

# Wisdom Booklet 29



## WISDOM QUIZ

### Matthew 5:43-48

*"Ye have heard that it hath been said, Thou shalt love thy neighbour, 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 . . ."*



*How well do you understand the concept of loving your enemies?*

True/False

**1** To love your enemy is to refrain from reproving or rebuking him. ☒ ☐  
(Read Leviticus 19:17.)

- This false idea of love damages relationships and deepens hatred. Reproof is a necessary form of love. Love requires that truth be spoken in a proper and discreet way. (See Ephesians 4:15.) Thus, "open rebuke is better than secret love" (Proverbs 27:5). "For whom the Lord loveth he chasteneth . . ." (Hebrews 12:6).

There are some enemies whom you should not reprove. ☐ ☒  
(See Proverbs 9:8.)

**2** In fulfilling the command to feed an enemy, you should bring him into your home for a meal. ☐ ☒  
(Read I Corinthians 5:11-13.)

- While it is always right to give food to a hungry enemy, it is not always appropriate to bring him into your home. Enemies of God who teach wrong doctrine are not to be brought into your house. (See II John 10-11.) Christians who are living in rebellion to God's Word are also not to sit at your table.

God's purpose in commanding us not to eat with a rebellious Christian is to punish him. ☐ ☒

(See II Thessalonians 3:14-15.)

**3** The statement, "... Thou shalt love thy neighbour, and hate thine enemy" is a quote from the Old Testament Law. ☒ ☐

(Read Leviticus 19:18.)

- Such a quote cannot be found in the Law. There are, however, instructions for duly authorized government to carry out just discipline on law breakers. Yet, the very essence of such justice is love. Therefore, the whole law can be fulfilled in loving God and loving your neighbor. (See Matthew 22:36-40.)

The Old Testament Law commands us to protect an enemy's property if we see that it is in danger. ☒ ☐

(See Exodus 23:4-5.)

**4** The command to be perfect means that we should stop sinning. ☐ ☒  
(Read I John 1:8-10.)

- The perfection of our Heavenly Father which Jesus required was just described in the previous verses (Matthew 5:44-45). It involves meeting the basic needs of others regardless of their spiritual condition.

Based on this passage God expects us to greet everyone we meet. ☐ ☒

(See Matthew 5:47.)

Total Correct \_\_\_\_\_

## A Child of the King



1. My Fa - ther is rich in hous - es and lands, He hold - eth the
2. My Fa - ther's own Son, the Sav - iour of men, Once wan - dered on
3. I once was an out - cast stran - ger on earth, A sin - ner by
4. A tent or a cot - tage, why should I care? They're build - ing a



wealth of the world in His hands! Of ru - bies and dia - monds, of earth as the poor - est of them; But now He is plead - ing our choice, and an al - ien by birth; But I've been a - dopt - ed, my pal - ace for me o - ver there; Tho' ex - il - ed from home, yet,



sil - ver and gold, His cof - fers are full, He has rich - es un - told, par - don on high, That we may be His when He comes by and by, name's writ - ten down, An heir to a man - sion, a robe, and a crown, still I may sing: All glo - ry to God, I'm a child of the King.

## WISDOM WORKSHEET ON MATTHEW 5:43-48



*"Ye have heard that it hath been said, Thou shalt love thy neighbour, 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;"*



Our neighbor is not who we think he is but who God says he is.

*"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 on the unjust. For if ye love them which love you, what reward have ye? do not even the publicans the same? And if ye salute your brethren only, what do ye more than others? do not even the publicans so? Be ye therefore perfect, even as your Father which is in heaven is perfect."*

The Lord Jesus gave a classic illustration on how to do good to those who hate you in His parable of the good Samaritan. (See Luke 10:30-37.)

## Linguistics

Languages,  
Grammar, Vocabulary,  
Communication



### LOVE

Greek: ἀγαπάω (ah-gah-PAH-oh)

DEFINITION: To meet the needs of others without desiring personal reward.

INSIGHT: Agape love is not dependent on emotions; it focuses on giving, rather than on receiving.

### ENEMY

Greek: ἐχθρός (ek-THROSS)

DEFINITION: One who resists or opposes you.

INSIGHT: The word is an adjective appearing as a noun. It signifies a person disliked for whatever reason.

### BLESS

Greek: εὐλογέω

(yoo-law-GEH-oh)

DEFINITION: To speak well of, to praise, to extol; to cause to prosper, to favor; to invoke God's benefits upon another.

### CURSE

Greek: καταράομαι

(kah-tah-RAH-aw-my)

DEFINITION: To invoke God's judgment upon another, to call down evil; direct opposite of blessing.

### HATE

Greek: μισέω (mih-SEH-oh)

DEFINITION: To despise, to detest, to be indifferent toward.

### SALUTE

Greek: ἀσπάζομαι

(ah-SPAH-zaw-my)

DEFINITION: To draw to oneself, to bid welcome, to wish well to, to pay respect to, to receive joyfully.

Do Resource A.

### PERFECT

Greek: τέλειος (TEH-lay-oss)

DEFINITION: Complete, mature, finished.

Do Resource B.

## History

Archaeology,  
Geography, Prophecy,  
Music, Art, Literature



How did President Lincoln "bless" one who cursed him?



Abraham Lincoln  
1809-1865

The day after his inauguration in 1861, President Lincoln announced his new cabinet members. Two members had been his primary rivals for the Presidential nomination, William H. Seward and Salmon P. Chase.

Mr. Lincoln chose them because of their abilities, but he often experienced their sharp tongues of criticism. Once a cabinet member publicly attacked his judgment.

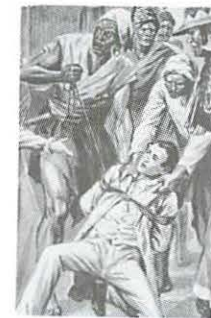
Mr. Lincoln responded to a reporter by saying that he respected the judgment of that man and if he made such a statement, there must be some truth to it.

How did one man's love open a hostile country to the Gospel?

On May 23, 1824, the British attacked Rangoon, Burma. All white foreigners were suspect. Adoniram Judson, the first American missionary to the Burmese people,



Adoniram Judson  
1788-1850



was seized and dragged to the "death prison."

His loving response during imprisonment and service won the hearts of the Burmese people.

Do Resource C.

# Science

Chemistry, Biology,  
Astronomy, Geology,  
Physics, Mathematics



**How does the turkey vulture demonstrate blessing those who curse you?**

To call someone a vulture is to hurl an insult at him. The word conjures up an image of a grotesque and greedy creature just waiting to pounce on its helpless victim.



**Turkey Vulture**

Based on what it actually does, such an image of a vulture is totally unjustified. Yet, while we "curse" the vulture, it faithfully carries out its ordained task of ridding the earth of infected flesh so that disease and death will not spread. (See *Character Sketches*, Volume 3, p. 116-124.)

**How does the sun benefit the just and the unjust?**



**If the sun were 5% further away, the oceans would freeze.**

The great energy released by the sun has the capability of instantly consuming everything on the face of the earth, yet by God's design its heat and rays are so positioned and filtered that they provide life-giving benefit to all who are on the earth.

The sun strengthens bones, causes food to grow, regulates seasons and time, purifies water, and furnishes fresh air, and accomplishes a host of other things that benefit the just and the unjust.

**Do Resource D.**

**How do statistical measurements of educational achievement relate to God's view of perfection?**

**Do Resource E.**

# Law

Government,  
Economics, Logic



**How does the symbol of justice illustrate treating friends and enemies alike?**

The blindfold on the statue of justice symbolizes the intent of the law to be totally impartial to all who come before it.

The scale symbolizes the weighing of evidence and operates by the laws which God designed. Meanwhile, the sword pictures the authority which is given by God to carry out justice. In heaven God will make right any injustices which were not correctly resolved here on earth.



**How did hatred toward the Samaritans increase the significance of what the good Samaritan did?**



**Sargon II  
721-705 BC**

Samaria was a city on a hill. It became the capital of the northern kingdom, but in 721 BC, Sargon II, King of Assyria, captured it and carried into captivity 27,290 people.

He then repopulated the city with idol-worshiping foreigners from Babylon. Intermarriage occurred, and the descendants were despised by the Jews as corrupted half-breeds and foreigners. Consequently, the Jews had no dealings with the Samaritans. (See II Kings 17.)

**How can "good Samaritan" laws encourage citizens to do good to those who hate you?**

Modern-day "good Samaritans" are subject to law suits if anything should go wrong as a result of their care or lack of it. Laws which remove such liability are needed.

**Do Resource F.**

# Medicine

Health,  
Nutrition, Behavior,  
Counseling



**What first-aid skills must be known in order to become a "good Samaritan"?**

When Jesus described in His parable how the Samaritan helped the wounded Jewish traveler, He gave wise and accurate instruction for the care of one who needs emergency medical help.

The immediate need when coming upon an emergency situation is to determine the type and extent of the person's injuries.

If the injured person is unconscious, you must check for the two vital signs: breathing and heartbeat. If these are functional, look for any major bleeding.



**First check for breathing and heartbeat.**

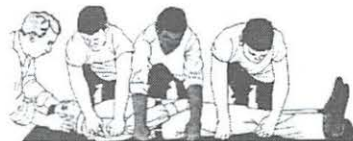
Use first-aid skills to clear the airways, restore the heartbeat, and stop the flow of any major bleeding. Then check for shock.



**Symptoms of shock**

The symptoms of shock are: cold, clammy skin, low blood pressure, dilated pupils, perspiration, nausea, thirst, and rapid pulse. Precise steps to restore body heat are necessary in treating shock.

Before moving an injured person, it is vital that you find out if he has any broken bones, especially in the neck or back. Severe damage can be done while moving a person with neck or spinal injuries.



**Do Resource G.**



How many of these questions can you answer before studying the resources?

## HOW CAN YOU LOVE YOUR ENEMIES?



- What does it mean to bless your enemy? . . . . . 1359
- What are the two types of enemies? . . . . . 1360
- What are practical ways to bless your enemy? . . . . . 1361
- How does blessing your enemy make you "victor"? . 1362
- How does blessing your enemy include reproof? . . 1364

## WHAT DOES IT MEAN TO BE "PERFECT"?



- Is it possible for a Christian to be perfect? . . . . . 1365
- What does maturity have to do with being perfect? . . 1365
- How does the word *finish* differ from *complete*? . . . . 1366
- How does the passage help define the word *perfect*? . . . . . 1367
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## HOW DID LOVE CONQUER NATIONAL BARRIERS?



- How did an enemy of the Gospel help Adoniram Judson become a Christian? . 1369
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- How does the sun build the muscles of your enemy? . . . . 1383
- How does sunlight prepare the just and the unjust for winter? . . . . . 1387
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- How does the sun change the course of rivers for the just and unjust? . . . . . 1396

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- Why does God use standard-scale grading on sinners? . . . . . 1405
- Why does God not grade the unjust on a curve? . . . . 1405
- What is the "mean" grade of the unjust? . . . . . 1406
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## HOW CAN LAWS TEACH LOVE FOR ENEMIES?



- Do our laws protect those who help an enemy in distress? . . . . . 1410
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- What is the first step in giving aid to enemies? . . . . . 1416
- How can you revive the heart of an enemy? . . . . . 1417
- How can body temperature reveal injuries? . . . . . 1418
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## HOW DOES “BLESSING THOSE WHO CURSE YOU” FULFILL THE COMMAND TO LOVE YOUR ENEMIES?



Bible Art Series, Standard Publishing, Cincinnati

The steps Jacob took to be reconciled to his brother illustrate three aspects of blessing one who curses you mentioned in Matthew 5:44.

The purpose of this resource is to give a precise definition to the word “blessing” and to amplify its meaning with practical application as illustrated in the life of Jacob.

### Definition of blessing:

The Greek word for **blessing** is εὐλογέω. It is made up of two words, εὖ and λόγος. *Eu* means, “to do well, to act rightly, or to do one good.” *Logos* means, “a word which embodies conceptions or ideas.” It involves both words and the thinking behind those words.

The word **blessing**, therefore, literally means “to speak well of another person.” This includes fine or noble speech and the graceful manner in which it is said. Such noble speech can contain unwelcome truth such as corrective reproof as well as praise.

## WHAT DOES IT MEAN TO BLESS YOUR ENEMY?

### 1 **BLESSING YOUR ENEMY REQUIRES AN OPEN ATTITUDE EXPRESSED BY GREETING EVERYONE YOU MEET.**

It is quite normal for us to divide people into the classifications of either friend or enemy. Once this is accomplished, it is natural for us to love our friends and to cut off contact with our enemies. One of the consequences of this attitude is that it fails to take into account the ministry God wants to perform through us in the lives of our enemies.

Just as the goodness of God leads us to repentance, so God’s love working through us can bring our enemies closer to the Lord. The Apostle Paul was certainly an enemy of the Christians in the early church. Had Ananias persisted in avoiding all contact with him, he would have missed the opportunity of leading him into the Christian life.

God knows which enemies will turn to Him, but we do not; therefore, we must demonstrate the love of Christ to each one, that we may be the children of our heavenly Father, “. . . for he maketh his sun to rise on the evil and on the good, and sendeth rain on the just and on the unjust” (Matthew 5:45).

There is a special reward for every Christian who will treat others with genuine love. This is implied in the following questions: “For if ye love them which love you, what reward have ye? do not even the publicans the same?” (Matthew 5:46).

Jesus then explains the initial means by which we can express the same love to everyone. It is by greeting each one when you meet him.

“And if ye salute your brethren only, what do ye more than others? do not even the publicans so?” (Matthew 5:47).

### PROJECT

List two or three people you would be most unlikely to greet in church. Purpose to go out of your way to greet them this Sunday morning. As you continue studying this resource, determine how you can give them a blessing through your greeting.

As you purpose to follow this teaching of Scripture, God is able to work out circumstances to give you the joy of seeing Him work powerfully on your behalf.

One Christian made a list of five people at his church that he did not usually greet. Some of them had differing viewpoints from his and therefore avoided him. He purposed to go out of his way to greet each one the following Sunday morning.

After the service he spotted the first person, and to his amazement, that person was walking toward him with a smile. When he turned around, there was the second person on his list and after greeting him, the third and fourth were also standing by waiting to talk with him.

When the fourth person walked away, the fifth individual, who was across the auditorium, walked over and began speaking with him. The man had simply determined to take the first step, and God had prompted each of the five to initiate the response.

God might not bring those on your list to you, but you can be confident He will reward the efforts you make in carrying out His teaching.

#### **THE PREREQUISITE OF A GOOD GREETING—REMEMBERING NAMES**

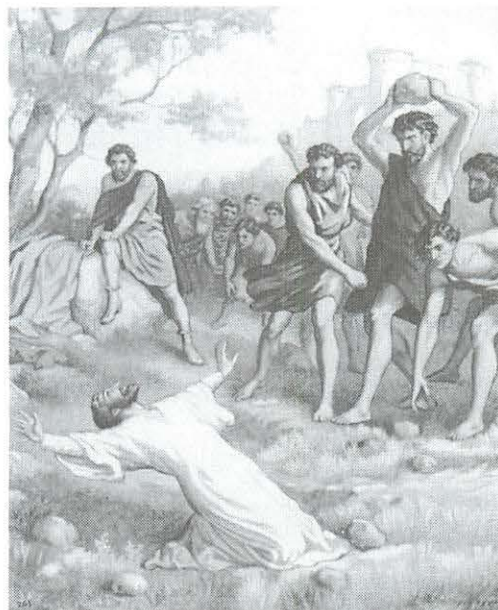
If you are to carry out the instruction of Christ to greet more than just your friends, it will require that you learn and remember names. Remembering the names of people shows that you have a personal interest in them and that they are of value to you.

As you greet a person for the first time, do not be surprised or discouraged if they do not return your greeting. It may be that you have taken them by surprise or that they do not know your name, or they may wonder what your motives are. By consistently greeting those who are outside your circle of friendship you will soon overcome these obstacles.

## **2 BEFORE BLESSING YOUR ENEMY YOU MUST DETERMINE WHY HE IS YOUR ENEMY.**

Some people may oppose you because of the standards which God has led you to adopt. However, others may react to you because of something that you have done to offend them. In each of these cases, the type of blessing that you give would be different.

The men in the council hated Stephen and gnashed on him with their teeth because his words stung them with conviction. Stephen's final blessing on them was asking God, "... lay not this sin to their charge . . ." (Acts 7:60).



Bible Art Series, Standard Publishing, Cincinnati

**Paul held the garments as Stephen was stoned. Thus, he shared in the benefit of Stephen's final blessing on those who killed him.**

Stephen's blessing paved the way for Paul's salvation and through him the Gospel spread into Asia and the world.

Esau, on the other hand, hated Jacob because Jacob stole his blessing. He came to meet Jacob with four hundred men. It was then that Jacob blessed him, but it was a blessing which included restitution so that reconciliation could be achieved.

### **PROJECT**

Make a list of those who you feel are not supportive of you. Write down their reasons for these reactions. Determine if any reaction is your fault, and if so, purpose to make it right.

## **3 BLESSING YOUR ENEMY MEANS THAT YOU DESIRE GOD'S BEST FOR HIS LIFE.**

Our natural response to an enemy is to desire his destruction or to wish him harm. A commitment to giving a blessing requires an entirely different mind set. This outlook conquers anger, wrath, and malice.

In order to give a blessing you must discern the positive things God is doing in his life. On the basis of these observations, give him the following "blessings."

### • **The blessing of CONGRATULATIONS**

Even enemies will appreciate being congratulated when something good takes place in their lives. A congratulatory message is consistent with the command of Romans 12:15: "*Rejoice with them that do rejoice . . .*"

#### DEFINITION:

The word comes from the Latin *congratular*; the prefix *con* means "with," and *gratular* means "grateful or pleasing." To congratulate another person is to profess one's pleasure or joy on a happy or beneficial event which has taken place in his life.

The word *gratular* is related to the Latin word *gratia*, which means *grace*. It means a blessing or gratuity.



Ewing Galloway

**There are many areas of life in which you can congratulate your enemy: the birth of a child, recognition on his job, and achievements in his family.**

There are probably more opportunities to congratulate your enemies than you realize. Years ago a study was conducted in which congratulation cards were sent out at random. Eight out of every ten cards brought a response of gratefulness from the person being congratulated and amazement at how the sender knew about the happy event.

### PROJECT

Consider the life of your enemy to determine if there are recent events that could be the basis of your congratulations. Use these as you greet him this coming week at church.

### • **The blessing of a COMPLIMENT**

If there is no joyous event you know of in the life of your enemy, you should certainly be able to find qualities, words, actions, or attitudes which you can compliment.

#### DEFINITION:

To *compliment* is to express praise to another. It involves approbation, the act of approving or the disposition of the mind in which we assent to the propriety of a thing with some degree of pleasure.



Ewing Galloway

It would be appropriate to compliment your enemy on the time he spends with his family, the good behavior of his children, his punctuality at meetings, or something else that encourages you.

In order for a compliment to be sincere, it should relate to some quality, word, or action which has encouraged or benefited your life. On this basis you are able to say:

"I want you to know that the courage you had in speaking out in the last meeting was a good example to me!"

### PROJECT

List qualities in your enemies that are admirable. Determine how they have encouraged you or benefited your life. Use these as the basis for giving genuine compliments to those whom you will greet this week in church.

## 4 BLESSING YOUR ENEMY REQUIRES YOU TO TAKE THE FIRST STEP.

A natural response toward an enemy is to leave him alone. Rejection and separation seem like acceptable forms of punishment. Besides, your enemy may misuse your contacts and cause you even more hurts.

Yet, the one who gives a blessing is acclaimed by Scripture to be the greater of two individuals: *"And without all contradiction the less is blessed of the better"* (Hebrews 7:7).

In order to fulfill the requirement of being the "better" Christian you must take the first step in approaching your enemy.

By doing this, you will be following the example of our Lord Jesus Christ. He left heaven and came to this earth in order to bless us while we were yet sinners and enemies of God.

When King Melchisedec blessed Abraham, he showed initiative by coming out to meet Abraham returning from the slaughter of the kings. (See Hebrews 7:1.)

When it came time for Jacob to bless his sons, he called for his son Esau. *"And it came to pass, that when Isaac was old, and his eyes were dim, so that he could not see, he called Esau his eldest son . . . that my soul may bless thee before I die"* (Genesis 27:1-4).



Bible Art Series, Standard Publishing, Cincinnati

### Jacob blessing Joseph's sons

Even when Joseph brought his two sons for his father's blessing, Jacob initiated the procedure by saying: *" . . . Bring them, I pray thee, unto me, and I will bless them"* (Genesis 48:9).

## PROJECT

Think of the one who hates you the most. Decide that you are going to give a blessing to him, and take the first step in doing so. Your "first step" may be a letter, phone call, or personal visit. It may also be some positive thing you can say about him to others.

### • The blessing of a **COMMENDATION**

Your enemy will expect you to criticize him, despise him, and speak evil of him. When you commend him to others, it will be like "heaping coals of fire on his head." (See Romans 12:20.)

### DEFINITION:

*Commendation* comes from the Latin root which means "the act of giving a favorable representation in words." It is a declaration of esteem.

The Apostle Paul used this word when he asked the Corinthian church, *"Do we begin again to commend ourselves? or need we, as some others, epistles of commendation to you, or letters of commendation from you?"* (II Corinthians 3:1).

The Greek word for commendation is συστατικός and is a derivative of συνιστάω, which means "to set together, to introduce, to stand near, or to give approval."

After Saul's conversion, Barnabas was the courageous one who commended him to the apostles. Everyone else was afraid of Saul because he was a known enemy of all who believed in Christ.

*"And when Saul was come to Jerusalem, he assayed to join himself to the disciples: but they were all afraid of him, and believed not that he was a disciple. But Barnabas took him, and brought him to the apostles, and declared unto them how he had seen the Lord in the way, and that he had spoken to him and how he had preached boldly at Damascus in the name of Jesus"* (Acts 9:26-27).

In one sense Paul commended the work of those who opposed him when he said, *"The one preach Christ of contention, not sincerely, supposing to add affliction to my bonds . . . notwithstanding, every way, whether in pretence, or in truth, Christ is preached; and I therein do rejoice, yea, and will rejoice"* (Philippians 1:16-18).

## 5 **BLESSING YOUR ENEMY IS HELPING HIM PICTURE GOD'S BEST FOR HIS LIFE.**

In the days of the patriarchs, the primary function of a blessing was giving to a person a graphic word picture of how God's will could be worked out in his life. Notice the vivid description in the blessing that Isaac gave to Jacob:

*"... God give thee of the dew of heaven, and the fatness of the earth, and plenty of corn and wine: Let people serve thee, and nations bow down to thee: be lord over thy brethren, and let thy mother's sons bow down to thee: cursed be every one that curseth thee, and blessed be he that blesseth thee"* (Genesis 27:28-29).

By picturing Godly achievement for a fellow Christian and asking God to fulfill that vision, you are giving a blessing to that person. It is important that the things you picture are clearly established in Scripture as God's will. Here are some examples of how to picture Godly achievement in the lives of others:

### **The salvation of a family member**

"May God give you the joy of seeing your son come to salvation and then seeing him grow in the Lord." This blessing is based upon the following Scripture: *"... not willing that any should perish, but that all should come to repentance"* (II Peter 3:9). *"As newborn babes, desire the sincere milk of the word, that ye may grow thereby"* (I Peter 2:2)

### **The strengthening of a marriage**

"May your marriage be like the relationship between Christ and His church."

Based on Ephesians 5:32, *"This is a great mystery: but I speak concerning Christ and the church."*

### **The provision of needs**

"May God provide for your needs according to the riches of His glory."

The basis of this blessing is Philippians 4:19: *"But my God shall supply all your need according to his riches in glory by Christ Jesus."*

### **• The blessing of an ACCLAMATION**

When you verbally state your desire for God's clearly defined will to be experienced in the life of another, you are giving him a blessing of acclamation.

### **DEFINITION:**

Acclamation comes from the Latin *acclamo*, which means "to cry out," and from the Spanish word *clamar*, "to applaud." To acclaim someone is to bestow joy and respect with the clapping of the hands as well as with words.

Thus, acclamation is an expression of best wishes and personal approval given to encourage and strengthen another person, to promote his welfare, to undergird him, and to reinforce his commitment to the Lord.

Acclamation is also recognizing the worth of a person because of what God is doing in his life. A synonymous word would be *salute*.



Canadian Forces



U. S. Army

**The salute is a gesture of respect and is not dependent on the feelings that may exist between the one saluting and the one receiving the salute. A similar form of acclamation is to say, "Yes, sir," and "Yes, ma'am."**

To salute someone is to greet, to hail, to address with expressions of kind wishes. It means to demonstrate respect and to honor someone. The text says, *"And if ye salute your brethren only, what do ye more than others? do not even the publicans so?"* (Matthew 5:47).

## **PROJECT**

Design ways in which you can acclaim and salute the people on your list. If it is not appropriate to share your thoughts with the person directly, turn your blessings into prayer for each individual.

## 6 **TO BLESS YOUR ENEMY IS TO HELP HIM EXPERIENCE GOD'S BEST.**

When you do go to an enemy, you bring blessings to his life. After you bless your enemy, you are commanded to do good to him who hates you. Scripture is precise in the good you are to carry out in the life of your enemy.

### **Meet his basic needs.**

*"Therefore if thine enemy hunger, feed him; if he thirst, give him drink..."* (Romans 12:20).

### Protect his property.

*"If thou meet thine enemy's ox or his ass going astray, thou shalt surely bring it back to him again. If thou see the ass of him that hateth thee lying under his burden, and wouldest forbear to help him, thou shalt surely help with him" (Exodus 23:5-6).*

### Reprove him in love.

Even in the blessing which the patriarchs gave to their children there was loving rebuke for the wrongs they had committed. Jacob illustrated this when he blessed Reuben.

*"Reuben, thou art my firstborn, my might, and the beginning of my strength, the excellency of dignity, and the excellency of power:*

*"Unstable as water, thou shalt not excel; because thou wentest up to thy father's bed; then defiledst thou it: he went up to my couch" (Genesis 49:3-4).*

Rebuke is not often seen as a blessing, yet God clearly states in Scripture that it is: *"Let the righteous smite me; it shall be a kindness: and let him reprove me; it shall be an excellent oil . . ." (Psalm 141:5). "Open rebuke is better than secret love" (Proverbs 27:5).*

*"For whom the Lord loveth he chasteneth, and scourgeth every son whom he receiveth" (Hebrews 12:6).*

*"But speaking the truth in love, may grow up into him in all things, which is the head, even Christ" (Ephesians 4:15).*

### Reward him for past help.

It may be that your enemy feels he is deserving of a reward for past services rendered to you.

Hatred can be especially intense from this type of enemy, because your neglect of giving a proper reward is not only perceived as rejection of the individual and discounting what he has done for you, it also projects pride, which invites destruction.

The counsel of Proverbs 21:14 tells us, *"A gift in secret pacifieth anger: and a reward in the bosom strong wrath."*

### • The blessing of UPHOLDING

Not only are we to rejoice with those who rejoice, we are also to weep with those who weep. (See Romans 12:15.)

God will arrange times when your enemy will be in need of help. If you fail to give him the help

he needs at this critical time, God will stop "spanking him" and you will miss the opportunity of turning an enemy into a friend.

### DEFINITION:

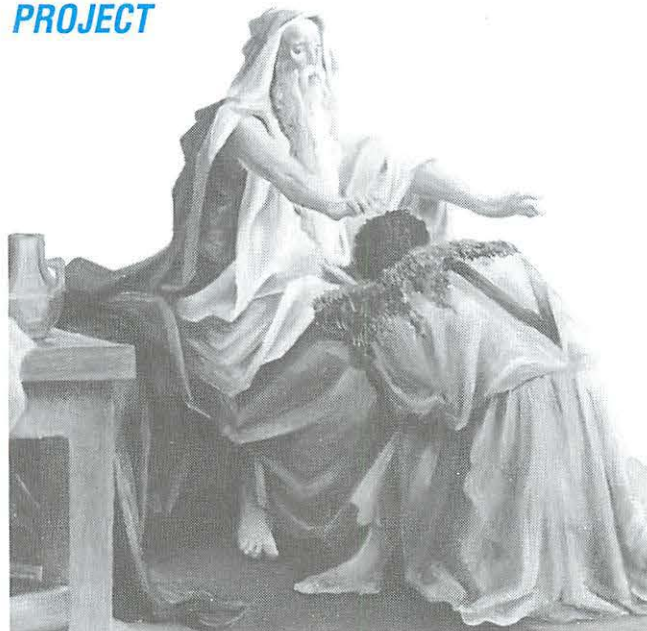
The word *upholding* comes from the Old English *up*, meaning, "on high," and *healdan*, meaning, "to hold or retain." Therefore, to uphold someone is "to support, to sustain, or to keep them from falling."

*"Rejoice not when thine enemy falleth, and let not thine heart be glad when he stumbleth: Lest the Lord see it, and it displease him, and he turn away his wrath from him" (Proverbs 24:17-18).*

## 7 BLESSING YOUR ENEMY IS SIMPLY PRAYING FOR HIM WHEN NOTHING ELSE WORKS.

There comes a point in animosities when anything you do will be misunderstood and thrown back at you, causing more hurt and damage to the relationship. At this point you can only do what Jesus and Stephen did: pray and ask God to forgive them. (See Luke 23:34 and Acts 7:60.)

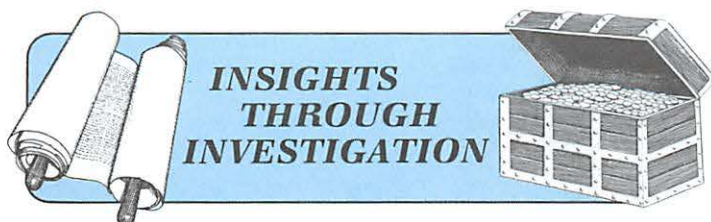
### PROJECT



**Jacob's deception to receive of Isaac's blessing alienated him from his brother Esau.**

In Matthew 5:44 Jesus gives three steps to follow in order to love your enemies. How did Jacob parallel these steps when he reconciled with Esau? (See Genesis 32-33.)

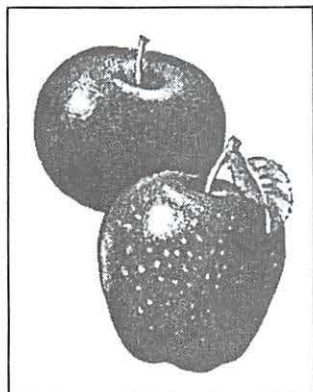
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## HOW DOES THE GREEK WORD “TELEIOS” CLARIFY THE COMMAND TO “BE PERFECT”?



Ewing Galloway



How does each of the above pictures illustrate the word “perfect”?

What did Jesus really mean when He commanded, “Be ye therefore perfect, even as your Father which is in heaven is perfect” (Matthew 5:48)?

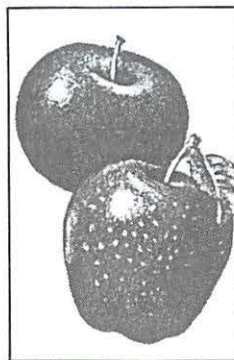
Did He mean that Christians will eventually improve in their lives until they no longer sin? Did He mean that we are already perfect in Christ and therefore have nothing more to work on? Or was He teaching something different from both of these concepts?

The answer is in the meaning of the Greek word for “perfect” as it is amplified in the context of the passage.

### The definitions of “perfect”

The definition of the English word “perfect” means “to be entirely without fault or defect.” If we use this definition to interpret Matthew 5:48, we will conclude that Christ’s command is impossible, for we know that “. . . There is none righteous, no, not one” (Romans 3:10).

The Greek word τέλειος (TEH-ley-oss) has three distinct aspects of meaning. When these are seen in the light of the context, they explain how we can be “perfect” even as our heavenly Father is “perfect.”



## 1 MATURE

The word “perfect” is used throughout the New Testament to describe a Christian who is mature or full grown.

- “Brethren, be not children in understanding: howbeit in malice be ye children, but in understanding be **men** [τέλειος]” (I Corinthians 14:20).
- “Till we all come in the unity of the faith, and of the knowledge of the Son of God, unto a **perfect** [τέλειος] man, unto the measure of the stature of the fulness of Christ” (Ephesians 4:13).
- “But strong meat belongeth to them that are of **full age** [τέλειος], even those who by reason of use have their senses exercised to discern both good and evil” (Hebrews 5:14).
- “That your faith should not stand in the wisdom of men, but in the power of God. Howbeit we speak wisdom among them that are **perfect** [τέλειος]: yet not the wisdom of this world, nor of the princes of this world, that come to naught” (I Corinthians 2:5-6).
- “Let us therefore, as many as be **perfect** [τέλειος], be thus minded: and if in any thing ye be otherwise minded, God shall reveal even this unto you” (Philippians 3:15).
- “Epaphras, who is one of you, a servant of Christ, saluteth you, always labouring fervently for you in prayers, that ye may stand **perfect** [τέλειος] and complete in all the will of God” (Colossians 4:12).
- “For in many things we offend all. If any man offend not in word, the same is a **perfect** [τέλειος] man, and able also to bridle the whole body” (James 3:2).

A child is self-centered and thinks only of meeting his own needs. However, a mature person concentrates on the needs of others, even to the neglect or sacrifice of his own needs.

The only Scriptural basis for the quality of maturity that would meet the needs of others in a sacrificial way is the expression of genuine love. “Greater love hath no man than this, that a man lay down his life for his friends” (John 15:13).



Ewing Galloway

## 2 FINISH

The root word from which τέλειος comes is τέλος, which means “end.” It is from this meaning that the concept of “to finish” comes.

In this sense, to be perfect is to fully perform or carry out the work that the Lord has given us to do. It is to set our eyes on the goal like a runner in a race and strive to reach that goal whatever the cost.

The motivation for such achievement must be the love which we have found in Christ. The following verses emphasize this aspect of perfection:

- “Jesus saith unto them, My meat is to do the will of him that sent me, and to **finish** [τελειόω] his work” (John 4:34).
- “But I have greater witness than that of John: for the works which the Father hath given me to **finish** [τελειόω], the same works that I do, bear witness of me, that the Father hath sent me” (John 5:36).
- “I have glorified thee on the earth: I have **finished** [τελειόω] the work which thou gavest me to do” (John 17:4).
- “After this, Jesus knowing that all things were now accomplished, that the scripture might be **fulfilled** [τελειόω], saith, I thirst” (John 19:28).
- “But none of these things move me, neither count I my life dear unto myself, so that I might **finish** [τελειόω] my course with joy, and the ministry, which I have received of the Lord Jesus, to testify the gospel of the grace of God” (Acts 20:24).



