gentile Sunday keeping church is not "the Great False Church" as has been taught by some in the Churches of God. In fact, the phrase "false church" is nowhere found in the scriptures. The New Testament speaks of false brethren and it speaks of false ministers—and there are probably many in Sunday-keeping churches, but it never mentions a false Christian church.

At times the Christian church can be deeply flawed; it can be corrupt, it can be filled with sin, it can be filled with false brethren and false ministers, and it can even be almost dead, but it is still " the church". The letters in Revelation 2 and 3 bear this out. James 4:1-4 even mentions unnecessary wars and fights among people in the Church. Christ does not support the great evils done in the name of the Church throughout history, but nor does he declare all associated with such movements as "not His church".

The parable of the wheat and the tares shows that there would always be false brethren among the true brethren, and that Christ would sort it out in the end (Matt 13:24-30).

Both Churches Have Borrowed

Modern Sabbatarians are greatly beholden to the Sunday keeping Churches. They have taken many good things from them and they continue to borrow from them.

The Sunday keeping Gentile Church has provided Christianity with a rich cultural heritage, much of which has been brought directly into Sabbatarian Churches. It is the Gentile church that has given us Bible translations, Bible commentaries, Bible dictionaries, and all types of scholarly works. It has

given Christianity beautiful music and lovely hymns. Much of the Seventh Day Adventist and Church of God culture has come directly from the Protestant branch of the Gentile Church. We use their scholarship, we use their music, we copy their liturgy, we borrow elements of their doctrine, and even pull from their theories of prophecy.

The Gentile Church has strengths that some Sabbatarian churches lack and they would be well advised to learn from it. They have translated the Bible into nearly every language and made it available almost everywhere. They have helped many poor and sick people in the name of Jesus. Some teachers in the Protestant Gentile church have a good understanding of grace. At times they go too far and say, "the Law is done away", but they still have a more complete understanding of grace than many Sabbatarians do. It is because, early on, Paul taught them to live by grace and faith. The Churches of God generally do not understand grace as well as the Gentile Churches.

The Gentile Church has a deep and profound appreciation for Jesus Christ. Many understand how Christ can guide and teach each member individually. They understand how He comforts those in need. Sabbatarians tend not to understand Jesus to the same depth. The Gentile Churches focus on Jesus but they do not understand the Father.

Sabbatarians have a good understanding of the Father and appreciate the Father's role in our salvation. They love the Law of God. They appreciate its goodness and its richness. One of the Great strengths of the Churches of God is their deep regard for the Sabbath and Holy Days. They understand that Jesus expects His people to observe them.

The Sabbatarians have also continually raised the issue of paganism that has crept into the Gentile Churches—most practices of Christmas, Easter and Halloween are not from the Bible at all. The Gentile church has gone back and forth on some of these practices throughout the centuries, mostly because of small groups that continue to raise the issues.

The Gentile church must come to accept its error and return to keeping the Sabbath and Holy Days, as they did in their very early history. These are commands of God that are binding on us today. They are not legalism.

However, some Sabbatarian groups are too heavily focused on law and ignore things of the spirit. That is legalism.

The Sabbath is as much of a command as the command to not commit adultery. The Gentile Church recognises that adultery is a sin. They acknowledge that the Lord tells us to flee sexual sins and they rightly teach that avoiding adultery does not save us, we are saved by grace through faith. But the Lord also commands us to keep the Sabbath. Our Sabbath keeping doesn't save us, we are still staved by grace, but Jesus wants us to keep the Sabbath.

The Rise of The Jewish Church

Both churches have great strengths and great weaknesses. They both need to learn from one another, as Jesus directs and guides them. The Gentile Church needs to accept the Sabbath, it needs to keep the Holy Days, and it also needs to turn from the traditions of men.

The Jewish Church needs to learn more about grace and the closeness Jesus Christ and it needs to move away from legalism.

The two churches need to learn to accept one another and live in peace, as the Lord intended them to live. There shouldn't be any conflict, jealousy, or antagonism between the Jewish church and the Gentile church. Those in the Jewish church should continue to live like Jews. Those in the Gentile Church are not required to live like Jews, but they should return to the common elements of faith, which would include Sabbath and Holy Days.

As we approach the end of the age the Jewish Church will continue to grow in prominence.

> Rom 11:25
>
> For I do not desire, brethren, that you should be ignorant of this mystery, lest you should be wise in your own opinion, that blindness in part has happened to Israel until the fullness of the Gentiles has come in.
>
> 26 And so all Israel will be saved, as it is written: "The Deliverer will come out of Zion, And He will turn away ungodliness from Jacob;
>
> 27 For this is My covenant with them, When I take away their sins."
>
> 28 Concerning the gospel they are enemies for your sake, but concerning the election they are beloved for the sake of the fathers.
>
> 29 For the gifts and the calling of God are irrevocable.

The Gentile church has been given a long period of dominance so that millions of Gentiles could be saved. When the Lord feels that work is done, when the "Times of the Gentiles" are complete, He will again raise up the Jewish church and call all of Israel into it. Until then, the two churches need to respect one another and live in peace. 🕮

The Importance of Repentance

by Tommy Willis

Repentance is a must if we are going to walk with God. God says:

> 1 John 1:9
> If we confess our sins, he is faithful and just to forgive our sins, and to cleanse us from all unrighteousness.

Think on those words. Repentance is the best shot in the arm we can receive. It clears the way for us; and we are once again starting anew, as though we have never sinned, because God puts it under the blood of Jesus Christ, and we are once again spotless in God's sight!

