FALL 1988

A ROYAL RANGERS MAGAZINE FOR BOYS

LEADERS EDITION



C. S. Lewis uses Mars as the setting for his Christian science fiction novel, Out of the Silent Planet. The mysterious planet Mars has always captured mankind's imagination. It is a rough and battered world of red rock and shifting sand dunes. In the ancient world, long before the coming of Christ, its bright, dramatic red light reminded men of blood and was thought to be the bringer of warfare and violence. The word "planet" means "wanderer," and Mars (like the other planets and unlike the stars) constantly changes its position in the night sky. Most of the time, Mars is far from the earth in the direction of the sun, but this fall the orbits of the planet Earth and Mars coincide to bring Mars closer to the earth than it has been in many years. On September 23 it will be a mere 36.56 million miles away. That is very close com-

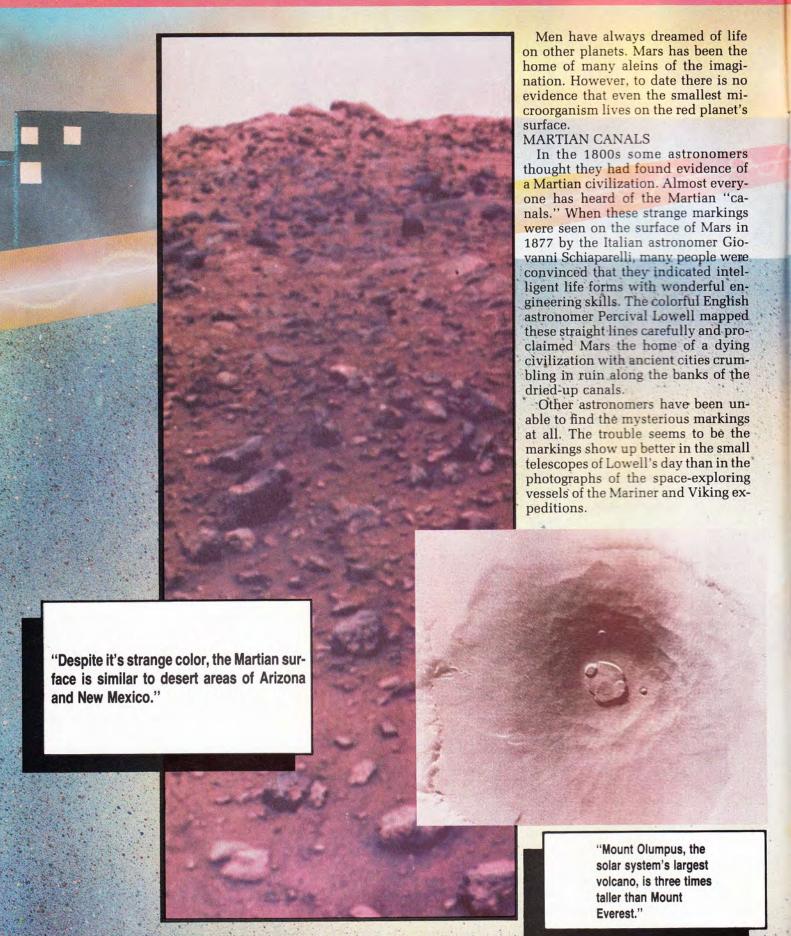
Despite its bad press, Mars isn't a threat to life on our planet. It is a fascinating and strange traveling companion on our solar system's journey around the spiraling Milky Way galaxy and on our galaxy's even more spectacular trek across the uni-

pared to our distance from most of

the objects in the night sky.

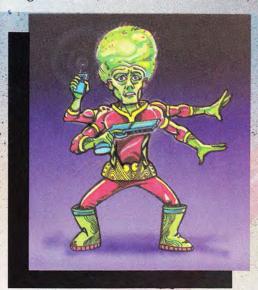
verse.

ENCOUNTER WITH THE RED PLANET



BARSOOM AND BEYOND

If there were a doomed civilization on the surface of Mars, its history and culture would certainly make fine fiction. One series of books which excited the imagination of a generation of future scientists and science fiction authors was written by Edgar Rice Burroughs, the creator of Tarzan. In several novels written between 1917 and 1919, Burroughs imagined a dying civilization on Mars called Barsoom. He populated Barsoom with many exotic aliens. Little green men, beautiful red women,



thoats (Martian horses ten feet high at the shoulder with eight legs), slimy reptiles, hornet-like monsters called siths, giant white apes, and huge plantmen roam Burroughs' version of Mars.

WAR OF THE WORLDS

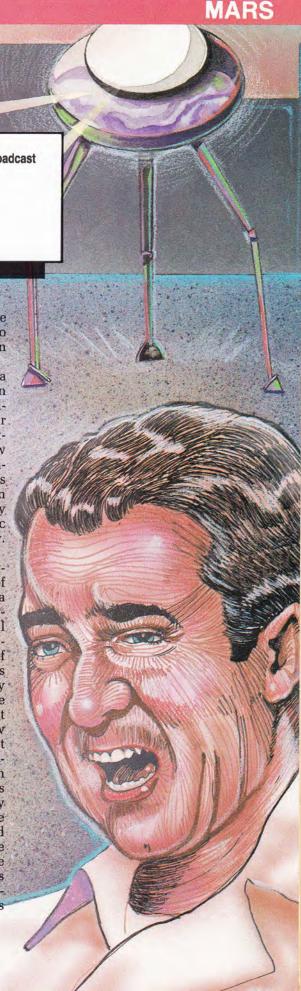
If there were a doomed, droughtstricken civilization on Mars, of course, its creatures would dream of inhabiting some place as watery and green as earth. And in 1897, the great science fiction writer H. G. Wells told a story about such an invasion. In the War of the Worlds, he wrote: "Across the gulf of space . . . intellects vast and cool and unsympathetic regarded this Earth with envious eyes, and slowly and surely drew their plans against us." Wells' Martians were at first able to subdue the Earth with great technology and amazing, indestructible tripods. By the end of the novel, however, Earth's germs and mankind's faith were able to destroy

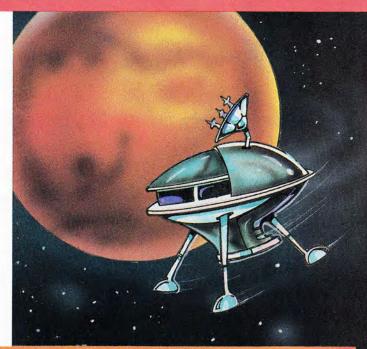
"The War of the Worlds Broadcast scared six million people.
The streets were filled with those who thought Martians were invading New Jersey."

the biologically inferior Martians. The fear of an invasion from Mars lead to the wide-spread idea of little green men and imaginary flying saucers.

In 1938 Orson Welles presented a modern-day radio play based upon H. G. Wells' gripping story. Six million listeners were stunned to hear that Martian invaders with unbeatable weapons had landed in the New Jersey farmlands. Millions were convinced that a Martian invasion was actually underway. Thousands ran terrified into the streets. It is unlikely that the listening or viewing public could be fooled so completely today. THE MARTIANS

Actually, if you had a very powerful telescope to scan the surface of Mars, you could find evidence of a technologically advanced space traveling civilization. But these metal plastic objects were not manufactured in the secret laboratories of Borsoom or by intergalactic geniuses from the Antares star system. They were manufactured in places like Pasadena, California, by humans just like you and me. In fact, we are now the Martians-at least our robot probes are! We humans have now begun to sail the vast sea of space. In the 1960s and 1970s the United States sponsored a series of exploratory voyages around the planet Mars. Like their namesakes in the fifteenth and sixteenth centuries, the Mariner space probes opened up vistas never before seen by man. The Mariner cameras recorded the incredible cratered, volcano-ridden, sand-covered features of Mars' outer skin.







MARTIAN WEATHER FORECAST

"Good morning, fellow galactic travellers. Yesterday was the last day of summer for the northern hemisphere, so today is the first of 143 days of autumn."

"Those of you in the south have just gotten over 178 days of winter.

It's spring now for you."