## 3 COMPLETE

A third element found in the Greek word for perfect is “completeness.” It means “to round out” and “to make whole.” The following verses emphasize this aspect of τέλειος.

- “And he said unto me, My grace is sufficient for thee: for my strength is **made perfect** [τελειόω] in weakness. Most gladly therefore will I rather glory in my infirmities, that the power of Christ may rest upon me” (II Corinthians 12:9).
- “Not as though I had already attained, either were already **perfect** [τελειόω]: but I follow after, if that I may apprehend that for which also I am apprehended of Christ Jesus” (Philippians 3:12).
- “For it became him, for whom are all things, and by whom are all things, in bringing many sons unto glory, to make the captain of their salvation **perfect** [τελειόω] through sufferings” (Hebrews 2:10).
- “And being made **perfect** [τελειόω], he became the author of eternal salvation unto all them that obey him” (Hebrews 5:9).
- “God having provided some better thing for us, that they without us should not be made **perfect** [τελειόω]” (Hebrews 11:40).
- “Seest thou how faith wrought with his works, and by works was faith made **perfect** [τελειόω]?” (James 2:22).
- “But whoso keepeth his word, in him verily is the love of God **perfected** [τελειόω]: hereby know we that we are in him” (I John 2:5).
- “I in them, and thou in me, that they may be made **perfect** [τελειόω] in one; and that the world may know that thou hast sent me, and hast loved them, as thou hast loved me” (John 17:23).

- “And be not conformed to this world: but be ye transformed by the renewing of your mind, that ye may prove what is that good, and acceptable, and **perfect** [τέλειος], will of God” (Romans 12:2).
- “But let patience have her **perfect** [τέλειος] work, that ye may be **perfect** [τέλειος] and entire, wanting nothing” (James 1:4).
- “Every good gift and every **perfect** [τέλειος] gift is from above, and cometh down from the Father of lights, with whom is no variableness, neither shadow of turning” (James 1:17).
- “But whoso looketh into the **perfect** [τέλειος] law of liberty, and continueth therein, he being not a forgetful hearer, but a doer of the work, this man shall be blessed in his deed” (James 1:25).

The perfection of completeness is achieved only through suffering. Christ suffered when He showed love to us while we were yet His enemies, and just as the Father sent Him into the world, so He sends us that we might complete the sufferings of Christ.

Paul explained that his sufferings were completing the work of Christ in showing love to those who were lost. “Who now rejoice in my sufferings for you, and fill up that which is behind of the afflictions of Christ in my flesh . . .” (Colossians 1:24).

### **How does the context amplify the meaning of “perfect”?**



Ewing Galloway

“... For he maketh his sun to rise on the evil and on the good, and sendeth rain on the just and on the unjust” (Matthew 5:45).

When Jesus gave the command to His disciples to be perfect even as their heavenly Father was perfect, He related it to loving others. He explained that if we love only those who love us, we are no better than the publicans.

The publicans were not known for exhibiting love toward those outside their own circle of friends. They tended to be selfish, greedy, and lovers of their own group.

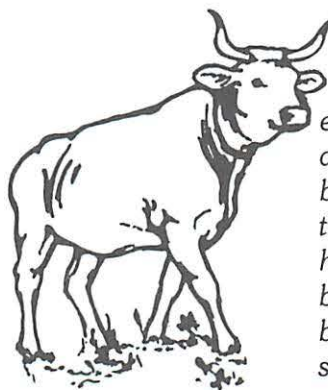
On the other hand, the distinctive mark of a mature Christian is the ability to love not only his friends but also his enemies. It is this aspect of perfection that is both commanded and illustrated by God the Father.

### **The goal and test of perfection: Loving your enemies**

Our natural inclination is to love our friends and hate our enemies. Yet this response is immature; it does not finish the course that God has called us to run and it will not complete the sufferings of Christ.

On the other hand, by loving our enemies we follow the example of our heavenly Father Who gives benefits to both the evil and the good. When we act like our heavenly Father and thus take on His likeness, we are then recognized as the children of our Father which is in heaven.

One who is imperfect loves his neighbor and hates his enemy. Yet even the law that requires judgment on evildoers commands us to demonstrate compassion and concern for our enemies:



“If thou meet thine enemy’s ox or his ass going astray, thou shalt surely bring it back to him again. If thou see the ass of him that hateth thee lying under his burden, and wouldest forbear to help him, thou shalt surely help with him” (Exodus 23:4-5).

Further instruction to do good to your enemy is given in Proverbs 25:21: “If thine enemy be hungry, give him bread to eat; and if he be thirsty, give him water to drink.”

See also Proverbs 24:17: “Rejoice not when thine enemy falleth, and let not thine heart be glad when he stumbleth.”

## PROJECT 1

### Learn the instruction of perfection in 1 John 4:7-21.

Since “brother” is defined in Scripture as coming from a common womb (Adam and Eve), each person is responsible to love every other person, including his enemies.

Based on this fact, compare the following verses:

*“Beloved, let us love one another: for love is of God; and every one that loveth is born of God, and knoweth God.”*

*“He that loveth not knoweth not God; for God is love.”*

*“In this was manifested the love of God toward us, because that God sent his only begotten Son into the world, that we might live through him.”*

*“Herein is love, not that we loved God, but that he loved us, and sent his Son to be the propitiation for our sins.”*

*“Beloved, if God so loved us, we ought also to love one another.”*

*“No man hath seen God at any time. If we love one another, God dwelleth in us, and his love is perfected in us.”*

*“Hereby know we that we dwell in him, and he in us, because he hath given us of his Spirit.”*

*“And we have seen and do testify that the Father sent the Son to be the Saviour of the world.”*

*“Whosoever shall confess that Jesus is the Son of God, God dwelleth in him, and he in God.”*

*“And we have known and believed the love that God hath to us. God is love; and he that dwelleth in love dwelleth in God, and God in him.”*

*“Herein is our love made perfect, that we may have boldness in the day of judgment: because as he is, so are we in this world.”*

*“There is no fear in love; but perfect love casteth out fear: because fear hath torment. He that feareth is not made perfect in love.”*

*“We love him, because he first loved us.”*

*“If a man say, I love God, and hateth his brother, he is a liar: for he that loveth not his brother whom he hath seen, how can he love God whom he hath not seen?”*

*“And this commandment have we from him, That he who loveth God love his brother also.”*

### A paraphrase:

Children of God, let us love our enemies: for love is of God; and every one that is able to love even his enemies is born of God and knows God.

He that is not able to love his enemies does not know God; for God is love.

God showed His love toward us by sending His only begotten Son into the world, that we, who were enemies of God, might live through Him.

Herein is love, not that we loved God, but that God loved us.

If God so loved us, then we ought also to love even our enemies.

When we are able to love our enemies, God’s love dwells in us and His love is perfected in us.

We must understand, however, that the freedom to love our enemies comes only after we have confessed Jesus as the Son of God. . . . God is love and if we are going to love our enemies, we must dwell in God and have Him dwell in us.

It is for this reason that when we love our enemies love is made perfect.

And we will not be afraid to love our enemies because perfect love casts out fear: because fear has torment. If we are afraid of what men might do to us or take from us, then we are not made perfect in love.

The only way we will be able to love our enemies is by remembering that God first loved us.

If a man says, I love God, and is not able to love his enemy, he is a liar: for he that cannot love his enemy whom he has seen, how can he love God whom he has not seen?

And this commandment have we from Him, that he who loves God must love his enemy also.



## PROJECT 2

### Begin to demonstrate “perfection” by greeting your enemy.

Just as the sun gives warmth and light to the just and the unjust, so let your countenance begin to reflect the same warm smile and greeting to your friends and your enemies. In doing this, you will fulfill one of the examples given by Christ of being perfect. (See Matthew 5:47.)

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## HISTORY RESOURCE

### HOW DID ONE MAN'S LOVE OPEN A HOSTILE COUNTRY TO THE GOSPEL?



Judson the Pioneer

**Adoniram Judson—1788-1850**  
**The Pioneer of American Missions**

The story of Adoniram Judson is a story of a man's intense love for a nation that was hostile to the Gospel. It is also a story of how that love was perfected through suffering.

Adoniram was born in Malden, Massachusetts, in 1788. His father was a pastor; his mother, Abigail, was a gentle, cultured woman.

God entrusted special intellectual capacity to Adoniram. He learned to read at the age of three. At age four, he "played church," gathering playmates and preaching to them. When he was seven, he heard that the earth revolved around the sun, so he developed his own experiment to actually watch the earth move. When he was ten, he learned navigation from a retired sea captain, and he learned classical Greek by the time he was twelve.

### HOW DID ADONIRAM'S PRIDE TURN HIM FROM HIS GODLY HERITAGE?

At sixteen, Adoniram entered Providence College (renamed Brown University shortly after he began his studies). Here he met a young infidel named Jacob Eames. Both he and Adoniram were of quick wit, had a flair for the dramatic, and loved to study. Often they would debate and discuss their future careers, politics, philosophy, and religion late into the evening. Adoniram's religious arguments grew feeble before the wit and logic of Eames' atheism. Before his graduation, Adoniram declared himself an atheist.

After graduation, Adoniram went home to his parents and informed them that he was an atheist and that he planned to taste the pleasures of the world. His father tried to reason with him and his mother was broken-hearted, but Adoniram was not deterred. He left for New York City, and the excitement of his new circumstances drove from his mind the arguments of his father; however, he could not forget the tears of his mother.



Judson the Pioneer

**Brown University as it looked at the time of  
Adoniram's graduation**

### HOW DID AN ATHEIST HELP ADONIRAM BECOME A CHRISTIAN?

Because of Adoniram's atheistic beliefs and his rejection of his parents' standards, God allowed Adoniram to fall into the depths of sin. After a year in New York City, Adoniram decided to travel west. The first night he stopped at a small inn. There was one bed left, separated from a dying man by only a curtain. Adoniram considered himself old enough and wise enough that a stranger's dying wouldn't bother him. Throughout the night, though, the moans of a man who realized that he was not ready for eternity kept Adoniram awake.

His thoughts returned to his mother's prayers and his father's teaching. What would happen to this man when he died? Where would he go? Was there really an after-life? Oh, how Eames would have laughed at Adoniram's concerns. Adoniram pushed these thoughts aside. The moans grew weaker, then ended. Adoniram slept fitfully and awoke with the sun.

In the morning, Adoniram casually asked if the young man next to him were better. "He is dead," came the reply. Adoniram was unprepared for death, his own or someone else's. He asked who the man was. "His name? His name was Eames, Jacob Eames."

How he got through the next few hours, Adoniram was never able to remember. Only the words, "Lost, lost, lost," echoed through his mind. The truth of Scripture struck deep in his heart. He knew then that his father was right. He knew Eames was lost! Lost for eternity!

## **HOW DID ADONIRAM GET BACK UNDER HIS FATHER'S AUTHORITY?**

Adoniram returned home and announced to his startled parents that he was enrolling in Andover Theological College for the fall of 1808. He was not a Christian when he enrolled, but in December, he trusted Christ as his Lord and Savior. In June of the following year, he placed himself under his father's authority and joined the church his father was pastoring.



**The birthplace and home of Adoniram Judson**

## **HOW DID GOD CALL ADONIRAM TO BE A MISSIONARY?**

God had much in store for Adoniram. In 1809, God planted in him a vision for missions through

a sermon he read. At first he felt a sense of "missionary zeal," but it soon died away. Later, during a time of meditation and prayer, Adoniram fully committed himself to be obedient to the Great Commission and to "go."

God developed an intense concern in Adoniram's heart for the spiritual welfare of the Far East. Others at Andover had the same kind of concern: Samuel Nott, Samuel Mills, Samuel Newell, James Richards, Luther Rice, Edward Warren, and Gordon Hall. Adoniram was to learn the true meaning of loving enemies in carrying out his concern for the people of the Far East.

The American churches had no foreign mission society of any kind and had, in fact, never before sent missionaries to foreign lands. So Adoniram was sent to England to enlist the help of the British churches.



**American Christians had begun mission works to reach native Indians, but had never sought to reach people of other lands.**

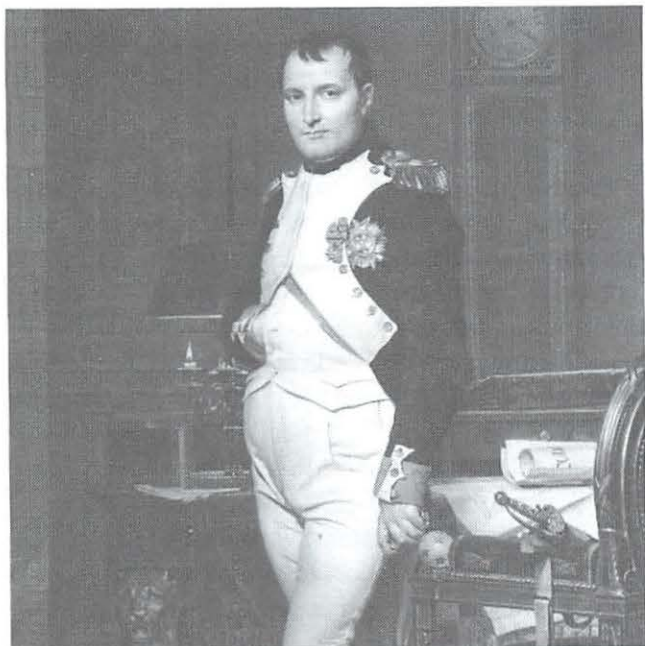
## **HOW DID ADONIRAM LEARN THE CONSEQUENCES OF HIS FORMER WORLDLY PHILOSOPHY?**

Adoniram was sent out in hard times. In 1811, the imposing figure of Napoleon was on the rise, and there were many world tensions which would soon lead to the War of 1812. Even in this time of unrest, however, the *Packet* (the little ship on which Adoniram traveled) was unarmed and had no way of protecting its handful of passengers. It is no wonder that the French privateer *L'Invincible Napoleon* soon sighted the small English vessel and seized it, making Adoniram one of its captives.

Adoniram, not having any friends on board, unable to speak the language of his captors, and without much money, was cast into the hold along

with the common prisoners. In his cramped quarters, he soon became extremely seasick. Miserable and discouraged, he could do nothing but mentally translate portions of his Hebrew Bible into Latin.

One day while making his daily visits, the doctor noticed Adoniram's Bible and addressed him in Latin. Excitedly Adoniram answered by telling the doctor his plight. The result was that Adoniram was moved to better conditions on the upper part of the ship.



Detail, National Gallery of Art

**Adoniram was imprisoned during the rise of Napoleon Bonaparte in 1811.**

After several days the ship docked at Bayonne, France, but much to Adoniram's horror, he was marched through the streets like a common prisoner. Hoping to attract the attention of someone who could help him, Adoniram started yelling, first in very broken French and then in English. At last an Englishman came forward and promised to try to provide help as soon as possible.

Meanwhile, Adoniram continued on his march to a smelly, vermin-infested prison. It was chilly and damp, and the smell made him sick, but at last the Englishman arrived. Slipping a bribe into the hand of the jailer, he helped Adoniram escape. The papers which were necessary for Adoniram's release, however, would not be ready for several weeks, so he had to remain in hiding.

During those weeks of concealment, Adoniram learned the practical outcome of the philosophy he had held in college, and was emboldened to speak out against the immorality which resulted from it.

Later Adoniram "regarded his detention in France as a very important and, indeed, necessary part of his preparation for the duties which afterwards devolved upon him."

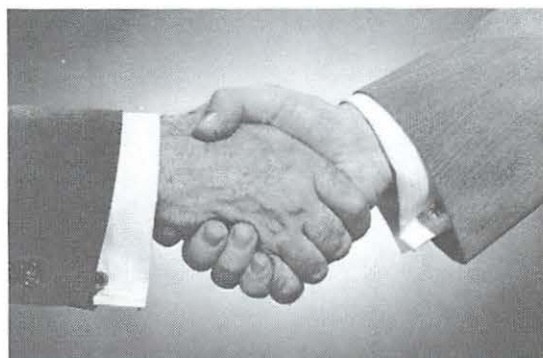
When Adoniram arrived in England, he discovered that although the London Missionary Society was enthusiastic about missions to the Far East, they asked that he be sent under the newly-formed American Board. So Adoniram returned to America to raise support for the first all-American missionary endeavor.

## **HOW DID ADONIRAM LEARN THE IMPORTANCE OF RESTITUTION?**

As Adoniram prepared to leave for the mission field, God brought to his remembrance some people whom he had wronged when he lived in New York City.

During the years when he was getting a taste of the world's pleasures, he cheated several people out of their money.

Now realizing that God could not bless his missionary work until he made restitution, Adoniram traveled to New York, found the people he had wronged, and asked for their forgiveness. He then returned the money that he had wrongfully taken and returned home with the joy of a good conscience and a new boldness in his speaking.



Ewing Galloway

**When Adoniram made restitution for earlier offenses, God began to demonstrate His power through his life and ministry.**

## **HOW DID ADONIRAM RELATE HIS MARRIAGE DECISION TO GOD'S PURPOSE FOR HIS LIFE?**

Adoniram was invited to speak to a church in Bradford, Massachusetts, and to tell the people about the needs of the Far East. After the service, one of the deacons asked Adoniram to come to his home for a meal. The deacon had a daughter, and Adoniram was intrigued by her unique ability to

make every occasion exciting and joyful. He was also very much impressed with her deep love for the Lord. Her name was Ann Hasseltine.

Adoniram had an immediate awareness that this was the girl whom he was to marry. During the month that followed, he thought much about her and confirmed to himself the Lord's direction for marriage. Finally, he wrote her a letter and expressed to her his love and his desire to marry her. Ann wisely replied that he would have to ask permission of her parents before she would even consider the possibility of marrying him.



Judson the Pioneer

**Ann Hasseltine chose to abandon the pleasures of life in the United States for the hardships of being a missionary's wife in a hostile land.**

Immediately Adoniram sat down and wrote the following letter to Ann's father:

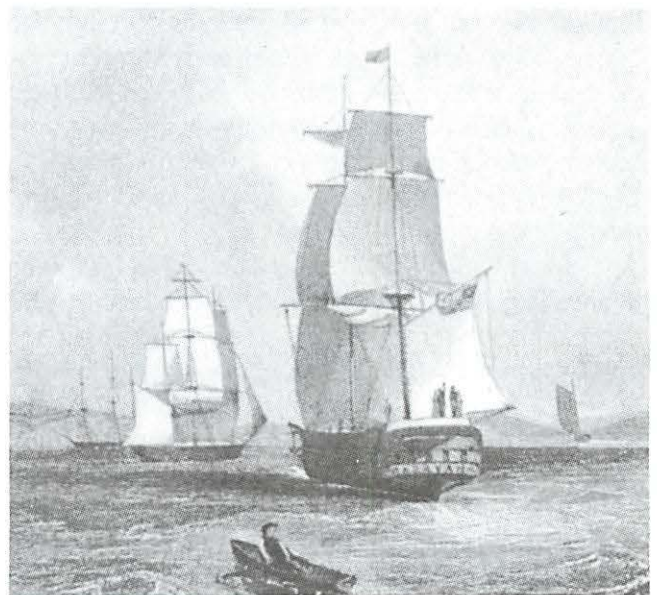
*"I have now to ask, whether you can consent to part with your daughter early next spring, to see her no more in this world; whether you can consent to her departure, and her subjection to the hardships and sufferings of*

*a missionary life; whether you can consent to her exposure to the dangers of the ocean; to the fatal influence of the southern climate of India; to every kind of want and distress; to degradation, insult, persecution, and perhaps a violent death. Can you consent to all this, for the sake of Him who left His heavenly home, and died for her and for you; for the sake of perishing, immortal souls; for the sake of Zion, and the glory of God? Can you consent to all this, in hope of soon meeting your daughter in the world of glory, with the crown of righteousness, brightened with the acclamations of praise which shall redound to her Saviour from heathens saved, through her means, from eternal woe and despair?"*

The father was obviously impressed with Adoniram's dedication and spiritual character. He would be happy for his daughter to marry such a man, but he left the final decision to Ann.

Meanwhile, Ann's admiration and affection for Adoniram grew. After prayerful consideration she dedicated herself both to him and to his call. With the blessing of her father, Adoniram and Ann were united in marriage in February of 1812.

Just two weeks after their marriage, the happy couple left for the mission field. Samuel Newell, his bride Harriet, and Luther Rice also went with them. The others who had dedicated themselves as missionaries would follow as soon as they could finish their formal education and raise the necessary support.



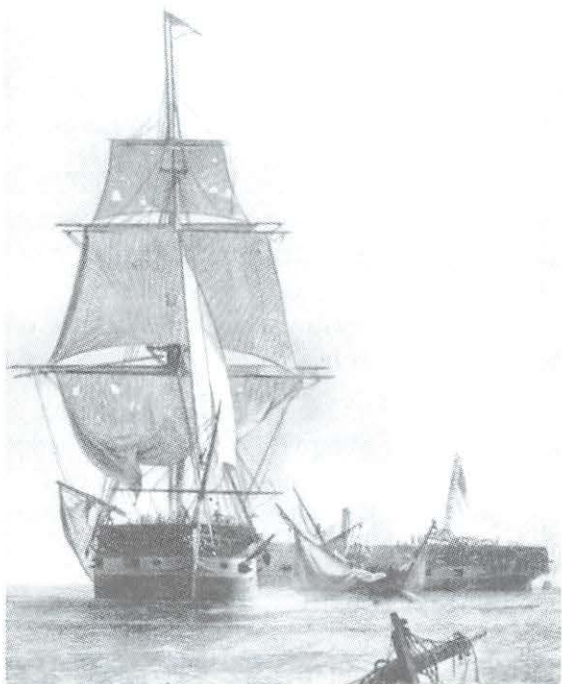
**Adoniram used the months of sailing to India to deepen his understanding of Scripture.**

## HOW WAS ADONIRAM FORCED TO MAKE A DECISION BETWEEN FINANCIAL SUPPORT AND DOCTRINAL ACCURACY?

While sailing to India, Adoniram studied the doctrine of baptism. He knew that William Carey and other missionaries in India believed that infant baptism was wrong, but he believed that it was Scriptural and he studied the Scriptures in order to be able to defend his position. The more he studied, however, the more convinced he became that he was wrong.

By the time the ship arrived in India, both he and Luther Rice had come to the firm conclusion that infant baptism was not Scriptural. Adoniram and his wife and Luther Rice were then baptized by immersion. They realized that they would have to inform the churches which had sent them of their new conviction, knowing that it would mean the loss of their financial support. In view of this, Luther Rice returned to the States.

The loss of support was not the only problem that awaited the Judsons in India. The British (which ruled India as a colony) were now at war with the Americans—and they had no use for “foreign” American missionaries. They ordered the missionaries to return to the United States.



Chicago Historical Society

**The American ship *Constitution* defeated the British ship *Guirriere*, increasing British hostilities toward American missionaries.**

After a conference with William Carey about the situation, the deported missionaries decided to set up a mission station on the Isle of France (present

day Madagascar). The Newells, expecting their first baby, left for the island first. The Judsons were to come on the next boat.



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**The missionaries fled to the Isle of France after encountering British opposition in India.**

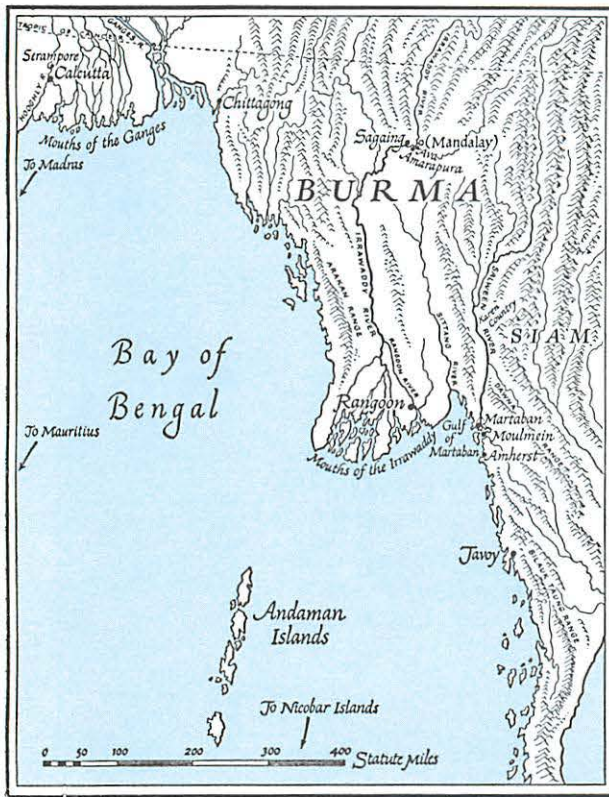
When the Judsons finally arrived, only Samuel Newell was there to meet them. The baby had been born while they were at sea and died after only a few days. Harriet was so weak after the birth that she died shortly after arriving on the Isle of France. The first grave of an American missionary had been dug on foreign soil.

Very few places in the Far East were free from the control of England. One country that was free from England was the despotic kingdom of Burma. The Judsons felt that God was calling them to that country; a land whose people had “never heard the sound of the Gospel, or read, in their own language, of the love of Christ.”

## HOW DID THE JUDSONS LEARN THAT REACHING THEIR ENEMIES REQUIRED SUFFERING?

Ann Judson was with child as they set out on their voyage to Burma. The continual tossing of the ship exhausted her. After only a few days at sea, she gave birth to their first child—stillborn. Three lives had now been given by the missionaries and they

had not even arrived at their mission field. With no relief from the terrible conditions on the ship and no physician at hand, Ann also almost died.



**Burma was a Buddhist country which appeared to be closed to the Gospel.**

Burma was a hot, swampy place. Animals ran wild in the cities and refuse lay in the streets. The king was a despot (a ruler with absolute power), and the government was corrupt.

The Judsons chose to begin their work in Rangoon, a key city, but one in which no one spoke English. The needed language study began immediately—Adoniram would point to objects and then listen to the replies of the natives.

After more than a year in this land and two years after Luther Rice had left for America, the Judsons heard from home. A group of churches in New England had started forming mission societies when they learned that the Judsons had been baptized, and Luther Rice was helping these churches to expand. Adoniram was appointed as their missionary, and the Judsons finally had support!

The birth of little Roger William Judson on September 11, 1815, added to the Judsons' delight. He was the joy of their hearts and the talk of the city.

The Judsons' joy was not to last long, however. Roger began to have fevers at night and soon developed a choking cough. Adoniram and Ann became alarmed, but without adequate medical help very little could be done.

Little Roger died—the fourth sacrifice of love on this missionary endeavor. Weeks after the death of Roger, Ann wrote about their acceptance of God's perfect plan: "... When for a moment we realize what we once possessed . . . the wound opens and bleeds afresh. Yet we would still say, 'Thy will be done.' "

In spite of these heart-rending difficulties, the Judsons pressed on. Soon Adoniram had completed a tract, a translation of the Gospel of Matthew, a Burmese-English Grammar, and a dictionary. But still, Adoniram could not fluently think in Burmese.

In order to get the training he needed, Adoniram felt that he must travel to Chittagong, because he had been told that there were Burmans in that city who spoke both Burmese and English.

ငါမှ တပါး အခြားသော ဘုရားကို မကိုးကွယ်နှင့်။ အထက် မိုဃ်းကောင်းကင်၌၎င်း၊ အောက်အရပ်မြေကြီးပေါ်၌၎င်း၊ မြေကြီးအောက်ရေထဲ၌၎င်း ရှိသောအရာနှင့်ပိုသနာ့နိတူအောင်၊ ရုပ်တုဆင်းတုကို ကိုယ်အဖို့ မလုပ်နှင့်၊ ဦးမချ၊ ဝတ်မပြုနှင့်၊ အကြောင်းမူကား၊ သင်၏ဘုရားသခင်၊

#### Part of the Ten Commandments in Burmese

That voyage proved to be one that Adoniram would never forget. He had a fever and excruciating headaches that confined him to his bunk. Worst of all, the ship wandered off course during a heavy storm so that the crew ran out of food and had only a limited supply of water.

When the ship finally reached land after three months at sea, Adoniram was but a gaunt shadow of a man. He never did reach Chittagong. Finally, seven months after setting out from Rangoon, Adoniram returned.

Adoniram could waste no more time so he began preaching at once. He built a *zayat* (a Burmese-type school house) on a small plot of ground along the city highway. From there he would preach and people would stop to listen.

At last, all these efforts bore fruit. The first Burmese man trusted Christ as His Lord and Savior in May of 1819—almost six years after the Judsons began their work in Burma.

Satan, however, refused to sit idly by. As more converts were made, the viceroy of Rangoon declared the new religion illegal. He made it clear that any Burman who placed his or her faith in Christ would be severely punished.

Satan also brought physical attacks to the Judson family. Mrs. Judson became so ill that the doctors felt the only way to save her life was for her to return to America. Together, the Judsons decided that Adoniram should stay in Burma. Their love for each other and for the Burmese would be their strength for their two-year separation.

Dr. and Mrs. Jonathan Price arrived in Burma shortly after Ann left for America. Along with the other missionaries who had come to the field, they would help to carry on the work. After only five months, however, Mrs. Price died and was buried next to little Roger Judson.

The medical expertise of Dr. Price soon caught the attention of the King of Burma. He called Dr. Price to Ava, the capital. This gave the missionaries the opportunity to influence those in authority.

When Ann returned from the United States, she and Adoniram joined Dr. Price in Ava. They fully expected this to be their opportunity to see the hearts of the Burmese people turn from idolatry to the One True God.



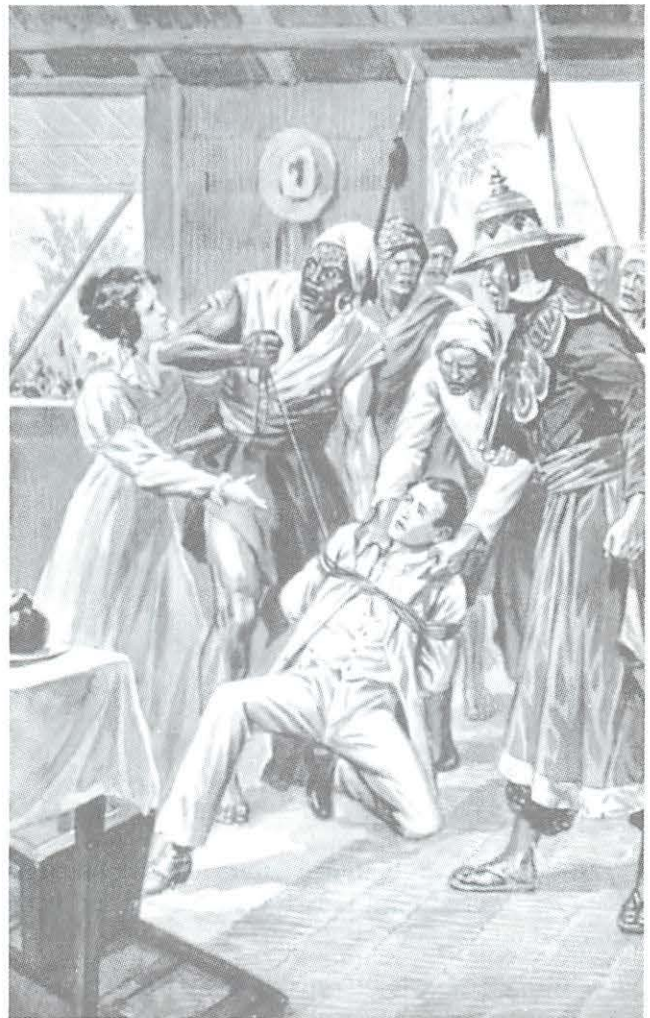
*Judson, the Hero of Burma*

**The appeal to the Emperor for toleration of Christianity was totally rejected.**

## **HOW DID ADONIRAM LEARN TO DO GOOD TO THOSE WHO HATED HIM?**

Rumors of war with the British had been in the air for quite some time. On May 23, 1824, the rumors became reality when Rangoon was attacked. Immediately, all foreigners—especially white foreigners—were suspect.

Although the Judsons and Dr. Price were Americans and not British, the Burmese officials decided they must be spies. On June 8, 1824, Adoniram and Dr. Price were cast into prison.



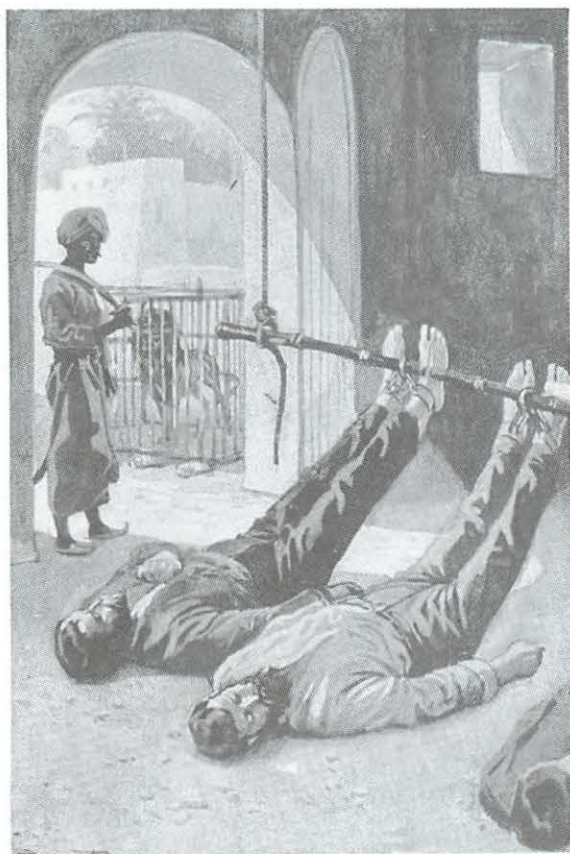
*Judson, the Hero of Burma*

**The "Spotted Face" (a branded criminal) used the cord to drag Adoniram to the prison. The cord was an instrument of torture which often dislocated the victim's arms and could even kill him.**

The prison was called *Let-may-yoon* which in Burmese meant "hand shrink not." The English simply called it the "Death Prison." It was the filthiest place Adoniram had ever seen. The floor was littered with rotting animals and human filth.