Because of the shed blood of Jesus Christ—the babe in Christ is just as spotless as the mature Christian. Because of the shed blood of His Son God tells us to come boldly before the throne room. "Having therefore, brethren, boldness to enter the holiest by the blood of Jesus" (Heb 10:19).

When I first saw this reality my joy knew no bounds, because I knew that I was not a mature Christian, and I had always felt that my prayers would carry more weight if I were a mature Christian. But our righteousness does not depend on our maturity level, but on the blood of Jesus Christ. The young believer may be sinning more in his **condition** than the mature believer is, but his heavenly **position** in Christ is just as spotless.

Seeing your righteous position in Christ—you will not want to hide your sins, but repent and go on. Your sins can only prevent you from moving forward if you try to hide them.

In Christ we are righteous; it does not depend on if we are walking perfectly or not; but it rests on the finished work of the cross. But we should seek to grow and overcome. It is not good to stay on the milk when that time should be past. And we need to keep in mind that there will be less and less sins committed as we grow and mature.

As long as you are willing to keep repenting and seeking to overcome, then God will take you through all the necessary steps to bring you home to His Kingdom. No power can stop us from being there unless we let it. But we need to keep in mind that the biggest enemy is ourselves. Self is the biggest enemy in the camp. The heart is very deceitful (Jer 17:9), and all too often it will not examine itself and lets too many things go. We must seek God's grace and ask Him to help us examine ourselves. God already knows our problems; but it is we that won't really see them by not examining ourselves as we should.

It's easy to forget we are sinners. This is the problem the Laodicean Church drifted into (Rev 3: 14-20). And it is an attitude we will have to guard against. It's easy to feel we are full and have need of nothing. I have been in this attitude many times in the past; and the only way I ever came out of it was with repentance. And I pray and hope not to drift into this dangerous attitude again. David says:

> Psalm 32:3 When I kept silent my bones wasted away though my groaning all day long.
> 4 For day and night your hand was heavy upon me; my strength was sapped as in the heat of summer.
> 5 Then I acknowledge my sin to you, and did not cover up my iniquity. I said, "I will confess my transgression to the LORD", and you forgave the guilt of my sin."

Here we see David receiving release from the conflict through repentance. The softest pillow to lay on is a clear conscience.

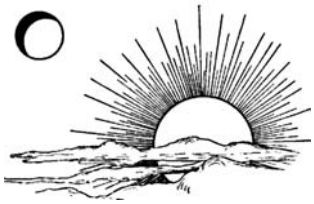
There is no reason to fear. God understands our struggle with sin, and has given us a way to deal with the problem. But we must learn to confess our sins as God teaches us, this way we can continue on in unbroken fellowship with Him. We will often have to ask God to give us a spirit of repentance. We need to cry out to God for His enabling grace to get the job done, because in ourselves, too often we don't want to acknowledge our sins; David relates to this problem in the above Scripture.

> Prov 28:13 He who covers his sin shall not prosper, but whoever confesses and forsakes them shall have mercy.

Let us examine our selves before God like David says in Psalms 139:23-24, "Search me, O God, and know my heart: try me, and know my thoughts. And see if there be any wicked way in me, and lead me in the way everlasting."

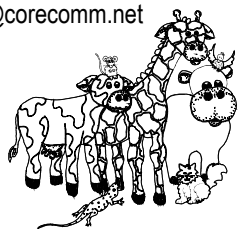
The more we do this the safer ground we will be on. As we learn to repent when needed, God will pull us closer to His bosom, and increase our blessed fellowship with Him. 🕮

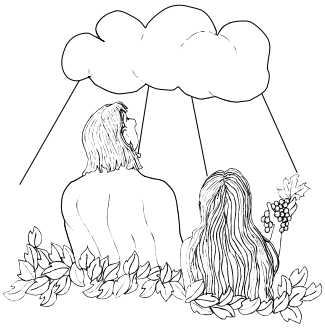
Creation Corner



For I am fearfully and wonderfully made. Marvellous are your works (Psalm 139:14)

by C. Frazier Spencer
frazier@corecomm.net





Introduction

Logically, there are only two possibilities. We are either:

1) The result of some kind of a Creator God, or

2) The result of accidental Evolution.

On the one hand is the Bible which says it was written by a God being who is above *all other* gods because He *created* the wood, stone, metals, the sun and stars; the *very things* which make up other gods. Strong words indeed! (Psm 95:3–5; 115:3–8; 135:5, 15–18; Isa 44; Jer 10:2–15.) This Being furthermore writes *He* is the giver of life. (Job 33:4; Pro 4:4; 7:2; Rom 6:23; Jn 1:3–4.) This Being further writes in Rom 1:20 that the invisible things of Him are *clearly seen*, being understood by the things that are *made* .

Therefore *proving* the Creator God seems to be a logical starting place for people interested in Christianity. Notice Paul used the Creator God as a starting place (Acts 17:24–25) when first revealing God to the pagan philosophers at Athens. And again at Lycaonia (Acts 14:15).

On the other hand is Evolution which says every living thing is the result of mindless, purposeless, accidental *chance*. It goes even further by concluding "humans are just animals". Evolution is now taught in our schools and acclaimed by the media as established fact and has itself taken on many aspects of being a religion.

The goal of this column is to counter evolution doctrine by presenting some of the things that have been *made* so the Creator God can be *seen*. A secondary goal is to help reinforce the faith of those who may already be believers.

(*Italics* or **boldface type** are added to many quotes that follow.)