"Strong winds this afternoon will remake the dunes and crater streaks around the expedition base at Olympus Mons. Also, the northern polar caps are starting to grow again after shrinking this summer. Brrrr!"

"The expedition base on Chryse should prepare for the newest dust storm—it began last night and is estimated to last several weeks. Explorers will be treated to a Martian sky that's yellow instead of the usual pink."

"Tomorrow's forecast: -22 degrees Farenheit at the Chryse base; -25 at Olympus Mons. Atmospheric winds will be out of the west at 90 to 100 meters per second."

In 1971, the Soviet spacecraft Mars 3 entered the Martian atmosphere. It radioed back to Earth that it had successfully deployed its landing systems. But within twenty seconds it was completely destroyed by a great Martian sandstorm.

Five years later, two American space voyagers, Viking 1 and 2, successfully landed on the surface of the great red planet Mars. The Viking robot landers gave us firsthand knowledge of a planet we had only seen from a distance. We now know Mars for what it is: a planet sculpted by God with the hammer and chisel of wind, water, and volcanic explosions.

Part of the job of the Viking mission robots was to test for life in the Martian soil. So far, the results have been negative. The Martian soil which was scooped up and studied contained none of the materials necessary to feed hungry little microorganisms. Considering the dryness, the dangerous solar untraviolet light and the barren soil, it would be difficult for any life to live on Mars.

FIRSTS

HISTORY OF THE OBSERVATION OF MARS

- 1609 Johannes Kepler deduces Mars' laws of motion using only naked-eye observations of the planet.
- 1610 Galileo Galilei notes through a telescope that Mars is not perfectly round.
- 1659 Christian Huygens makes the first accurate drawings of surface markings of Mars.
- 1666 Giovanni Cassini measures the planet's rotation: he says it is 24 hours and 40 minutes, which is in error by only 3 minutes.
- 1830 First known map of Mars produced by Wilhelm Beer and Johann von Malder.
- 1877 Asaph Hall discovers the moons of Mars visually. Giovanni Schiaparelli produces the first modern astronomical map of Mars.
- 1958 The International Astronomical Union adopts a formal list of Martian place-names.
 1976 The United States sends Vi-
- 1976 The United States sends Viking 1 and 2 to Mars, and they relay the most detailed information about Mars thus far.

THE SPACE TRILOGY

by Bruce Blakeley

What would you do if you had to speak to a Martian, Venusian, or a person from the court of King Arthur? How would you know what they were saying if you didn't understand their language?

C. S. Lewis, a famous Christian author, wrote a set of books called the Space Trilogy. He used these fictional stories to emphasize many moral and spiritual truths. The hero is a man named Ransom, who gets to speak to alien creatures on three planets.

Ransom is a philologist—a person who studies all sorts of languages. He uses his training to understand what the alien beings are saying. Through his adventures, Ransom is able to save Mars, Venus, and Earth.

OUT OF THE SILENT PLANET

The first book, Out of the Silent Planet, is about Ransom's trip to Mars. He is kidnapped by two evil scientists, Weston and Devine. They take him to Malacandra, the name the Martians have for their planet.

Ransom escapes from the evil scientists and meets three sorts of Malacandrian creatures. Hrossa are seven feet tall with a thick coat of black hair, webbed hands, a beaver tail, and a head like a seal. Sorns look like tall, thin goblins who have feathers on their skinny legs. Pfifltriggi are large frog-like creatures which move in jerks like an insect.

Ransom receives a message that he must meet with the powerful, invisible people who rule the planet, the eldil. Read *Out of the Silent Planet* to discover if the eldil want to help or hurt Ransom.

PERELANDRA

Perelandra, the second book, is also the name of the second planet to which Ransom travels. He goes to Perelandra, or Venus as we call it, to save it from the evil scientist Weston.

Sin does not exist on Perelandra, and the planet is ruled by a king and queen who are very much like Adam and Eve in the Bible. The evil Weston has come to Perelandra to tempt the queen to sin. Ransom wants to stop this disaster, but Weston, who carries a gun, is prepared to fight.

THAT HIDEOUS STRENGTH

In the third book of the series, *That Hideous Strength*, the evil scientists Weston and Devine form an organization called N.I.C.E. to take over England. They perform cruel experiments, like attaching a severed head to a life-support system so it can talk.

N.I.C.E. believes that the magician Merlin from the days of King Arthur is not dead but hidden in a forest. They intend to find him and use his abilities to gain power. However, Ransom also knows about Merlin and believes that his powers can be used for good. Can Ransom save England from N.I.C.E. with the help of Merlin? Read That Hideous Strength to find out.

"Pull it up! Pull it up!"

The silver plane dives rapidly towards the ground. Panic-stricken onlookers run for cover. Suddenly a brave pilot takes hold of the controls and pulls the plane out of its dive.

"Whew! What a close one!" The

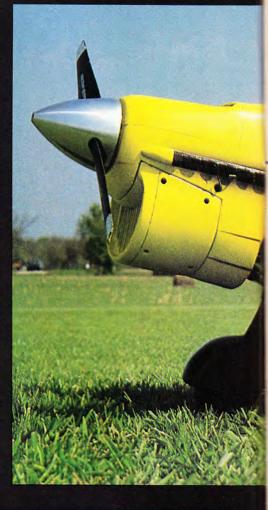
plane has survived.

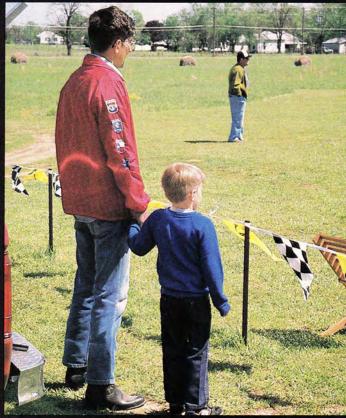
Many boys dream of performing heroic feats as airplane pilots. They may want to fly Air Force fighter planes or Army jets. Some boys, however, fly airplanes without going through flight school at all. They fly model airplanes.

These models are called "radiocontrolled miniature aircraft" by enthusiasts. But the planes are only miniature when compared to real planes: the models have wingspans

of up to six feet.

MINGING





Future pilot? A father and son watch miniature airplanes do tricks on the airfield.



A skillful pilot maneuvers his plane into an inverted low pass.



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TRAIL MARKE

A REFUGE IN THE STORM

by Johnnie Barnes

On a cold, crisp winter day in 1985, I was hiking and exploring various areas on our newly acquired National Royal Rangers Training Center. The property is composed of 1,500 acres of primitive forest and hills in the Ozarks region. It is surrounded by thousands of acres of forest service land making it a real wilderness set-

The weather report had indicated a mild, cold winter day with little precipitation expected—an ideal day

for my purpose.

After walking some distance, I stopped at a rushing stream to observe a large mink playing in the stream. I crossed the stream and progressed up the north slope of Hawkeye Mountain. I had seen several deer and wild turkey, and was keeping a watch for additional wildlife. I was also searching for a possible route for a trail up this mountain.

My concentration made me unaware of the change of the weather and momentarily detracted me from the weather conditions. A strong wind alerted me immediately; I scanned the sky. Dark, soot-colored foreboding clouds were in my direction. Soon wind-driven rain and sleet began to pelt me. I glanced about for some sort of shelter from the storm-

down to Lodge Meadow. I shielded myself as much as possible from the sleet, and rapidly moved forward.

Then I saw it! A cleft in the rock overhang. The shallow cave was further enlarged by two large flat stones that had fallen together to form a crude rock lean-to. The stones blocked off the driving wind and sleet. I gratefully ducked under the stones into the unexpected shelter.

Sitting down on a stone seat, I leaned back against the rock as "snug

as a bug in a rug."

While the howling wind blew outside, and the sleet lashed against the mountainside, I opened my day pack

and enjoyed my trail lunch.

I also enjoyed a beautiful time of prayer and meditation. I remembered the Scripture, "I will put thee in a cleft of the rock, and will cover thee with my hand." Exodus 33:22. I reflected that life has its many sudden storms such as troubles, pain, and disappointments. I rejoiced in my heart that our God had promised to provide a refuge and help in our time of need. I thanked the Lord Jesus for this adventurous object lesson that reminded me again of His love and concern for us all.