All of this stench and filth was especially trying to Adoniram. He was a meticulous person and required extra (and often unneeded) efforts toward cleanliness in his home. This involved clean linens every day, a daily dusting of his library, and a fresh black ribbon tie each morning. Yet, here he was bound in fetters in a line of half-naked, sweating, stinking prisoners.

Tales of terrible torture abounded in the place. The Burmese were not satisfied to have the prisoners just die—they had to be tortured to their physical extremes first.



Judson the Pioneer

**Adoniram was bound in fetters to a bamboo pole which was raised until only his shoulders and head remained on the floor.**

Ann alone was left outside to try to get help for the poor prisoners. Most of the possessions she and Adoniram had valued were taken from them. However, Ann did manage to save their most valuable possession—the Burmese Bible. In the midst of Adoniram's terrible suffering, he at least could know that the fruit of ten years of labor had not been destroyed.

For twenty-one months Adoniram remained in the horrible conditions of Burmese prisons. He was near death more than once, enduring only by the mercy and grace of God.

At the time that Adoniram was imprisoned, Ann was again expecting a child. Maria (their third child) was born during the months of Adoniram's imprisonment. Following the birth, Ann and the baby had also been close to death due to extreme illness, but God sustained them all. In March of 1826, Adoniram was released and reunited with his wife and daughter.

### **HOW DID THE JUDSONS GIVE A LIVING DEMONSTRATION OF WHAT IT MEANT TO BLESS THOSE WHO CURSED THEM?**

After the war, General Campbell (the commanding General of the British Army) held an elaborate state dinner for the Burmese officials. Adoniram and Ann were invited to take the places of honor at the table, much to the horror of the now abject and terrified natives. The amused General could not help noticing that the Burmese officials could hardly eat for their shaking.

One man in particular was shaking terribly. "What is the matter with the owner of the pointed beard over there?" the General asked. "He seems to be seized with a fit of ague." Ann explained how this man had been especially cruel to her during Adoniram's imprisonment. The man seemed to know that they were talking about him and became contorted with visible signs of fear.

All of the Burmese officials knew that they could expect torture and even death if the Judsons treated them as they had been treated. Turning to the distraught man, Ann spoke to him in Burmese telling him that he had nothing to fear. Then she told the General what she had just told the man. The Judsons were able by God's grace to bless those who had cursed them.

### **HOW DID GOD TEST THE JUDSONS' LOVE FOR THEIR ENEMIES?**

The poor, weak, abused missionaries were now free to return to America. Reason assured them that this was the thing to do—but love urged them to stay. In spite of the strong anti-British sentiment that lingered after the Burmese lost the war, the Judsons chose to remain in Burma where God had called them to serve.

When they returned to Rangoon, they found that only four converts were left, their house was

decaying, and all the other missionaries were gone. They had worked and suffered for thirteen years for a mission which no longer existed.

All of this, however, did not cause them to leave Burma. Instead, they moved to the territory of Tenasserim, on the coast, which was to remain a permanent British possession. On July 2, 1826, the Judsons began a new work in Amherst among the Burmese who were flooding into the territory.

In Ava, the British needed Adoniram's expertise in the Burmese language to help them work out a treaty with the King of Burma. Even though the British had so mistreated the Judsons when they landed in India, Adoniram was able to forgive them, travel to Ava, and do a great work for them. As a result, he and his family were separated once again.

### **HOW DID GOD FOCUS ADONIRAM'S ATTENTION ON BEING PERFECT, "EVEN AS HIS FATHER IN HEAVEN . . ."?**

In November, several months after Adoniram left Ann and Maria, he received a letter, sent to him from Amherst by a Burmese convert. He broke the black seal on the envelope with trembling hands and read:

*"My Dear Sir: To one who has suffered so much and with such exemplary fortitude, there needs but little preface to tell a tale of distress. It were cruel indeed to torture you with doubt and suspense. To sum up the unhappy tidings in a few words—Mrs. Judson is no more."*

Adoniram hurried to Amherst. The lonesome wail of the natives followed him as he walked through the city.

At times he would be glad that Ann was in Heaven, rejoicing with the angels and seeing the face of the Savior Whom she had so diligently served; but more often he felt a burden of terrible guilt. He began to chase a circle of regrets, thinking that if only he had been there, Ann would not have died.

He went about his missionary duties mechanically, losing heart more and more. And then more weight was added to his already heavy burden: little Maria died. A letter from home informed him that his

father also had died. It was as though all that Adoniram treasured most highly had been taken from him, and he felt unable to bear the burden.



**Ann was buried under the graceful hopia tree (tree of hope), but Adoniram felt that there was no hope.**

The news of his father's death, although not a cause of great sorrow in itself, poured a whole flood of memories over Adoniram which intensified his feelings of guilt. He began to question his motives for being a missionary.

The more he thought about it, the more Adoniram knew that his motives were wrong. He realized that he had become a missionary out of zeal and a desire to be the "first American missionary." He wanted people to look at him and think that he was a great man.



**Adoniram came to the same point in his life that Solomon did and declared that all he had done through earthly motivation was vain.**

God brought Adoniram to the point where he had to “break.” This period of Adoniram’s life parallels the period in King Solomon’s life during which he wrote the book of Ecclesiastes. Adoniram echoed the words of the wise but disillusioned king: “*Vanity of vanities . . . all is vanity*” (Ecclesiastes 1:2). Adoniram came to realize that madness and folly are vain (1:17); mirth and pleasure are vain (2:1); great works are vain (2:11); riches are vain (6:2); and even life itself is vain (2:17; 6:3-6).

All this was vain if done with motives that were “under the sun”—and Adoniram knew that part of his motivation had been earthly.

As a result, guilt and self-incrimination controlled Adoniram’s life. He withdrew from the other missionaries and had a grave dug at the edge of the jungle where he would sit and meditate on the meaning of death.

He wrote to Brown University and returned the honorary doctorate they had given him. He destroyed all correspondence congratulating him on his part in helping the British in the war. He gave away every penny he and Ann had so carefully saved and asked that his salary be significantly reduced. He wrote home and demanded that all of his old writings be destroyed. And at the height of it all, he spent forty days in the tiger-infested jungle meditating on his sins and looking for a sign that God had forgiven him.



**Though the Burmese jungles were filled with man-eating tigers, God protected Adoniram.**

God had Adoniram in exactly the place where he would be most responsive to His leading. Adoniram had totally given up hope of life if that

life were lived outside of Godly motivations. Just as Jesus “learned obedience by the things which he suffered,” so Adoniram was in a place to learn how to yield his motivations to the direction of the Holy Spirit.

Adoniram, like Jeremiah, came to understand that “*The heart is deceitful above all things, and desperately wicked: who can know it?*” (Jeremiah 17:9). But Adoniram did not give up after recognizing the wickedness of his heart. He knew that God said, “*I the Lord search the heart, I try the reins . . .*” (Jeremiah 17:10). He went to a quiet place where he could be alone with the Lord and be shown the areas of his heart which needed to be cleansed. Then he was able to cry out, “*Heal me, O Lord, and I shall be healed; save me, and I shall be saved: for thou art my praise*” (Jeremiah 17:14).

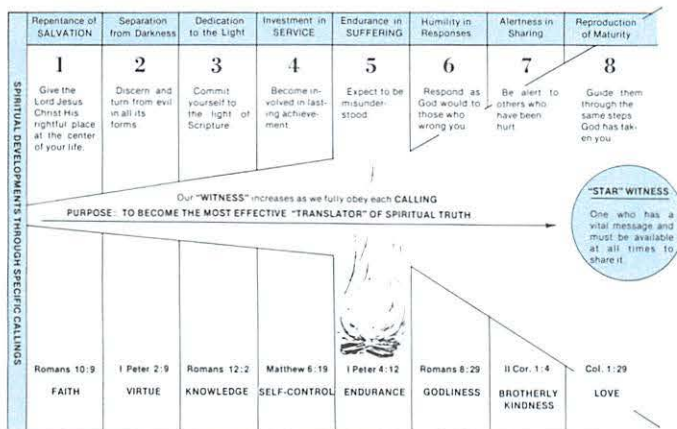


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**Once Adoniram was “broken,” God could remold him into a more perfect vessel of honor.**

The Lord heard and answered Adoniram’s plea. Slowly, Adoniram recovered. It was not an immediate recovery but a gradual climb. The Potter did not instantly remake the vessel that He had broken. But gently and carefully He remolded it into the shape and design which was most pleasing to Him. Adoniram came through the fire a new man. Like the Godly men whom Nebuchadnezzar had thrown into the fiery furnace, the only things that were burned were the things that had bound him. He was now freer than ever before to do the will of God with Godly motivations.

## DISCOVERING PURPOSE THROUGH 8 CALLINGS



During one of the cycles of suffering in Adoniram's life, the fire revealed a deep-seated motive of pride.

Adoniram had been circling through the callings for years. Repeatedly he had been subjected to the heat of the fire of suffering, but it was only now that he allowed himself to remain in the fire and to be broken.

God had to break Adoniram before He could pour out His greatest blessings and use him in a mighty way. As Adoniram put all of his heart into his work and as God blessed, Burmans began to be saved every week.



The process of taking the dross from iron illustrates God's work in the life of Adoniram Judson.

Adoniram was then free to devote much of his time to the perfection of his translation of the Burmese New Testament and the completion of the Burmese Old Testament.

Along with his prayers for his persecutors, he also provided them with the Word of God which taught them how to pray. There is no greater prayer for any people than the prayer that Adoniram had a part in making a reality—that they would be able to have and read the Bible in their own language.

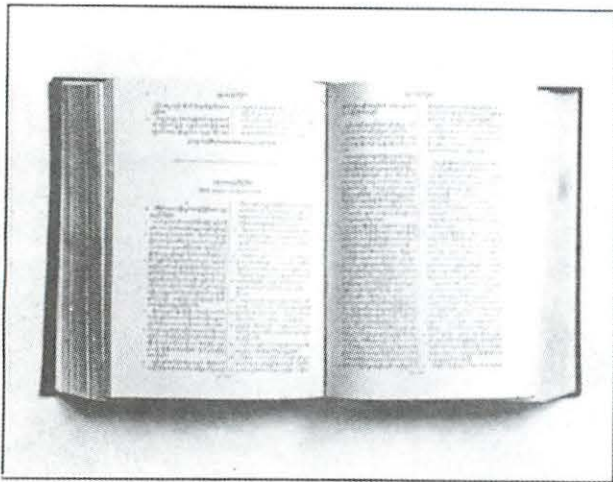
## HOW DID GOD BLESS ADONIRAM'S DEEPER LOVE FOR HIS ENEMIES?

The Burmans opened up to the Gospel as never before. Whereas Adoniram had to go to the people before his experience in the fire, now the people came to him. The missionaries never gave away a tract without being asked for it; now they were giving away hundreds every day. People came from all over the country to learn of the Eternal God and of the only way to escape His eternal judgment. During an annual festival Adoniram wrote that he had distributed

"... nearly ten thousand tracts, giving to none but those who ask. I presume that there have been six thousand applications at the house. Some come two or three months journey, from the borders of Siam and China—'Sir, we hear that there is an eternal hell. We are afraid of it. Do give us a writing that will tell us how to escape it.' Others come from the frontiers of Kathay, a hundred miles north of Ava—'Sir, we have seen a writing that tells about an eternal God. Are you the man that gives away such writings? If so, pray give us one, for we want to know the truth before we die.' Others come from the interior of the country, where the name of Jesus Christ is a little known—'Are you Jesus Christ's man? Give us a writing that tells about Jesus Christ.' "

After being alone for nearly eight years, God gave Adoniram a companion in his ministry. One of the missionaries died, leaving behind his wife and children. On April 10, 1834, Adoniram married Sarah, the missionary's widow. The following five years were among the happiest in Adoniram's life.

God also gave Adoniram the reward of seeing his translation work completed. On October 4, 1840, after twenty-three years of work in translation and revision, the Burmese Bible was finished.



Judson the Pioneer

**Adoniram's translation of the Bible into Burmese was so well done that it still stands today as the best Burmese translation.**

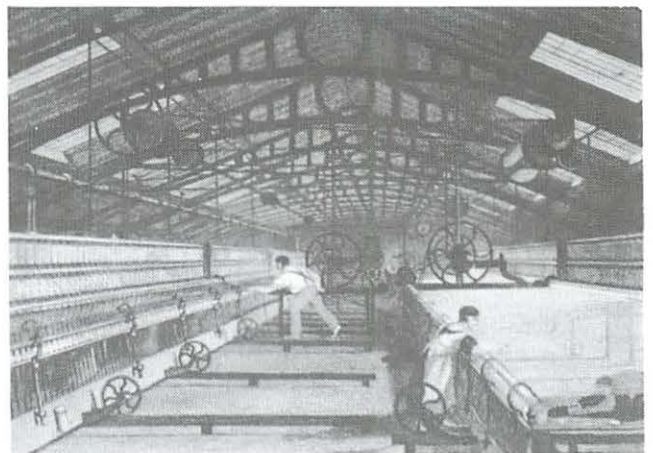
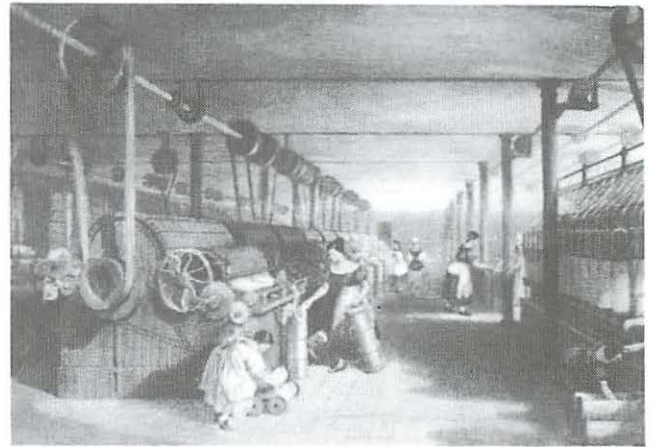
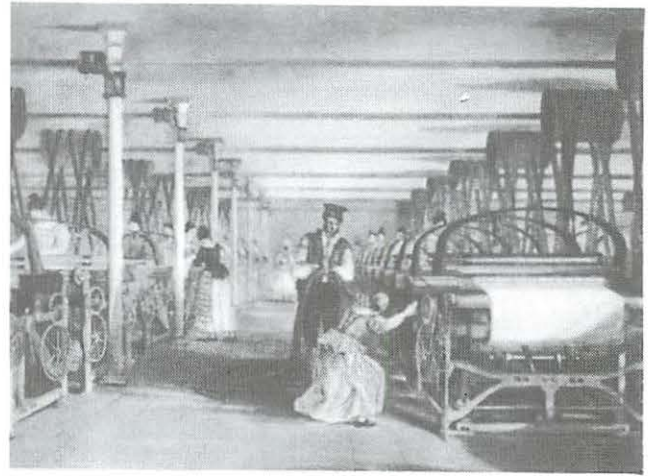
After completion of the translation work, Adoniram felt more able to relax than he had in years. He took a long walk with Sarah every morning, spending time together with her alone. He spent more time with his growing family also and thought more often of the friends and family whom he had in the United States.

### **HOW DID A CHANGED HEART RESULT IN A CHANGED PERSPECTIVE?**

There were more sorrows to come, however. Adoniram suffered from a throat ailment that made it very difficult for him to preach; their little son Henry died before he reached two years of age, and Sarah became so sick with dysentery that it was determined she must return to the United States if she was to recover.

Adoniram, Sarah, and two of the children boarded a ship for the United States, but in the mid-Atlantic, Sarah died. On the island of St. Helena, Adoniram buried his beloved wife and the mother of his children. This time, however, Adoniram was better prepared for the death of a loved one. He was more mature, and understood that no amount of self-denial or self-incrimination could bring her back.

Surprises awaited Adoniram in America. He had left thirty-three years earlier when the country was just a conglomeration of seaboard states. Now the nation was growing strong and prosperous, becoming a leader in industry, and reaching out to its western borders to claim the entire width of the continent.



Granger Collection

**After thirty-three years, Adoniram returned to America and was shocked to see the changes made by the Industrial Revolution.**

Most astonishing of all, Adoniram found that the entire country knew who he was and what he had done. Even though his once-powerful preaching voice was seriously weakened and in spite of the fact that he could not "think" in English very well after thirty-three years of thinking in Burmese, the people demanded that he preach.

Adoniram was a different man than the proud young man he had been when he left for the mission field. No longer did he want to be known simply as a great man or a courageous man. He wanted the people to know that he was a man who had made mistakes and had learned from them.

Everywhere Adoniram went he was in demand. One night in Boston he was attending a public meeting of welcome. It was a packed house, but Adoniram did not feel like speaking. He was still grieving over the loss of Sarah, worried about the children, and unable to speak in anything but a whisper.

As he began to speak quietly in Burmese, a man burst through the door and ran down the aisle and onto the platform. The man grasped Adoniram's hand and embraced him. It was Samuel Nott—the only other survivor of the first American missionary group in 1812. Samuel Nott's words to the congregation that night healed wounds that had been present in the hearts of some Americans ever since Adoniram denounced the doctrine of infant baptism.

While in America, Adoniram met Miss Emily Chubbuck, a brilliant young writer with a great career ahead of her. The more Adoniram got to know her, the more he realized that he needed her. Once again he was alone, and his younger children needed a mother. Would she be willing to give up an exciting career to spend her life among the heathen in the distant land of Burma?

Emily said "Yes," and on June 2, 1846, she and Adoniram were married. After saying goodbye to the older children (who knew that they would probably never see their father again on earth), the couple sailed for Burma.

Adoniram and Emily arrived back in Moulmein, Burma, in 1846. By the end of 1849, Adoniram had completed the Burmese-English half of the dictionary he had been working on for ten years. He was the only one who could have accomplished this great feat. The dictionary was so well done that it remained the core of all Burman language study for over one hundred years.

### **HOW DID ADONIRAM MAKE HIS GREATEST SACRIFICE FOR A HOSTILE PEOPLE?**

Finally, in April of 1850, Adoniram made his last sacrifice for the people of Burma. After a

prolonged cold that continued to worsen, he died on April 12, 1850, at the age of sixty-one. But there was no fear in his death. Shortly before he died, he told Emily:

*"... Lying here on my bed, when I could not talk, I have had such views of the loving condescension of Christ and the glories of heaven as I believe are seldom granted to mortal man. It is not because I shrink from death that I wish to live; neither is it because the ties that bind me here, though some of them are very sweet, bear any comparison with the drawings I feel at times towards heaven. But a few years would not be missed from my eternity of bliss, and I can well afford to spare them, both for your sake and the sake of the poor Burmans. I am not tired of my work, neither am I tired of the world. Yet when Christ calls me home, I shall go with the gladness of a boy bounding away from his school. Perhaps I feel something like the young bride, when she contemplates resigning the pleasant associations of her childhood for a yet dearer home—though only a very little like her, for **there is no doubt resting on my future.**"*



Courtesy ©Norman Rockwell Estate

**As Adoniram approached the end of his life, he viewed himself as a schoolboy bounding home.**

Dr. Adoniram Judson accomplished much for God in his lifetime. At the time of his death there were over 7,000 Burmese Christians, 63 churches, and 123 missionaries, native pastors, and assistants.



Judson the Pioneer

### Burmese Christians who benefitted from the sacrificial love of the Judsons

One of Dr. Judson's greatest accomplishments was the translation of the Word of God into the Burmese language.

Throughout the world were 2,700 missionaries and native pastors actively serving through missionary societies that Dr. Judson helped to found.



Judson the Pioneer

### The Judson Memorial Church at Mandalay

But above all this, Dr. Judson would have us remember His love for Jesus. After one conference during his brief stay in the United States, Emily asked him why he had not told any stories in his short message. He replied that he had given them a story—"the most thrilling one that can be conceived of." Emily replied, "But they had heard it before. They wanted something new of a man who had just

come from the antipodes" (the other side of the globe). Revealing the true burden of his heart, Dr. Judson said, **"Then I am glad they have it to say, that a man coming from the antipodes had nothing better to tell than the wondrous story of Jesus' dying love."**



Ewing Galloway

**"... Except a corn of wheat fall into the ground and die, it abideth alone: but if it die, it bringeth forth much fruit. He that loveth his life shall lose it; and he that hateth his life in this world shall keep it unto life eternal" (John 12:24-25).**

## PROJECT

In I Corinthians 13, God describes fifteen aspects of genuine love. These are listed below. After reading each one, discuss how the Judsons demonstrated that aspect of love in their lives and ministry.

- ☐ Love suffers long.
- ☐ Love is kind.
- ☐ Love does not envy.
- ☐ Love does not boast.
- ☐ Love is not proud.
- ☐ Love has good manners.
- ☐ Love is not selfish.
- ☐ Love is not easily provoked.
- ☐ Love keeps no record of offenses.
- ☐ Love does not delight in iniquity.
- ☐ Love rejoices when truth prevails.
- ☐ Love has endurance.
- ☐ Love is trusting.
- ☐ Love does not lose hope.
- ☐ Love perseveres.

Date completed \_\_\_\_\_ Evaluation \_\_\_\_\_



## HOW DOES THE SUN BENEFIT BOTH THE JUST AND THE UNJUST?



Adventures in Color Slide Photography

The sun has risen faithfully every morning since the fourth day of creation. (See Genesis 1:16-18.) It will continue to rise until the time spoken of in Matthew 24:29.

Each day the sun radiates more than 500,000,000,000,000,000,000,000 (five hundred sextillion) horsepower of heat energy. The nuclear reaction which powers the sun's "furnace" produces temperatures that exceed 15,000,000°C near the sun's center. That is so hot that, on earth, a piece from it no larger than the head of a match would instantly consume everything within a hundred-mile radius.

By God's design, the earth receives only about  $\frac{1}{2,000,000,000}$  (one two-billionth) of the sun's intense heat. This amount of energy maintains the earth's temperature at a level which varies by less than one degree from year to year!

In fact, the earth is so precisely located that any change in its orbit would have catastrophic effects. If

the earth were closer to the sun, the polar ice caps would melt and flood every major coastal city in the world. If the earth were farther away, it would become so cold that the ocean would freeze and every continent would become a desert.

In this resource you will learn how God's creation and placement of the sun benefits all living things, including both the just and the unjust.

## 1 THE SUN STRENGTHENS BONES AND BUILDS MUSCLES IN BOTH THE JUST AND UNJUST.

Vitamin D is an important derivative of cholesterol. It first appears as what doctors call "provitamin D<sub>3</sub>." When cholesterol near the surface of the skin is exposed to sunlight, the light converts it to vitamin D<sub>3</sub>, which is then converted into usable vitamin D in the liver and kidneys. Under normal circumstances, about 15 to 20 minutes per day of summer sun fulfills the body's need for vitamin D.



Understanding Vitamins and Minerals

**All these people are being benefited by the sun as it produces vitamin D in their bodies.**

Vitamin D is one of the few vitamins which can be stored. Because it is soluble in fat, the interaction between light and skin in the summer produces enough vitamin D to last most people all winter.

Vitamin D can also be absorbed from digested food. Sources include fish-liver oils, egg yolk, and fortified milk.

Vitamin D requires moderate amounts of bile salts and fat for absorption. When these salts and fats are not present, vitamin D passes through the body without being absorbed.



Understanding Vitamins and Minerals

**The Vitamin D in fish oils is also a product of the sun. Fish produce Vitamin D in much the same way people do.**

### ***How does Vitamin D build strong bones and muscles?***

Vitamin D stimulates calcium and phosphorus to enter the bloodstream. This process strengthens bones and helps to maintain healthy nerves and muscles. Most calcium supplements are enriched with vitamin D because the vitamin D helps to absorb calcium and promotes its circulation throughout the body.

If the vitamin D level drops, so do the concentrations of calcium and phosphorus in the blood. When the concentrations of calcium and phosphorus are low, the body has no choice but to strip calcium and phosphorus from the bones to correct the imbalance.

Doctors call the loss of minerals from the bones *osteomalacia*. Osteomalacia comes from two Greek words, *osteon* meaning "bone" and *malakia* meaning "softness." The loss of minerals leaves bones soft and weak. Even a small bump can fracture these soft bones, and the mineral deficiency in the blood prevents the fracture from healing properly.

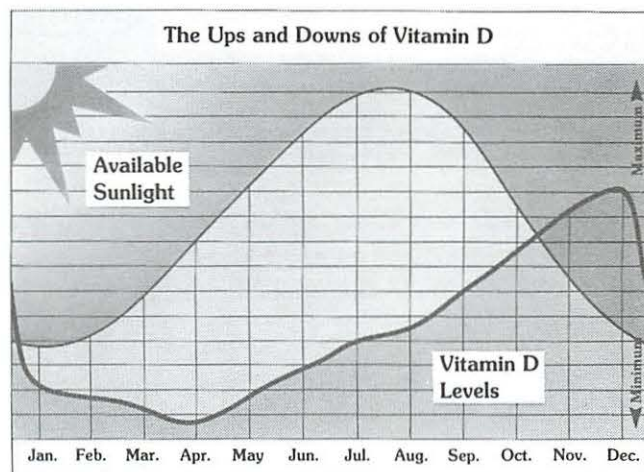
A lack of Vitamin D may also result in muscle cramps and twitching. When this affects the heart muscle, a twitch called *fibrillation* may occur.

### ***How does aging affect the level of Vitamin D?***

Unfortunately, as a person ages, the intestine's ability to absorb vitamin D from digested food decreases. Drinking vitamin D-enriched milk will not help if the vitamin D is not absorbed during digestion. The ability of the skin to produce vitamin D also decreases with time. For example, the skin of a seventy-year-old man makes only about fifty percent of the vitamin D that the skin of a teenager produces.

This means that beyond the age of about fifty, most adults find that they are vitamin D-deficient unless they spend at least thirty to forty minutes a day in the sun. Only small areas, such as the hands, face, or the back of the neck need to be exposed.

### ***What other factors affect the amount of Vitamin D which the sun can produce?***



Understanding Vitamins and Minerals

While the sun shines equally on everyone in the same location, some people are able to produce more vitamin D than others. Heavily pigmented skin, for example, blocks substantial amounts of ultraviolet light from reaching the layers of skin which convert cholesterol to provitamin D<sub>3</sub>. As a result, dark-skinned individuals living in northern climates have a greater occurrence of rickets than do their light-skinned neighbors.

A study of three hundred adults over a five-year period revealed that fewer than half had an adequate daily intake of vitamin D (200 I.U.). In fact,

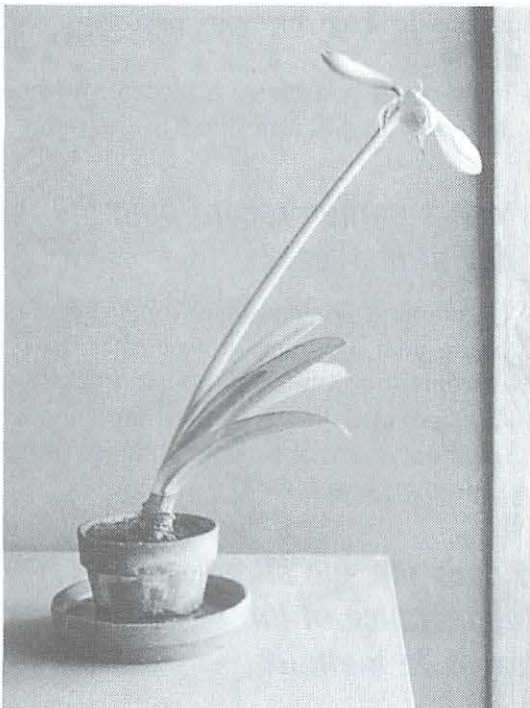
one third of the subjects had less than 100 I.U. per day. Most people were deficient simply because they did not eat foods rich in vitamin D.

Winter is another cause of vitamin D deficiency. Sitting by a sunny window doesn't help because ultraviolet light cannot penetrate ordinary window glass. In winter, the ultraviolet light of the sun is at a lower angle; it must pass through a greater amount of atmosphere, and in the process, is filtered out.

## 2 THE SUN CAUSES PLANTS TO GROW FOR BOTH THE JUST AND THE UNJUST.

Scientists call the external factors which direct the movements of plants *tropism*. The movement of plants toward light is called *phototropism*. Movement away from or toward the pull of gravity is called *geotropism*.

Tropism comes from the Greek word *trope*, meaning "to turn." When plants are exposed to light, they always turn toward the light and away from the shade. Leaves tilt toward the sun in order to absorb the greatest amount of light.

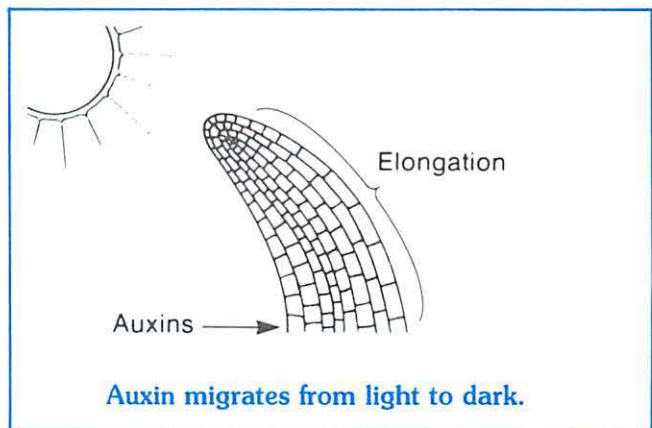


Grant Heilman

**Sunlight directs the growth of plants so that they turn toward the light. This is called phototropism.**

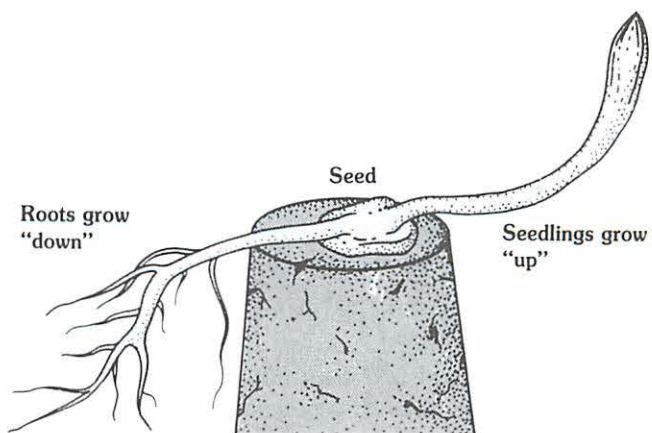
Phototropism is the result of a plant hormone that botanists have named *auxin*. Auxin comes from the Greek word *auxo* which means "to increase." *Auxin* is present in all green plants. It has the peculiar characteristic of always moving away from light. When light strikes one side of a leaf or stem, the plant's cells transport auxin away from the lighted side to cells on the shaded side of the plant.

High concentrations of auxin cause stem cells to grow more rapidly and to elongate. The absence of auxin causes cells to slow their growth and to shorten. This causes a stem to grow unevenly. The side away from the light grows more rapidly than the side toward the light. As a result, the stem begins to bend, and as the stem bends, the plant curves towards the light.



Heath Biology

Researchers have also found auxin in the roots of plants. Auxin is as sensitive to gravity as it is to light, and is transported by the root cells toward the pull of gravity, to the lower side of the root. In roots, high concentrations of auxin inhibit the growth of cells while low concentrations stimulate the growth of cells. This causes the root to bend downward as it grows.



Heath Biology

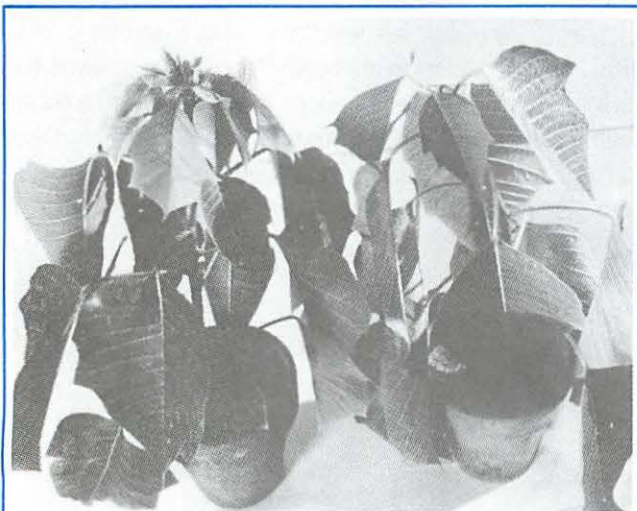
**In roots, auxin migrates toward the pull of gravity.**

When auxin is distributed evenly among the cells of stems and roots, they continue to grow straight without bending one way or another.

### **3 THE SUN REGULATES THE SCHEDULE OF PLANTS FOR THE JUST AND THE UNJUST.**

In the Northern Hemisphere, the length of time of the daylight and the darkness are equal only on March 21st and September 23rd. On every other day of the year, the lengths of the day and the night are unequal. These lengthening or shortening periods of daylight serve as alarm clocks which signal plants when it is time to flower, drop their leaves, or prepare for winter.

The response of plants to changes in the length of the day is called *photoperiodism*. Inside the cells of most plants is a substance called *photochrome*. Photochrome measures the length of the day by absorbing light. It causes "short-day" plants such as chrysanthemums, ragweed, goldenrod, soybeans, and poinsettias to flower during the spring and fall. "Long-day" plants such as hollyhocks, clover, irises, radishes and beets bloom in the late spring and early summer when the days are longer.



Biology

The poinsettia on the left has flowered, but the one on the right has not. The only difference between the two is the amount of sunlight they received. The flowering poinsettia received less than 11 hours of light while the other plant received more than 13 hours of light each day.

### **How can a garden tell time?**

Over 200 years ago, Carolus Linnaeus, a Swedish botanist, told the time of day with a garden clock. He simply planted a circular garden made up of plants which bloomed at different times of the day.

Some plants flowered at sunrise. Others flowered at eight o'clock. Still others flowered at noon, mid-afternoon and dusk. By arranging the flowers according to the time their blossoms opened, Linnaeus created a garden clock.