Engineers Without Degrees

Our son, Jeff, spent four years in high school taking many courses, among them algebra, geometry, calculus, and the like. Then he continued on to Purdue University's engineering school where he spent four years studying even more difficult advanced courses. Finally, a year ago he was awarded an engineering degree in Computer Science. His story is much the same as human engineers around the world.

But What If?

But what if we find feats of engineering performed by creatures with no training or schooling? What if we find creatures in nature executing complex ***engineering*** projects? What then???

Imagine an engineer given a special assignment to maintain a constant **34°C** temperature in a wooden box about 60 cm by 60 cm and 90 cm high. The temperature can vary by only **0.25°C**. Not challenging enough? Suppose we add two more conditions to the project:

1. Using electricity is not allowed.
2. It must work in all types of weather for thousands of years without failure.

Do you think the brightest and highest trained *human engineers* in the world using the latest equipment available could accomplish this assignment? I don't think so either.

Performing a Complicated Engineering Task

Yet this assignment is being done routinely *every day* all over the world!

The difference is… it is not done by human engineers. It is done routinely by… *honey bees*.

The book "Microscosmos"(1) explains "The temperature inside a beehive during the summer months stays at a virtually constant 34°C (to within 0.25°C), since this is the ideal temperature for the development of larvae. When the temperature drops, the bees release heat by vibrating their thoracic muscles without moving their wings. When the temperature rises too high, they fan the overheated air by rapidly beating their wings and by bringing water from the outside to cool off the hive. This efficient thermal control is made possible by the specialised receptors in bee antennae, which can detect variations in temperature to within 0.25°C."

One paragraph is so quickly read. But this time let's stop and *analyse* what was summarised so

briefly by the authors.

An Analysis of Surprising Information

First, a difference of **0.25°C** is an incredibly narrow range. How quickly each bee must act to either increase or decrease the temperature!

But it's more than that isn't it? Much more. Because the thousands of bees operate all *together* as a *unit*, do they not? We can think of some questions:

1. How are the directions given?
2. How does the group know when to start either beating their wings to *lower* the temperature or to vibrate their thoracic muscles to *raise* it?
3. How do they know when to get water?
4. How much water is needed?
5. Who stays to beat their wings and who goes for water?

Some evolutionists tell us that bees, along with the rest of us, evolved from fruit flies. How did the first generation of 100% honeybees know a constant temperature was even needed for their offspring to be born? How did they know it was exactly 34°C? After all, the first generation of offspring had to have been done *exactly right*, there would have been no multiple chances for experimentation up and down the temperature range.

We are told it is always survival of the fittest. Right? Right! There are some **fifteen million** insect species. Fourteen million and some odd other insect species have *no* such critical temperature requirement for their offspring to be born. Now consider this — a 34°C temperature requirement has to be a huge *impediment* to survival. Under survival of the fittest, a specie with such an enormous drawback would have died out millions of years ago, while those species with more lenient requirements would have survived.

Think for a moment about what the authors describe as "This efficient temperature control is made possible by the specialised receptors in bee antennae, which can detect variations in temperature to 0.25°C."

Why did these *specialised* receptors evolve just in bees? Fruit flies don't have them. Imagine such a receptor. It is probably the size of several dots at the end of this sentence strung together. How could something that tiny measure temperatures to within one-quarter of one degree? Wouldn't it be marvellous if man could duplicate even that?

The authors agree by writing, "The "sense of temperature" which is also located in the antennae of many insects, is a much *more mysterious* sense. Our own capacities in this regard remain extremely *modest*."

I think in the tiny honeybee's 34-degree Celsius temperature maintenance we see an **engineering** marvel. One that man cannot duplicate, given the same materials, despite all of his technology and university studies.

More than Just Temperature Maintenance

The book "The World of Bees"[6] tells us more. "Another example is the task of ***ventilation***. The bees hump themselves up and move their wings about **400** times per **second** on the landing area of the hive… The hotter it gets inside, or the more moisture-laden the air becomes, the greater the number of bees that will stand there fanning."

The author asks, "Who tells them they must? Nobody as far as anyone can ascertain."…

He continues, The bees have figured out the world's first *air-conditioning* system… When the weather gets very, very hot…the temperature may shoot up in spite of plain bee fanning…. The bees, if it become necessary when plain fanning is not doing the job, lay aside other tasks.

They go out, find water, and bring it back in their honey stomachs in *place of* nectar. Hundreds of them, even thousands of them carry it. They spread it on the combs, on the inside walls of the hive…. The evaporation of the water .cools the inside of the hive. It provides a crude, but very effective air-conditioning"…

The author then asks, "Who taught the bees this *engineering* principle? Who tells them when to put it into practice? No one knows."

Hoyt tells us about their efficiency even in cases of fire. In one case of a barn fire, the heat was so great "that the nearby bee hive nearly burst into flame"…later it was found "that all the bees had rallied around during the fire and worked on the air-conditioning… Many, many bees fanned furiously throughout the fire at the door on the side away from the flames. Thousands carried water.

And when the hive top was lifted off, everything was intact inside. The outside wall was scorched and burned…but the bees had saved their wax structure, their stores, and their colony life."

Author Hoyt sums up, "Through *engineering* know-how their life pattern is highly efficient."

Could There Be Termite Engineers?

Karl von Frisch, a scientist awarded a Nobel Prize in 1973, is famous for his study of how bees communicate nectar sources by performing intricate, coded dances. Mr. von Frisch's well researched and most informative book "Animal Architecture"[2] supports evolution, which makes his observations all the more striking. Mr. Von Frisch calls termites: "*masters*

*in building and **engineering***." Let's see why he does this.