About an hour later the storm stopped and soon the sun began to

I saw none. I was then about twoshine again. As I left the shelter it was thirds of the way up the mountainlike leaving an old friend. With a fiside. I determined that the quickest nal thank you in my heart and a renewed faith in a God that provides. way back to my car was to proceed I shouldered my pack and continued in an eastern direction along the rim of the mountain, then drop straight my journey.

Hundreds of years ago the wise king of Israel said, "For as he thinketh in his heart, so is he" (Proverbs 27:7a). As a man, a boy, a person thinks in his heart, that is what he will become. For we are the product of our thought life. The thoughts we think today lead us to the behavior we will demonstrate tomorrow. Such is the influence of the stream of consciousness that follows a boy from his childhood into manhood.

Teaching boys how to think properly is a solemn responsibility.

The human mind is never dormant. When it is not being used in decision making, the mind slips back to what is gentle on the mind and dwells there. Sometimes the result is creative. Sometimes, destructive. But, the mind is always active and the stream of consciousness flows on and

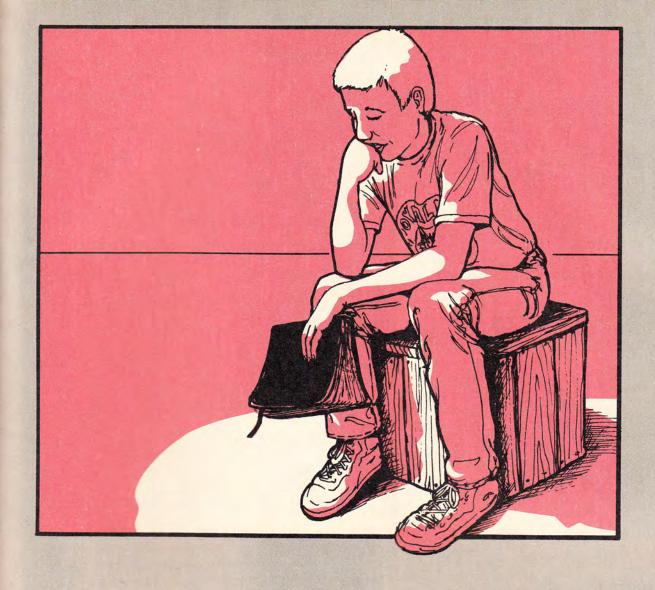
In order for boys to learn how to think as Christ wants them to, they have to be taught spiritual dimensions of the thought life. 1 Timothy 2:15 points out the necessity of studying God's Word. It is only by encoding the concepts of Scripture into the human mind that the data necessary for problem solving are available for processing and utiliza-

Boys need to cultivate a love for the Word of God. This comes through the example of leaders who not only cherish the Word, but who pore over it concepts in their relationship with the boys under their influence. Among the many worthwhile activities of the Royal Rangers, nothing is more important than exalting the place of God's Word in the daily life of the boys.

Recognizing that all Scripture was given by inspiration of God (2 Timothy 3:16,17), Scripture should be utilized freely in working with boys. It is the breath of God given for our benefit. Paul suggests four ways to use the Word in general and with boys

in particular:

Doctrine. The Word contains the basis of our faith. Boys need to know what they believe and why. Use of the Bible in laying the groundwork for a belief system is essential if the boys are to individualize an experience with God. It is not enough to memorize a statement of faith. Boys must learn the Scripture verses that support the tenents of their faith and be able to apply the Word in everyday life. This is a developmental process that must take priority in making men out of boys.



Reproof. No one is perfect. Certainly not boys. Many kinds of behavior that are acceptable in contemporary society are not appropriate for the Christian. So, it is important that boys learn how to act and react properly as maturing individuals and as Christians.

Scriptures that give guidelines to good etiquette, gracious living, and thoughtful behavior should be used generously in group and individual sharing times. Boys need to see from the Word what God has to say about the finer points of being living examples of His Kingdom. (1 Timothy 4:12). Reproof, as used in this Scripture verse, is the preventive guidance that comes before wrong has been committed.

Correction. When error has been committed, the Word is used as a guideline for corrective behavior. Mistakes can be pointed out. Comparison of experiences with others of the biblical past who have made errors in judgment can be helpful in

discovering the dynamics of behavior. Biblical illustrations that point out better ways to handle old problems can be explored. The use of Scripture in discipline emphasizes the positive dimensions of dealing with life. It shows a better way. This is the process of discipling—making disciples of Christ out of boys who are becoming men under our care.

Instruction. Teaching is a major function of the leader—Ranger relationship. This involves the introduction of control into the lives of the boys. Such a process requires self-disciplined men showing boys how to develop their own system of internal control. This involves teaching boys new ways to handle old problems with emphasis on utilizing spiritual principles in their decision making.

As the Word comes alive in the minds of the boys through study and meditation, spiritual principles will become available to apply to the problems of daily living. Then your Rangers can say with David, "Thy word have I hid in mine heart, that I might not sin against thee" and "Thy word is a lamp unto my feet, and a light unto my path" (Psalm 119:11,105).

TEACHING PROPER THINKING

RAYMOND BROCK



Have you ever wondered how Abraham might have felt when he looked into the heavens and recalled God's promise to him that his family would be greater than the stars he could see?

Our galaxy alone contains an estimated hundred thousand of them! Astronomers have isolated and named 88 star groups, called constellations, which are often identified by their brightest stars.

This unit will assist the boys in their ability to read the night sky, but it should also provide for them a sense of wonder as they discover that the One who created all the stars wants to be their one personal Savior.

Use four or five weeks, and plan to incorporate at least one field study during the month. Work from the general to the specific: (1) Galaxies, (2) Constellations, (3) Stars, (4) Sky Spectacles. You will need resources from the public library. Beginning astronomy books will give you excellent information in language clear enough for the boys to understand. These books will also provide you with seasonal star maps for charting fall displays.



PRESENTATIONS

Overhead projectors will work well for you as you trace constellation patterns at outpost meetings. Use tinted transparencies and a bleacher pen to white out the stars. If these are not easily available, use overlays made of colored plastic (such as report covers) and pierce them with a sharp instrument to place the stars.

Bring in one or more telescopes. Talk about the principles of magnification. Demonstrate the instrument's use; give boys time for practice and questions.

Explore audio-visual resources, either to use in a meeting or to recommend to boys who have a keen interest in further exploration of the subject. Check public libraries, school media centers, and other churches and district offices to see what can be borrowed. If you are able to purchase a permanent resource, look at Moody Science Institute's science videos for children and their classic, "Time and Eternity," which would be enjoyed by older Rangers.

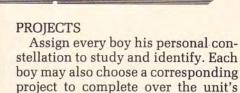
Use local amateur astronomers and/ or school science teachers to enrich your presentations.

Use riddles to aid younger boys remember constellation names. Although these were named by ancient astronomers based on the sky picture the stars seemed to create, several of the names can be related to Bible characters: Archer (Jonathon), Fish (early Christians), Lion (Daniel), Bear (David). A sample riddle shows you the idea:

Of Jacob and Esau I'm put in mind When this group of stars

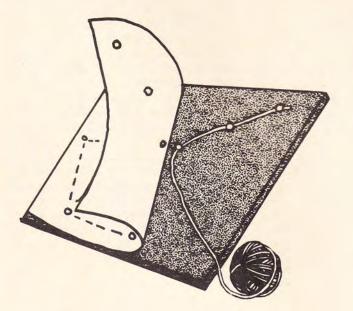
In the sky I find.

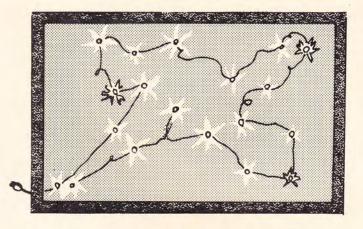
The answer? Gemini-the Twins!



duration.