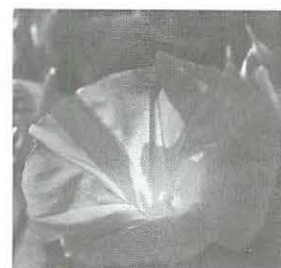
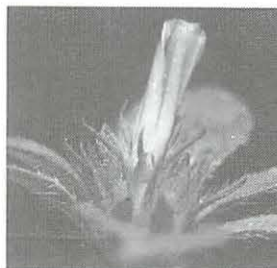


Photo Researchers

**Morning glories open at the first hint of sunlight. They close at the first hint of evening.**

The opening and closing of flower blossoms is called *nastic movement*. As the sun warms the petals of a blossom, the pressure inside the cells of the petal increases. This pressure is called *turgor pressure*. Like an inflatable plastic toy, individual cells become rigid as the pressure builds and the flower unfolds.

As the air begins to cool at sunset, the cell pressure inside each blossom decreases and the flower closes.

How could you cause a blossom to open or close artificially at different times of the day?

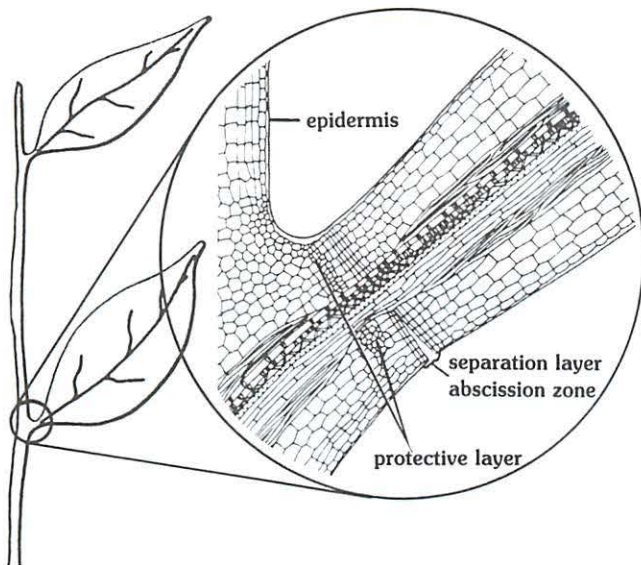
### **How can a garden record both the month and day of the year?**

By planting flowers which bloom at different times of the year, you can grow a calendar garden which reveals the date. By choosing your flowers carefully, first one flower and then another will bloom as the amount of sunlight changes during the spring, summer, and fall.

### **How does the sun stimulate the appearance of the beautiful colors of leaves in the fall?**

Photochrome also lets a plant know when winter is coming. As the number of hours of daylight decreases in the fall, photochrome stimulates plants to form winter-resistant buds.

Photochrome also stimulates leaf stems to seal off the flow of water and nutrients to a plant's leaves. When the length of day begins to shorten, twigs form a cork-like plug, called an *abscission zone*, at the base of each leaf. As the plug thickens, it literally strangles the leaf to death.



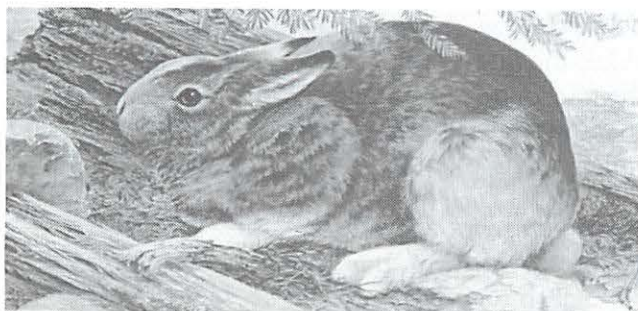
Modern Biology

When the leaf dies, its chlorophyll starts to fade and it loses its green color. This reveals rich colors which have been masked all summer long by the abundance of chlorophyll. Eventually the leaf breaks off at its base and falls to the ground.

### ***How does sunlight prepare animals for the coming of winter?***

Many animals also respond to changing lengths of daylight and darkness. Annual migrations, hibernation, mating seasons, and molting are all stimulated by sunlight.

The snowshoe rabbit, for example, completely changes its appearance each fall. As it loses its brown summer fur, white winter fur takes its place, making the rabbit difficult to see in snow.



**Snowshoe rabbit changing color as the days lengthen in the spring**

As the days grow longer in the spring, snowshoe rabbits shed their heavy winter coats. The white insulating hair of winter falls out and is replaced with dark summer hair. This hair is not only cooler, it also allows the rabbit to blend in with its summer surroundings.

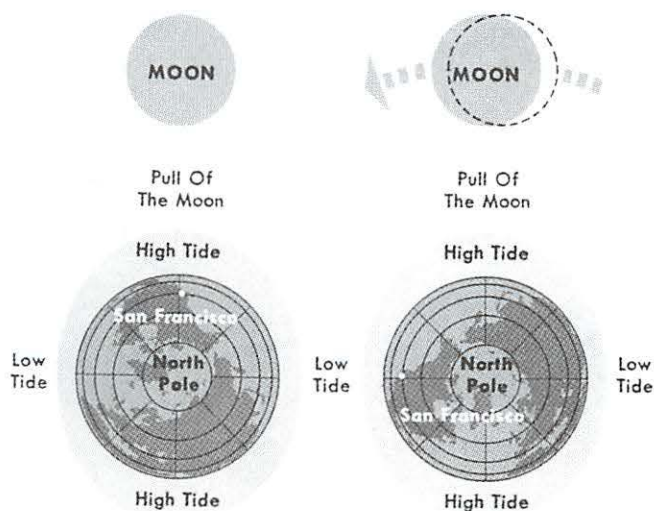
The shortening days of fall also alert black bears to the approach of winter. The changing amount of sunlight actually stimulates a bear's appetite. Black bears must eat a lot in order to gain weight for the long winter ahead.

Changing amounts of daylight prompt geese to fly south in the fall and north in the spring. Monarch butterflies, caribou, salmon, and even turtles all respond to the changing length of days throughout each year.

## **4 THE SUN CLEANSSES SHORELINES FOR THE JUST AND THE UNJUST.**

As the earth rotates on its axis, first one place and then another falls directly beneath the moon or the sun. The moon and sun's gravitational attraction at these points is so great that it actually lifts the ocean and bulges the crust of the earth. Troughs also develop where the gravitational attraction of the sun or moon is the weakest.

These swells and troughs, called *tides*, move as the earth turns beneath the sun and moon, causing the oceans to rise and fall as they pass. High water is simply called *high tide*; low water is called *low tide*. When a bulge approaches a beach or harbor, the tide "comes in," and when the bulge passes, the tide "goes out."



© World Book, Inc.

**San Francisco experiences a low tide six hours and thirteen minutes after every high tide.**

As tides flow in and out of harbors, they sweep out the main channels, keeping them deep enough for ships to pass. If the channels were not freed of sand and silt each day, they would quickly fill with debris and make passage impossible for large ships.

The cleansing action of tides also helps to keep coastal beaches clean and healthy. Decaying material is swept off the beach during high tide and carried out to sea where it eventually settles to the bottom.

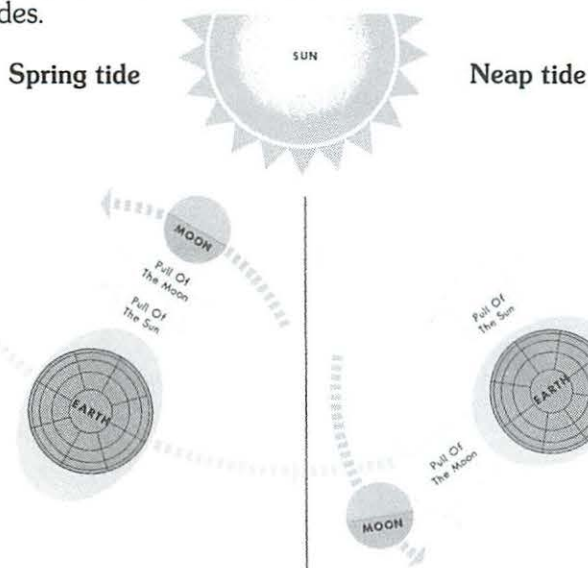
### ***How do the sun and moon work together to cause spring tides and neap tides?***

There are actually four swells and four troughs on the ocean at all times. The moon causes two swells and two troughs, and the sun also causes two swells and two troughs. The sun's tides, however, are only about half as big as those of the moon.

Even though the mass of the sun is 27,000,000 times greater than that of the moon, the moon is 390 times closer to the earth and exerts twice as much gravitational pull on the oceans.

When the sun and moon line up with the earth, their gravitational forces combine to make the tides higher than usual. These tides are called *spring tides*. Spring tides occur every 14 days and 18 hours.

When the sun and moon are at right angles to each other, their pull tends to cancel each other out and the tides are lower than usual. These tides are called *neap tides*. Neap tides also occur every 14 days and 18 hours—exactly opposite the spring tides. An entire lunar cycle takes about 29½ days; this cycle includes two spring tides and two neap tides.

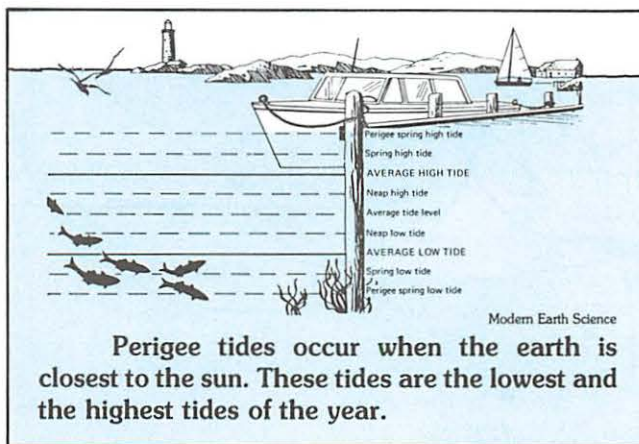


The separate pulls of the sun and moon can complement one another or cancel each other out.

### ***How do tides regulate the flow of ships in and out of harbors?***

Tides always follow a predictable time schedule, which for people living along seacoasts is as important as a clock. The tides are so regular, in fact, that accurate timetables can be prepared years in advance.

Because many harbors can be entered only during high tide, ships must schedule their arrivals and departures to coincide with the high tides.



The time between a high tide and a low tide is slightly less than 6 hours and 13 minutes. Another high tide peaks about 12 hours and 25 minutes after the previous high tide.

The 25 minute delay between successive high tides is a result of the moon's monthly rotation around the earth. The earth makes a half turn in 12 hours, but during those twelve hours the moon has also moved. It takes about 25 minutes for the earth to catch up to the moon's new position.

### ***How has the sun actually increased the length of the day?***

The friction of water being pulled up and down and back and forth across beaches and harbors actually slows down the speed of the earth's spin. While the rate is only a fraction of a second each day, the fractions do accumulate. Some estimates suggest that the tides have slowed the earth's rotation by as much as three hours since the time of Christ.

The word *tide* comes from the same English root as the word *time*. In fact, *time* and *tide* were once the same word.

## How does the sun produce air tides?

Few people know that the moon and sun also cause air tides. Just as the moon and sun affect the water of the oceans, they also affect the air of the earth's atmosphere. Gravitational attraction causes large bulges of "air tides" just like water tides.

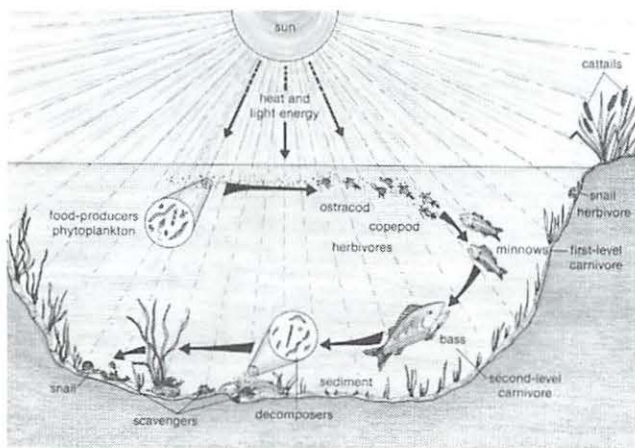
Air tides are also called *lunar winds*. Even though they are too slight to be felt or seen, lunar winds cause dramatic variations in weather conditions.

## 5 THE SUN PROVIDES FOOD FOR THE JUST AND THE UNJUST.

Living things which capture energy from the sun and produce their own food are called *autotrophs*. The word autotroph comes from two Greek words, *auto*, meaning "self," and *trophe*, meaning "nourishment."

Most plants convert sunlight to food through a process called *photosynthesis*. Photosynthesis comes from three Greek words which literally mean "put together with light."

Every year, plants "put together" more than 150,000,000,000 tons of carbon, 25,000,000,000 tons of hydrogen, and 200,000,000,000 tons of oxygen. About 90% of this is accomplished by algae in the oceans.

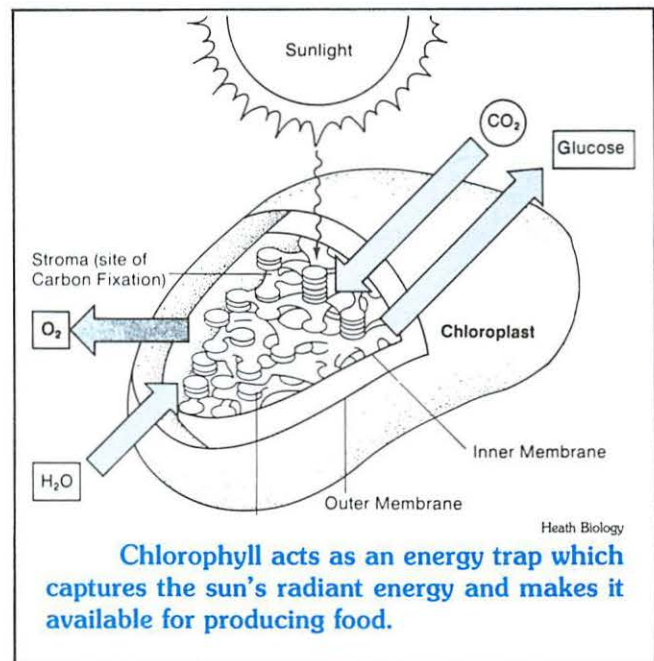


**All food comes directly or indirectly from the sun.**

## How do plants produce food from sunlight?

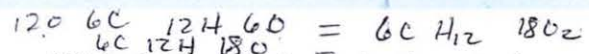
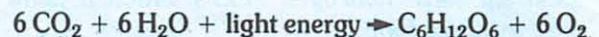
Photosynthesis involves only four major ingredients: water, carbon dioxide, chlorophyll, and sunlight. When light strikes a molecule of chlorophyll, its electrons absorb energy. This excess energy

excites the chlorophyll's electrons so much that they bounce from one chlorophyll molecule to another.



As the excited electrons bounce around, they split apart molecules of water, producing both hydrogen and oxygen. The oxygen is released into the air, and the hydrogen combines with carbon dioxide to form the basic building blocks which plants use to manufacture food.

The process of photosynthesis can be written chemically as:

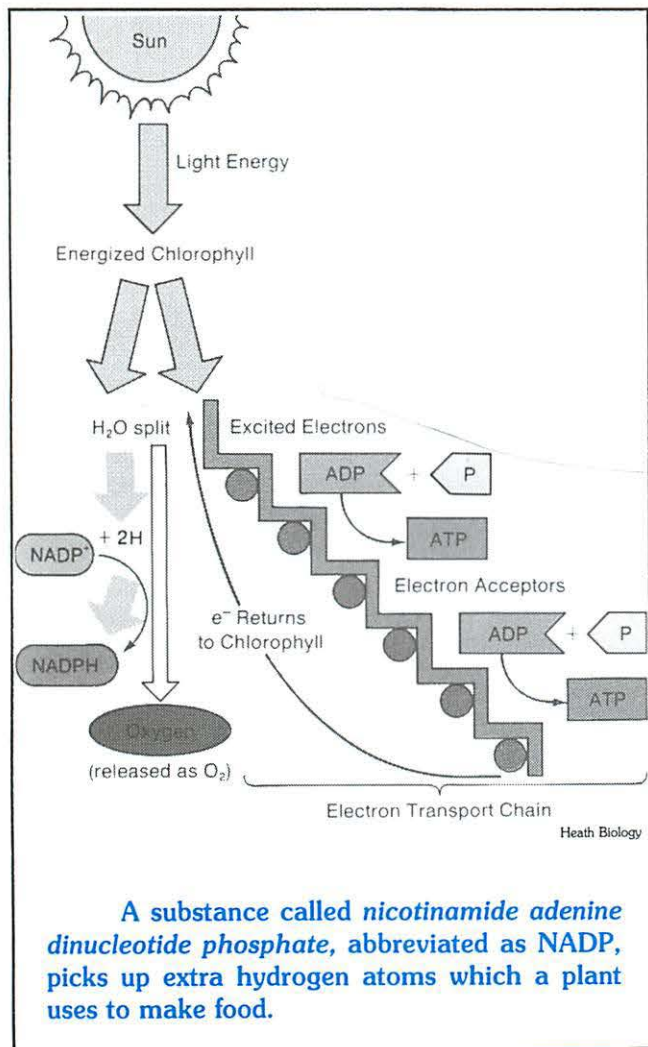


While this may look simple, the actual process is a very complex series of reactions. The first phase of photosynthesis involves only water, light and chlorophyll. When chlorophyll traps light and releases electrons, energy is stored in the form of ATP.

ATP is a chemical known as *adenosine triphosphate*. ATP contains three phosphate groups; ADP, *adenosine diphosphate* contains only two phosphate groups. When ADP picks up a third phosphate, it becomes ATP and it stores energy. When ATP loses a phosphate, it changes to ADP and releases energy. ADP and ATP provide the mechanism through which chlorophyll is able to trap and store the energy of the sun.

The excited electrons may also enter a complex electron-transport chain which absorbs the their extra energy and returns it to their chlorophyll

molecules like a miniature electric circuit. All these reactions occur in just a fraction of a second so that the process of converting sunlight into "plant energy" continues as long as the sun shines.



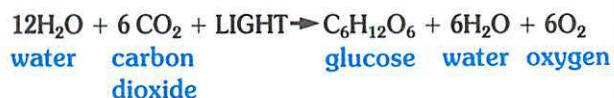
On overcast days or during the late fall when the angle of the sun decreases, photosynthesis comes to a halt because there is not enough energy to split the water molecules apart. The process of photosynthesis also breaks down at temperatures above 90°F because the enzymes of most plants fail to function properly at high temperatures. As a result, many plants stop producing food on hot summer afternoons.

The second phase of photosynthesis splits water molecules into oxygen and hydrogen. This requires great amounts of energy, most of which comes from the molecules of ATP which were pumped full of "sunlight" in phase one.

The oxygen is released into the air, and the hydrogen combines with carbon dioxide to form the building blocks of plant food. The hydrogen and

carbon dioxide combination then reacts with no fewer than eight other molecules to form glucose.

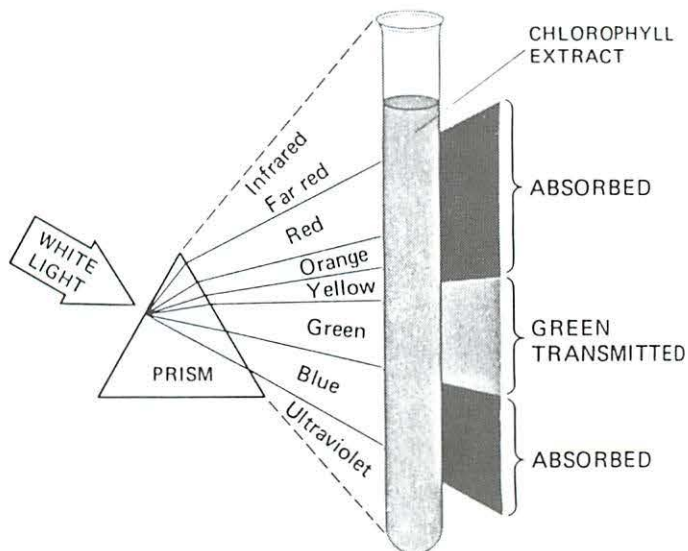
The simplified chemical expression for this reaction is:



Glucose is the plant's basic storage unit of energy. When a plant uses glucose, it releases up to thirty-six molecules of ATP which still retain the stored "sunlight" they received during photosynthesis. Some of this energy is lost as heat escapes; however, the process of photosynthesis is one of the most efficient energy systems known.

### What makes chlorophyll green?

Tiny sacks called chloroplasts, located in the cells of plants, contain from 200 to 400 molecules of chlorophyll. Chlorophyll absorbs all colors of visible sunlight except yellow and green. Because yellow and green light is reflected instead of absorbed, chlorophyll makes plants look green.

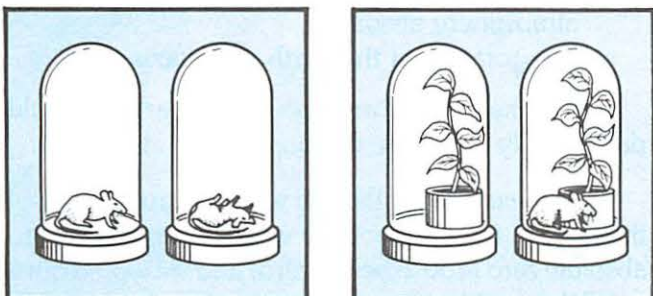


Biology

The green color of chlorophyll comes from a single atom of magnesium buried deep in the center of the chlorophyll molecule. It is interesting to note that blood gets its characteristic red color from a single atom of iron buried deep in the center of the hemoglobin molecule.

## How does the sun renew the earth's supply of oxygen?

The chemical reactions of photosynthesis provide oxygen for animals and humans to breathe. Without this production of oxygen, animals and humans would die.



A mouse which has been sealed in a glass jar will die without oxygen. The mouse will live for a long time, however, if there is a plant in the glass to supply oxygen.

## 6 THE SUN ALLOWS THE JUST AND THE UNJUST TO SEE COLOR.

The sun produces all the colors of the rainbow, but not all colors are produced in equal amounts. Some of the colors are absorbed in the sun's own atmosphere, and as sunlight passes through the earth's atmosphere, some of the blue light is filtered out.

The light which finally reaches the earth's surface has been reflected, refracted, and absorbed by as many as a dozen different surfaces before the



Adventures in Color Slide Photography

A stained glass window influences the quality of light which passes through it.

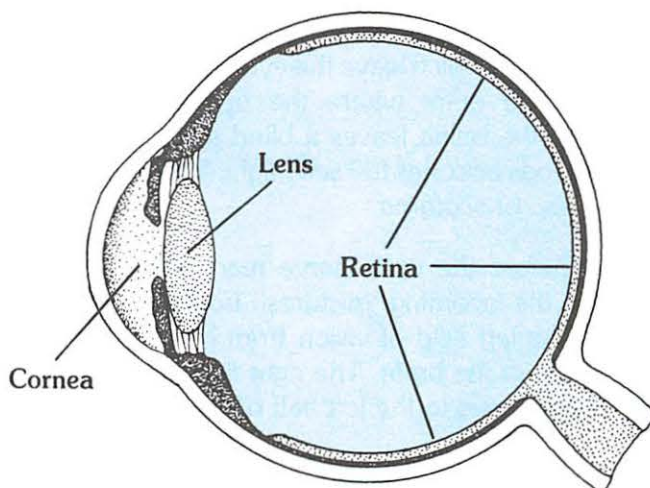
eye actually sees it. Each time sunlight strikes a surface it is changed by the qualities of that surface.

Sunlight reveals the grandeur of God's creation. It allows a person to recognize objects, reveals the presence of obstacles, directs our paths, and helps us to distinguish between colors. It provides security during the day and its absence at night sometimes causes fear and apprehension.

The same light which allows one person to recognize the face of a friend allows another person to recognize the face of an enemy.

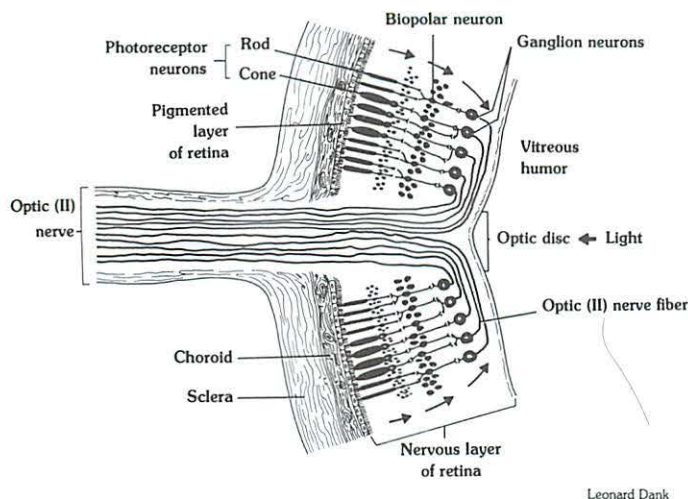
## How does sunlight allow our eyes to see?

A thin layer of nerves lines the inside two thirds of the eye. Doctors call this layer the *retina*. The retina is made up of a colored film which absorbs light and thousands of tiny nerves which monitor the colored film for any signs of excitement.



The colored film which lines the back of the retina contains photo-sensitive substances called *rhodopsin*, *scotopsin*, and *photopsin*. These three words come from the Greek roots *rhodon*, meaning "rose colored," *skotos*, meaning "darkness," and *phos*, meaning "light." They are each combined with the Greek word *opsis*, meaning "vision."

When light strikes one of these pigments, the pigment breaks down chemically and releases energy. This energy stimulates tiny nerve endings called *rods* and *cones*. Rods respond to the faint sources of light which allow our eyes to see at night. Cones respond only to bright light and distinguish between the colors red, green, and blue.



It is estimated that there are about 7 million cones and between 70 and 140 million rods in each eye. Most of the cones are concentrated near the center of the retina. These densely-packed cones make up the sharp area of vision called the *fovea*.

Information from the rods and cones travels along nerves which leave the eye by way of the optic nerve. The point where the optic nerve passes through the retina leaves a blind spot where there are no rods or cones to “see” light. This is called the optic disc or *scotoma*.

Before the optic nerve reaches the brain, it divides the incoming “pictures” from each eye and sends the left field of vision from both eyes to the right side of the brain. The right field of vision from both eyes goes to the left half of the brain.

Each nerve carries information from a point on the retina to a corresponding point on the outer cortex of the brain, creating “images” of what our eyes see. The brain then interprets these images and identifies them as familiar objects.

## 7 THE SUN MAINTAINS A BALANCED TEMPERATURE FOR THE JUST AND THE UNJUST.

God placed the sun at the precise point where it balances the earth’s average temperature between the freezing point of water (32°F) and the normal body temperature of man (98.6°F). If the mean temperature ever dipped above or below these two extremes for very long, man could not survive.

The earth’s mean temperature stays at about 57°F and is determined by the following five factors:

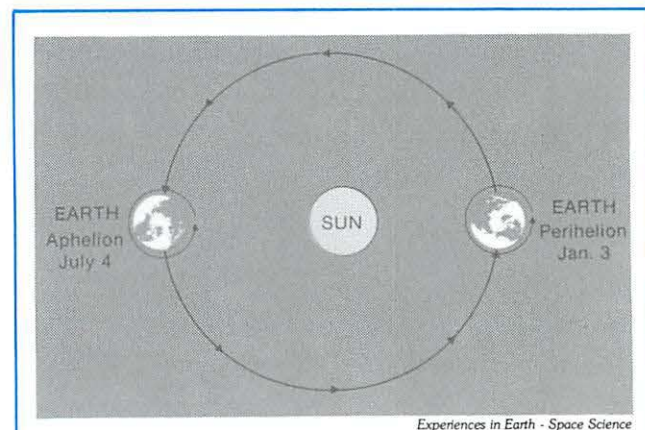
- The sun’s distance from the earth
- The intensity of the sun’s heat
- The angle at which the sun’s rays strike the earth
- The amount of heat the earth’s atmosphere absorbs
- The rotation of the earth on its axis

A change in any of these factors could dramatically affect the climate of the entire earth.

For example, if the sun went to another part of the galaxy, the temperature would drop to close to absolute zero (460°F below zero) and we would burn up all the earth’s reserves of coal, oil, and natural gas in about three days just to keep ourselves warm.

### *How does the sun’s distance from the earth affect the average temperature of the earth?*

The distance of the earth’s farthest point from the sun (the *aphelion*) is approximately 152,000,000 km. At the earth’s closest point (the *perihelion*) it is 5,000,000 km nearer. This difference, however, is just a little over 3%. If the difference varied by much more than that, temperatures would fluctuate to such extremes that life could not survive.



*Perihelion* comes from the Greek prefix *peri*, meaning “around,” and the Greek word *helios*, meaning “sun.”

*Aphelion* comes from the the Greek prefix *apo*, meaning “away,” and the word *helios*.

The temperatures of earth's two closest neighbors, Venus and Mars, reveal the delicate nature of the earth's position relative to the sun. Venus is only about 25% closer to the sun, yet its average surface temperature is 850°F. On the other hand, Mars is about 26% farther away from the sun, and its temperature ranges from a low of -191° to a high of -24°F.

On Venus there are no lakes because all the water has boiled away and exists only as water vapor. Mars doesn't have any lakes either—all the water is frozen in large polar ice caps or underground streams.

Scientists estimate that if the earth were even five percent closer to the sun, the increased temperature would melt the enormous ice sheets which cover Antarctica and Greenland. The water locked up in these sheets would raise ocean levels by as much as 300 feet. That would be enough to put every coastal city in the world under water.



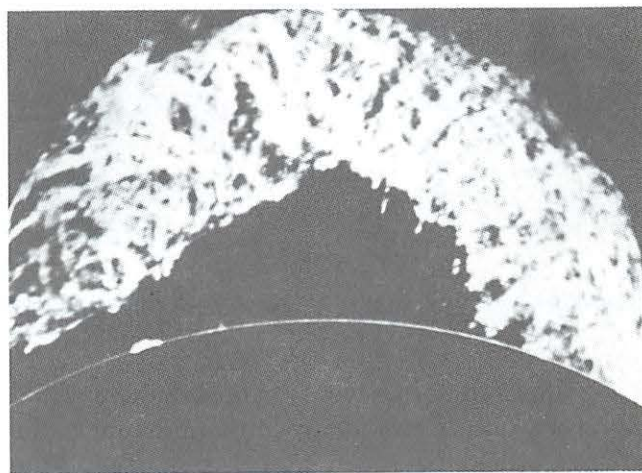
U.S. Navy

**If the earth were five percent farther away from the sun, all the water in the oceans would freeze.**

### ***How does the sun's intensity affect the temperature of the earth?***

The sun is by no means perfectly static. Its intensity fluctuates in regular cycles as solar flares and sunspots change its surface. These cycles have been successfully correlated with such observable weather patterns as thunderstorms, lightning strikes, rainfall, droughts, ocean temperatures, and even volcanic eruptions.

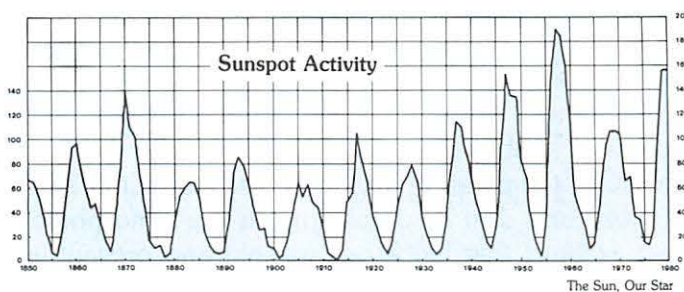
Changes of only a half of one percent in the sun's intensity have had dramatic effects on weather patterns throughout the world. For example, the annual growth rings of trees between 1640 and 1715 reveal a "cold spell" which lasted for 75 years. Sea ports froze earlier in the fall and many areas suffered from drought during this time. This period coincided with a marked decrease in sunspot activity.



High Altitude Observatory

**Solar flares appear to follow the magnetic lines of the sun.**

Today, scientists suspect that increased sunspot activity is responsible for the condition of the Pacific Ocean called *El Nino*. *El Nino* is a marked increase in the water temperature which results in increased storm activity along the western coast of the United States.



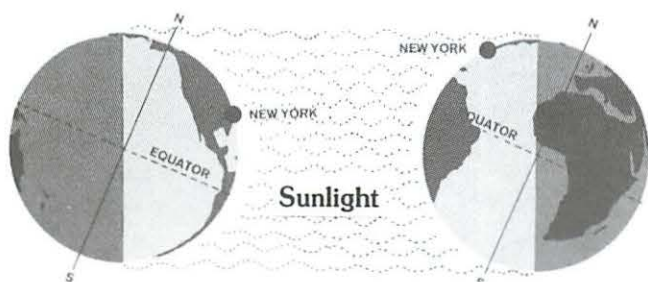
The Sun, Our Star

**Sunspots follow a predictable eleven-year cycle.**

### ***How does the angle of sunlight affect the temperature of the earth?***

Sunlight which strikes a surface at ninety degrees transfers more of its energy than sunlight which strikes a surface at a different angle. This means that it is hotter when the sun is directly overhead and cooler when the sun is lower in the sky.

Because the earth's axis is tilted, one hemisphere receives more direct sunlight than the other. This causes the change of the seasons. As the earth orbits around the sun, its axis points toward the sun when the Northern Hemisphere is enjoying summer. Six months later, when the axis points away from the sun, the Southern Hemisphere enjoys summer.



New York during summer      New York during winter

If the earth's axis were not tipped, there would be no seasons. If it were tipped more than it is, the seasons would be much more pronounced—the polar ice caps would freeze and thaw each year, causing the oceans to rise and fall dramatically.