"There are more than two thousand species of termites living in tropical and subtropical regions. All known termite species, like all ant species, are social insects. Their colonies may have over **ten million** individuals…

Termite nests may be gigantic structures… some are **6.4 metres** high…

We have even more cause for wonder when we consider the whole range of termite buildings and the way they are adapted to the most diverse climatic conditions of the countries they inhabit…

Take, for example, certain species of the genus Cubitermes that live in tropical rain forests. They put roofs with *overhanging eaves* on their tall mounds, which make them look like pagodas and serve to keep the torrential rains *off* the main structure…. Termites in arid zones do not build such roofs, showing they definitely are *umbrellas*, not sunshades…

The treeless steppeland of Australia, baked by the scorching heat of the midday sun, is the home of the compass termites (Amitermes meridionalis). Their towering structures, which may be up to **4.57 metres** high, and **2.75 metres** long, look as if they had been compressed from two sides. Their two short sides face *exactly* north and south, so that the surface exposed to the rays of the midday sun is small, while the long sides *catch* the evening and morning sun… A traveller can quickly get his bearings by looking at the direction of these mounds."

Then the author asks a question for us. "But how do the *blind* termites orient them so *perfectly* without a compass? The method by which the compass termites achieve their *spectacular results* has not yet been studied."

How About Air-Conditioning?

Von Frisch's next heading is: "Air-conditioning in termite dwellings". Yes, it seems air-conditioning is not an invention of human engineers after all!

Von Frisch explains. "The interior architecture of many termite species is even more *astounding*. The distribution of the various chambers according to their different purposes is *evidence* of a definite *building plan*. But the functioning of a large termitary requires not only the *systematic layout* of the chambers, but convenient space for the royal cell, the quarters for the different age groups, the fungus *gardens*, and the associated network of communications….

When a mound of Macrotermes billicosus... has reached a height of **2.75 to 3.65 metres**, it contains more than **two million** termites. They live, they work, and they breathe. Their oxygen consumption, which has been measured, is considerable. Without ventilation they would all be suffocated within twelve hours…

These insects have established a strange and *ingenious* ventilation system...the nest proper, which is almost round, with its royal cell in the centre, and its many chambers, and passages. Between it and the thick, hard outer wall there are narrow air spaces. Below it is there is a larger air space, the "cellar". The central structure rests on conical supports and is further anchored by lateral struts."

"Another air space above it reaches a long way into the nest proper, like a *chimney*. On the outside of the mound, ridges or buttresses run from top to bottom… Channels as thick as an *arm* radiate from the upper air space into the ridges where they divide into many small ducts. These come together again to form channels as wide as the first leading into the cellar." My note: Don't the last two paragraphs sound right out of an engineering handbook?

The author adds another bit of surprising information. "Though termites are found in all these structures, they do not act as ventilators as, for instance, bees do when they ventilate the hive by fanning their wings. The ventilation system of the termitary is ***completely automatic***." Imagine that.

A Technical Explanation of This Engineering Marvel

"The air in the fungus chambers is heated by the fermentation process taking place there. Like any tightly packed group of animals, the termites themselves cause a rise in temperature. This hot air rises and is forced by the pressure of the continuous stream of hot air into the duct system of the ridges. The exterior and interior walls of these ridges are so porous that they enable a gas exchange to take place. Carbon dioxide escapes and oxygen penetrates from outside. The ridges with their system of ducts might be called the *lungs* of the colony. As has been experimentally confirmed, the air is cooled during its passage through the ridges; this cooler, regenerated air now flows into the cellar by way of its lower system of wide ducts. From there it returns to the nest via the surrounding air space, replacing the warmer rising air."

More Engineering

The book "Alien Empire"[3] gives us the author's observations of termites that accomplish feats of engineering. Termite nests… designed to provide *air-conditioning.* Their huge *air-conditioning* towers are major features in many tropical savannah landscapes."

The book includes diagrams with these written descriptions, "Showing the complex fungus garden and the network of chimney spaces through which hot air arises as part of the termites *sophisticated air-conditioning system…*a computer generated simulation of the *special vanes* in the termites' nest, a vital part of the air-

conditioning process. Worker termites keep the vanes damp, so the warm air passing over them is cooled down as the water droplets evaporate."

There's even more. The author sums up, "It is remarkable that the worker termites have constructed the equivalent of, in human terms, a *skyscraper* **9.6 km** high.

And they are blind."

"The air-conditioning systems of termites are *so effective* that human engineers are now *constructing* buildings with cooling systems based on termite design." You may want to read that again.

Can We Think of Some Questions?

Doesn't all of this seem like a very complicated system to you?

If so, how could it develop by a process of trial and error, by a series of accidents?

How could thousands, maybe millions, of generations of the termite specie survive while all of the trials and errors took place that would be necessary to finally perfect the finished and faultless working air conditioning system?

Didn't Von Frisch tell us without the system the colony would die within **twelve hours**?

Engineering Knowledge beyond the Norm

"Alien Empire" continues, "This makes it even more remarkable that meaningful reactions to extraordinary situations, or what one might call emergencies, have been observed. When a termite mound was enveloped in a plastic tent so that **ventilation** was seriously impeded, the termites managed within **48 hours** to build new structures at the top of the mound, which looked somewhat like small pointed hats and had exceptionally pointed out walls so that they functioned as a ***new ventilation system***!"

As incredible as it sounds, not only has a complicated and efficient engineering system been described to us, but an ability to even engineer brand *new* items to react to an emergency.

What Else Do They Need Besides Air Conditioning and Ventilation?