STAR STRINGS. Choose a piece of scrap lumber. Sand it and paint it dark blue. Attach a picture hanger to the upper back, centered. On a piece of paper the size of the wood, draw the stars as they are placed in the constellation. Putting the paper over the wood, push a white-headed map tack through each star point. After making sure each is firmly set, carefully tear away and discard the paper. Connect the stars with white string or yarn, doubling it between the brightest stars for emphasis.





SKY LIGHTS. Stretch a piece of coarse screening over a frame; tack securely. Attach a short string of miniature tree lights to the screening with short wires to form the constellation. On the final night of the unit, display each of these light boards in the darkened classroom and see how many the class can correctly identify.

HEAVENS ARE TELLING. Choose some boys to research what the scriptures say about the heavens. Then ask them to secretly record Ranger dads reading psalm sentences or other praise phrases they found in their study. Use the tape as part of a meeting or campout devotional. PRAISES

This is really a praise unit! Devotionals might center around Bible stories in which the heavens play a prominent role: The Day the Sun Stood Still (Isaiah 38); Cloud By Day and Fire by Night (Exodus 13); The Star in the East (Matthew 2); A Blinding Light From Heaven (Acts 9).

The biblical concepts of answered prayer, protection, divine guidance, and salvation take on new power as we understand who our Creator is and what he has done. Discovering the magnitude of this part (and it is only a fraction) of creation should naturally lead commanders and boys alike to respond to the Lord with awe, thanksgiving, and worship.

OUTPOST L/BRARY

By Larry D. Bohall

One of the best ways to encourage advancement and growth in outdoor skills in your outpost is to build and maintain an outpost library. Not a large library, necessarily, nor does it have to be complicated to maintain. A few well-chosen books and a simple inventory is all you need.

How will a library spur advancement? By supplying your Rangers with information they need. Pick up a copy of the Trailblazer or Air-Sea-Trail Ranger handbooks. Inside you will find a list of advanced awards. Let's assume that one of your Trailblazers is working on the Bird Study award. Could you list 20 different kinds of birds living in your area? Your Trailblazer has to identify them in the field.

Thumb through some of the other advanced awards. How many of them are you able to do? Yet you are responsible to make sure your boys have completed the requirements correctly. None of us are experts on every subject. But if we have a book (or books) on the subject, we have an authority to rely on.

On top of that, good books are stimulating. Books about camping will excite your boys about camping. True, the best way to learn about camping is to camp; but the second best way is to read about it. And a book will help your boys to remember how to pack that pack, roll up that tent, etc. A book from your outpost library will help your boys learn.

But, why an outpost library? After all, that's what we pay taxes for! True, but an outpost library will be most accessible when you need it most—during your outpost meetings. And your outpost library will have the books you need most. It will supplement your public library—not replace it.

What about the cost? Believe it or not, you can build a good library for less than you think. Books are expensive, but if you watch for sales, and check for garage sales and used book stores, you will save a large amount! This writer has often picked up eight- or nine-dollar books for less than one dollar. And by joining a book club you can get books for both yourself and your library at good rates. But remember to count the postage into the final cost.

So, how do you set it up? The first step is to begin a card file. For that you need two sets of cards, each set in a different color (say red, for example). These are available at stationery stores, or at office supplies. Three inches by five inches is a good size. You will also need a file box to hold your cards, as well as a set of index cards.

Your red cards are for subject cards; the white ones for titles. You file them under the first letter of the word in the subject of the title (not counting "the," "a," etc.).

Here's how it works: Assume you are going to prepare America's Camping Book, by Paul Cardwell, for the file. Start with a white (title) card. On the first line, write the title of the book: America's Camping Book. Skip one line and write: By Paul Cardwell. On the bottom line write down the publisher's name (found on the title page) and the cost: Charles Scribner's Sons, \$14.95. This will help you replace the book if you need to. Now file the card under "A" for America (the title of the book).

Next, take the red (subject) card and write "Camping" on the first line. This is the subject. Skip one line and write: America's Camping Book. Skip one more line and write: By Paul Cardwell. File this card under "C" for camping.

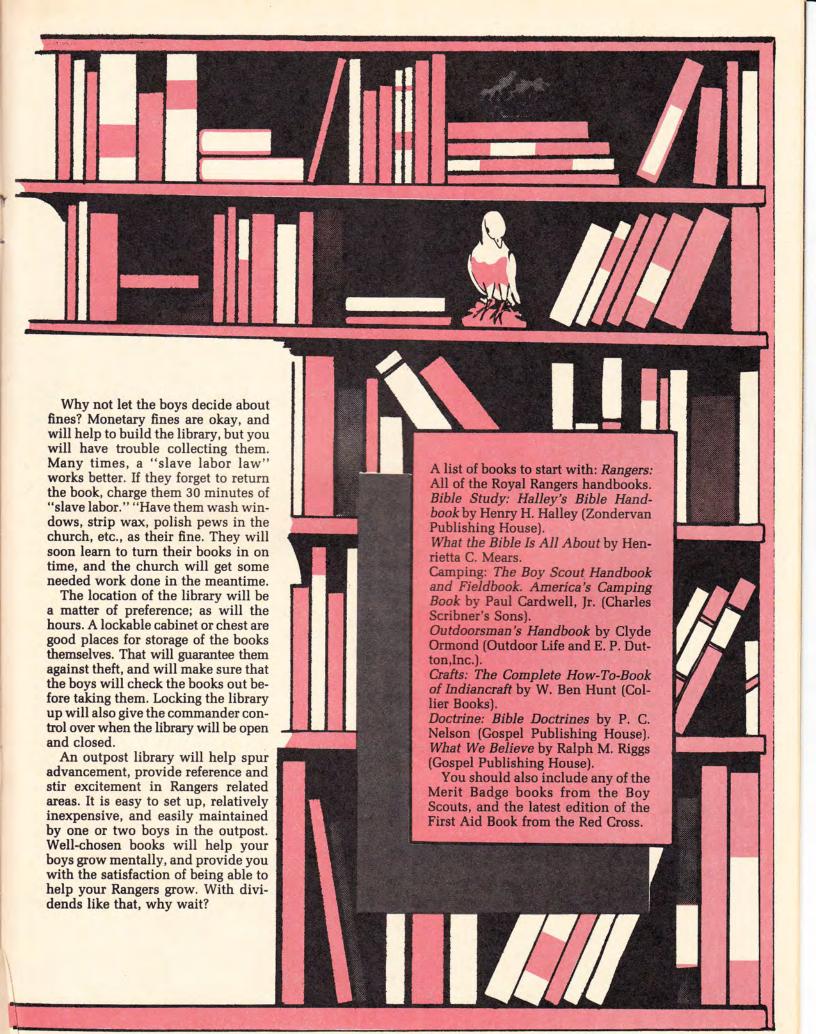
Each new book gets a new set of cards (one red, one white). This will help you to keep them in alphabetical order.

This system uses two colors to make it easy to identify subject or title cards. If you have a red card, you know it is a subject card. If it is white, you know it is a title card. This helps if you need a book on camping, but don't know the title—just look at the red subject card for camping. If you need a specific title, look for the white card.

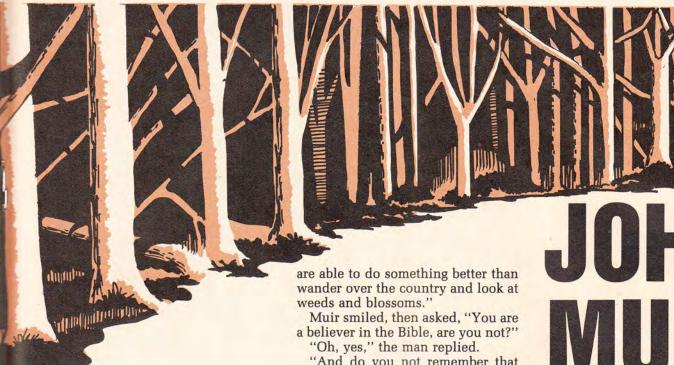
There are no author cards in this system. You probably will not have a large enough library to need one. If you like, arrange your books on the shelf by author. This will serve the same purpose as author cards, and it will help you locate books easier.