### ***How does the earth's atmosphere absorb the sun's heat?***

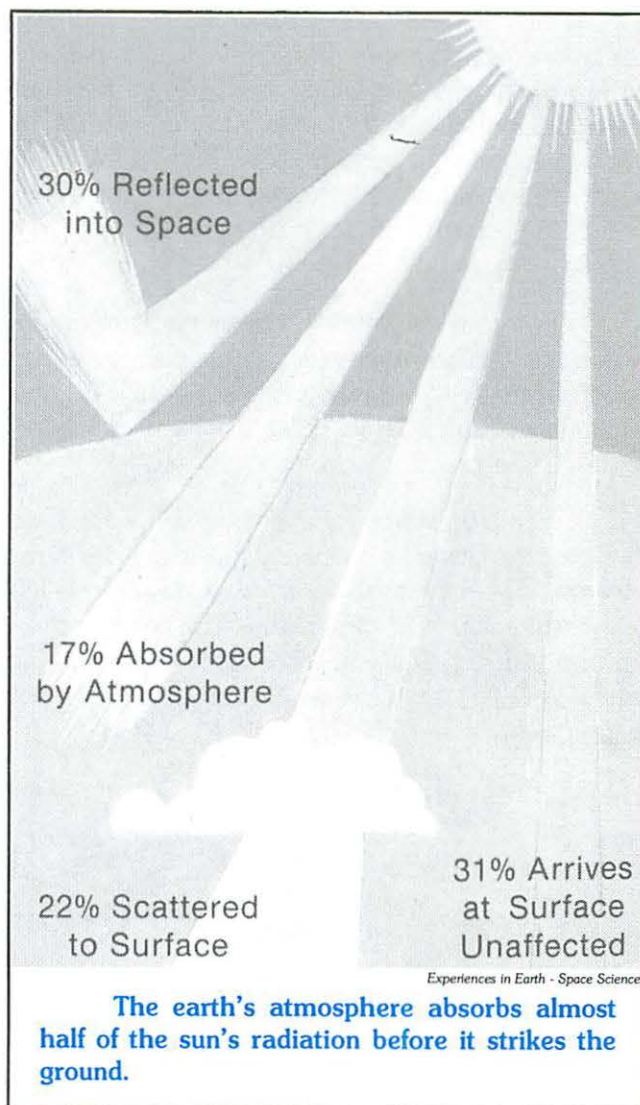
In the last 100 years, factory chimneys have poured approximately 360 billion tons of carbon dioxide into the air. This process has increased the carbon dioxide content of the atmosphere by about 13%. Carbon dioxide absorbs energy and prevents heat from escaping into space, a factor which has raised the earth's average temperature by about 1°F.

Since 1940, however, scientists have discovered that instead of increasing, the earth's average temperature has decreased about 0.7°F. Smoke and dust accumulations in the atmosphere act as filters that block out sunlight and prevent it from reaching the surface.

The carbon dioxide and the dust particles may actually cancel out the effects of each other, and this helps to keep the temperature constant from year to year.

### ***How does the rotation of the earth around its axis keep the temperature constant?***

The rotation of the earth around its axis causes alternate periods of day and night. During the day,



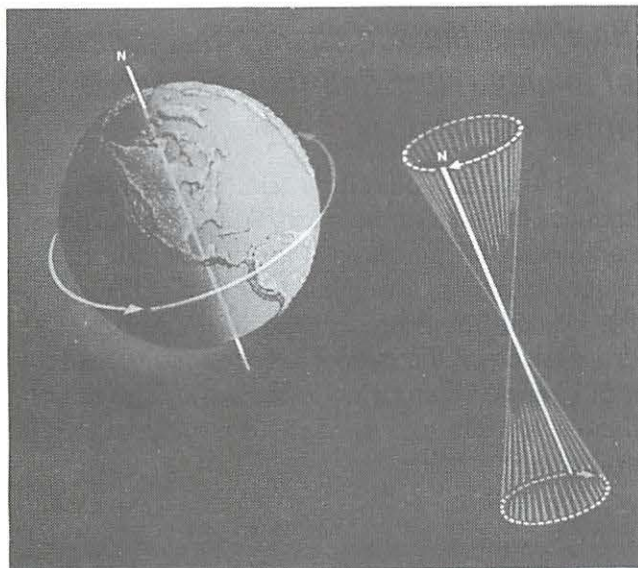
the side toward the sun warms up while the other side cools down. This may be obvious, but it has a profound effect on the earth's average temperature.

The moon, for example, rotates only once every 29½ days. During this slow rotation, the temperature on the side facing the sun keeps getting hotter and hotter until it may exceed 260°F. On the side away from the sun, the temperatures get colder and colder until they may be as low as -280°F.

Because the earth rotates every 24 hours, it avoids these extremes. Usually the difference between the daytime high and the nighttime low is less than 20°F. If the length of the day were any longer there would be a dramatic fluctuation between the highs and the lows.

For example, if the day were 36 hours long rather than 24, the broiling heat of midday would

send daytime temperatures over 100, even in winter, and the longer night would allow temperatures to drop below freezing even in summer. Such drastic temperature changes might spawn strong winds, tornados, and storms every day of the year.



The Earth

**The earth spins like a top which has just begun to wobble. The wobbling motion is called *precession*. This means that the earth's axis will not always point  $23\frac{1}{2}$  degrees away from the sun. As the axis changes, so will the seasons and the average temperature.**

## 8 THE SUN PURIFIES WATER FOR THE JUST AND THE UNJUST.

Geologists estimate that there are more than 325 million cubic miles of water on the earth. At any given time, however, as much as 99% of that water is in salty oceans or is trapped in glaciers and ice caps. Only about 1% is available as fresh water.

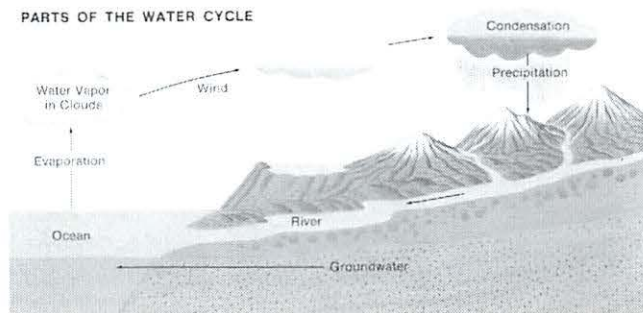
If this small amount of fresh water were not replenished on a daily basis, rivers and lakes would quickly dry up. Fortunately, the sun serves as a powerhouse which continually purifies saltwater and returns it to the land in the form of rain.

Each year the sun evaporates about 95,000 cubic miles of water. Approximately 71,000 cubic miles of that water fall back into the ocean and are unusable. Only about 24,000 cubic miles fall on land surfaces. Of that amount, about 9,000 cubic miles run off in streams and rivers and return directly to the ocean.

The remaining 15,000 cubic miles of water soak into the land and become usable "ground water." This small amount of purified water provides more than 22,000 gallons of fresh water for every man, woman, and child on the earth. On the average, every square inch of soil receives 32 inches of rain a year.

However, geographic factors such as mountains, prevailing winds, and ocean currents cause more rain to fall on some areas than others. Parts of the Pacific Northwest, for example, get up to 150 inches of rain per year, while large areas west of the Mississippi River get less than 10 inches a year. This variation causes desert climates in some places and rain forest climates in others.

PARTS OF THE WATER CYCLE



Experiences in Earth - Space Science

**Water follows a regular pattern as it evaporates from the sea, falls as rain or snow, and then finds its way back to the sea.**

### *How does the sun recycle water?*

As with any true cycle, the water cycle has no beginning or ending. It is a continuous process powered by the sun. As the sun's rays warm the surface temperature of the ocean, water evaporates. Water vapor is invisible, and because it is less dense than air, it rises quickly into the atmosphere. As it rises, it cools and condenses to form a fine mist of droplets which we know as *clouds*.

As water droplets float through the air, they collect around bits of dust and other microscopic particles. Eventually, the droplets collide with one another and form larger and larger drops. If conditions are hot and dry, the drops may evaporate again and disappear. But if the drops continue to grow they may become heavy enough to fall as rain. Some raindrops are so small that they seem to float as a mist. Others are so large that they fall at an average speed of 17 miles per hour.

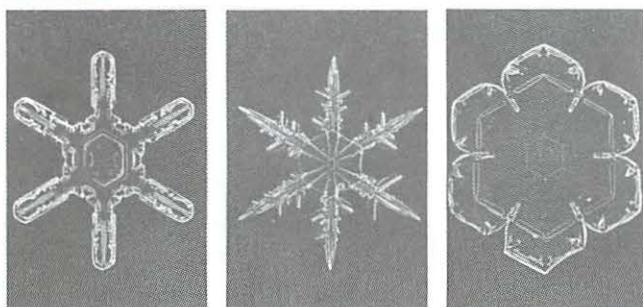
Hail, sleet, and snow are merely forms of frozen rain. Surprisingly, half of all rain begins frozen. Under some conditions, a droplet may melt and re-freeze several times before it finally hits the ground.

never become part of the water cycle again. The water that actually remains in the plant is released only when the remains of a plant burn to yield carbon dioxide and water.

## How does the sun change the courses of mighty rivers and flatten the peaks of tall mountains?

Heavy run-off after a rain causes erosion and changes the face of the earth. As one drop of water combines with others to form *rivulets*, the moving water cuts gullies into the sides of hills. The steeper the hill, the more erosion the water causes. Rain-drops falling on the steep sides of a mountain act like jack hammers, removing loose stones and carrying them away. This process flattens mountains and fills in the valleys below.

When a water droplet becomes too heavy, it falls from the cloud. As it falls, it collects other water droplets.



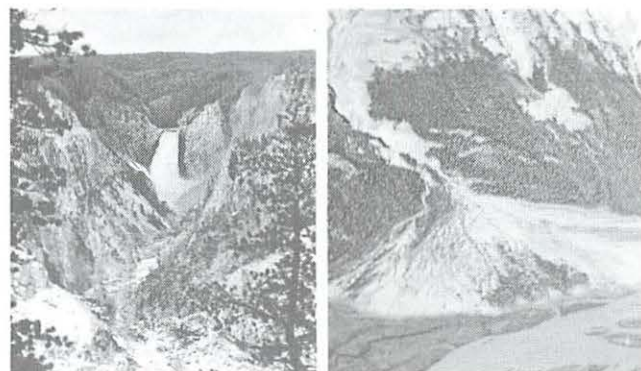
Snowflakes form when water vapor freezes directly from a gas to a solid. Because snowflakes are actually constructed from microscopic crystals, no two are ever the same.

The “arms” of a snowflake reveal its age, and the temperature, humidity, and altitude of its origin. Why do all snowflakes have six arms?

When rain falls or snow melts, much of the water runs off into rivers, streams, and lakes where it evaporates and is recycled within a few weeks or months. Some of the rain, however, may soak into the soil and remain trapped for years as part of the groundwater system. As this water filters through rocks, it remains pure and may be brought back to the surface through wells or natural springs.

Plants absorb only a fraction of the rain which falls. Some of the absorbed water evaporates immediately back into the air and is recycled. Some is used to transport nutrients in the plant, and some finds its way into the plant’s cells, becoming a part of the plant itself.

The rest is split into hydrogen and oxygen during photosynthesis. This is the only point in the water cycle where the water molecule is actually broken apart and chemically changed. These molecules of hydrogen and oxygen may, or may



Water cuts huge gullies into the face of mountains and washes the debris into the valleys below.

Heavy rains also change the course of rivers. The relentless power of the sun provides a continuous flow of water down most river beds. Because water moves more rapidly along the outer bend of a river and more slowly along the inner bend, there is more erosion on the outer side than the inner side.

The combination of undercutting on the outer bank and building up along the inner bank causes a stream to “meander.” The word *meander* comes from the Greek word *maiandros*, which was the name given to the Phrygian River because it followed an extremely winding course.

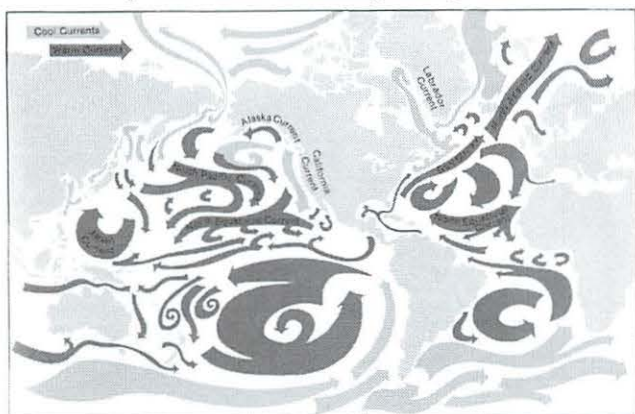


Younger stream

Older stream

## 9 THE SUN FURNISHES FRESH AIR TO THE JUST AND THE UNJUST.

The stirring motions of the ocean currents and prevailing winds mix the waters of the ocean and the air of the atmosphere like beaters in a giant mixing bowl. This process keeps the earth's water and air fresh and prevents it from stagnating.



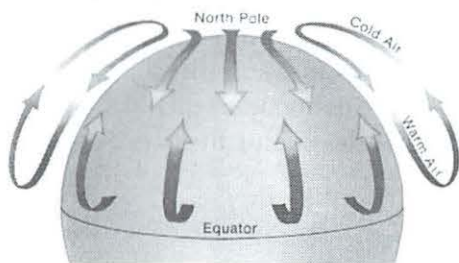
Experiences in Earth - Space Science

Warm and cold currents keep the oceans stirred up.

### How does the sun mix the earth's atmosphere?

The intense heat of the sun is most constant along the earth's equator. This condition causes warm air to rise from the equator and move toward the poles. As the air moves away from the equator, it cools and returns to the surface where it flows gently back toward the equator.

At the same time, cold air from the poles moves toward the equator, and as it meets the warm air from the equator, the warmed polar air rises and returns to the poles.

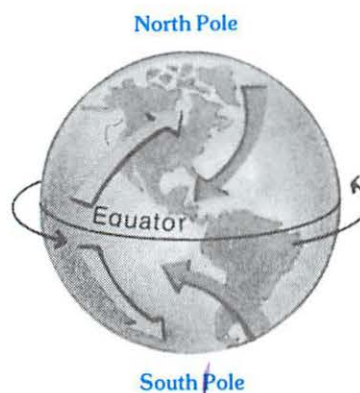


Experiences in Earth - Space Science

The zone where warm tropical air meets cold polar air controls most of the weather in the Northern Hemisphere. Meteorologists call this zone the **Polar Front**.

If the earth did not rotate around its axis, these air movements, or winds, would blow due north and south. However, because the earth turns faster at the equator than it does at the poles, the winds near the equator, called trade winds, blow in an easterly

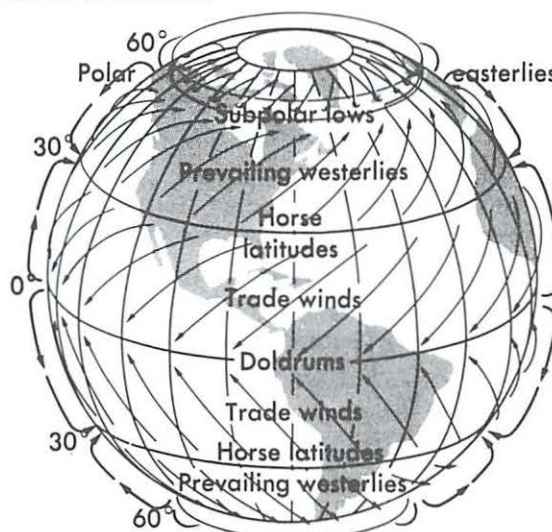
direction, and the winds of polar air, called prevailing winds, blow in a general westerly direction.



Experiences in Earth - Space Science

These wind patterns are called the **Coriolis Effect**. They were named after the nineteenth-century French mathematician who first explained them.

These air movements result in five major wind patterns, called the *doldrums*, the northern and southern *trade winds*, and the northern and southern *westerlies*.



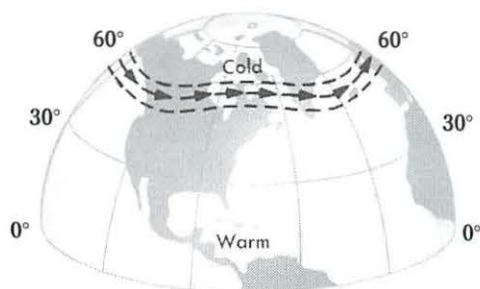
Major wind patterns of the world

### How does the sun reduce the time required to fly from Los Angeles to New York?

The meeting of warm tropical air and cold polar air creates a continuous weather front which circles the entire earth. The area where the two fronts meet is called the *polar front*. The eastward motion of this front results in a wide band of high altitude winds which are generally strongest in the region of 30° latitude.

In the Northern Hemisphere, a band of very strong winds often exists near the southern boundary of the polar front. Scientists call these winds

the *jet stream*. They blow at an altitude of about 6 - 9 miles and measure about 60 miles wide and a mile or so deep.



Modern Earth Science

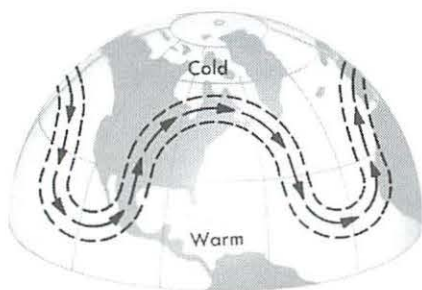
**The jet stream always blows from west to east.**

When there are great temperature differences between the polar and tropical air masses at the polar front, the jet stream may blow at speeds up to 300 miles per hour. Pilots can take advantage of a free ride by flying in the jet stream, and under the right conditions, the jet stream can greatly reduce the time of a transcontinental flight.

## How does the sun change weather conditions across the continental United States?

Slight changes in the sun may cause dramatic changes in the direction and flow of the jet stream. The behavior of the jet stream determines to a large extent the weather conditions across the country.

When the jet stream dips south, it may bring polar air along with it causing freezing temperatures as far south as Southern California. As it bends back northward, it may bring record-breaking high temperatures to Wisconsin and the upper peninsula of Michigan.

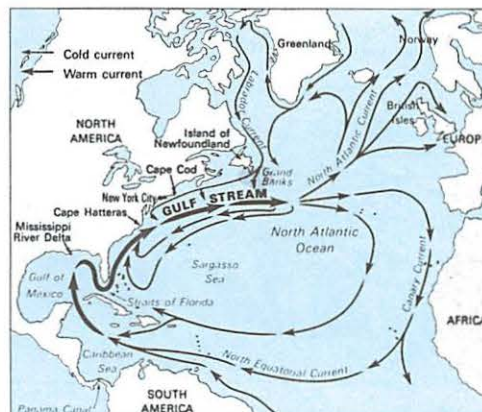


Modern Earth Science

**Variations in the jet stream cause dramatic changes in weather patterns all across the Northern Hemisphere. A similar jet stream controls the weather patterns of the Southern Hemisphere.**

## How does the sun stir up the oceans?

The warm easterly winds called *trade winds* create a massive surface current known as the *Gulf Stream*. The volume of water flowing in the Gulf Stream is about 50 times greater than that of all the rivers of the world. This constant flow of water keeps the Gulf of Mexico and the Atlantic Ocean stirred up like a swirling bowl of soup.



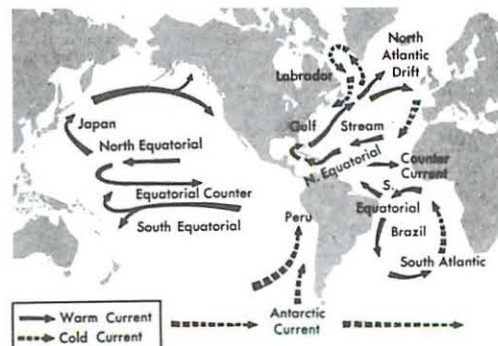
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### Gulf Stream

The Gulf Stream begins between Mexico and the western tip of Cuba. As the water heats up, it turns eastward around the southern tip of Florida and then flows northward along the United States' coastline to Cape Hatteras in North Carolina.

Near Cape Hatteras it turns northeast and then crosses the Atlantic. By this time the Gulf Stream may be as much as 18°F warmer than the surrounding water. The water is so warm, in fact, that it actually serves as a giant heater for the coasts of Europe and the British Isles.

The Pacific Ocean also has a major current carrying warm water from the equator north along the Japanese coast. Another current called the *Pacific Drift* helps to warm the coasts of Alaska and Canada. Still another current, the *Peru Current*, carries cold water along the west coast of South America.



Modern Earth Science

### Pacific Ocean Currents

Changes in the water temperature of the Peru current may have dramatic effects on weather patterns in the eastern Pacific. When the Peru current warms, the effect is called *El Nino*. *El Nino* alters the weather patterns of the Pacific by blowing major storms ashore along the west coast of South America.

## How is the sun responsible for the waves on lakes and oceans?

Most waves are caused by wind, and all wind is caused by the sun. As wind blows across a large body of calm water, it makes small ripples at first, then larger ripples, and finally large waves.

The size of a wave depends on how hard and how long the wind blows. As a wave enters shallow water, the lower part of the wave drags along the beach, and this slows down the bottom half of the wave. As the upper half of the wave continues at the same speed, it overtakes the bottom half and the wave literally tips over. These waves are called *breakers*. Breakers can form a magnificent surf if there is enough wind.



H. Armstrong Roberts

Some of the waves off the coast of Hawaii form tubes of up to forty feet long. The inside of the wave looks like a long, hollow pipeline.

## How does the lack of wind allow pollution to become trapped?

Under normal conditions, wind mixes the pollution of large cities with fresh air and blows it away. However, occasionally a layer of warm air may trap a layer of cool air underneath it, and this condition holds pollutants close to the ground. Meteorologists call this an *inversion layer*.

In 1952, more than 4,000 people died when heavy air was trapped over London for five days. The air remained stagnant until the sun created enough wind to break up the inversion layer.

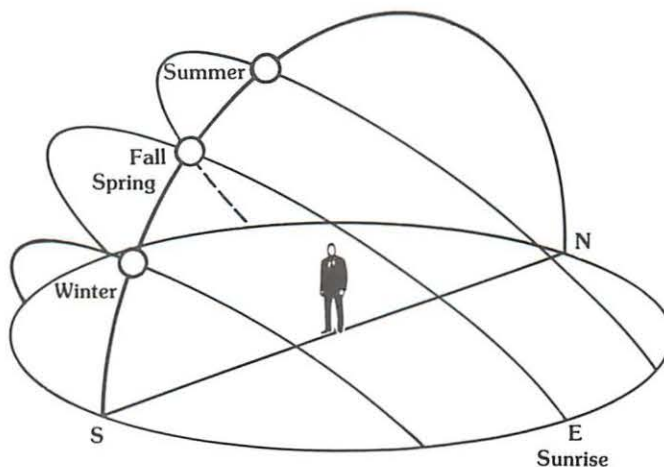


Los Angeles Air Pollution District

## Inversion layer over the city of Los Angeles

# 10 THE SUN ESTABLISHES SEASONS FOR THE JUST AND THE UNJUST.

The largest and brightest object in the sky is the sun. It rises in the east, moves to its highest point in the sky, then sets in the west. However, careful observation reveals that the sun rarely crosses the sky directly from east to west. Instead the sun makes an arc across the sky in a southward direction until it reaches its highest point, then moves northward again until it finally sets in the west.



The sun rises precisely in the east only on the first day of spring and the first day of fall.

As winter approaches, the sun's path shifts southward to a low arc which makes the days shorter and the nights longer. As summer approaches, the sun's path grows higher, causing longer days and shorter nights.

These patterns are quite predictable and have allowed both the just and the unjust to mark the passage of time.

### ***How did ancient civilizations measure the length of a year?***

Indians of the American Southwest and ancient civilizations all over the world have left records which indicate that they knew exactly how the sun moves.

In Europe, the stone monuments of Stonehenge recorded and predicted the movements of the sun. In Mexico, the ancient Mayans developed an accurate calendar which predicted eclipses and marked the position of the sun years in advance. The ancient Greeks also made surprisingly accurate measurements of the earth's circumference by observing the sun from different locations.



Three Lions

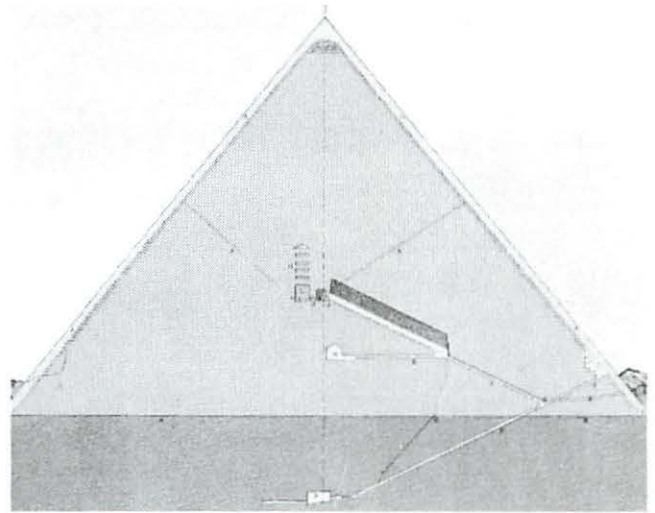
The sun rising over Stonehenge

**Other stone monuments called megaliths date as far back as 4,500 B.C. They mark the position of the sun and predict the shortest and longest days of the year.**

Perhaps the most astonishing findings, however, are those of the Egyptian pyramids. The Egyptians marked the seasons, recorded the dates of great events, and predicted the flooding of the Nile with their knowledge of the sun's movements.

For example, the great pyramid known as Cheops Pyramid may have been a huge stone calendar. Its long, sloping corridors suggest that

the Egyptians used the sun to measure the size and shape of the world long before the Greeks did. Archaeologists have discovered that many of the pyramid's corridors point accurately to a number of important stars.



Library of Congress

**The Egyptian pyramids may have also marked the position of the sun. The large structure of the pyramids offered stable platforms from which to study the heavens through the long, narrow corridors.**

Peepholes in doorless rooms would mark the passage of the sun. Light would pass through the corridors to illuminate a statue only when the sun was at a precise angle. Because some of the passageways are up to 600 feet long, the Egyptians could be extremely accurate in their measurement of time.



Mysteries of the Ancient World

**This peephole may have allowed the sun to illuminate the statue of the Pharaoh just once a year.**

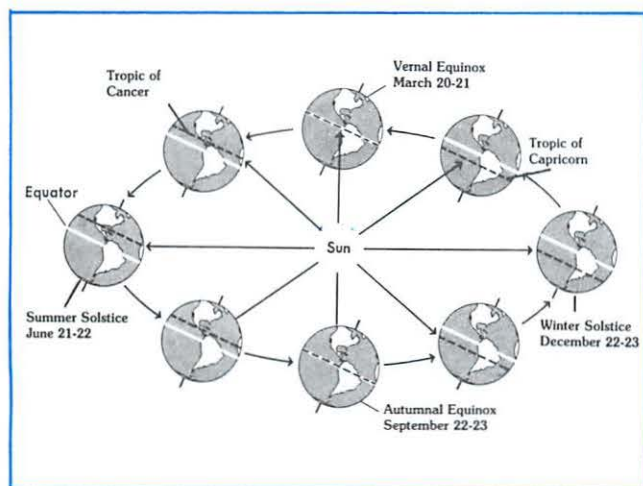
## How does the sun change position in the sky?

Because the earth's axis tilts  $23\frac{1}{2}^{\circ}$ , the North Pole tilts toward the sun and then away from the sun as the earth moves along its yearly circuit around the sun. When the North Pole tilts toward the sun, the sun appears higher in the sky. When it tilts away from the sun, the sun appears lower in the sky. Just the opposite is true for an observer in the Southern Hemisphere.

The date that the sun appears highest in the sky is known as the *summer solstice*. Solstice means "sun stands still." This occurs once a year, on June 22nd. At no other time does the sun occupy that position in the sky. The point where the sun "stands still" marks the beginning and end of the solar year. The exact length of time required for the earth to travel around the sun is 365 days, 5 hours, 48 minutes and 46 seconds.

After the summer solstice, the North Pole begins to tilt away from the sun, until approximately six months later, it faces away from the sun. This is the date that the sun appears lowest in the sky. Astronomers call it the *winter solstice*. It also occurs once a year, on December 22nd.

Between these two extremes are two important dates at which the sun shines directly above the equator. These dates are called the *vernal* and *autumnal equinoxes*. The vernal equinox marks the beginning of spring and the autumnal equinox marks the beginning of fall.



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**The sun is directly over the equator on the dates of the vernal and autumnal equinoxes. On the date of the summer solstice, the sun is directly above an imaginary line called the tropic of Cancer. On the date of the winter solstice, the sun is directly above an imaginary line called the tropic of Capricorn.**

## How does "sun time" differ from "clock time"?

A sundial makes a shadow as the sun moves across the sky. This shadow shows the apparent solar time. Careful observation of a sundial's time, however, reveals that not all days are the same length of time. Some days are actually longer than 24 hours; other days are less than 24 hours. Each day is slightly different from the next.

Clocks however, are arbitrarily set to measure the average length of a day. This makes every day of the year the same length of time.



**The shadow of a sundial marks the position of the sun as the earth rotates around its axis.**

## 11 THE SUN ALLOWS LONG-DISTANCE RADIO COMMUNICATION TO TAKE PLACE.

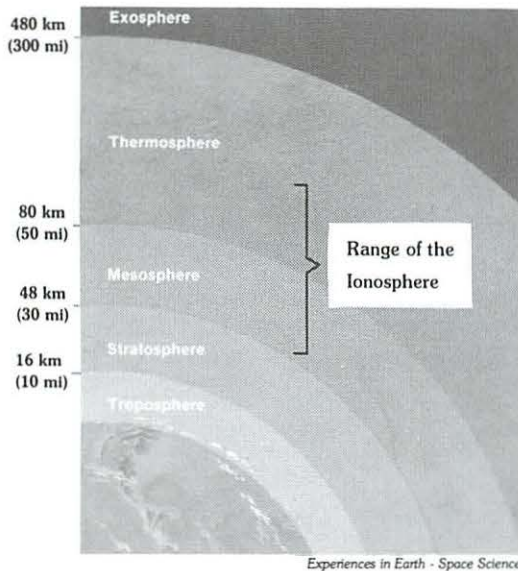
The earth's atmosphere is very thin 200 miles up—so thin that the few molecules which make up the atmosphere there absorb the full intensity of the sun's heat. This condition sends the temperature soaring to as much as  $3,600^{\circ}\text{F}$ . That is hot enough to strip electrons away from their atoms.

These charged particles are called *ions*. Ion is a Greek word meaning "to go." It refers to an atom which has either lost or gained electrons. The loss of an electron results in a positively charged ion. Gaining an electron results in a negatively charged ion.

The resulting layer of ions is called the *ionosphere*. The ionosphere begins at the altitude of about 190 miles and continues down to the altitude of about 30 miles.

The altitude of the ionosphere fluctuates from day to night. During daylight hours, sunlight penetrates deeper into the atmosphere, ionizing atoms closer to

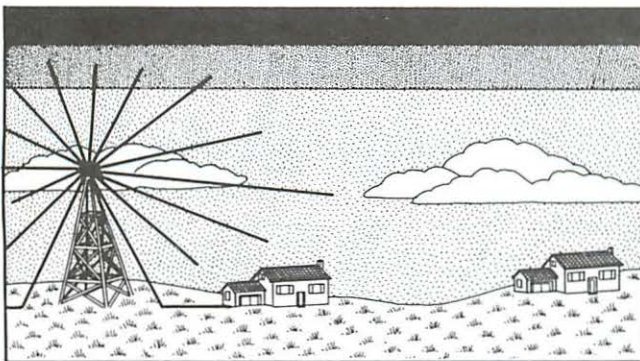
the earth. At night, the absence of light causes the ionized layer to move to higher altitudes.



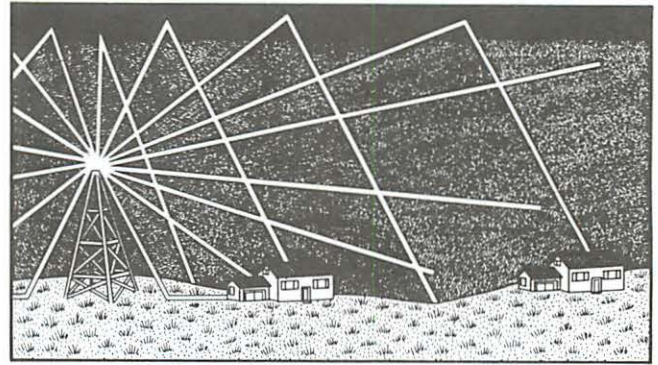
The ionosphere is a blanket of ionized particles which lies within the earth's thermosphere. The presence or absence of sunlight causes the ionosphere to vary in its altitude.

### ***How does the ionosphere improve radio communications?***

One of the characteristics of the ionosphere is its ability to reflect the transmission of AM radio stations. The ionosphere reflects these radio waves back to earth rather than allowing them to escape into space. Without the ionosphere, radio communication would be limited to straight lines between two points. At night, as the ionosphere rises to almost 200 miles, radio waves are reflected even greater distances.



The ionosphere reflects only certain frequencies at certain times. As the intensity of the sun increases, the ionosphere becomes more intense, reflecting only higher frequency radio waves and absorbing all the rest.



At night, the ionosphere is higher and less intense. Under good conditions, it can reflect radio waves halfway around the world.

Television and FM radio waves are of a frequency that is too high to be reflected by the ionosphere, so they pass directly into space. TV transmission over long distances, therefore, must be assisted by cable, microwave relay, or satellite relay. Otherwise, TV transmissions are limited to a straight line from the transmitter to the receiver. If the receiver is below the horizon, it cannot pick up FM radio or TV signals.

While shortwave radio communications bounce off the ionosphere and return to earth, microwave transmissions go right through the ionosphere into space. Can you explain why spacecrafts must use microwave communication rather than short-wave radios?

### ***How is the sun responsible for the spectacular northern lights?***



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The interaction between the sun and the ionosphere is also responsible for both the northern and southern lights. The earth's magnetic field

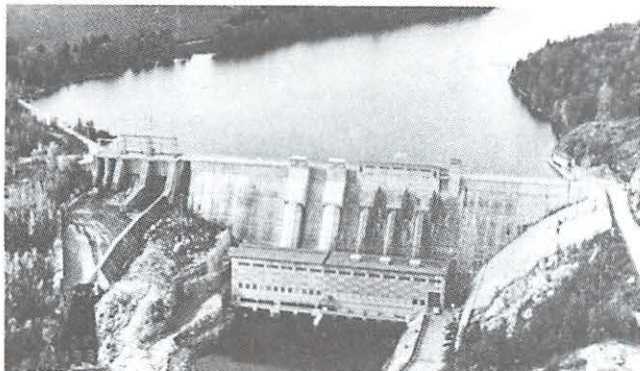
filters out most of the sun's deadly radiation; however, some of the charged particles which make up the sun's solar wind leak into a funnel-shaped opening in the earth's magnetic field near the north and south poles.