"Ventilation is not the only problem of termite communities. **Water** is another. A great deal of water is needed because the inhabitants with their tender skins require a humid atmosphere. In the nests of Macrotermes, relative humidity is 89% to 99%. Much water is also needed for consumption, for making mortar, and for other purposes. In arid regions, termites may dig to *enormous* depths to tap the ground-water table… Some desert termites were found that drive bore holes down to water at a depth of **36.5 metres**. The construction of such deep shafts through loose soil is a truly prodigious feat of civil ***engineering*** for these small animals." Think of that.

A Turkey as Engineer

One section of von Frisch's book is sub-titled, "Birds that build and regulate incubators".

He tells us, "I shall start with the brush turkey (Alectura lathami), which lives in the forests of Australia's east coast… The cock chooses a site somewhere in deep shadow where, over a period of *weeks*… with his head turned away from the nesting site, he picks up his material (rain-soaked foliage with some soil) with his foot and hurls it backward into the growing heap. From time to time, the cock mounts the pile and stamps on it to make it compact.

Eventually, the structure reaches a diameter of **2.75** to **3.65 metres** and a height of about **1.37 metres**. The hen who approaches at this time is not welcome. The time is not yet ripe, not until the temperature inside the heap has settled down to **35°C**, or thereabouts, the warmth necessary for the development of the eggs… The *amazing* thing is the cock checks the temperature of the mound almost daily.

Digging a hole deep enough for him to disappear into except for his tail, he repeatedly tests the temperature inside with his open beak. He takes some of it into his mouth and spits it out again when he withdraws his head. His behaviour suggests that either his tongue or the inside of his beak contain *highly sensitive temperature* organs. I'll say.

If the pile is too hot, he leaves ventilation holes. If it is not hot enough, he adds further material suitable for fermentation and then closes the hole.

When at last the compost is in the right condition, he calls the hen. She then lays her first egg into a deep hollow scratched into the heap and the cock closes it up with nesting material. This process is repeated once every two or three days over a period of several weeks.

When she has laid the last of her eggs, the hen takes no further interest in the nest. But the cock remains fully occupied with the testing and regulating of his incubator until all the eggs have reached their development. Each egg needs about nine to ten weeks from laying to hatching."

Let's summarise the work of this 4.5 kg engineer without a degree.

In a shady spot, he builds a structure, throwing the material backwards, of brush and soil.

Through heat, cold, and rain, he maintains in this primitive structure a constant temperature of about **35°C**.

He spends *weeks* building the structure, eggs are laid over a period of several *weeks*, and then it takes nine to ten *weeks* for the birdlings to hatch. Thus the brush turkey checks and maintains the pile constant for a period of some *eighteen* or so weeks.

Another Example

Mr. von Frisch gives us yet another example. "First prize for perseverance in strenuous work goes to…the mallee bird, or towan (Leipoa ocellata). These birds are also called "thermometer fowl" because they spend **10** to **11** months of each year regulating the temperature of their nests.

Their problem is that both daily and seasonal fluctuations of temperature are very great in the arid open bush of central Australia… Moreover, foliage is scarce and any heap will soon be dried up by the sun and scattered by the wind. Prolonged and strenuous efforts are needed to produce a compost heap with a high and constant temperature.

Building begins in April or early May… The mallee birds start by digging a large pit about **90 cm** deep for which they collect any twigs or leaves they find in the vicinity… They fill the pit and heap up further vegetable material and a great deal of sand to form a mound on top of it, which is carefully smoothed…

Soon the compost below starts fermenting, but it takes **four months** until the desired constant temperature of **34°C** is achieved. This means that egg-laying can start around August. From then onward, the hens lay every four days or so. First, the cock digs a brood chamber in the compost… and tests the temperature in the manner described for the brush turkey. Then the hen enters and tests the temperature for herself. If she is not satisfied, the cock has to find a more suitable place in the heap…

After the preparatory of four months, an incubation period of six to seven months follows until the hatching of the last chick. The adult birds, then, are occupied almost year around with the business of building the incubator and tending it so the temperature of the interior, where the eggs of the clutch are lying close together, stays at an even **34°C**. Temperature is checked almost daily and usually it is controlled to an accuracy of about **half a** degree"!

A Variety of Engineering Solutions

How do these tiny creatures control the temperature to within one degree?

The author explains, "The method for doing this changes with the season. In spring, it is sufficient to get rid of excess heat by *making ventilation shafts* and closing them at the *right* time. In summer, fermentation slows down but solar heat increases. To prevent overheating, the birds *add* to the sand layer of the mound. But when the heat of the sun gradually penetrates deeper, despite these precautions, they adopt more *surprising* and efficient countermeasures; they *dismantle* the dome in the cool hours of the morning, *scratch* a deep crater reaching close to the place where the eggs are, and *spread out* the sand. When it has cooled down, they throw it back into the hole and *heap* a thick layer of the old material on top for insulation. Each time this work takes two to three hours."

"In autumn, when fermentation has ceased and solar heat declines, the dome is *dismantled* in the late hours of the morning and only a thin layer of sand is left on the eggs which are warmed by the midday sun. The sand that has been removed is spread in the sun, *constantly* turned over, and finally *put back* in the hole. This involves almost **five hours** of work, but it is effective."