This system has been designed so as to allow one of your Rangers to take care of it. It is easy to maintain, has no numbers, no difficult processing and very little writing (seven lines total per book). Appoint an outpost librarian, give him the books, cards and a file box, and let him go (after you have explained the system to him, of course!). He should be able to handle it with ease.

As for the actual checking out process, you can obtain date due slips and cards from the Gospel Publishing House. These are reasonably priced and easy to use. However, a simpler technique would be to get a spiral notebook, put the date at the top of the page and list who borrowed which books on the page. If you just check the books out for one week, you can easily tell who hasn't returned their books. A good rule to follow would be to check out only one book per boy, and not allow him to check out another book until he has returned the first.







spent helping his father on their farm. But he was also an inventor, and people thought he would become famous in that field. At the Wisconsin State Agricultural Fair in Madison in 1860, some of his inventions won him awards. He attended the University of Wisconsin to study the sciences, but on his days off, he tramped through the wilds.

Finally, he guit school and worked for a carriage maker in Indianapolis. One day a file slipped out of his hand and cut his right eye. The injury was so great that he lost sight in both eyes for a time. His greatest fear was that he would be blind and never be able to see the wilderness world again. He decided that if he ever regained his eyesight, he would spend his time "studying the inventions of God."

His eyesight was slowly restored and he remembered his promise. He kept it by walking through the forest wildernesses of Appalachian and the South.

In his book, A Thousand Mile Walk to the Gulf, he tells of meeting a backwoodsman who said, "You look like a strong-minded man, and surely you

"And do you not remember that Christ told His disciples to 'consider the lilies and how they grow'? Now, whose advice am I to take, yours or Christ's?"

The backwoodsman knew the wisdom of that reply, so he said no more, and John Muir walked on.

John Muir, an enthusiastic naturalist, appreciated the world God had created. He loved nature and enjoyed everything about it—the animals, glaciers, plants, trees, birds, fish, oceans, mountains—even its storms and avalanches.

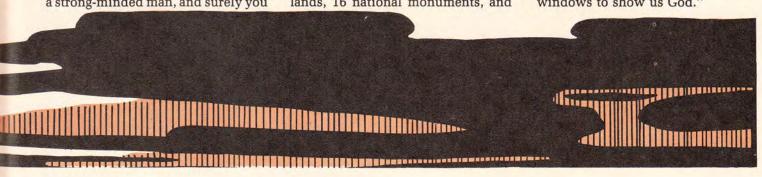
He spent his life studying nature firsthand, and then he wrote about how wilderness areas are essential to all of us. He knew that all living things were created to be interdependent on each other. If it had not been for John Muir, many of our vast and beautiful wildlands might well have been destroyed to make way for industrial and residential development. It was his work that convinced many important people to work for the conservation of wilderness areas and to keep them unspoiled.

Because of his work, the United States now has five national parklands, 16 national monuments, and

by Betty Lou Mell

148 million acres of unspoiled national forest. Some parks he helped establish are Yosemite, Sequoia, King's Canyon, Rainier, and the Petrified Forest, not to mention the most famous of them all, the Grand Canyon. John Muir is known as the Father of Yosemite National Park and was the founder and first president of the Sierra Club. He also advised presidents and foreign heads of state, working tirelessly to educate them to the importance of keeping progress from pushing wilderness areas aside. Because of his work, we are still able to enjoy many natural areas that other men would thoughtlessly have ruined.

John Muir died in 1914, but because of his life's work, we can still visit many of his favorite areas. When we do, it may help us appreciate them even more if we keep John Muir's words in mind: "Oh, these vast, calm measureless mountain days, in whose light everything seems equally divine, opening a thousand windows to show us God."opening a thousand windows to show us God."



TALES FROM A STORM

Johnny Lester

During the last 100 years, over 100,000 photographs have been taken of the heavens through a large telescope at the Royal Greenwich Observatory in England. Many of these photos have appeared in encyclopedias, textbooks, and other publications around the world.

It was in the news recently that a common housefly has halted the telescope's astronomical services. Somehow, the fly managed to get into the telescope's long tube through the eyepiece, became entangled, and broke the cross hairs. The cross hairs are used to align the telescope so that stars and planets will be centered precisely in the field of view.

The Scriptures tell us, dead flies can make a whole bottle of perfume stink (Ecces. 10:1), and one fly can also tear up an entire telescope.

Repairing those cross hairs is not easy. They are made of delicate strands of silk from a spider's web, and no one seems to know how to attach new cross hairs.

Additionally, there's the problem of locating the right kind of silk strands for cross hairs. All spiders have at least three different kinds of silk glands. Each gland will produce a certain type of silk for a particular purpose. Consequently, the silk threads will vary in texture, thickness, and stickiness.

When conditions are right, a spider will produce thin silk strands of even thickness that would be just right for cross hairs. But no one at the observatory seems to know what these specific conditions are, nor how to select the appropriate strands from a suitable web.

Using something other than spider's web for the cross hairs won't work either. One astronomer tried hair from his own head, but it was too thick. Under the viewfinder, human hair looks like telephone poles. Even super thin nylon will not work because it absorbs moisture and swells.



10 WAYS ROYAL RANGERS CAN HELP CLEAN UP



 Write a crossword puzzle together using ecology as a them.



 Help your Royal Rangers create a "newspaper" on land and resource stewardship for other children in the church and neighborhood.



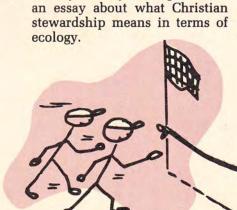
 Organize a community-wide clean-up drive.



2. Organize a volunteer clean-up day at your church.

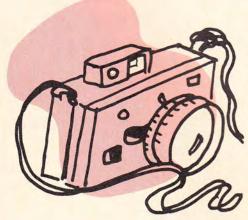


Recycle aluminum cans or newspapers and donate the proceeds to a project that benefits public lands and resources.

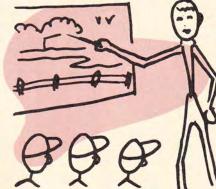


8. Have your Royal Rangers write

 Organize a race or contest to benefit a local public area, wildlife preserve, or cultural resource.



 Sponsor a photo contest and ask your Royal Rangers and others in the church to submit pictures showing what ecology means to them.

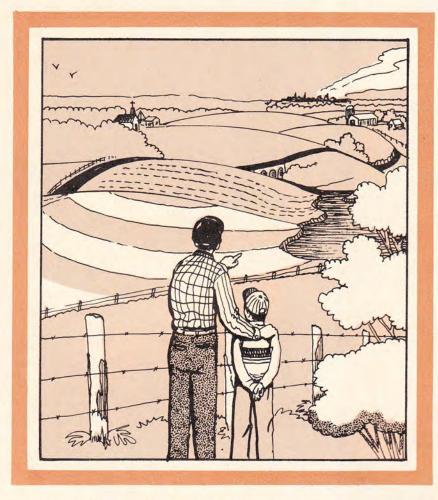


 Invite a representative from a volunteer group or land management agency to speak to your Royal Rangers outpost.



 Take your Royal Rangers on a field trip to a local national park or wildlife area.

EARTH STEWARDS



Over a period of three to four weeks ask some other questions and choose some projects which will help the boys discover some ways they can act as good stewards in the territory between home, church, school, and play activities.

Start by assigning or letting each boy choose a word that has some relationship to this topic. For example: erosion, conservation, cultivation, extinction, irrigation, strip mining, pollution, technology, famine, genetic engineering, hazardous waste, biodegradable. Then explain that he can design a project around his personal term. He can decide to explore the word in its past or present mean-

ing and project a picture for the future from what he has learned. He can give an oral report to the outpost; he can collect objects, label and display them; he can create an art expression (pictures, cartoon, video, etc.); he can assemble a scrapbook using pictures and clippings; he can tape an interview; he can survey eating places to find out which use recyclable packaging. Help each boy decide but try to encourage his own ideas.