As these charged particles penetrate the ionosphere, they emit the red, blue, and green light we call the *Aurora Borealis* and *Aurora Australis*.

## 12 THE SUN PROVIDES ENERGY FOR THE JUST AND THE UNJUST.

Hydroelectric generators take advantage of the "water cycle" which the sun controls. As the sun evaporates ocean water, blows that water over the land masses in the form of clouds, and then causes rain to fall, it provides a constant source of water flowing back to the oceans.

Hydroelectric stations simply capture the energy in the water cycle as the rain water returns to the sea.



Ontario Hydro

Many hydroelectric plants store the sun's energy behind large dams. Dams require sunlight to provide a constant flow of water into the lakes which they create.

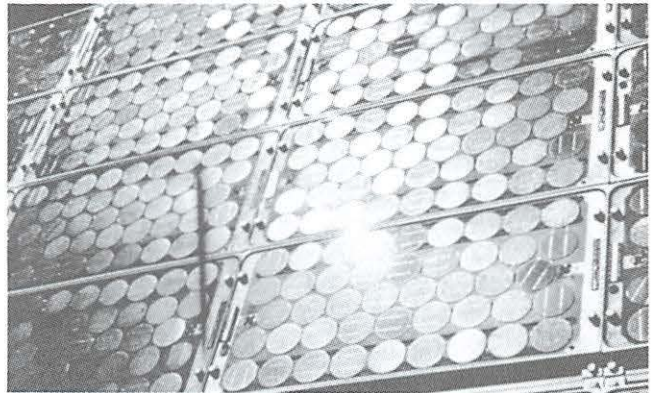
### How do certain metals convert sunlight directly into electricity?

When light of short wavelengths shines on certain types of metal, the metal emits electrons, and this creates an electric current. The current depends on the frequency of the light. If the frequency is too low, no electrons are released, no matter how long the light shines. Only light of certain frequencies is able to eject the electrons.

Because many metals act like chlorophyll when they absorb sunlight, scientists hope to be able to duplicate the process of photosynthesis. They

want to develop a system which will use sunlight to split molecules of water into hydrogen and oxygen.

The hydrogen gas could then be collected and stored in the same way that gasoline and natural gas are stored. Hydrogen is more than twice as efficient as gasoline and burns without producing any pollutants. In fact, hydrogen burns so cleanly that a person could actually drink the waste product. The waste product is water.

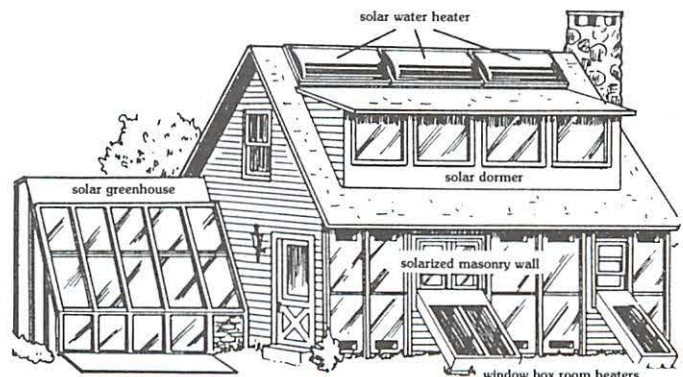


U.S. Department of Energy

A bank of 120,000 solar cells is able to produce about 25 kilowatts of electricity—enough to power a ten-horsepower electric motor.

Hydrogen gas produced by the sun could be used for cooking, heating hot water, home heating, and generating electricity. Several hydrogen-powered cars and buses exist, and a military aircraft has been flown using only liquid hydrogen for fuel.

### How does solar energy keep homes warm during winter?

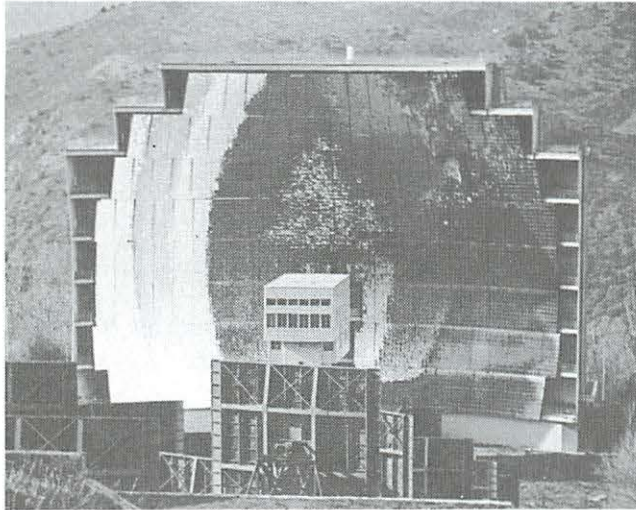


A home heated with solar energy merely takes advantage of sunlight which the sun radiates freely every day of the year.

Home solar collectors absorb heat directly from sunlight and use it to heat rooms and hot water. A square foot of collector can capture as many

as 2,000 BTU's (British Thermal Units) on a sunny day. At an efficiency rate of 50% that means that about six square feet of solar collector would heat the water required for an average shower.

Gasoline contains about 130,000 BTU's per gallon; oil has about 139,000 BTU's. By these comparisons, solar energy is weak. However, when you consider that one square foot of sunlight generates up to 25,000 BTU's annually, the average home in Boston, Massachusetts, could obtain about half of its heating requirements directly from the sun with only 240 square feet of solar collection area.



Experiences in Earth - Space Science

**In one minute's time, a solar furnace can collect enough heat to melt steel. This furnace concentrates sunlight to produce temperatures as high as 6,000°F.**

## PROJECT 1

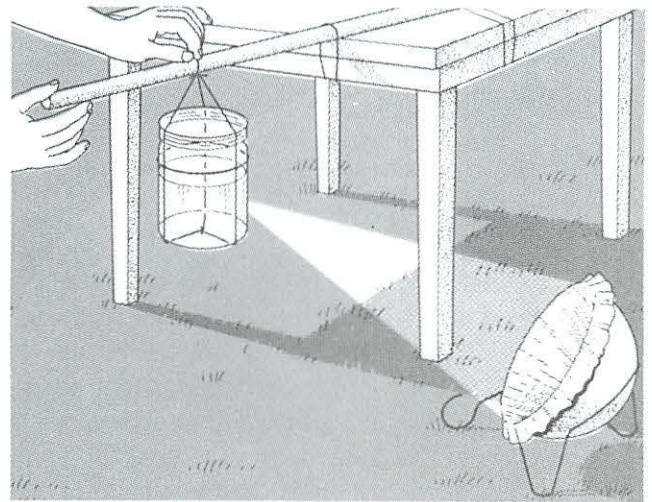
### **Make Your Own Solar Furnace.**

Make a solar furnace using a bowl, some aluminum foil, two glass jars, a coat hanger, and a thermometer. Line the inside of the bowl with the aluminum foil to make a solar reflector. The solar reflector will gather solar energy and concentrate it at one point. This is exactly the same principle that a solar furnace uses.

You may want to bend a coat hanger to make a support for your solar furnace. Bend the support so that it holds the foil-lined bowl securely.

Position the jar of water so that it receives the concentrated solar energy from the reflector. (Use a piece of dark paper to find the point where the sunlight is most concentrated.) You will need to adjust your solar furnace every 15 minutes or so as the sun moves across the sky.

For comparison, set a second jar of water in the shade. Measure the temperature of the water in each jar. Put your solar furnace to work by making some sun tea.



Experiences in Earth - Space Science

**By reflecting concentrated sunlight on a jar of water, a solar furnace is created.**

## PROJECT 2

### **Become a "Solar Furnace"**

Review the benefits from the sun which God gives to the just and the unjust. Then make as many analogies as you can on how you can benefit the just and the unjust around your life because the Son of God lives in your heart.

Complete the following starter ideas:

1. How can you communicate light to the just and the unjust around you?
2. How can you give warmth to the just and the unjust whom you meet?
3. How can you cause spiritual growth in the just and the unjust around your life?
4. How can you demonstrate consistency to the just and unjust who watch your life?
5. How can you provide cleansing to the just and the unjust?
6. How can you prepare spiritual food for the just and the unjust?
7. How can you instill spiritual energy in the just and the unjust so they will be motivated to do what is right?

Date completed \_\_\_\_\_ Evaluation \_\_\_\_\_



## HOW DOES MATHEMATICS ILLUSTRATE GOD'S POINT OF VIEW REGARDING PERFECTION?



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Learning in classroom settings has led to grading programs which evaluate achievement by comparison rather than by individual performance.

It has been said that all other religions in the world differ from the Christian faith because in them, man is reaching out to God; in Christianity, however, God is reaching out to man.

In religions such as Judaism, Islam, Buddhism, and Hinduism, man's salvation depends upon his own efforts to follow certain ethical principles. Even many people who consider themselves Christians have the mistaken idea that they must somehow be good enough or do enough good works to get into heaven.

The fallacy of this limited human perspective can be seen by contrasting two methods of assigning grades in an educational setting. The simplest and most common way of grading is to set a standard (which represents the acceptable level of achievement on the test) and to compare each student's performance (score) to it to see if he or she "passed."

A frequently used grading scale is:

90-100%	A
80-89%	B
70-79%	C
60-69%	D
59% or less	F

Under this system, no student's grade is affected by any other student's grade or by the performance of the group as a whole. So in general, a class might do so poorly on an examination that everyone receives a *D* or an *F*, except for one well-prepared student who gets an 88%.

According to standard-scale grading, should this student earn an *A* or a *B*? On the prescribed scale, he would earn a *B*, since his percentage score falls in that range. Another system of thought would argue that since the student earned the highest score of the whole group, surely his grade should be an *A*.

The subjective nature of testing and grading has led educators to favor this second system of grading. Instead of comparing a student's knowledge or skill to a predetermined standard, this method compares each student's performance to that of the group as a whole.



School boards and government bodies make major educational decisions based upon testing programs which compare students' achievements with one another and with the population at large.

Thus, the minimum passing score is set according to how well the class performs in general. This practice, called *grading on the curve*, certainly has many valid uses, especially in standardized testing. However, it can be very dangerous if applied to the spiritual realm.

For example, when asked to state the basis of their salvation, many people respond as if God "grades on the curve." They say things like, "I know I'm not perfect, but I've tried to live a good life. I've never killed anybody or robbed a bank." The implication is that they feel they have done better than many other people and therefore should be considered qualified to enter heaven.

At least two difficulties arise if a person thinks this way. First, this view contradicts Scripture: "*For by grace are ye saved through faith; and that not of*

yourselves: it is the gift of God: Not of works, lest any man should boast" (Ephesians 2:8-9).

Second, even if we did have to achieve salvation by our good works, how would we know when we were good enough? The only standard mentioned in Scripture is that of perfection—the passing score is 100%.

James 2:10 explains that by failing to obey at even one point we have broken the entire Law. This is actually like flunking the whole test just because we missed one problem out of a hundred, and in this case, all men fail. (See Romans 3:23.) Therefore, faith in Christ is the only basis for salvation.

The requirements of the Law had to be met perfectly, and that is exactly what Jesus did for us! "For by one offering he hath perfected for ever them that are sanctified" (Hebrews 10:14). He passed the test in our place.

## WHAT STATISTICAL DEVICES ARE USED TO "GRADE ON THE CURVE"?

### 1 Measures of Central Tendency

There are several ways to determine the average score on a test for a particular group of scores. These methods are called *measures of central tendency*. The most common measure of central tendency is the *arithmetic mean* (usually referred to as simply the *mean*). The mean, or average score, is found by adding up the scores and dividing the total by the number of scores.

#### Example A

If five students took a test and made scores of 99, 52, 86, 70, and 68, the mean would be computed this way:

First,	99	Then divide the
add the	52	sum by the num-
scores.	86	ber of scores.
	70	
	+ 68	
	375	
		75
		5 ) 375

Another measure of central tendency is the *median*, or midpoint, in a group of scores. This measurement is the score which lies exactly between

the upper half and the lower half of the scores. In other words, it is the point below which 50% of the scores lie.

#### Example B

To find the median of the scores from the first example, first list the scores in descending order:

99, 86, 70, 68, 52

Then count off half the number of scores to find the midpoint. When there is an odd number of scores, the median will be that score which has an equal number of scores above and below it. In this case it is the third score from either end.

99, 86, **70**, 68, 52

If there is an even number of scores, the median is computed between the two middle scores. For this example only, let's add a sixth score to the bottom of our list to see how this works.

99, 86, 70, 68, 52, 45

Counting off half the scores in either direction identifies the **70** and the **68**. The median or midpoint would then be computed by adding these two scores and dividing by 2.

$$70 + 68 = 138 \div 2 = 69$$

Notice that the median, **70**, is lower than the mean, **75**. This is consistent with the fact that in this group of scores more students scored below average than above average.

In practice, especially with large numbers of scores, the mean and median will normally be very close. However, if there are large gaps between scores the median may give a better picture than the mean of what is typical.

The *range* of scores refers to the point spread between the lowest and highest scores obtained. In the five scores listed above, the range would be 54. This figure is calculated simply by subtracting the lowest score from the highest score.

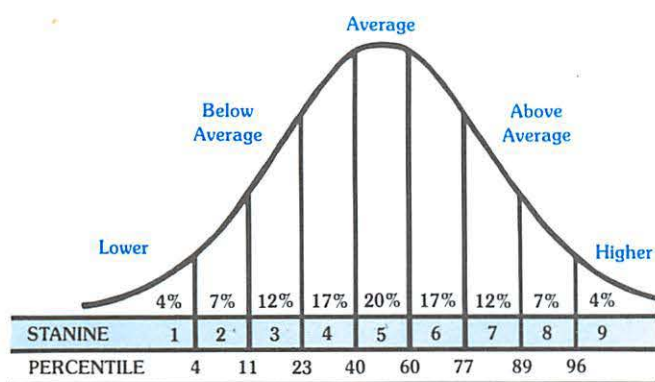
$$99 - 52 = 47$$

The range, however, does not reveal anything at all about the scores in between the high and the

low. Only one individual scoring extremely high or low could alter the range of scores on a test significantly.

## 2 The Bell-Shaped Curve

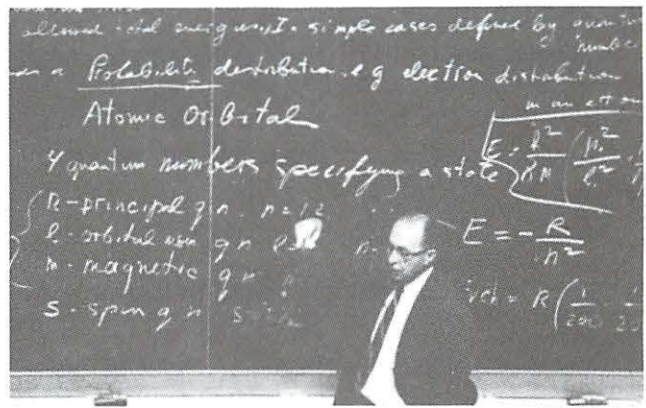
The expression “to grade on the curve” is taken from the normal probability curve. Due to the tendency of educational test scores to be distributed more or less symmetrically around the mean, a graph of a relatively large number of scores will almost always look like this bell-shaped curve:



Approximately 68% of the scores will fall within the middle third of the range of scores. An additional 27% will lie within the middle two thirds, with the remaining five percent of the scores being either above or below these limits. In other words, the vast majority of scores will be clustered around the mean, with fewer scores farther away from the mean.

When grading according to this curved graph, a teacher usually assigns a grade of C to that 68% of the scores in the middle, without regard for what portion of the test material the students have actually mastered. Then 13% of the scores (those just above the middle third) get B's, and another 13% (those just below the middle third) are considered D's. Relatively few individuals receive F's or A's (approximately 2% for each grade).

To use the curve with precision requires that the exact limits of that middle one third be calculated. The lower limit is said to be one standard deviation below the mean, and the upper limit is one standard deviation (or SD) above the mean. The mathematical definition of *standard deviation* is the square root of the average of the squared deviations from the mean.



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Statistical formulas involving probability distributions are applied to the evaluation of norm-referenced standardized testing.

### How to calculate the standard deviation:

1. Find the arithmetic mean ( $\bar{X}$ ):

$$\bar{X} = \frac{\sum X}{N}$$

where  $\sum X$  is the sum of all the scores and  $N$  is the total number of scores.

2. Subtract the mean from each score in order to determine its deviation from the mean:

$$X - \bar{X} = x$$

where  $x$  is the deviation.

3. Multiply each deviation times itself to obtain  $x^2$ .
4. Add up all the squares of the deviations. This sum is  $\sum x^2$ , or “the sum of the squares.”
5. Divide the sum of the squares by the total number of scores and take the square root:

$$SD = \sqrt{\frac{\sum x^2}{N}}$$

### Example C

Using the five scores from the previous examples, we would calculate the standard deviation as follows:

$$N = 5 \text{ scores}$$

$$\bar{X} = 75 \text{ (the mean calculated in Example A)}$$

Scores (X)	Deviation from the mean (x)	Deviations squared (x <sup>2</sup> )
99	99 - 75 = 24	576
86	86 - 75 = 11	121
70	70 - 75 = -5	25
68	68 - 75 = -7	49
52	52 - 75 = -23	529
		$\sum x^2 = 1300$

$$\sqrt{\frac{1300}{5}} = \sqrt{260} = 16.12 = \text{SD}$$

Now letter grades can be assigned accordingly. The mean plus one SD would be the upper limit for a grade of C; the mean minus one SD becomes the lower limit. The highest B would be the mean plus two SD's and any score above that would be an A. The lowest D would be the mean minus two SD's, and any score lower than that would be an F.

#### "CURVED" GRADES

Over 107	= A	99 = B	Notice that by grading on the curve the two highest scores obtain lower letter grades but the two lower scores obtain higher grades.
92 - 107	= B	86 = C	
59 - 91	= C	70 = C	
43 - 58	= D	68 = C	
Below 43	= F	52 = D	

### PRACTICE

A group of 20 children made the following raw scores on a 50-question reading examination. (Raw score means the number of items answered correctly.)

25	27	49	14	20
31	21	2	40	7
35	26	24	5	39
30	25	30	27	23

### Problem 1

Convert these scores to percentages and assign letter grades according to the standard grading scale mentioned on page 1405.

- How many pupils passed the test? \_\_\_\_\_

### Problem 2

- What is the range of these scores? \_\_\_\_\_
- What is the median? \_\_\_\_\_
- What is the mean (average)? \_\_\_\_\_

### Problem 3

- Compute the standard deviation: \_\_\_\_\_

### Problem 4

Assign letter grades on the curve.

- What is the score range for an A? \_\_\_\_\_
- What is the score range for a B? \_\_\_\_\_
- What is the score range for a C? \_\_\_\_\_
- What is the score range for a D? \_\_\_\_\_
- What is the score range for an F? \_\_\_\_\_

### Problem 5

- When you grade on the curve, how many students pass the exam? \_\_\_\_\_
- How many more C's are there when you grade on the curve than when you grade against the standard? \_\_\_\_\_

## DOES JESUS ENCOURAGE COMPARISON BY THE QUESTIONS HE ASKS IN MATTHEW 5:43-48?

When Jesus said, "For I say unto you, That except your righteousness shall exceed the righteousness of the scribes and Pharisees, ye shall in no case enter into the kingdom of heaven" (Matthew 5:20), He was introducing a lengthy section of the Sermon on the Mount that gives examples of how His followers were to go beyond Pharisaical legalism. He contrasts the teachings of the Law, which the Pharisees scrupulously followed, with the higher demands of the law of love.

For example, the Law says, "Do not murder." Love says, "Don't even be angry with your brother or call him a fool." (See Matthew 5:21-22.) So, Jesus was not telling His listeners to compare

themselves to the Pharisees. He was saying that the standard of the Pharisees, even though they were highly respected, was not God's standard.

In fact, it was the Pharisees who were guilty of doing what Paul later warned the Corinthians not to do: *"For we dare not make ourselves of the number, or compare ourselves with some that commend themselves: but they measuring themselves by themselves, and comparing themselves among themselves are not wise"* (II Corinthians 10:12).

The Pharisees prided themselves on keeping the Law more precisely than anyone else in Jewish society. As Paul described his life before he met Christ: *"... an Hebrew of the Hebrews; as touching the law, a Pharisee ... touching the righteousness which is in the law, blameless"* (Philippians 3:5-6).

In effect, the Pharisees were "grading on the curve." A Pharisee compared himself to the ordinary people of his day, concluding that they were all sinners, but he passed the test because his righteousness was relatively greater. Jesus was telling both the Pharisees and the common people that they were failing the test and that they should focus on God's ideal instead.

In mentioning the publicans in Matthew 5:43-48, Jesus was not encouraging comparison but was simply showing both the Pharisees and the common people the futility of "grading on the curve" in spiritual matters. Publicans (tax collectors) were despised by everyone as the lowest class of sinners. Jesus did not mean, "Try to be better than the publicans," but rather, "Strive for God's perfect righteousness." To pass the test you must make 100%: *"Be ye therefore perfect..."* (Matthew 5:48).

## WHAT ARE THE DANGERS OF "GRADING ON THE CURVE" SPIRITUALLY?

### • Individual

When we evaluate ourselves in comparison to others, we conclude that we are either better or worse than they are. The first conclusion leads to dangerous complacency in not realizing our true spiritual condition. The second conclusion is far more common and results in problems with self-acceptance.

The frustration of feeling that one can never be as good as someone else can generate all kinds of excuses for unrighteous living: "That's just the way I am. I can't change. I do the best I can, but nobody is perfect."

### • Society

As devastating as this way of thinking can be on a personal level, the greater danger lies in its impact on society. In our day, the idea that standards are relative rather than absolute has become the basis for an immoral philosophy known as *situation ethics*.

## WHAT IS GOD'S STANDARD?

Jesus stated the passing grade when He said, *"Be ye therefore perfect, even as your Father which is in heaven is perfect"* (Matthew 5:48). Nothing less than 100% can satisfy a perfect God. This is true in terms of both our salvation and our works.



©Providence Lithograph Co.

**Jesus told the rich young ruler that obedience coupled with a right heart attitude was necessary to please God.**

We are not to compare ourselves to others in order to ascertain if we meet the standard because God's standard is living a perfect life. That is why Paul's prayer for the Colossian believers was, *"That ye might walk worthy of the Lord unto all pleasing, being fruitful in every good work. . ."* (Colossians 1:10).

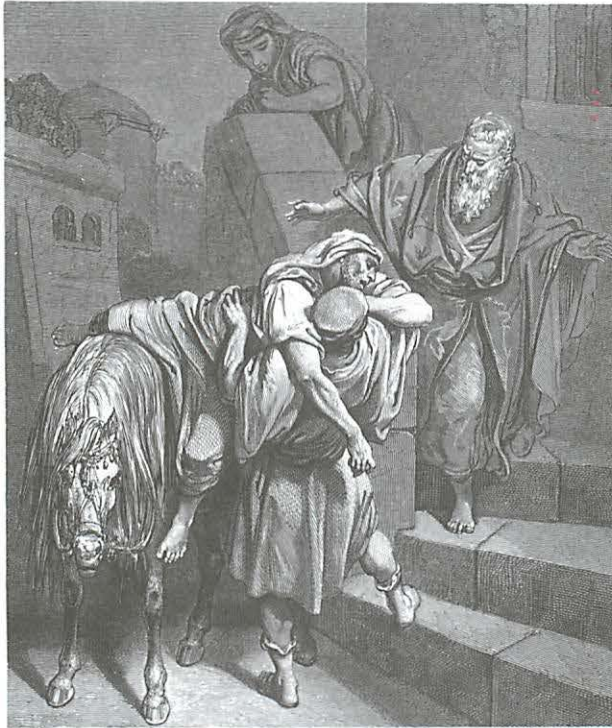
The test of our works is the test of fire, and this illustrates clearly the fallacy of "grading on the curve." (See II Corinthians 3:10b-15.)

Stubble will burn faster than hay, which will burn faster than wood. There are some types of wood that burn more slowly than others. But wood, hay, and stubble all burn. In contrast, gold, silver, and precious stones do not burn at all; they pass the test. Only works done according to Christ's leading and through the power of the Holy Spirit will meet God's standard.

Date completed \_\_\_\_\_ Evaluation \_\_\_\_\_



## HOW SHOULD LAWS BE DESIGNED TO ENCOURAGE US TO LOVE OUR ENEMIES?



Doré Bible Illustrations

**The Good Samaritan Jesus described in Luke 10 did not allow potential litigation to deter him from fulfilling his responsibility to his neighbor.**

One day a businessman was traveling alone from the capital to another city about fifteen miles away. Although it was not a very long trip, the winding mountain road passed through rather desolate and dangerous country.

Thieves hiding in the rocks attacked the man. They beat him and took everything he had, and left him lying beside road to bleed to death.

It wasn't very long until someone passed by. It was a minister, who was on his way home after a week in the capital, tired and anxious to get back to his family. He saw the wounded man but decided not to stop.

The next person who arrived at the scene was also a religious worker. When he saw the man beside the road, he stopped and looked at him but apparently concluded that he was already dead.

He went on his way, perhaps planning to notify the authorities when he reached his destination but not seeing any need to get personally involved.

Finally a foreigner who was not highly regarded by the people in that part of the country saw the man and realized immediately that he needed his help. He administered first aid to the severely wounded man and transported him to a place where he could receive proper care. The kind foreigner waited until the next day to continue his trip because he wanted to be sure the man would recover, and then he even paid for the man's medical expenses.

Now let's suppose that this event took place in our day and that the businessman survived, but was crippled for life by a back injury. Let's assume that the victim decided to sue for compensation. Based on today's laws, against whom would the victim's attorney probably advise him to bring suit?

- ☐ The robbers who attacked him
- ☐ The minister who kept on going
- ☐ The religious worker who stopped and looked
- ☐ The foreigner who tried to help

It would seem that the most likely target of such legal action would be the robbers; however, they were transients who had no money. The lawyers would probably overlook them, forgetting the need to bring them to justice and the servitude of restitution.

Under common law, the victim would actually have no legal grounds for a lawsuit against the second two. The lawyers would, in many states, be able to win a case most easily against the one who had rendered aid.

Although this hypothetical ending to the familiar story of the Good Samaritan (Luke 10:30-37) is totally incongruous with the principle Jesus was illustrating, it pictures a sequence of events which might easily occur under some of our laws today.

A situation in which a man is punished for trying to do good seems to be the kind of reversal of justice God hates: "*He that justifieth the wicked, and he that condemneth the just, even they both are abomination to the Lord*" (Proverbs 17:15).



Courtesy ©Norman Rockwell Estate

Neighbors are not only those people who live in close proximity to us; every person we meet should be viewed in light of God's plan for our personal ministry to him or her.

## WHAT MAKES A PERSON MY ENEMY OR MY NEIGHBOR?

When Jesus cited the dictum, "... Thou shalt love thy neighbour, and hate thine enemy" (Matthew 5:43), He was not directly quoting the Old Testament. The first part actually came from Leviticus 19:18, but the "hate thine enemy" part was an extension and interpretation of that Scriptural injunction.

This idea had probably become popular because it made it possible to classify someone as an enemy and, thus, be released from the duty of loving that one. Jesus totally shattered that false concept when he said, "... Love your enemies..." (Matthew 5:44). If you love someone, that person is no longer your enemy. He may continue to regard you as his enemy, but as far as you're concerned he has become a neighbor.

Both the Greek word πλησίον and its English equivalent *neighbor* are derived from a root word meaning "nearby," but the parable of the Good Samaritan does away with any possibility of using the term in a limited geographical sense—referring only to those who live in your own town or region or nation. Of course, if we look at the earth from God's perspective of the universe, all human beings do live very close to each other!

Jesus' parable was given in answer to the question, "... And who is my neighbour?" The Lord made it clear that the question should have been: "To whom can I be a neighbor?" That is why he portrayed the despised Samaritan as the hero

rather than the victim. His point was not that we should help even a Samaritan, or that we should love even our enemies, but that genuine *agape love* does not make those kinds of distinctions.

The Old Testament laws, of course, emphasize a variety of categories of relationships, each having its particular duties: family members, fellow Israelites, aliens living in Israel, and so on.

The teaching of the New Testament recognizes those same categories and duties, but stresses that we should show the concern and care for those who regard us as enemies just as we would for our friends: "Owe no man any thing, but to love one another: for he that loveth another hath fulfilled the law" (Romans 13:8).

James calls "Thou shalt love thy neighbor as thyself" the "Royal Law" of Scripture (James 2:8), and the "Golden Rule" shows us how to apply it: "And as ye would that men should do to you, do ye also to them likewise" (Luke 6:31).

## WHAT ARE THE PROVISIONS OF THE COMMON LAW?



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The Capitol Building in Washington, D.C., where many of the nation's laws are made

In general, common law has been very reluctant to impose a legal obligation to help someone in distress unless a special relationship exists between the parties, such as parent-child, employer-employee, guide-tourist, etc.

On the other hand, anyone who voluntarily takes it upon himself to give aid must do so carefully and must see it through. The bystander who does not get involved is not liable, but the one who does engage in some activity that is followed by harm to another person leaves himself open to an accusation of negligence, or in legal terms a *tort action*.

## DEFINITIONS

**COMMON LAW:** The unwritten law of a country, which, though now largely codified by legislative definition, is based on custom, usage, and the decisions of law courts, as contrasted with statute law, which is law established by a legislative body.

**LIABLE:** Legally responsible to pay for any loss, damage, or injury that occurs in a transaction.

**NEGLIGENCE:** Conduct that does not meet the acceptable standards of behavior established by law for the protection of others against an unreasonable risk of harm.

**TORT:** A wrongful act, injury, or damage (other than a breach of contract), for which a civil action (suit) may be brought.

**SUIT:** An attempt to recover a right or claim through legal action in a civil court of law.

## WHAT CHANGES HAVE BEEN MADE IN STATUTE LAW?

In recent years, the perception that increasing numbers of doctors have been reluctant to stop and render medical assistance at the scene of an accident because of their fear of lawsuits has led to the passing of numerous so-called "Good Samaritan" laws.

By the 1980s most states had enacted some sort of legislation embodying a principle of tort law stating that a person who tries to help another in an emergency situation cannot be found guilty of contributory negligence unless his attempt to help has been carried out in a reckless manner. This protection from liability is intended to encourage people to render aid at the scene of an accident without fear of being sued. In some states the law applies only to qualified medical personnel.

For many years most European countries have had statutes that actually require their citizens to assist others in emergencies, or face civil or even criminal penalties.



Chicago Fire Department

Responding to people's needs has become increasingly limited to professionals because the public at large fears liability suits.

## WHY DID LEGISLATORS FEEL THAT GOOD SAMARITAN LAWS NEEDED TO BE ENACTED?

The most commonly cited reason for enacting "Good Samaritan" laws has been that our society is becoming increasingly depersonalized, to the point that people have begun to regard the duty to help others in distress as a responsibility of government rather than of individuals.

In the past, social groupings were much more closely knit, so that people tended to feel more responsible for each other than they do in the anonymity fostered by today's urbanization, mechanization, and mobility. Another reason sometimes given for the trend toward non-involvement is the racial prejudice that exists among the various ethnic groups in this country.

## ARE GOOD SAMARITAN LAWS EFFECTIVE?

Do the "Good Samaritan" laws actually result in people being more willing to get involved in helping another person in an emergency situation? Though exact statistics are unavailable, the general consensus seems to be that the trend toward non-involvement has continued.

One survey, for example, indicated that in spite of the Good Samaritan laws, many doctors remain convinced that they might face malpractice

suits if they offer assistance. In contrast, none of the approximately thirty-five individuals who received compensation from their states for injuries suffered while being Good Samaritans were aware at the time of the incident that they might receive such a payment; in other words, they would have helped regardless of what the law said.

In one state, a law was passed stating that a citizen could be fined if he did not render aid in situations where he could do so without endangering himself or others. However, five years later, the law had still not been enforced because it had turned out to be impossible to prove legally that a bystander should have helped but did not.

Another state recently enacted a similar statute, but some experts question its effectiveness due to vague wording. That which constitutes "reasonable assistance" depends on many different factors. Even in a state that took a more positive approach, providing up to \$25,000 in compensation for a person injured while helping a crime victim, very few claims were made during the first eight years the law was in force.



Ewing Galloway

**Although the number of liability suits is increasing, surveys show that many individuals in the medical profession feel it is their duty to help someone in need.**

Dr. Arthur Goodhart has said, "The only people who will offer their services to others in distress do not have to be required to do so; and those who will not do it voluntarily pay no attention to official sanctions." [*The Good Samaritan and the Law*, page 31.]

Nevertheless, some would argue that because one purpose of the law is to teach, such statutes have a great symbolic or didactic value even though their practical effect on behavior may be imperceptible. The law cannot make people good, but in the area of doing good it can at least help to encourage them to their duty.

## **WHAT EFFECT SHOULD SUCH STATUTES HAVE ON OUR WILLINGNESS TO HELP OTHERS?**

Because of their acceptance of Scriptural teachings, Christians should be more willing than unbelievers to help people in their time of need. A Christian's confidence that God is in control of both his life and his circumstances should free him to be a good Samaritan whenever the opportunity arises. If he has yielded his rights to possessions, time, and personal comfort to God, the possible loss of these should not hinder him from getting involved.

Legal experts debate whether the generally acknowledged moral obligation to assist those in peril should become a legal duty, but it is indisputable that Christians have a spiritual responsibility which goes beyond both the legal and the moral.

Regardless of how his actions may be evaluated by society or by man's law, a Christian must realize that he will ultimately stand before the Judge of a higher court: "*If thou forbear to deliver them that are drawn unto death, and those that are ready to be slain; If thou sayest, Behold, we knew it not; doth not he that pondereth the heart consider it? and he that keepeth thy soul, doth not he know it? and shall not he render to every man according to his works?*" (Proverbs 24:11-12).