Mr. von Frisch sums up, "It is *amazing* how *precisely* the birds can adapt to their activities to the situation and thereby succeed in holding the temperature in the egg chamber at an almost exact **34°C** most of the time"

Yet again — how easy it is to just quickly read over these two paragraphs. Let's summarise what these amazing creatures do to carry out their complicated engineering project:

- Make ventilation shafts
- Close them at the proper time
- Add to the sand layer when needed
- Dismantle the dome when needed
- Scratch out a deep crater
- Spread out sand
- Throw material back and heap new material on
- Dismantle the dome each morning when needed
- Leave only a thin layer of sand on the eggs when heat is needed
- Spread sand in the sun, constantly turning it over
- Put the turned over sand back in the hole when more heat is needed

We are confronted with some problems of logic: Where did the first generation of these creatures get their engineering training and knowledge? It could not have come from evolution, even its supporters acknowledge evolution is mindless accident. How is it passed on to each succeeding generation? How do these small creatures measure the temperature so exactly, with no errors?

Doesn't all of this seem like marvellous feats of dedicated engineering to you? They do to this writer.

Another Marvel of Engineering

The book "Insects and Spiders"[4] tell us about webs made by spiders. "The most renowned web in the arsenal, the orb, is a marvel of ***engineering***. It may contain **20 metres** of silk and have from **1,000** to **1,500** connections, yet it is usually spun in less than **30 minutes** by its master weaver. Extremely fine and light, the web may support a spider that weighs more than a **1,000** times as much as the silk used in its fabrication….

A victim "is held by a substance with far greater tensile strength than steel and twice as elastic as nylon. Some threads can stretch to more than **4 times** their original length without snapping."

Why Do Insects Have Six Legs?

The book "Microcosmos"[1] tells us. "Insects use their six legs, which may appear to be an uselessly complicated technique… It stands on a tripod formed by the first and third leg on the one side and the middle leg on the other, while the three legs move forward, legs on the alternate side are then moved.

The *advantages* of an alternating tripod movement so impressed ***engineers*** that they based designs for crawling machines on insect locomotion. These designs may one day be used to propel remote-control reconnaissance units for the exploration of other planets."

Who Invented the Wheel?

The book "Microcosmos" asks us, "yet what about the wheel?… Now here's an invention designed uniquely by man. Yet, if we observe a common dung beetle at work, another surprise lies in store for us.

Starting with an unshaped clump of cow or sheep dung, it uses its head as a *shovel* to flatten the chunk, then its legs to form a virtually *perfect* sphere. It then rolls its creation along… The dung beetle did not invent the wheel, but certainly came close to it; we will grant it the invention of the *ball*."

More Engineers

We do not have space to detail the work of **beavers**. Suffice to say they are called ***engineers*** by noted naturalist Roy Chapman Andrews[5].

It is also worth noting that in his book "Alien Empire"[8] author Christopher O'Toole has a chapter about **insects** he sub-titled "Miniature Miracles of *Engineering."*

Are any Engineering Principles Found in Plants?

Let's leave small creatures temporarily and see more engineering in a different area.

Have you ever wondered about the stalk of a flower? At the end of a long, narrow, somewhat flimsy looking stem is this heavy (by comparison) flower. Yet the heavy flower is held up very well by the slender stem, held up even withstanding strong winds and heavy rains. It is really quite remarkable if we stop and consider it.

Dr. Harold William Rickett taught Botany at the New York Botanical Garden as well as several universities. He explains [7] "The arrangement of wood in an herbaceous plant (or in the younger parts of a woody plant) bears a *curious and interesting* resemblance to the structural materials in *buildings* planned and erected (in other words-*engineered*) by man."

"The xylem elements are not scattered, but grouped in bundles running lengthways through the stem and roots. These vascular bundles are the long tough strips familiar in a stalk of celery or in a plantain leaf. Every *builder* knows that to get the maximum stiffness in a column or pillar from a number of strips or rods he must place them as far as he can from the centre; if this is done any force which tends to bend the pillar will have to stretch the rods on one side and compress or bend them on the other to a much greater extent than if they were all together in the centre. In the stem, whose problem is to stay erect and to resist forces which would bend it, the woody bundles are found in a ring near the [outside] surface."

Now Dr. Rickett explains about a different building system, "When we come to the **root**, we are dealing with something not usually subjected to forces which would bend it, but to lengthways *pulls* from the stem above. In it, we find the same sort of cells, but arranged in a strikingly different way; and again, arranged in a way that corresponds with *structural principles* used in human industry."

"If the wood of a root were arranged as in a stem, the pulls to which it is subjected might easily snap the bundles one by one and the root would no longer anchor the plant safely in the earth. But the wood of the root *is* concentrated in the centre, forming a solid tough core, like a rope; just as we use a thing strong cable to anchor a boat, not a group of wires separated from each other by a soft core."

Dr. Rickett writes about a third type of engineering system, "The same principles of *construction* are to be found in the venation of **leaves**, particularly in that of large leaves… The secret of their strength is to be found in the veins, which form a system of *girders* projecting from the lower surface and radiating from the place where the blade joins its stalk. The *girders* stand vertically, just as they do in our *buildings*, and so offer all their substance in depth to resist bending; they are joined by smaller girders which prevent them from falling sideways, and these in turn are braced by smaller veins which rise from the surface of the blade."

In telling us about the systems of girders which are found on common everyday leaves, the author adds this, "It is said that Joseph Paxton derived the idea for the framework of the famous Crystal Palace erected in Hyde Park in 1851 from the veins of the leaves of the giant water-lily of the Amazon."

Imagine that. The vein-girder system of these huge water-lily leaves are so strong that "if precautions are taken to distribute the weight evenly, a full grown man may be supported [on water] by one of these leaves."