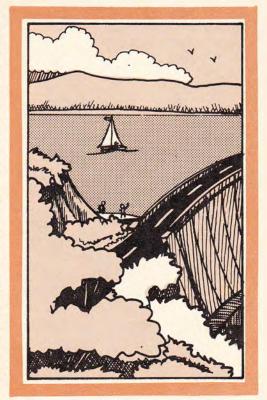
Provide some materials for them to get started and continue during meetings but also suggest ways for them to find what they need at home or school. Science and history textbooks, newspapers and many magazines will give them much help. Make display spaces available in your classrooms (even if they need to be portable ones) so that the progress of the boys from one week to the next is clearly shown. Give clear directions as to when the projects need to be done.

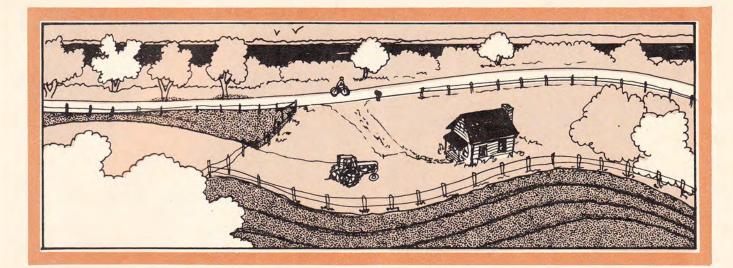
by Lois Johansson

Ask your boys what a "steward" is and you may hear, "a man flight attendant," "a waiter at a fancy restaurant," or you may have no responses at all. You will probably have the wonderful opportunity of introducing them to a new word and a biblical idea at the same time.

A steward is a "head servant." When God created the heavens and the earth. He placed Adam here and appointed him the steward of what He had made. We who live now have inherited that responsibility. As an outpost commander you can have a part in passing that privilege on to the next generation through the Royal Ranger program.

Our stewardship of the earth includes using it in ways that replenish, rather than diminish, it. Begin by helping the boys identify those things which are our natural resources—soil, water, air, minerals, plant and wildlife. Together, name some local expressions of those resources: Is the soil where you live farmed or mined? What bodies of water are nearby? Is the area known for certain kinds of trees or grass? What animals do you see running free from your car or house?





Do your own homework, too. What environmental agencies or related institutions are close enough for a field trip (science and technology museums, agricultural test fields, zoos, fish hatcheries, etc.)?

Brainstorm with your group about what they could do as an outpost to show good stewardship to the community. Could you recycle cans or newspapers or clean up trash along the highway? Could you dramatize the stewardship value of glass and

paper over plastic?

In your outpost devotions, show the boys from scripture that God did not always act immediately for His people but often expected them to be patient and obedient as He worked out His will for them. The pace of our world—even the boys' daily schedules—affects us so that we want things immediately. Good stewards act in the present to preserve the future of the earth, for as long as God chooses to use it as our home.

(Additional materials may be obtained free or at nominal cost from The Association of Conservation Districts (NACD), P.O. Box 855, League City, Texas 77573-0855. Ask for posters, placemats, puzzles, poetry, bookmarks; a 16-page reference booklet is .75.)

CONSIDER OUR FUTURE

God's children were given the rare, virgin earth, In glorious splendor from its moment of birth. Given to us to cultivate and treasure, In His judgement of our true measure.

He trusted His people to guard and protect, To watch over His gift without neglect. To be guardians of the land and sea And pass the torch through history.

Yet around the world spirits do soar, And quiet whispers become the hopeful roar. That the land will repair, flourish and bloom And save itself from untimely doom.

Modern people understand conservation, Educating and guiding to help every nation. To repair the damage before it's too late And this land is condemned to an ungodly fate.

We must continue to sweat and toil, To grow the trees, revitalize the soil. If life can be handed down to each one This task must be carried forth and done.

Consider our future . . . Consider it well.

FALL 1988 L13



ASTRONOMY

 Identify seven different constellations in the night sky. Tell the stories of their names. Explain why stars seem to twinkle.

Commanders, this could be the basis of an interesting outpost activity. Take the whole outpost out of town to a dark vantage point and sharpen the boys' stargazing skills.

HAVE YOUR WHOLE OUTPOST EARN THESE FEATURED AWARDS TOGETHER



 Explain what is meant by a "light year." Give the distance in light years to the nearest star and estimate the distance to the farthest galaxy.

Get a local science teacher or astronomer to talk to your outpost. Encourage him or her to bring a slide show or use other visual aids.





 Explain the difference between planets, satellites, meteorites, stars, and galaxies.

Show either a film on astronomy from your local library or a video-cassette program such as the Cosmos series, available at many video-rental stores.

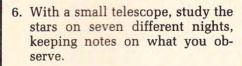
3. Learn the names and sizes of the planets in our solar system. Draw a chart showing the differences in sizes.

Have the boys make large charts with poster paint and a large roll of craft paper. These could then be hung in the outpost meeting room. Also, have the boys design a banner for the church sanctuary that would illustrate earth's position in the universe. Or, have them make a map of the solar system which includes their own address, hometown, planet, planetary neighbors, solar system, galaxy, and the universe.



5. Visit an observatory or planetarium, or draw a star map showing the major constellations.

You can make a star map several ways. Purchase a large number of glow-in-the-dark stick-up stars. Have the outpost carefully plot the night sky on the outpost meeting room walls or ceiling. Turn out the lights and have your own planetarium. Another way to make a star map is to mark the pattern of the major constellations on the church lawn. Then place votive candles in plastic cups on your markings and have a constellation show at night, complete with twinkling stars.

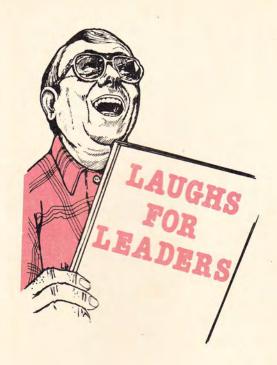




Local astronomy clubs love to show off their "stuff." Invite some star buffs to bring their equipment to an outpost meeting.

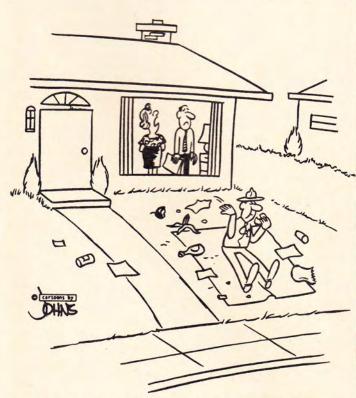


7. Give three Scripture references regarding stars. "Show the way by basing an outpost devotional on the starry firmament."

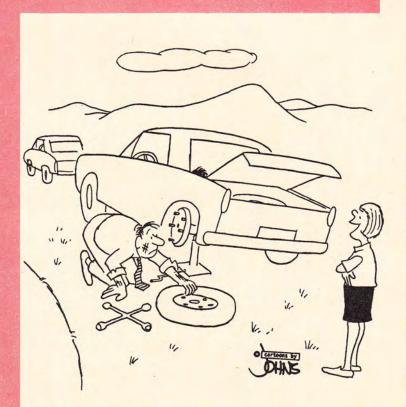




"I GOT ON THE SCHOOL BUS BY MISTAKE."

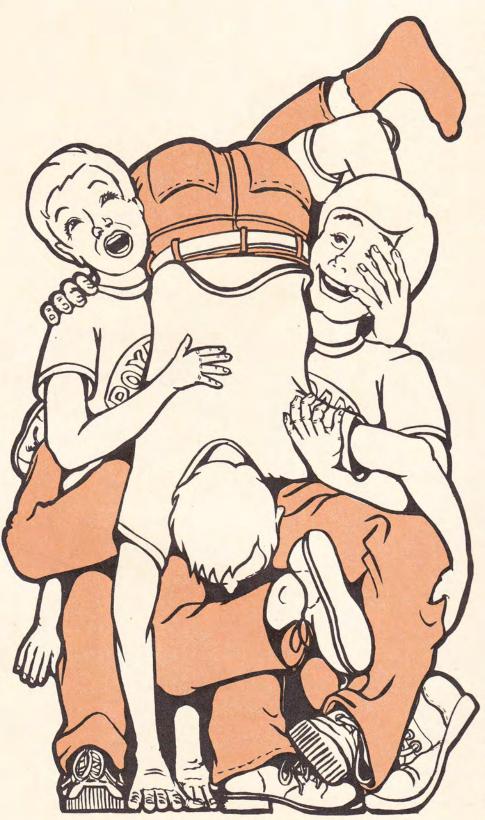


" ISUT THAT THE RANGER FROM THE PARK THAT WE CAMPED IN LAST WEEKEND?"