Following the example of Christ, our motives should be entirely unselfish, not based on any desire for the praise of men, financial gain, or even our own self-satisfaction. Therefore, we should be willing to help whether or not the law protects us from lawsuits when we do so.

In fact, realizing the greater likelihood of being sued in our increasingly litigious society makes our willingness to intervene in a crisis an even more powerful illustration of the kind of love God had for us when he sent His only Son into a world that He knew would kill Him. Is this not part of what Jesus meant when he said, "*Be ye therefore perfect, even as your Father which is in heaven is perfect*" (Matthew 5:48)?

## **WHAT EFFECT SHOULD OUR LEGAL UNDERSTANDING HAVE ON OUR BEHAVIOR?**

The legal and moral issues involved in taking on the role of a "Good Samaritan" can be very complicated for the would-be rescuer, for the crime or accident victim, and for the society at large.

We should not let our prior commitment to intervening in such situations blind us to the need for exercising prudence in how we do so.

Since emergencies by their very nature must be dealt with by immediate responses and decisive action, developing Godly character is our best preparation. Four specific qualities of the many that are taught in Scripture stand out as being especially applicable:

☐ **ALERTNESS** is “the ability to anticipate right responses to that which is taking place around me.” In order to be most effective in a crisis, a person should strive to be aware of other people and their actions at all times. This will enable him to respond promptly and properly to an emergency, or perhaps even to prevent it. “*A prudent man foreseeth the evil . . .*” (Proverbs 22:3). “Evil” here can be translated “danger.”

☐ **SENSITIVITY** is “exercising my senses so that I can perceive the true spirit and emotions of those around me.” Alertness focuses on the circumstances, and sensitivity focuses on the people. In trying to help we must be careful not to barge in where our assistance is neither needed nor wanted. To do so is to meddle, and Scripture warns us of the consequences: “*He that passeth by, and meddleth with strife belonging not to him, is like one that taketh a dog by the ears*” (Proverbs 26:17). On the other hand, sensitivity will keep us from ignoring someone’s distress just because he is hesitant to ask for help.

☐ **DISCRETION** is “the ability to avoid words, actions, and attitudes which could result in undesirable consequences.” When you offer to help an injured person, you assume the responsibility for not making his situation any worse or preventing him from getting professional assistance. “*Every prudent man dealeth with knowledge . . .*” (Proverbs 13:16a) and “*. . . looketh well to his going . . .*” (Proverbs 14:15b). A basic knowledge of first-aid procedures, especially what not to do in certain situations, would be one aspect of discretion. Unless you are a doctor or a nurse, you are not legally expected to treat the victim the same way as a medical professional would. But you are expected to act in a careful and rational manner under the circumstances.

☐ **DEPENDABILITY** is “fulfilling what I consented to do even if it means unexpected sacrifice.” The law is very clear on this point: once you have volunteered your services, you cannot escape responsibility by just walking away from the duty you

have assumed. For example, in one case, a clerk in a department store offered to help a customer who had become ill. He took the man to the store infirmary, where he had no further medical care for six hours. The judge ruled the clerk guilty of negligence because if he had done nothing at all someone would likely have called an ambulance for the man. We should be as thorough in rendering aid as the Good Samaritan was. (See Luke 10:34-35.)

The guiding principle in all these matters should be our ultimate dependence on God for direction and strength: “*Trust in the Lord with all thine heart; and lean not unto thine own understanding. In all thy ways acknowledge him, and he shall direct thy paths*” (Proverbs 3:5-6).



## PROJECT

Find out if your state has a “Good Samaritan” law. A county or state law library, the library of a university that has a law school, or a local bar association would be possible sources for this information.

If your state does have such a statute, get a copy of it and become familiar with its various provisions. If the law applies only to medical personnel, consider writing a letter appealing to your legislators to amend it to extend protection from lawsuits to all volunteers.

If your state does not have a “Good Samaritan” law, write a letter to your legislators requesting that they consider sponsoring such legislation.

After studying your state’s “Good Samaritan” law (or another state’s) and the parable in Luke 10:30-37, list additional character qualities that a person should develop in order to be able to assist others in emergency situations. Decide how you could develop those in your life.

Date completed \_\_\_\_\_ Evaluation \_\_\_\_\_



## WHAT FIRST-AID SKILLS MUST BE LEARNED IN ORDER TO BECOME A "GOOD SAMARITAN"?



Bible Art Series, Standard Publishing, Cincinnati

**Christ's parable of the Good Samaritan contains practical insights on the skills needed to act wisely in a medical emergency.**

Jesus commanded His disciples to love not only their neighbors, but also their enemies. (See Matthew 5:43-48.)

One day a lawyer attempted to justify his failure to give love to a neighbor by asking Jesus, "And who is my neighbour?" Jesus responded by giving the account of the Good Samaritan. (See Luke 10:25-37.)

The Good Samaritan demonstrated how to give practical love both to a neighbor and to an enemy, since the Jews despised the Samaritans and would not have any dealings with them.

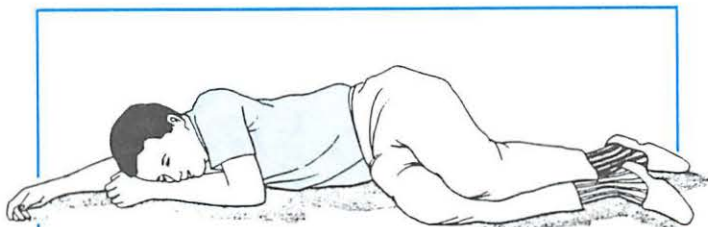
In describing how the Samaritan helped the wounded Jewish traveler, Jesus gave us wise and accurate instruction on the care of one who needs emergency medical help. It is important for us to understand the procedures which the Good Samaritan followed and also to learn the skills required to carry them out so that we can "go and do likewise."

## 1 A GOOD SAMARITAN MUST BE SKILLED AT RECOGNIZING A VICTIM'S WOUNDS.

*"...And when he saw him, he had compassion on him, And went to him..."*  
(Luke 10:33b-34a).

Because any accident may produce several injuries, a good Samaritan must assess the seriousness of a victim's injuries before he begins treatment. He must never assume that the most obvious injury is the only one present.

Although many obvious injuries are of little consequence, posing no real emergency, hidden injuries may be critical. These seemingly insignificant wounds may result in the victim's death while a novice is busy bandaging a cut finger. This means that a good Samaritan's first task is to locate and treat those injuries which are life-threatening.



**Determining the extent of a victim's injuries requires skill and practice. Failure to recognize a major wound can result in his death.**

Standard First Aid

## How can a good Samaritan locate wounds which are life-threatening?

As a good Samaritan, you must collect all the necessary information rather than jump to conclusions. First, ask the injured person what happened. If the victim is unable to talk, ask a witness what happened. Listen carefully. Be especially alert for clues which might reveal the nature of any injuries.

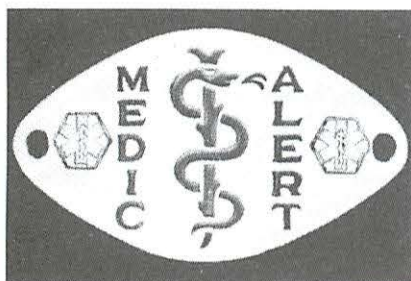
Next, quickly examine the victim for signs of breathing, pulse, and any major bleeding. These three matters require immediate attention. However, you must be careful not to aggravate other injuries, especially possible fractures or damage to the spinal cord. These injuries may not be life-threatening, but improper care can greatly multiply a victim's suffering.



Emergency Care

A good Samaritan must first check to see that a victim's airways are clear, that he is breathing, and that his heart is beating.

Finally, a good Samaritan checks for any emergency medical identification bracelets or symbols which may reveal possible complications.



Medic Alert Foundation

The Medic Alert Foundation provides bracelets which alert medical personnel to such conditions as diabetes, allergies, and heart problems.

### **Why must the cleansing action of blood be a good Samaritan's first priority?**

Breathing removes poisonous carbon dioxide from our blood and replenishes the supply of oxygen. When breathing stops, CO<sub>2</sub> builds up, causing blood to become more acidic. This produces a condition known as *acidosis*, which results in coma and death.

A lack of oxygen prevents cells from producing energy. Without a continual supply of energy, brain cells die within four to six minutes.

You can determine if a victim is breathing by looking, listening, and feeling. Look for movement of the chest. Listen for air moving in and out of the nose or mouth. Feel the warmth of air as a victim exhales and the coolness of air as a victim

inhales. Get as close to a victim's mouth and nose as you can in order to detect any sign of breathing.

If there are no signs of breathing, immediately begin mouth-to-mouth resuscitation. **DO NOT HESITATE.** However, when there are signs of head or neck injuries, care must be taken not to move the head in such a way that it might injure the spinal cord.

You can save a life by giving your own breath to another.



Clear out the victim's mouth and throat.



Tilt the head back to open the victim's airway.



Emergency Care

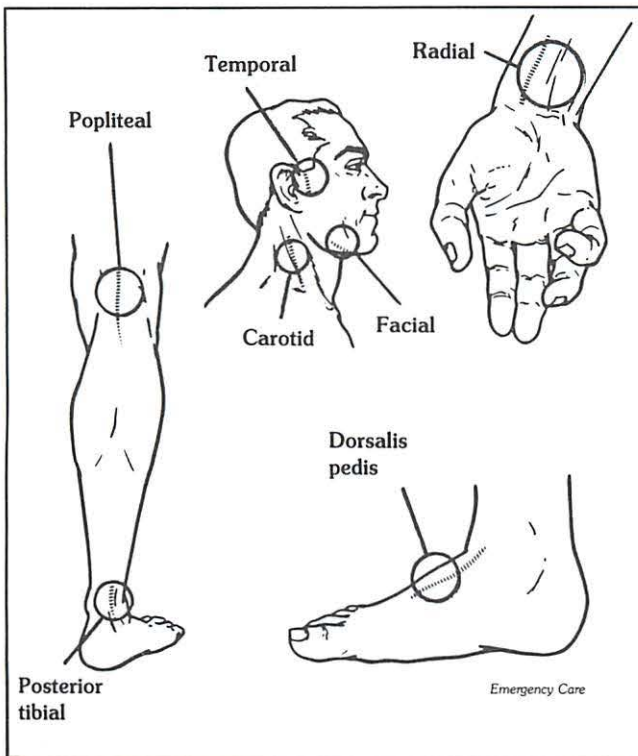
Seal the victim's mouth with your own and pinch his nose closed. Blow until his chest rises. Repeat 15-20 times per minute.

If the chest does not rise as you blow, check to find out what is blocking the air. Slapping the victim sharply on the back may help to dislodge the obstruction.

## How can a good Samaritan substitute himself in place of his neighbor's heart?

The heart pumps blood throughout the body. This blood provides every cell with oxygen from the lungs. If there is no regular heartbeat, the body's blood supply will stagnate, cutting off the vital oxygen supply.

To check for a heartbeat, place your fingers over the carotid artery in the neck or the radial artery of the wrist. Both of these arteries lie close to the surface and are easy to detect.



**The popliteal artery, temporal artery, facial artery, dorsalis pedis artery, and posterior tibial artery also reveal a victim's pulse.**

Do not use your thumb to search for a pulse. Your thumb has an artery imbedded in the fatty section under your thumb nail. This makes it difficult to distinguish between your own heartbeat and that of the victim.

If no pulse is evident, listen for a heartbeat by placing your ear directly on the person's chest. If there is no pulse, start CPR immediately. CPR stands for cardiopulmonary resuscitation. **DO NOT HESITATE.** A victim's chances of recovery decrease sharply every second his brain goes without oxygenated blood.

## YOU CAN SAVE A LIFE BY PERSISTENTLY STIMULATING ANOTHER'S HEART.

Three signs reveal that a victim's heart has stopped beating:

- No breathing
- No pulse
- Dilated pupils

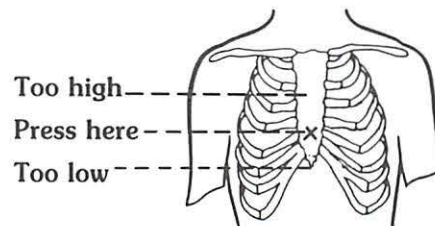
If these three signs are present, begin to give CPR immediately.



Place the victim on his back and give three large breaths of air mouth to mouth.



Locate the proper chest position to compress the victim's heart. Place one palm on the back of your other hand.



Compress the heart 1 to 2 inches deep 15 times. Return to the patient's head and give two breaths.



Alternate between breathing and compressing until the person resuscitates or help arrives.

## ***Why is all other treatment futile if you do not reestablish a proper flow of blood?***

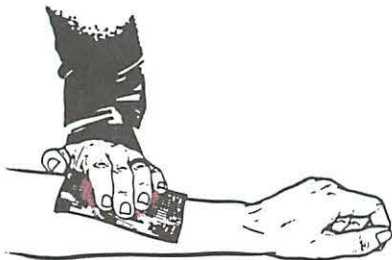
If resuscitation is not successful, other treatments are unnecessary. The foremost concern of a good Samaritan is to see that blood is being oxygenated and circulated throughout the victim's body. Without the cleansing and life-giving properties of blood, broken bones will never mend and wounds will never heal. Death is the only consequence.

## ***How can a good Samaritan control bleeding with pressure?***

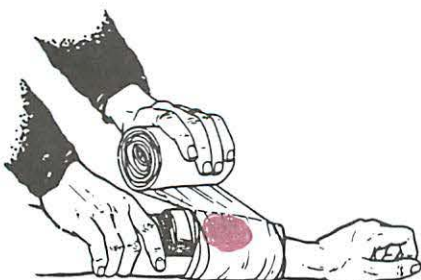
Once a good Samaritan is sure that a person is breathing and that there is a steady heartbeat, the next step is to locate and control any major bleeding. Many wounds may seem serious, but in fact they may be only trivial.

Serious bleeding can be either internal or external.

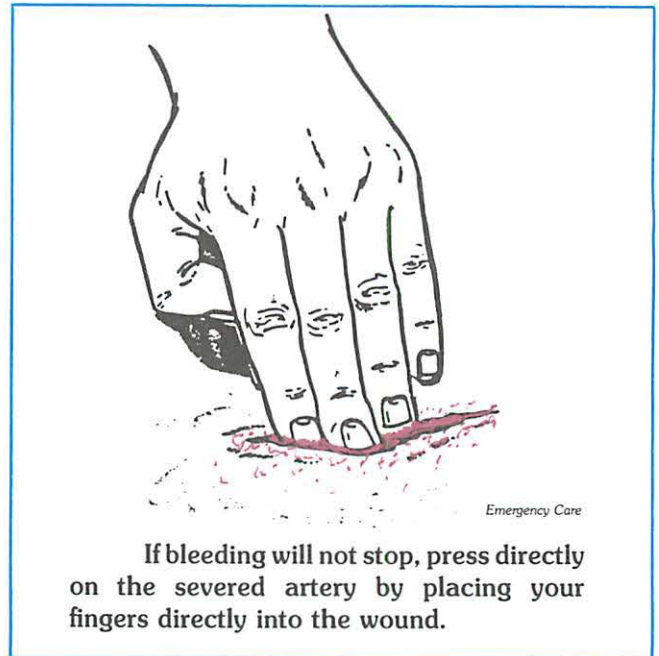
### **A GOOD SAMARITAN CAN STOP MOST EXTERNAL BLEEDING WITH PRESSURE.**



Place a sterile gauze pad over a wound and press. If a gauze pad becomes saturated with blood, do not remove it. Simply lay a fresh pad on top of the old one.



A tight bandage will keep pressure on a wound until it can be treated by a doctor.



**If bleeding will not stop, press directly on the severed artery by placing your fingers directly into the wound.**

While most external bleeding can be controlled with pressure, internal bleeding is very difficult both to diagnose and to control. For example, a person whose broken pelvis has severed the femoral artery deep inside his hip can bleed to death without ever showing any external signs of blood.

A rock-like abdomen or a large bruise may be the only indications that a person is bleeding internally. If the abdominal cavity fills with blood, it may prevent a victim's diaphragm from moving back and forth and make breathing difficult and labored.

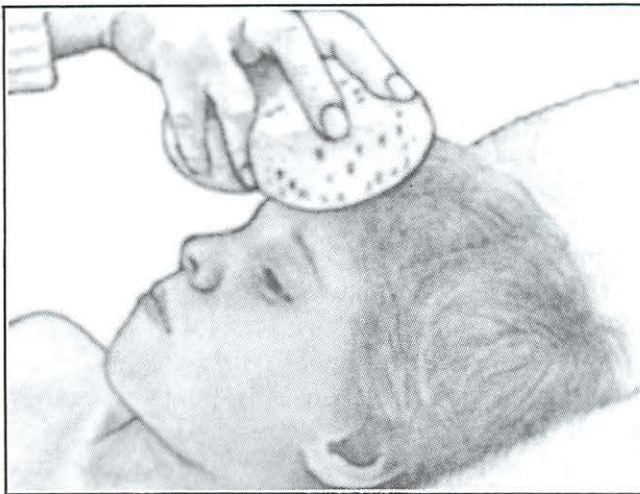
Someone suspected of bleeding internally must be transported to a hospital as soon as possible. Only a surgeon can repair internal damage and seal off torn blood vessels deep in a person's chest.

## ***How does a patient's temperature suggest possible causes of injury?***

A person's warmth, lukewarmness, or coldness reveals symptoms of root problems needing emergency attention. You can determine a patient's temperature quickly by touching his skin with the back of your fingers. Use the back of your fingers because they are far more sensitive to temperature than the callous palm side.

- Hot, dry skin suggests heat stroke. Heat stroke is often the result of long exposure to extreme heat. This causes the body's temperature regulating system to break down. Sweat glands fail to work, causing the skin to feel hot and dry. Other symptoms of heat stroke include drowsiness, rapid pulse, confusion, and unconsciousness.

## Treatment for sunstroke

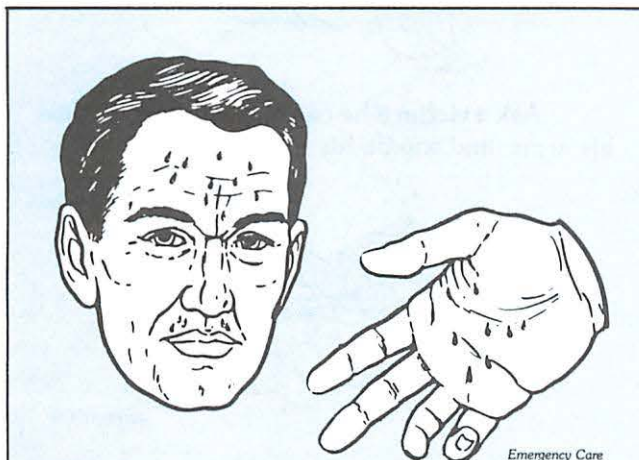


A-Z Medical Handbook

Treatment for sunstroke requires that you attempt to bring the victim's temperature down. Place cold packs on the forehead or sponge down the whole body with lukewarm water. As the water evaporates, it will cool the patient's body temperature.

- Cool, clammy skin suggests shock. Shock is an indication that a person's blood pressure has dropped. This suggests excessive blood loss, heart damage, breathing problems, or poisoning. In the early stages of shock, the body compensates for these internal conditions by closing the blood vessels near the surface of a person's skin. This leaves the skin looking pale and feeling cold and clammy.

## Symptoms of shock



Emergency Care

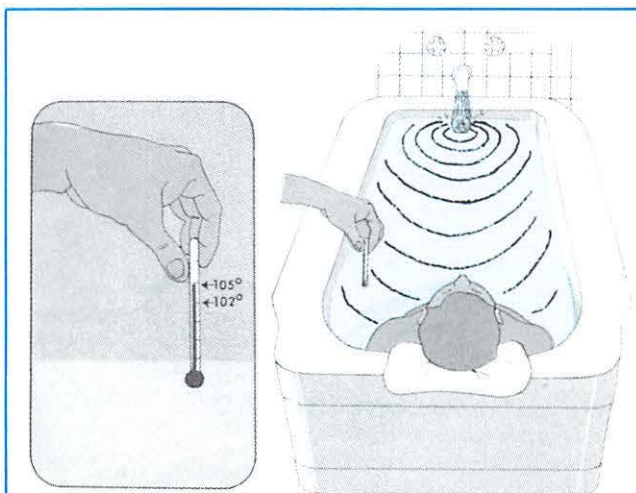
Other symptoms of shock include dilated pupils, perspiration, nausea, thirst, rapid pulse (rate of 100 or more), and shallow or irregular breathing.

Once the causes of shock have been treated, a good Samaritan must keep the victim warm, but not hot. Too much heat will divert the body's limited blood supply back to the skin and away from vital organs. Liquids may be given if the person is conscious and is not nauseated or vomiting. Mix  $\frac{1}{2}$  teaspoon of baking soda and 1 teaspoon of salt to a quart of lukewarm water. Do not give the victim more than 4 ounces every 15 minutes.

- Cold, moist skin or cool, dry skin suggests a moderate or long-term exposure to cold. When a body cools, it first begins to shiver. Shivering is an attempt to generate body heat through involuntary exercise. However, once shivering ceases, the body cools more rapidly and a patient feels sleepy, listless and apathetic. Unconsciousness usually follows quickly.

Medics refer to a loss of body heat as *hypothermia*. Hypothermia is a very real medical emergency. A good Samaritan must take every opportunity to restore the lost body heat. It is not enough simply to wrap the victim in a blanket. Once hypothermia begins, a victim cannot warm himself. Treatment requires hot drinks, a warm bath, a campfire, or a heating pad.

## Treatment for hypothermia



Advanced First Aid and Emergency Care

Water to warm a person suffering from hypothermia should be warm, but not hot. Never place artificial heat next to a person's bare skin.

## How does a patient's skin color and response to light reveal his inner condition?

Both the color of a patient's skin and the size of his pupils reveal valuable information about his

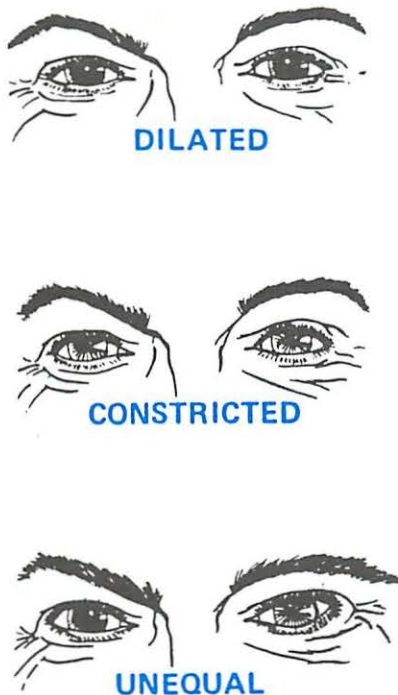
inner condition. Persons with dark skin show color changes under their fingernails and along the mucus linings of their mouth and eyelids.

Skin color may appear either white, red, or blue. The color is determined by the flow of blood through blood vessels just under the skin. Red skin may be an indication of high blood pressure, carbon monoxide poisoning, or a heart attack. White skin may suggest shock, heart attack, or fright. Blue skin means breathing problems, heart attack, or poisoning.

Pupils of the eyes reveal the condition of the heart and the central nervous system. Normally the pupils are the same size and respond equally to light. Dilated pupils, however, confirm unconsciousness and suggest cardiac arrest. If dilated pupils do not grow smaller when a bright light shines on them, a victim may already be dead.

Constricted pupils indicate damage to the central nervous system or drug use. Unequal size pupils point to a head injury or a stroke which has damaged one side of the brain, but not the other.

#### **Pupils reveal a person's response to light.**



A heart attack may lead to many shades of skin color. However, it is one of the few conditions which cause dilated pupils.

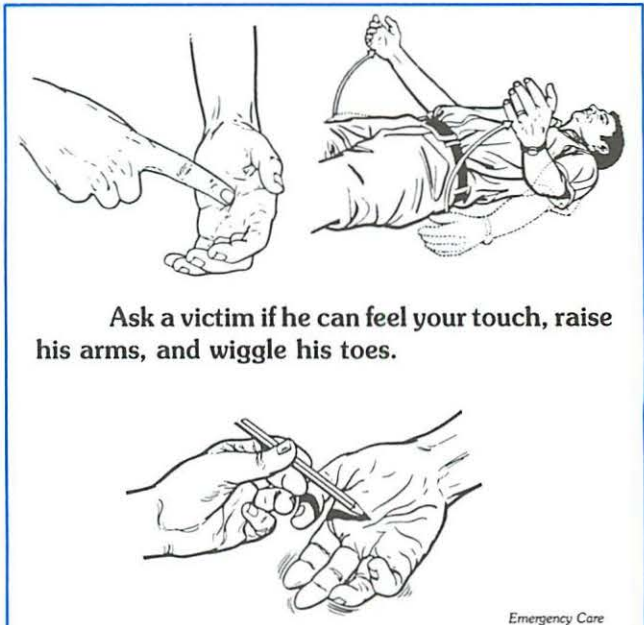
### ***How does insensitivity to pain reveal some obstruction between the head and a specific member of the body?***

Injuries to nerves block the flow of communication between the head and the various members of the body. When that flow is interrupted, there is a loss of feeling and often a paralysis of body members.

When a lower extremity loses sensation, the lower back is most likely the location of the injury. Numbness in the arms suggests an injury to the neck. Numbness which affects one side, but not the other, reveals a possible stroke or head injury.

When a patient suffers from paralysis, there is neither feeling nor movement beyond the location of the injured nerve. Limited paralysis or a tingling sensation may mean there is pressure rather than injury to the spinal cord.

A good Samaritan can check the conditions of an unconscious patient by pricking the skin of a hand or the sole of a foot with a sharp object. If there is no spinal damage, the painful stimulus will trigger an involuntary muscle reaction and the hand or foot will jump. The lack of a reaction indicates that there is damage somewhere along the spinal cord.



Ask a victim if he can feel your touch, raise his arms, and wiggle his toes.

The lack of a reflex response to a sharp object suggests that a victim may be suffering from a spinal injury. Any movement might result in permanent paralysis or death. A good Samaritan must immobilize a patient's entire body using a long spine board, or some other long, rigid device.

## 2 A GOOD SAMARITAN MUST BE SKILLED AT BINDING AND CLEANSING WOUNDS.

*“...and bound up his wounds...”  
(Luke 10:34).*

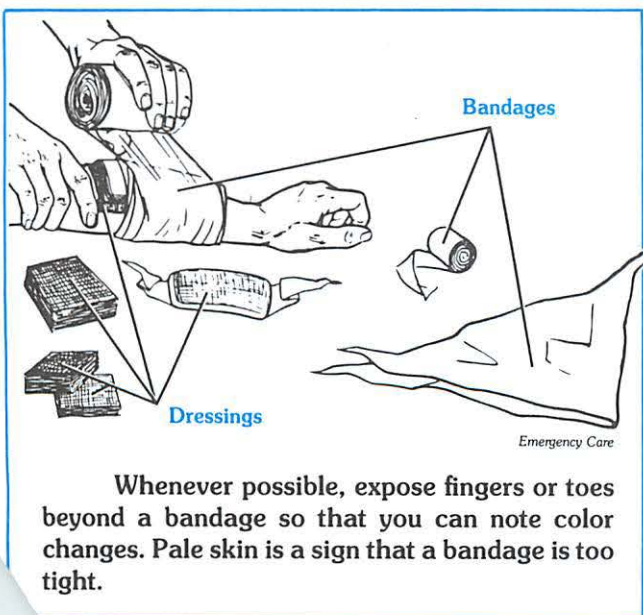
A good Samaritan can proceed to treat other less life-threatening injuries only after he stabilizes a patient and the emergency is over. Again, he must give special care so that he does not aggravate unseen injuries.

### *How does binding a wound too tightly cause further injury?*

Binding a wound helps to halt the loss of blood, prevent contamination, and immobilize an area so that no further injury results.

The terms *dressing* and *bandage* are often confused. Dressings are applied to a wound to control bleeding and prevent contamination. A dressing should be sterile and not stick to the wound when removed.

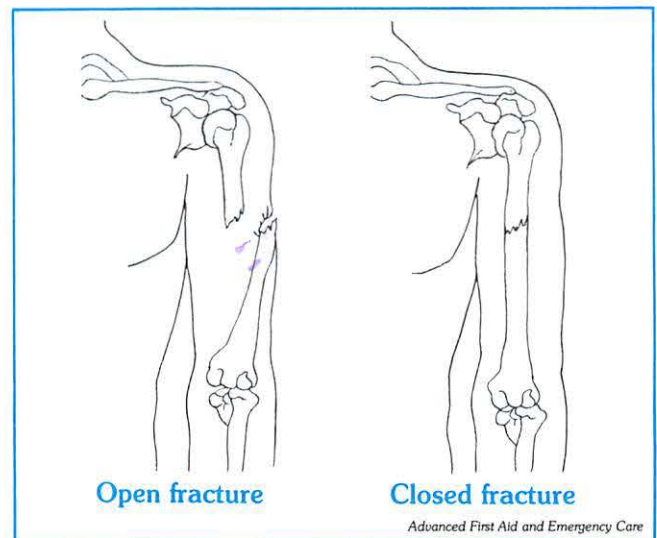
Bandages are used to hold a dressing in place. They need not be pretty or sterile, but they must be functional. The most important requirement is that they are neither too tight nor too loose. Bandages which are too tight cut off the flow of blood to the very members they should protect. Bandages which are too loose will not hold a dressing in place and may even fall off.



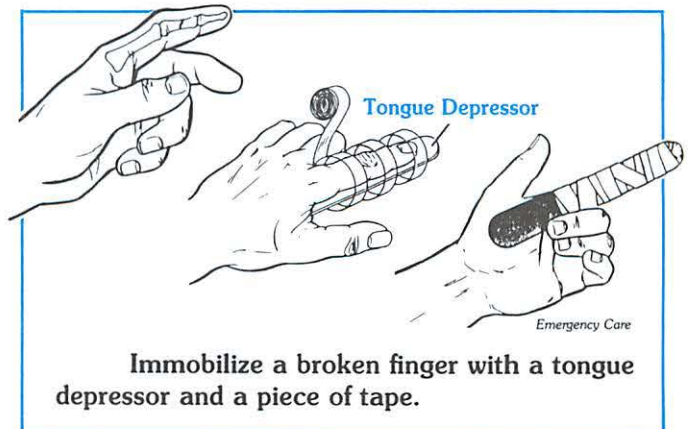
### *How must a good Samaritan prevent broken bones from destroying healthy tissue?*

Bones provide the foundational system which supports and protects the whole body. However, when bones are broken, their sharp, splintered ends may cut into surrounding muscles as they move.

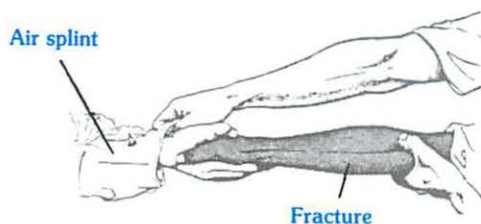
Doctors classify fractures into two basic groups: closed fractures and open fractures. Closed fractures are broken bones which have not yet injured much of the surrounding tissue. Open fractures are those which have broken through the skin and have already cut into adjacent muscles. A good Samaritan must be extremely careful to prevent a closed fracture from becoming an open fracture.



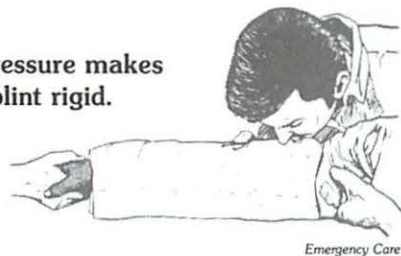
The only way to prevent a fracture from causing any additional damage is to immobilize it promptly, before a patient is moved. By preventing a bone from moving, a good Samaritan protects healthy tissue around the bone until the fracture can be restored to its proper position.



An air splint is a good way to immobilize a broken arm. Put the deflated splint on your own arm first. Grasp the victim's hand and gently pull the splint over the fracture.

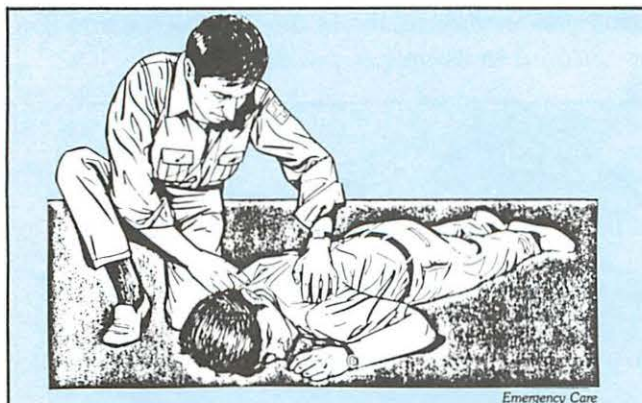


Air pressure makes the splint rigid.



To locate closed fractures, begin at the head. Look for any bumps, swelling, discoloration, cuts, or signs of blood in the hair. If blood is present, separate the strands to determine the source. Be careful not to move the head while checking for scalp wounds. You must assume that a neck is broken until you can confirm that it is not.

Look in the ears and nose for blood or clear fluid. Their presence indicates a possible skull fracture. The clear fluid may be cerebrospinal fluid, which surrounds the brain and cushions it from shock. Skull fractures are usually accompanied by bruise-like discolorations under the eyes and by unequally sized pupils.



The symptoms of a closed fracture may include pain, swelling, deformity, cuts, bruises, or immobility.

A person who has a head injury may also have a neck injury. To locate a neck injury, work your fingers gently from the victim's head down his neck to his shoulders. Again, look and feel for any deformity, bony protrusions, or abnormal position in the neck.

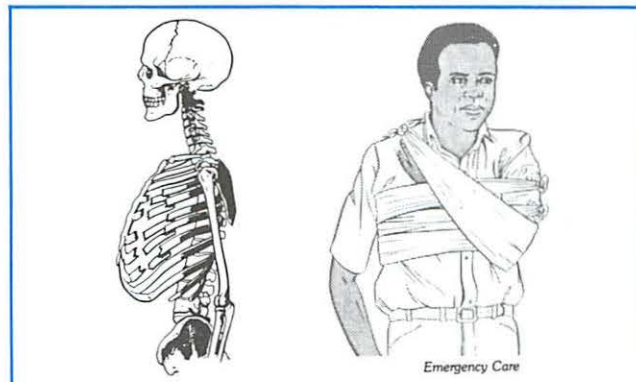
Normally the neck is symmetrical on both sides. If anything unusual is discovered, immobilize the patient's head so that it cannot move. **Do not try to straighten the neck.** To do so may severely damage the spinal cord and result in unnecessary paralysis.