So there we have it. Even in a common everyday flower plant, stalk of wheat or celery, blade of

grass, or the like, we can see principles of construction/engineering painstakingly carried out. In the stalk or stem, where maximum stiffness is needed, the strength is on the *outside*; in the case of roots, where pulling strength is needed, the strength is on the *inside*, much like a rope; on leaves where lateral strength is needed to *resist bending*, the strength lies in a girder like system.

What is common to all three methods, inside, outside, or lateral girders, is that they all follow well-recognised construction or engineering principles.

The book, "The Secret Life of Plants"[8] provides more information on this subject. "The ingenuity of plants in devising forms of construction far exceeds that of human engineers.

Man-made structures *cannot match* the supply strength of the long hollow tubes that support fantastic weights against terrific storms. A plant's use of fibres wrapped in spirals is a great mechanism against tearing *not yet developed* by human ingenuity. Cells elongate into sausages or flat ribbons locked one to the other to form almost unbreakable cords. As a tree grows upward it scientifically thickens to support the greater weight.

The Australian eucalyptus can raise its head on a slim trunk above the ground *146 metres*, or as high as the Great Pyramid of Cheops, and certain walnut trees can hold a harvest of *100,000* nuts.

We have to wonder, did all of this precise engineering come about by *accident*, or was a master engineer involved?

Tiny Creatures Doing Precise Engineering

Mr. von Frisch devotes a large section of his book to honeybees. He first points out that bees do not use triangle or square shapes for the honeycomb cells, but he remarks on what they do use, "the amount of building material required for cells of the same capacity is the *least* in the hexagonal construction, and hence that such a pattern is the *most* economical design for warehouses."

We have to wonder, do bees use this best shape for honeycomb cells by accident or by some sort of design?

The author continues, Anyone lifting a full honeycomb for the first time will find it amazingly heavy. A comb measuring **37 by 22.5 centimetres** can hold more than **2 kg** of honey. Yet in the manufacture of such a comb, the bees use only about **40 grams** of **wax**! The relationship between the construction of a comb and its strength would seem to be a worthwhile subject for study….

When bees start building, they first attach themselves to each other in chains. Soon they form themselves into a dense ball, the building cluster within which they **maintain** a temperature of **35°C** — the temperature needed for the secretion of wax.

Let's look at honey comb **cell** construction. You might think honey bees work on one cell, complete it, then start the next one. That would be logical and the easiest way. Not so, however, instead honey bees build cells the hard way, working on the next cells before the first ones are finished. The author explains this, "They do not build one complete cell after another. While the lateral walls of the first cells are gradually being added to, new adjoining cells are being started lower down. As these triangular sections are enlarged laterally, they gradually coalesce from the top down. The joints are so *skilfully made* that no trace of the separate beginnings remain visible.

This is even more *remarkable* when one considers that *many* bees are employed in the building of each *individual* cell and that they often relieve each other at intervals of no more than half a minute or so. Apparently each bee *immediately comprehends* what stage the construction has reached at the place where she starts to work and continues accordingly".

More complexity is added to the job of cell construction. Notice, "Right from the start the cells meet at the *correct* angle of **120** degrees…..

It is not just the shape of the cells that depends upon the skill of their builders; skill is just as much needed to vary the size of the cells for worker bees and drones, to manufacture such extraordinarily thin walls, and to orient them accurately in space.

None of these things just "happen", *they are the result of work directed to a purpose.*

The cell walls are built with a gradient of about **13** degrees from base to opening. This is sufficient to prevent the thick honey from running out. The distance from the wall to that opposite is **5.2 millimetres** in a worker cell, and **6 millimetres** in a drone cell.

The thickness of the cell walls is **0.074 mm** (74 microns), with tolerance of no more than **0.025 mm**."

A Summation

Doesn't all of that seem like extremely complicated *engineering* to you? It sure does to me!

We have to wonder, how do these remarkable creatures *measure* to such strict requirements — 120 degree angles, 13 degree gradients, 5.2 mm, 6 mm, 0.074 mm, 0.025 mm? That some sort of precise measuring must continually take place is obvious. But where are their measuring instruments?

Von Frisch agrees by his statements, **"**What truly astounding precision! Economy in the use of building material is thus taken to the utmost limit. Human craftsmen could not do the work of this nature without the use of *carpenters squares and sliding gauges.*

Are Any Special Tools Provided

Von Frisch answers, "The bee's own head serves as a *plummet* to determine the line of gravity. It rests on two *pivots* forming part of the outer skeleton of the thorax and its centre of gravity lies below this articulated connection. Hence, if a bee sits with her head pointing upward, its heavier, lower part will be pulled toward the thorax by the force of gravity.

In a downward position, the head is automatically rotated in the opposite direction. These gravity pulls are accurately registered by a *tactile organ* consisting of a set of highly sensitive *bristles* on the tips of these *pivots*. Any position at an angle to the vertical is registered by a characteristic distribution of pressure on the set of *sensory* hairs.

This is the way bees *control* both their own position in space and the position for the comb, which is always built vertically downward."

It has been possible to prove experimentally the importance of these sensory organs in the bees' necks for their building activities and for the correct orientation of the cell walls."

So there you have it. A summary of the special tools are:

1. The head which serves as a *plummet*
2. Two pivots
3. Highly sensitive bristles
4. Sensory hairs.

More Engineering by Tiny Insects

The book "The World of Bees"[6] tells us more about more honey bee cell making engineering. "The worker cell will be built exactly **1.9** cells to the centimetre… How can so many tiny minds gauge 1.9 cells to the cm so exactly? Even an **engineer** would need all sorts of instruments to measure. The bees have none"…

"It is completely incredible that, with thousands of bees coming up and adding their bit of wax to the spot where the "drawing out" is going on, you don't get a thousand different variations of shape and thickness. You're led to the conclusion that ***every one*** of these thousands of insects in her own right must be a ***trained engineer***."