" DON'T ROCK THE CAR TOO MUCH - YOU'LL WAKE MY HUSBAND "

THE HUMAN MACHINE



EQUIP-MENT: PROBLEM: Your bodies and a marked off area.

To get everyone in the group from behind the starting line to completely across the other line. Your group may only use ___hands and ____feet touching the floor to propel your mass. You must all be connected in some way.

RULES:

You may use any method you wish to solve the problem providing:

1. Everyone in the group must partic-

2. If, anytime before the last person in your group crosses the finish line, more than the acceptable number of hands and feet (or any other part of the body) touch the ground, you must start over again.

3. You must provide for the safety of all members in your group.

TABLE: 8 boys = 4 feet & 6-8hands

9 boys = 4 feet & 8-10

hands or 6 feet & 2-4 hands

10 boys = 6 feet & 6 hands

11 boys = 6 feet & 6-

8 hands

12 boys = 8 feet & 4-6 hands

This problem requires an intellectual process to figure it out. Carrying other boys 15-20 feet may be hard physical labor, but it provides an opportunity for closeness.

The human machine game is especially convenient because it requires no special equipment.



Close-up of cockpit shows the rivet details on this FW-190 German fighter plane from World War II.

Robert Johnson, a well-known photographer, has flown radio-controlled planes for 15 years. He belongs to a club in southwest Missouri which flies planes regularly. They call themselves the "Hawks of Springfield." The 60 members gather on evenings and weekends to fly their planes at the club's own 37-acre airfield, which includes a 300-foot runway.

The Hawks don't enter their planes in contests at all, because the club is mainly directed at sport flying. Johnson and his friends make their planes do aerobatics.

"My plane can do anything a real plane can do," says Johnson. "Snap rolls, loops, stall turns, inverted eights, anything." He grins. "I'm still working on my rolling eights, though."

Johnson's plane is a silver, black, and red customized biplane. With the joysticks and buttons, Johnson has total control over the direction, height, angle, and speed of his plane.

Other high-performance planes may even have controllable bomb



The pilot uses his flight box, containing a battery, fuel, and tools, to prepare his plane for take-off.

Scale replica of a German Stuka divebomber.



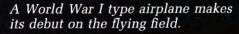
drops and smoke. The most advanced models are jets. Their ducted fans can speed the planes up to 200 miles per hour.

A boy interested in flying radiocontrolled airplanes can get started with determination, help from experienced modellers, and extra spending money.

First, Johnson suggests, "go to a flying field, observe, ask questions, and listen to the responses." That way, a boy can tell if he really wants to become involved.

The next step is purchasing a trainer plane, motor, propellers, a starter, a battery, and extras, which may cost about \$500. After that, each new plane only runs around \$250.

The Hawks of Springfield help new fliers by teaching them how to control a miniature airplane. The club designates teachers who take turns working with new members. The instructors check out each plane, let the new fliers have stick time, and ease the beginners from high-altitude flying, where not much control is required, to flying solo near the ground, where precision is important. The





A modeller cleans the oil off his Taylor Cub. He built this scale model in three weeks!

trainees soon earn their "pilot's club" patches by showing their skill at take-

offs and landings.

Experienced modellers and fliers often decide to build their own miniature airplanes. Some of these planes are home-designed, while others are exact replicas of historical airplanes.

The scale models are so precise that a builder may even use a tiny hypodermic needle to make "rivets" in his plane.

Building a plane is also less expensive, although it may take from five months to one year to complete. The process is satisfying even if the model crashes on its first flight.

For Robert Johnson and other radio-controlled airplane fliers—auto mechanics, professors, salesmen—the joy of radio-controlled planes is sometimes hard to explain. "We like the historical aspect of it," Johnson comments. As kids, they also loved aviation and adventure. Flying radio-controlled planes is a chance to live out that dream.



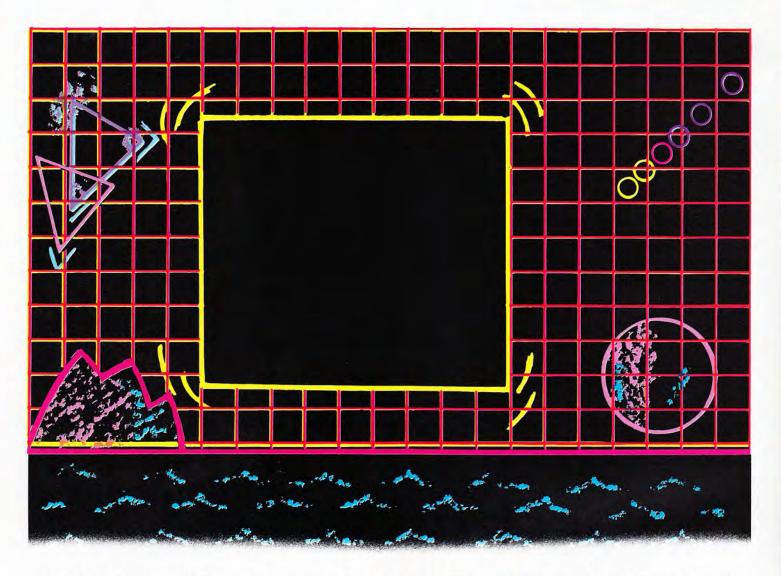


A brand new pilot taxis his trainer plane.

Crash! A plane is laid out FAA-style to determine the cause of the crash. In this case, it was equipment failure. The pilot had to dig out part of the plane from the ground with a crowbar.



The dummy pilot inside this large biplane awaits his owner for take-off.



SOMETHING

by B. L. Mell

As Dave wandered down the street and approached the Arcade Palace, he heard the familiar music and the buzz of arcade machines. He rammed his fists into his pockets and stepped through the open door. The games didn't interest him today. Still, he walked over to Al Caretti, who was racking up a score. When the game was over, Dave spoke up. "What's new?" He asked.

"Ah," Al moaned. "Look at that stupid game! I was robbed!" He slammed the machine with his hand and gave it another quarter.

Dave glanced around but a feeling of loneliness hung over him like a cloud. He turned back toward the door. It was a nice day, so Dave just started walking. Before he knew it, he stood on Baylor's street.

Suddenly, he smiled and hurried to Baylor's home. He ran onto the porch and tapped at the side window. In a minute, the curtains parted and Baylor looked out. "Come on in," he said, smiling.

Dave opened the screen door and headed for Baylor's room. "Hi," Dave said with a grin. "How's it going?"

"Good," Baylor smiled. "I'm glad to see you."

Dave walked around the wheelchair and plopped on the bed as Baylor closed the bedroom door.

"Where are your folks?" Dave asked.

MORE

"Shopping and running errands," Baylor said as he glanced at his watch. "But they'll be home soon. I was going to watch a TV show about whales. Would you like to watch it? If you don't, I won't turn it on."

Dave shrugged and settled against the pillows as Baylor turn on the TV set. As the program began, Dave suddenly leaned forward, pointing. "Look! Do you believe that? They're shooting harpoons at baby whales!"

The boys watched closely as adult whales tried to guard the herd. The program's narrator told about whale hunters and efforts to save the whales. At the end of the program, an address was given to which people could write to protest the killing of whales.

"I'm going to write a letter," Baylor announced.

"Yeah? Do you think anyone reads them?" asked Dave.

"Sure. If enough people write, even senators pay attention," Baylor said. "I wrote to Senator Felding in Gulligan's Settlement, and he wrote back thanking me. Later he even sent me a report of a committee's findings. Then when they were going to build a bar only a few blocks from the elementary school on Route 19, I wrote a letter and got all kinds of signatures protesting."

"I remember that," Dave nodded. "They decided against it."

"Because they got a lot of protests," Baylor replied.

"Why do you do it?" Dave asked. "A lot of people wouldn't take the time to do stuff like that."