Applying a neck collar helps to prevent a broken neck from doing further damage to a victim's spinal cord.

Broken ribs are especially dangerous because their jagged edges may puncture a lung. To locate broken ribs, feel for a depression or grating sensation as you move your fingers over a victim's chest.

You can bind broken ribs by folding the victim's arm over the injured ribs for protection. Wrap the chest, arm and all, with bandages to prevent the chest from rising and falling as the victim breathes.

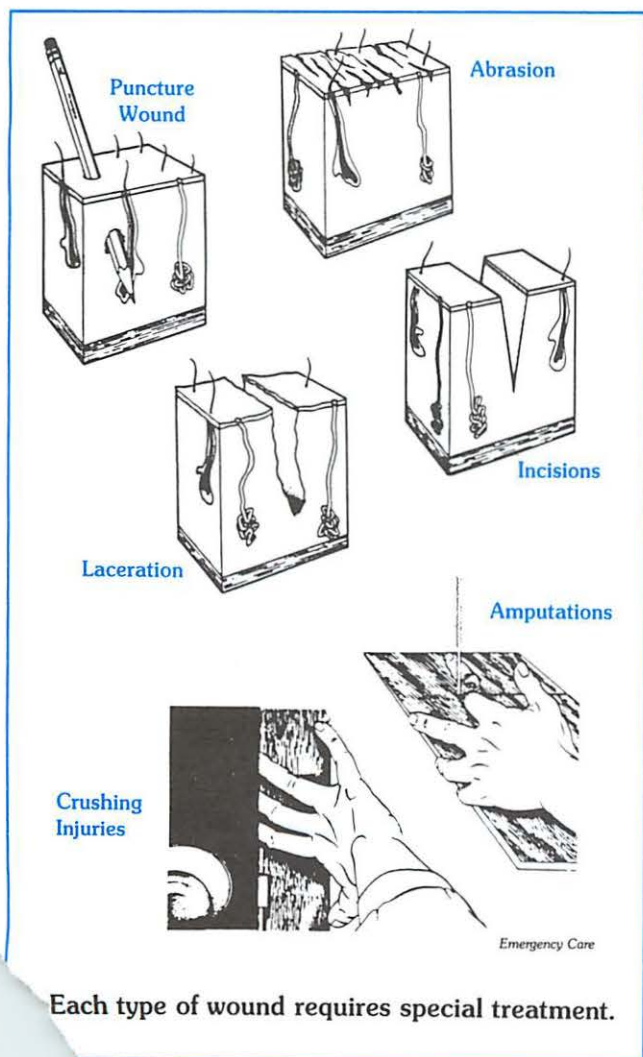


A punctured lung allows air to leak into chest muscles, causing "crackling" sounds under the skin.

Finally, as a good Samaritan, you should check the pelvic girdle, arms, legs, hands, and feet for fractures. Again, look for bony protrusions, depressions, swelling, grating, or tenderness. Take note of any abnormal positions. For example, the outward rolling of a leg is a sure sign of a broken hip, and a finger which points the wrong way strongly suggests a broken metacarpal or phalange.

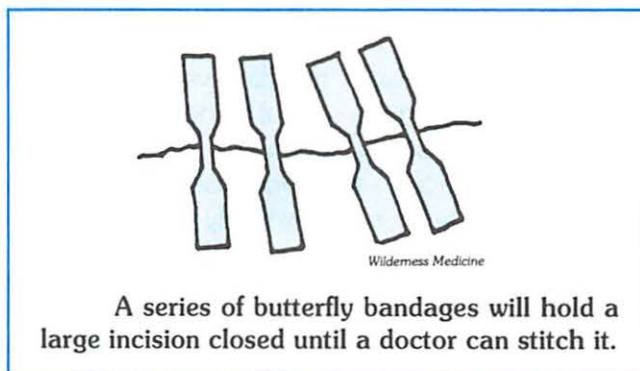
### How does binding physical wounds illustrate various techniques for binding wounded spirits?

Just like fractures, wounds may be either open or closed. Open wounds are those in which the skin is torn and the underlying muscle tissue is exposed. Open wounds fall into one of seven categories. These include abrasions, incisions, lacerations, punctures, avulsions, crushing wounds, and amputations.



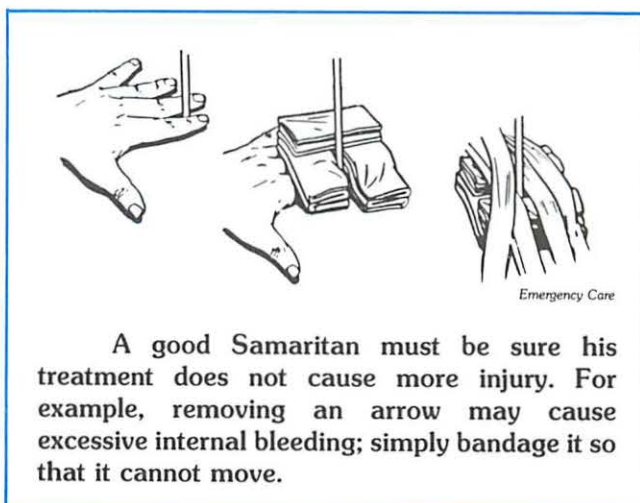
- *Abrasions* are merely scratches in the skin. They rarely bleed more than a few drops. However, dirt may enter abrasions and cause infection. Clean abrasions thoroughly with soap and water. Bandaging serves to keep the wound clean.

- *Incisions* are wounds made by sharp objects which make smooth cuts. If a deep incision severs an artery or a nerve, there may be excessive bleeding and a loss of feeling to an injured member. Incisions should be closed with butterfly bandages before they are bound. A pressure bandage will help to stop the bleeding.



- *Lacerations* tear tissue and leave jagged edges. They usually bleed less because blood clots quickly along the jagged edges. However, lacerations are more difficult to bind because there are no smooth faces to match together. A good Samaritan may only be able to use a compression bandage at the scene of an accident.

- *Puncture* wounds are the result of sharp, pointed objects such as nails, sticks, pencils, or slivers of glass. Puncture wounds which have both an entrance and an exit are called *perforations*. They may bleed internally and often do considerable damage before they are detected. Do not remove the object if it is still in the wound.



- *Avulsions* are wounds in which large flaps of skin are peeled or pulled off. The word *avulsion* comes from the Latin prefix *a* and the Latin word *vulsus*. It means literally "to tear away." A good Samaritan should make every effort to save the torn skin because it may be possible to restore the flap surgically. It may be helpful to bind these wounds with aluminum foil so that the dressing does not stick to the delicate muscle tissue which the wound has exposed.

- *Crushing wounds* are those in which a member is squeezed between two surfaces. Underlying tissue may actually burst under the pressure and broken bones are common. Because the crushing force closes bleeding vessels, there is usually little bleeding. Be careful to look for fractures wherever there is a crushing injury.

- *Amputations* are wounds in which a member is partially or completely severed from the rest of the body. There may or may not be excessive bleeding. Severe bleeding may require a tourniquet just above the amputation. The amputated portion should be saved for possible restoration. A sealed plastic bag will help to keep the amputated member clean.

### **How can a good Samaritan bind up a closed wound?**

Closed wounds are called *contusions* or *bruises*. Contusions are often made by blunt instruments which do not break the skin. They bleed just like open wounds, but the blood seeps into surrounding tissues, causing black and blue discolorations.

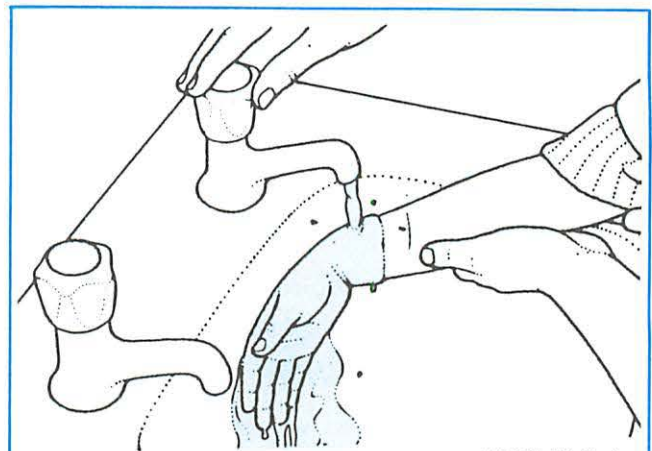
Small contusions generally do not require anything more than a pressure dressing to reduce bleeding. However, large contusions may actually cause a person to bleed to death without ever losing a drop of blood outside his body. This type of wound requires immediate professional attention.

### **What injuries must a good Samaritan leave unbound?**

A good Samaritan should never bind up a burn with ointments and sprays. A doctor must remove them before he can start other treatments. This is often very tedious and painful.

Instead of binding a burn, a good Samaritan should quickly immerse first- and second-degree burns in ice water until the pain subsides. If pain

returns, a burn can be cooled again for up to four hours, or until the pain finally stops.



A-Z Medical Handbook

**If ice is not available, cold tap water or any clean, cool water will do. The cooling effect of the water not only relieves pain, but also reduces swelling and in most cases prevents a burn from crusting over. This promotes healing and helps to prevent scarring. If an area cannot be immersed in ice water, cold compresses can be made with a plastic bag.**

Much of the trauma of a burn is due to swelling, which begins within seconds after an injury. The sooner ice is applied, the less swelling there is and the less damage a burn causes. Since swelling happens so quickly, it may be wise to remove rings and bracelets before removal becomes impossible.

Third-degree burns are much more serious. These are the only burns which require bandages. Dressings should be as clean as possible to avoid infection. If there is nothing clean available, simply do not cover the wound. Do not handle or touch the burn, and do not cover the wound with any ointments.

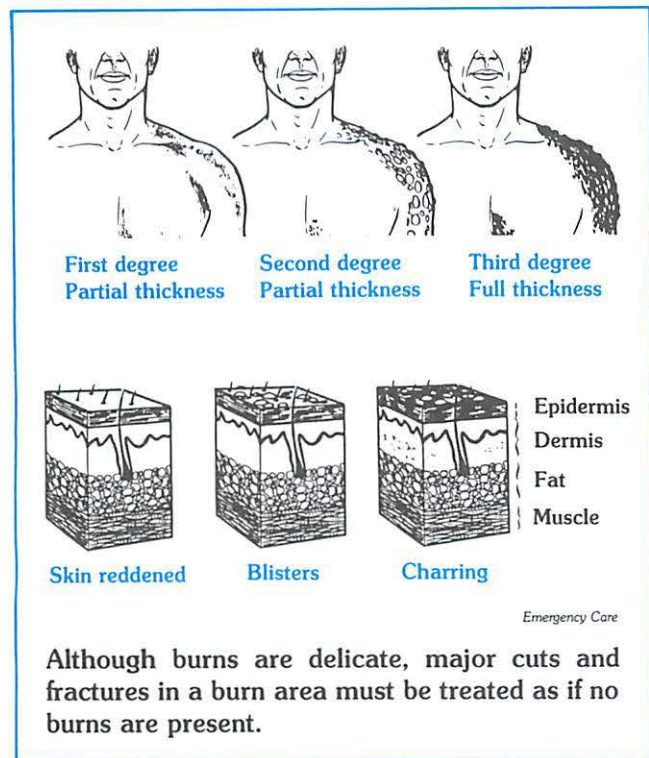
Remove clothing which is stuck to the wound only if it is smoldering. Otherwise, bandage right over it. Enough dressing should be used to shut out as much air as possible.

### **What are the differences between first-, second-, and third-degree burns?**

Burns are classified by the depth to which they damage the body's protective layer of skin. First-degree burns are those which only redden the skin and damage only the outer layer. Second-degree burns cause blistering and damage the under

layer of skin called the *dermis*. As fluids seep out of a second-degree burn, they form blistery bubbles and give a second-degree wound a wet look.

Third-degree burns damage all three layers of skin and sometimes destroy underlying fat, muscles and even bone. These burns are the least painful, but are the most difficult to treat. They require skin grafts to cover what the burn has destroyed.



### How did the Good Samaritan cleanse and soothe his victim's wounds without soap and water?

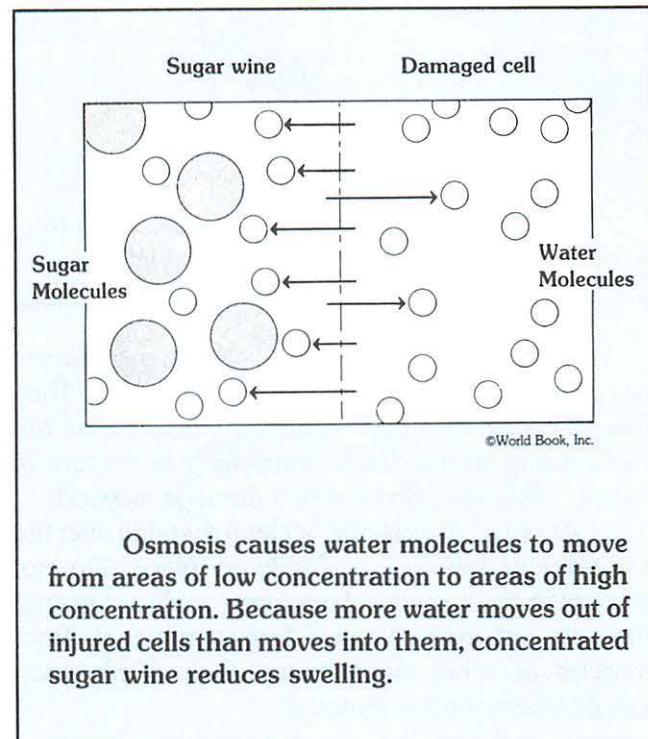
The Good Samaritan had no soap, water, or fancy bandages, yet he made the best use of the provisions he had. He poured olive oil and wine into the victim's wounds. Olive oil is an occlusive dressing. The word *occlusive* comes from the Latin prefix *ob* and the Latin word *claudo*. It means literally "to close against." Oil closed the victim's wounds against the painful stinging qualities of air.

An occlusive dressing also prevents a wound from crusting over. This allows the wound to drain and reduces the chances of infection.

Pouring wine into a wound reduces swelling and kills bacteria. The wine which the Good Samaritan used was probably not alcoholic wine. It would have stung and damaged sensitive tissue. Instead, the wine was most likely sugar wine.

Sugar wine has such a high concentration of sugar that bacteria cannot grow in it. The sugar actually sucks water out of bacteria until they die. Biologists call this process *osmosis*. Osmosis comes from the Greek word *osmos*, meaning "a thrusting."

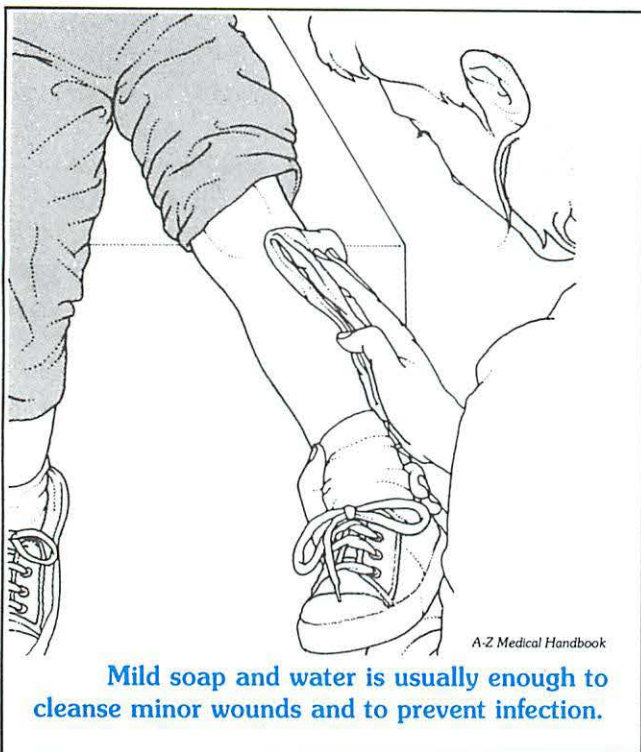
Osmotic pressure forces water to flow from regions of low concentration toward regions of high concentration. The highly concentrated sugar wine draws water to itself and greatly reduces the swelling of a victim's injury. Since swelling is one of the chief causes of pain, the wine would greatly relieve the victim's suffering.



Today a good Samaritan might substitute soap and water and petroleum jelly for oil and wine. Whenever possible, all wounds other than burns should be cleansed with regular soap and water. Wash your own hands thoroughly with ordinary hand soap or a mild hand detergent. Wash in and around the victim's wound to remove bacteria and other foreign matter.

Rinse a wound thoroughly by flushing it with clean water, preferably running tap water. Finally, blot the wound dry with a sterile gauze pad or clean cloth.

If it will be several hours before a patient can receive professional treatment, spread sterile petroleum jelly over the wound as an occlusive to keep out the air. Petroleum jelly is very soothing and helps prevent wounds from sticking to dressings and bandages.



If medical treatment is close at hand, do not use any ointments, sprays, or petroleum jelly. They merely complicate professional treatment later on. Avoid using strong disinfectants such as tincture of iodine. They may do as much damage as good.

Apply a "dry" sterile or clean dressing over the wound and bandage it firmly in place. Do not attempt to clean a wound once you apply a dressing. Also, do not try to remove foreign materials from muscles or other deep tissue. Only a physician should attempt such removal.

### **3 A GOOD SAMARITAN MUST BE PREPARED WITH THE PROPER SUPPLIES.**

*"...pouring in oil and wine..."*  
(Luke 10:34).

A good first-aid kit could mean the difference between life and death. Yet, even the best supplies are useless if they are left at home when you are on a trip. Always remember to have a good first aid kit close at hand wherever you go. Store complete first-aid kits at home, in your car, and at your place of employment. Put together a spare one for any special trips.

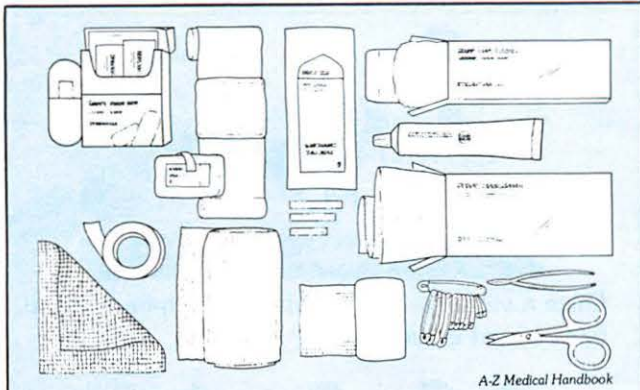
Fishing tackle boxes are perfect storage units for a first-aid kit. They are inexpensive, durable, and can usually be tucked away without taking up too much room. Be sure to label your first-aid kits clearly with a large red "+".

A first-aid kit for general use should contain the following items. Because many of these items are much cheaper if you buy them in large quantities, you may wish to make up several kits at one time.

#### **ITEMS TO INCLUDE IN A GENERAL FIRST-AID KIT**

- 10 - gauze pads of assorted sizes
- 2 - rolls of gauze bandage
- 10 - tongue depressors
- 15 - cotton tipped swabs
- 20 - cotton balls
- 1 - roll of adhesive tape
- 10 - individually wrapped alcohol wipes
- 1 - box of assorted bandage strips
- 5 - large triangular bandages
- 1 - plastic bottle of aspirin
- 1 - jar of petroleum jelly
- 2 - elastic bandages
- 10 - butterfly bandages
- 1 - plastic air splint
- 5 - empty plastic bags with closures
- 1 - bottle of syrup of ipecac
- 20 - safety pins
- 1 - water-tight container of matches
- 1 - plastic squeeze-type container of hand soap
- 1 - small but powerful flashlight
- 1 - set of extra batteries
- 1 - pencil and pad of paper
- 1 - pair of scissors
- 1 - wool blanket\*
- 1 - magnetic compass
- 1 - pair of tweezers
- 1 - sharp multi-blade knife
- 3 - one-square-foot pieces of aluminum foil
- 2 - individually wrapped granola or candy bars
- 1 - list of important phone numbers
- Other medical supplies specific to your own family's needs, such as allergy medicine, antacids, cold tablets, etc.

\*Pack the blanket separately in a plastic garbage bag. Check army surplus stores or thrift shops for reasonable prices on used wool blankets.



Having a well-stocked first-aid kit prepares you to minister to the needs of your neighbors wherever you may be. Every penny spent is an investment which protects not only those whom you love, but also those whom you do not even know.

Many of these items come in their own individually wrapped packages. Other items can be stored conveniently in zip-lock plastic bags. Proper storage makes the items easy to find and keeps them clean for years.

First-aid kits need to be checked regularly to make sure that everything is in good condition. Replenish them every time they are used. A half-used or a contaminated first-aid kit may be worse than no kit at all.

## 4 A GOOD SAMARITAN MUST BE ABLE TO MOVE A VICTIM WITHOUT CREATING FURTHER INJURY

*"...and set him on his own beast..."*  
(Luke 10:34).

Once a good Samaritan has cleansed and bound a victim's wounds, he must lift and then move the patient to a place where he can receive continuing care. Several factors determine how a patient should be moved: These include any fractures or spinal injuries; any immediate dangers such as oncoming traffic, electrical shock, fire, or fumes; or any immediate medical problems which require special attention.

In a dangerous situation where a patient must be moved before his wounds can be checked, a good Samaritan should use techniques which will aggravate a patient's injuries. Never throw a

victim over your shoulder or jerk him around like a rag doll.

A "clothes drag" is one means of moving a patient, if nothing else is available and speed is essential. Firmly grasp the patient's shirt or coat collar so that his head is resting on your forearm. Pull on the shirt or coat collar so that it distributes the force over the entire body. Keep his head as low as possible, and keep his body in a straight line. Take care not to twist, bend, or jerk his body.



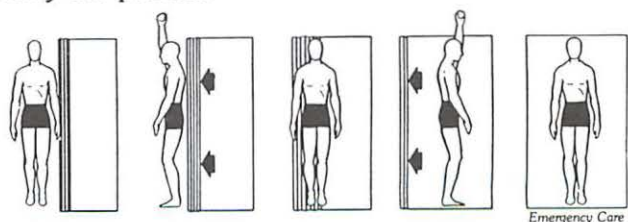
If you have a few seconds, but the victim must be moved before treatment, use a "blanket drag" rather than a clothes drag. A blanket drag provides greater support for a patient's head and body.



To use a blanket drag, first gather half of a blanket into pleats. Place the pleated portion lengthwise against the side of the patient. Raise the patient's arm which is away from the blanket over his head. Moving the arm provides a cushion for the patient's head and allows his body to roll more easily.

Now roll the patient onto his side, making every effort to maintain his body in as straight a line as possible. With the patient on his side, push the pleated portion of the blanket as far under the patient as possible.

As the patient rolls back onto the blanket, the pleats can be pulled through. You can now wrap the victim snugly in the blanket and pull him to safety. If necessary, the blanket can even be used to lift or to carry the patient.



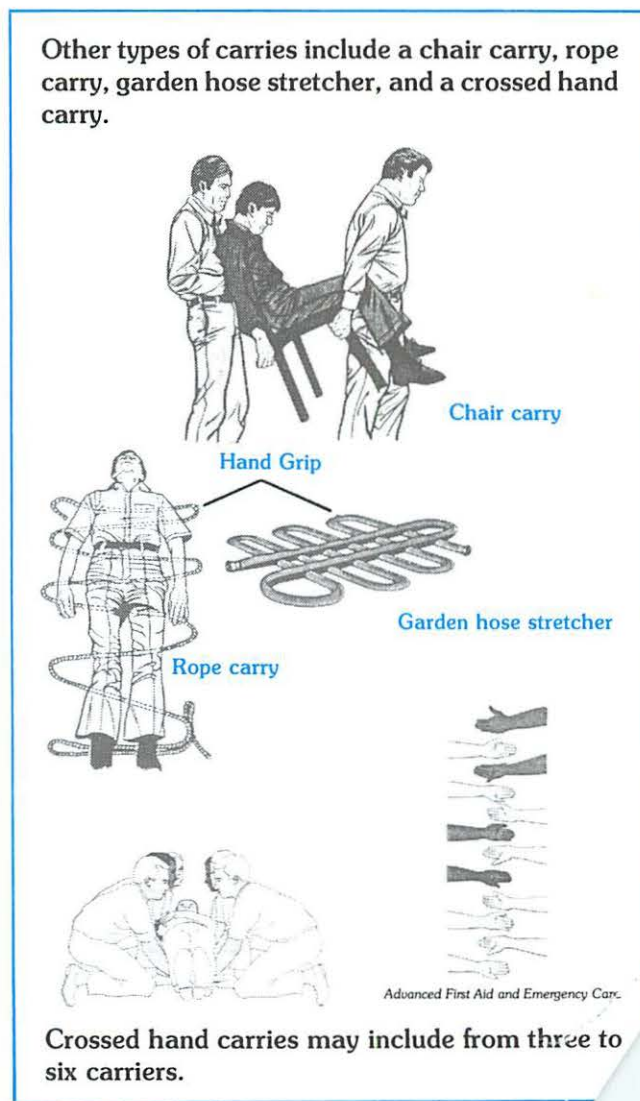
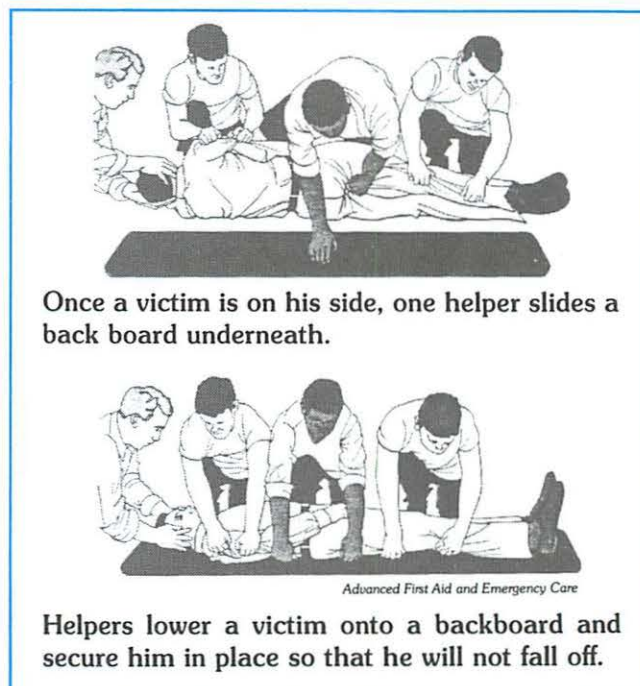
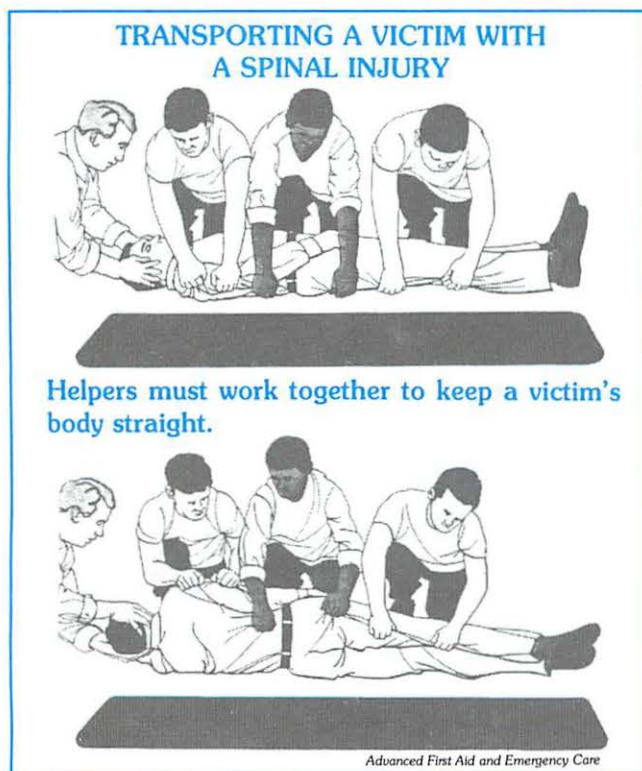
If you do not have a blanket, you might wish to use a fireman's drag, fireman's carry, or a two-man seat carry.

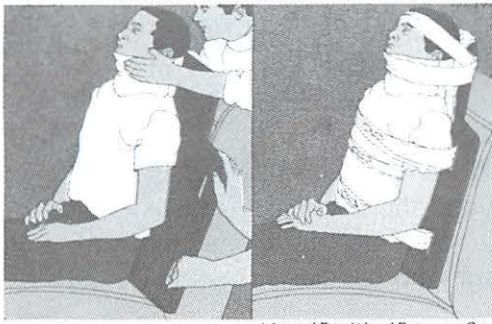


Where there is a spinal injury, any movement may do more damage than good. A good Samaritan must keep an accident victim's neck and back rigid at all times. This usually requires a board or stiff stretcher.

To place a victim on a board, one person applies gentle traction to the head and neck while others roll the patient gently on his side. Everyone must work together to keep the victim from twisting or bending the spinal cord.

Another person raises the patient's arm over the patient's head. Then three helpers kneel in a straight line next to the victim. They work together to provide even pressure as they roll the victim toward them. The purpose is to keep the victim in a straight line without bending or twisting the spinal cord.





Advanced First Aid and Emergency Care

When a victim is trapped in a car or other situation where a long board cannot be used, a short board may serve satisfactorily.

## 5 A GOOD SAMARITAN MUST KNOW WHERE AND HOW TO SEEK ADDITIONAL HELP.

*"...and brought him to an inn, and took care of him." (Luke 10:24).*

When you are involved in an emergency, do not assume that someone else has called for help. Check to make sure that help is on its way. If necessary, make a second call. Two calls are better than none at all.

Many areas have one common phone number which serves all emergency services. By simply dialing 911 you can often reach the police, sheriff, fire department, ambulance, or rescue squad. If the emergency 911 number is busy, dial the operator.



Emergency Care

In many places, professional emergency help is only a phone call away. However, a good Samaritan must know how to summon help properly.

When dialing an operator, understand that an operator does not take emergency information. Do

not take valuable time to explain everything to the operator. Simply say, "This is an emergency. I need help from the \_\_\_\_\_ [state the agency such as fire department, ambulance, or police]."

When the emergency personnel answer, state that this is an emergency call. Take a deep breath and calmly describe the problem. Give your assessment of the situation. Describe any major injuries. Indicate what is being done at the scene. State the number of people involved who need treatment. Be brief, but complete.

Ask for specific help such as an ambulance, fire department, rescue squad, electric or gas utility company personnel, or police.

Give your location, directions on how to find you, and the telephone number from which you are calling. **Before you hang up, be sure to ask if there are any questions.** Finally, note the time that you made the call. Write it down.

When making an emergency phone call, state:

- Your name
- Phone number from which you are calling
- What happened
- Where the emergency is located
- The extent of any injuries
- What emergency help you need

Before you hang up ask:

- "Do you need any further information?"



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When needing to make an emergency call near a highway, do not overlook the value of a trucker's CB radio.

## 6 A GOOD SAMARITAN MUST BE WILLING TO HELP WITHOUT REGARD FOR THE FINAL COST.

*"And on the morrow when he departed, he took out two pence, and gave them to the host, and said unto him, Take care of him; and whatsoever thou spendest more, when I come again, I will repay thee" (Luke 10:35).*

### Who is responsible for paying the medical bills of an injured neighbor?

The Good Samaritan trusted God to supply all the needs of his neighbor. When he stopped along the road to Jericho, the Good Samaritan knew that he would be delayed, but he did not know how long. He trusted God for his time.

The Good Samaritan knew that he might also be endangering himself. The thieves might still be around. By stopping, he risked his own health, the health of his animal, and the security of all his possessions. He trusted God for his own safety.

When he left his neighbor at the inn, he knew that there would be an expense. He did not know how much, yet he agreed to pay whatever was required. He trusted God for the resources to pay the medical expenses. In those days there was no such thing as a blood transfusion. Blood had to be replaced naturally with plenty of fluids, proper food, and rest.

When you stop to help a neighbor who has been injured, you must also be prepared to help without regard for the final cost. For example, you must remain with your patient until he is turned over to a qualified doctor or other emergency personnel.

Because your presence gives the appearance that all is under control, the very fact that you stop to help may cause other equally or better qualified persons to pass by. Leaving an injured patient before assistance arrives constitutes abandonment, which in itself may be cause for legal action against you.

Good Samaritan laws protect emergency service personnel and the public from lawsuit in most cases. However, they protect good Samaritans only as long as they act in good faith and act according to the best of their ability. Mistreatment due to gross negligence and wanton or willful misconduct is not protected under the law, nor should it

be. Proper training is the best protection against legal involvement.

Once professional help arrives, a good Samaritan's responsibilities are over according to the law.

However, a good Samaritan must be willing to go beyond the law and to trust God for the time, energy, resources, and money required to restore a neighbor who has been wounded.

### WARNING:

*This resource is not a complete first-aid course. Call the American Red Cross, local hospital, or other agency for qualified first-aid training courses in your area.*

*Do not attempt to give first-aid unless you are qualified to do so. Incompetent help is often worse than no help at all.*



Emergency Care

*Remember, being a good Samaritan requires more than desire. It requires knowledge, skill, practice, and preparation.*

### PROJECT:

Let's suppose that you discover an unconscious person who has just fallen off a roof. You have called for help, but it will not arrive for an hour. Answer the following questions based upon what you have learned in this resource:

1. How would you determine if the victim has:
  - A broken neck?
  - A broken back?
  - Internal bleeding?
  - Shock?
2. How would you administer emergency treatment for the following conditions:
  - If he has stopped breathing?
  - If he is bleeding profusely?
  - If he is in shock?
  - If he has broken bones?
  - If he has a severed member?
3. What basic equipment would you include in a first-aid kit for your car?

Date completed \_\_\_\_\_ Evaluation \_\_\_\_\_