Each bee adds only a tiny part to a given area of comb. Yet each cell ends up the same size and shape as all the others."

The author goes on to tell us that each bee as she adds her wax to the cell, thins it down, leaving a thick part at the top, just as she found it. All subsequent cell builders do the same, thinning their contribution down, leaving the thick top intact. The thick top is necessary to support the heavy weight of each contributor, yet the vital thinness is perfectly maintained.

The author sums up cell making, "So the combs progress downward and sideways, with bee space between of just the right width, as if a *human engineer* had planned it meticulously. Hundreds of thousand of bees will dab at every bit of it, mould it, and change it. Again, remember that there is no master planner in a bee tree. Yet the proper spacing, the proper size to the cells, comes out as if a *foreman* stood over the bees with a *set of blueprints."*

In Summary

Using mostly evolution supporting sources, we have seen the word "engineer" or "engineering" applied some **eleven times** to non-humans.

We have studied the following:

1. Bees that maintain a **34°C** constant temperature needed for larvae development, with only *¼ of a degree* variation.
2. Bees *air-condition* their hive by fanning their wings (400 times a second) and by bringing in water.
3. *Blind* termites construct the equivalent of a 9.6 km high skyscraper. With no overseer.
4. Termite structures are called evidence of a definite *building plan*.
5. Short sides of termite structures that face *exactly* north and south.
6. *Automatic* air-conditioning in termite structures.
7. Termite air-conditioning methods are now studied by *human engineers*.
8. When their air-conditioning was restricted, the termites within 48 hours constructed new vents.
9. Termites as a major civil *engineering* feat dig down as much as **36.5 metres** for water.
10. Brush turkeys *maintain* a constant **35°C** temperature in their primitive large incubators.
11. Mallee birds *maintain* a constant **34°C** in theirs. And do it for ten to eleven months a year.
12. The orb spider builds in 30 minutes a web with **1,000 to 1,500** connections, called *"a marvel of engineering."*
13. The superior six leg arrangement of insects is now being *copied* by human engineers.
14. The first ball was made by dung beetles.
15. Even in plants we saw engineering principles strictly carried out, sometimes superior to human ingenuity.
16. A dense ball-like cluster of bees maintain a constant wax making temperature of **35**°C.
17. *Thousands* of honey bees, working *independently*, nevertheless construct precisely engineered honeycomb cells.
18. Multiple numbers of bees work on each cell, for a maximum of thirty seconds, yet all completed are cells exactly the same.

19. Worker cells are exactly 1.9 cells in 1 cm.
20. The cell walls are precisely *engineered*, **74 microns** thick, to a tolerance of only **25 microns**.
21. Cell construction and honey retention requires the maintenance of a gradient of **13** degrees.
22. The honey bee's head serves as its vitally needed plumb *tool*.
23. Honey bees *air-conditioning* is so efficient hives have even survived barn fires.

Some Questions

The fact these insects and animals receive no schooling or training during their lifetime is obvious. Where, then, *did* their sophisticated and precise knowledge come from? How is it so perfectly passed to their offspring?

The intangible something in nature that previous generations of humans without computers called "*instinct*", we can better understand as "*programming*". Doesn't it seem logical that this engineering knowledge and ability had to have been "programmed" into these creatures? If so, can there be programming of information by accidental chance? Can there be programming without a Master Programmer*?

Evolution instructs us we have to picture a scene that happened millions and millions of years ago; a seething ocean and a blob of algae. Suddenly an exceptionally massive bolt of lightening strikes the blob of algae! It thus received life, crawled out of the sea, and began it's millions of years journey of evolving into living molecules, into a fruit fly, then to other forms, and eventually evolved into apes, and finally into humans.

What is missing from this scenario?

Well, lots of things. But certainly a prime missing ingredient is information—**k*nowledge*.**

Is any knowledge present in ocean *water*? Is any knowledge present in a blob of *algae*? Is any knowledge present in a bolt of *lightning*?

Where, then, *did* the highly specialised *engineering knowledge* come from that is obviously part of the makeup of the creatures we have just studied? Furthermore, how is this detailed knowledge and training *passed on* to the offspring of each creature?

A Final Question

Now for the final question. Are all the things we have just studied, including the 23 items summarised above, more logically the result of:

Evolution, which admittedly is:
mindless,
purposeless,
accidental chance?

Or, more logically the result of:
planning,
design,
a master engineer/programmer,
a Creator God?
Which one makes more sense to you?

Endnotes:

(1) "Microcosmos" by Claude Nuridsany and Marie Perennon, published by Stewart, Tabori and Chang, New York, no year given.

(2) "Animal Architecture" published 1974 by Harcourt Brace Jovanovich, Ind., USA.

(3) "Alien Empire" by Christopher O'Toole, published 1996 by Crowood Press, Ramsbury, England.

(4) "Insects and Spiders", various authors, published 2000 by Discovery Channel, Retail, Random House.

(5) "Nature's Ways" published 1969 by Crown Publishers, Inc., New York.

(6) "The World of Bees" by Murray Hoyt, published 1965 by Bonanza Books, New York.

(7) "Botany for Gardeners" published 1957 by the MacMillan Company, New York.

(8) "The Secret Life of Plants" by Peter Tompkins and Christopher Bird, 1973 by Harper and Row, New York.

* A full "*Creation Corner*" article on Computers and Programming was in the July/Aug 2002 *Shelter in the Word*.