Baylor shrugged, "I don't know. I guess because God gives us the choice to make up our own minds about things. I mean, it's not like we're stuck in a groove somewhere like a broken record. We can decide to do something about injustice, or we can decide not to. I decided I wanted to, that's all."

Dave's face flushed. He realized again that Baylor had continued to grow, even in a wheelchair. And Dave felt as though he had stood still. He felt bored and useless. He wasn't sure who was more handicapped—him or Baylor.

"Want to help me write a letter?"
Baylor asked as he turned off the TV
set with a grin.

Dave laughed. "I've never written a letter about anything important."

Baylor shurgged. "You just tell your opinion."

Dave looked at his friend, then grinned. "Okay," he replied.

They worked over the letter until the wording sounded just right to them both. Reading it, Dave felt a growing sense of pride. He grinned and said, "Thanks Baylor."

"For what?"

"For letting me help."

There was a knock on Baylor's door and his mother poked a smiling face around the frame. "I thought I heard voices. Nice to see you, Dave. Can I get you boys something?" she asked. "No, thanks, Mrs. Grimm," Dave said as he looked at his watch. "Oh, boy! I had better get home." He reached for his jacket, then spun around. "I know what! How about if I take the letter and make some copies at the library. Then, after church tomorrow, you and I can go out together and get signatures from others who want to protest the killing!"

"You mean it?" Baylor asked in surprise.

Dave nodded. "Sure I do. I'll be here about 2:00."

Dave hurried along the sidewalk with a new spring in his step. It was hard to understand. He could have spent the whole afternoon in the Arcade surrounded by people and flashy games. But spending time with Baylor had really been worthwhile.

Ahead of him, Al Caretti was coming along the sidewalk. "What have you been up to?" Al asked.

"I stopped over and saw Baylor this afternoon," Dave replied.

"I played games at the Arcade," Al replied as he headed toward his apartment building. "I'm really beat. See you later, Dave!"

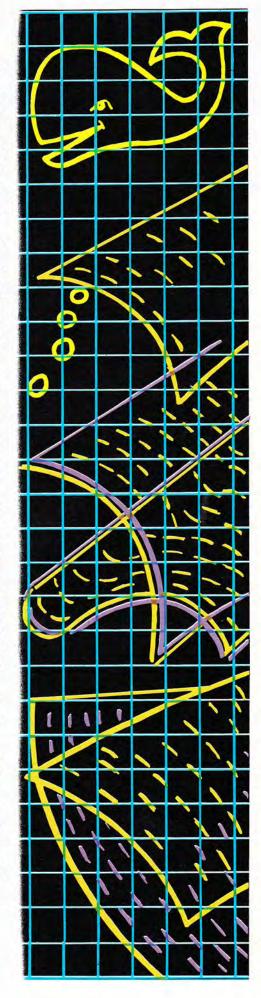
"Okay," Dave called with a wave. Dave continued toward the library, smiling. He didn't feel beat at all—he felt good. Maybe that was the secret—using your energy productively. Using his brain to write the letter had made him feel good. Yeah, he had chosen between playing games all day and thinking about something important. That was it! Choosing! He had the ability to choose. He didn't have to do what all the other guys did. God gave him choices!

Dave ran up the steps of the library. Quickly, he inserted the proper coins, laid the letter face down on the copy machine, and pushed the button.

The first copy slid from the machine. He lifted it with a smile and turned to the librarian. "Would you care to sign this?" he asked as he gave her the copy.

She raised her eyebrows and peered through her glasses, reading the letter carefully. After a minute, she looked up and nodded, then reached for a pen.

Dave smiled. Inside, he felt really, really good.



TALES OF THE NIGHT SKY

Cassiopeia Indian legend

When I hear the word "astronomer," I always imagine a man with a telescope, surrounded by wonderful science fiction machines and computerized star charts in a high-tech observatory. But an astronomer is truly anyone who knows his way around the heavens. Expensive toys are not necessary to enjoy and study

the book of the night sky.

Though the ancient star-gazers had no telescopes, they managed to discover a remarkable number of facts. Long before the birth of Christ, they realized that the earth is a round globe instead of being flat like a frisbee. They measured the earth's size, drew good star maps, and became aware of the "wandering stars," or planets, which were named Mercury, Venus, Mars, Jupiter, and Saturn in honor of imaginary gods.

The old astronomers knew that the moon is our nearest neighbor in space, and they knew the sequence of its changes and shapes. They also saw that the stars seem to form patterns. Men from ancient cultures read into these star groups or constellations fables and stories of animals, everyday objects, or great heroes. The

sky is a big art gallery!

The picture story of the constellation we call Cassiopeia (kass-ee-oh-PEE-ah) comes from a tribe of Indians who once lived in Washington State. They called themselves the Quillayute (KWILL-ay-yute). Before the white man arrived, life was good for the Quillayute. They lived along the Pacific beaches and collected clams, mussels, and crabs to eat.

In the smoky Quillayute lodges the legend was often told of five brothers who lived near the sea. One day, four of the brothers paddled their dugout canoe inland, up a great river, to hunt the giant elk.

When the brothers arrived at the



best hunting grounds, they met a strange man. He had wild hair, flaming eyes, and he snorted when he spoke. He demanded that they trade their good stone point arrows for his, made of lighter bone. The man's powerful appearance frightened the brothers, and they agreed to trade. The man suddenly transformed himself into a giant elk. He charged and killed the brothers. With their useless arrows, they had no defense.

A few days later, the youngest brother began to worry. He climbed into his dugout canoe and journeyed up the mist-covered river in search of his brothers. He discovered their canoe on the shore. He followed a trail until he encountered the same wild man. "Trade your arrows for mine," demanded the elk-man. But the younger brother refused. The great spirit warned him and protected him from harm. The elk-man walked away but then reappeared as a bellowing elk. The youngest brother shot four straight arrows, one for each of his slain brothers. He then wrestled the

The youngest brother skinned the giant creature and tried to tan the hide. But the skin was so huge, he could find no place to stretch it. Instead, he threw the hide into the air, where it was pinned to the sky by the

magical beast to the ground and killed

him.

This legend, of course, was the product of primitive superstition. However if you look closely, you can see the elk's skin in the constellation Cassiopeia. The brightest stars of Cassiopeia form a large "W." At this time of the year, the "W" is in the northeastern sky. The bright stars which form the "W" are the stakes which supposedly hold the hide for stretching.



Tommy: "Hey, Johnny, I need a sentence that has the word 'officiate' in it."

Johnny: "OK. How about, 'My uncle was sick because of officiate'?" (fish he ate)

Sara: "Did you hear about the boy who dreamed he was a muffler?"

Kristin: "Yes! When he woke up, he was exhausted!"

Kit: "Must you make so much noise?"

Andy: "How can I play tennis without a racket?"

Tilly: "What should you do if you can't sleep?"

Milly: "Move closer to the edge of the bed so you can drop off."

Ozzie: "Did you hear about the doctor doll?"

Chet: "No."

Ozzie: "He operated on batteries."

City Person: "Look at that bunch of cows."

Rancher: "Not bunch—herd." City Person: "Heard what?" Rancher: "Herd of cows."

City Person: "Sure, I've heard of cows."

Rancher: "No, a cow herd."

City Person: "Why should I care what a cow heard?"

Beth: "Which travels faster, heat or cold?"

Ann: "I thought they both traveled at the same rate."

Beth: "No, heat travels faster." Ann: "How do you know?"

Beth: "Because you can always catch a cold."

Milkman: "Are you sure you want 54 quarts of milk?"

Lady: "Yes, my doctor told me to take a bath in milk."

Milkman: "Do you want it pasteurized?"

Lady: "No, just up to my chin."

Dad: "Son, why was your January report card so bad?"

Son: "You know how it is, Dad. Things are always marked down after Christmas."

Customer: "Why are these pennies in my soup?"

Waitress: "Well, you said you'd stop eating here if there wasn't some change in the meals."

Mary: "Where does a worm go in a cornfield?"

Brian: "In one ear and out the other."



" WILL YOU PEOPLE COME AND GET THIS MACHINE OF YOURS OUTA MY STORE!"

