

CIVIL AIR PATROL



UNITED STATES AIR FORCE AUXILLIARY

SAFETY OFFICER'S BRIEFING BOOK

Prepared by Douglas Tindal, LTC/CAP
01 February 2000

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FOREWORD

CIVIL AIR PATROL unit commanders must establish and maintain a viable accident prevention program within their units (CAPR 62-1). The staff Safety Officer assists the commander in preparing and presenting safety education programs (CAP Manual 20-1).

Safety Briefings should be presented at least once a month, either at unit meetings, or at scheduled safety meetings. To present an appropriate safety briefing at least twelve times a year can become very time-consuming, in terms of organizing the available material, and in preparing a summary or outline for distribution and posting. An outline should always be prepared and distributed to your audience before the briefing so that the presentation can have more impact. Remember that we retain more of what we hear if it can be reinforced visually. Additionally an outline is essential to document a given safety briefing, and to make your key points available to members who could not attend the briefing itself. The outline can be posted on the Safety Bulletin Board, or placed in a Reading File for this purpose.

Following are a number of Safety Briefing outlines which can be used just as they are, or (ideally) supplemented by your own material. Feel free to copy these pages as desired, for C.A.P. purposes. And remember that visual materials, (films, videotapes, slides, overheads, or chalkboard) will allow your audience to retain much more, much longer. A given briefing will be better received if it is in a discussion format, as compared to a straight lecture.

The author first published a safety briefing book in 1994. Since then additional material has been added. But like the first volume, this work continues to be far from complete. And the author welcomes your contributions and suggestions, so that this collection can be more helpful to all of us in promoting the safest possible Civil Air Patrol. The author can be contacted as follows: Douglas Tindal, 305 West Main Street, Washington, Iowa 52353. Telephone 319-653-2159 or FAX 319-653-5435.

01 February 00

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*This work is dedicated to the memory of **Laura E. Tindal**, T. Sgt/CAP, who died April 6, 1993, at age 15.*

WARNING

This collection has been prepared for the exclusive use of *CIVIL AIR PATROL* members, in the interest of encouraging better discussion and implementation of safety practices, and also to promote improved documentation of safety briefings. These materials are not necessarily complete, nor is any part of this book intended to be relied upon by anyone who may be making a decision that affects their own or someone else's health, safety, or well-being. Users of these materials are encouraged to utilize them for ideas, and then to do their own independent research and modification to satisfy individual needs. All users of this collection should always consult their own physician with respect to specific medical advice.

DUTIES OF SAFETY OFFICER

The Civil Air Patrol **Commanders Guide** (CAPP 50-1) lists the following duties for the Safety Officer:

1. Assist and advise the commander in developing the overall accident prevention program.
2. Direct safety inspections and surveys of the safety function associated with hazardous areas and operations.
3. Direct accident investigations and prepare safety reports.
4. Plan safety training programs to acquaint all personnel with the responsibility for applying safe practices.
5. Make supervisory staff visits to subordinate units, and assist units in solving safety problems.
6. Review and analyze accident reports for findings, trends, and other accident prevention information.
7. Prepare training guides, articles, and literature, and arrange for publicity of safety program through such media as bulletin boards, newspapers and billboards.
8. Conduct safety studies and recommend corrective action.
9. Be familiar with CAP directives in the 62 series.

But remember that safety is everyone's job.

**CIVIL AIR PATROL
UNITED STATES AIR FORCE AUXILIARY
Squadron No. _____**

SAFETY MEETING MINUTES

TOPIC: _____

PRESENTER: _____

DATE: _____

SAFETY OFFICER or
UNIT COMMANDER signature: _____

The following members were in attendance at the safety briefing:.

NAME	CAP SERIAL. NO.	GRADE
1		
2		
3		
4		
5		
6		
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SAFETY BRIEFING

RELATIONSHIP ABUSE

Because abuse, both physical and emotional, within relationships is much too common, and because it can have serious consequences for our Civil Air Patrol members, the following is a list of characteristics often associated with abuse and abusers. Having a more complete understanding of this unfortunate phenomenon can also make us better friends and confidantes to victims in and out of C.A.P. Use this list as a discussion tool.

1. Verbal abuse. For example waking victim up to say cruel things.
2. Abuser has sudden mood swings, and unpredictable behavior.
3. History of battering and other abusive behaviors.
4. Threats of violence.
5. Breaking or striking objects in fits of anger.
6. Using force during arguments--holding victim down, etc.
7. Cruelty to animals and/or children.
8. Hypersensitivity. Becoming easily upset when asked to do chores, interrupt favorite activities (TV, bull session with "the boys", etc.).
9. Blames others for all his/her problems. "It's all your fault" "
10. Controlling the victim. Keeps money, important property, time on phone, etc. under the abuser's dictatorial control.
11. Jealousy. Of victim's time with friends and family, etc.
12. Isolation. The abuser often isolates the victim, and this is usually connected to most of the above factors.

Many abusers grew up in abusive families, where they learned these destructive responses first-hand. Abusers need help too. If you observe these responses in an acquaintance consider suggesting a counselor, in an appropriate manner. And if you recognize an abuse victim (or you are one) then make a call to a crisis center to get help. Untreated abusers just never change.

Discuss how abusive relationships can affect Civil Air Patrol activities.

SAFETY BRIEFING

ALCOHOL

Alcohol is an EQUAL OPPORTUNITY TROUBLEMAKER. Aside from obeying the law here are a number of reasons that you should take drinking seriously. Use this list as a framework for open discussion.

1. Highway death and injury.
2. Drowning.
3. Violence and propensity to commit crimes.
4. Burns.
5. Unwanted Pregnancy.
6. Sexually transmitted diseases.
7. Alcoholism.

SAFETY BRIEFING

ANHYDROUS AMMONIA

A common fertilizer on modern farms is anhydrous ammonia, which is popular because it is an inexpensive and very effective form of nitrogen, a nutrient that causes many farm crops to grow much more vigorously. Unfortunately this form of nitrogen (NH_3) is extremely volatile and hazardous. Typically one will see anhydrous ammonia being applied in the late spring (though fall application is common too), from large white tanks (very similar in appearance to LP gas fuel tanks) that are either pulled behind the applicator tractor, or are parked at the edge of a field as "nurse" or storage tanks. When this form of fertilizer is applied it is knifed into the ground, and a bit of "steam" appears to emerge into the air behind the applicator knives. The NH_3 is in the tanks under high pressure, and becomes a gas at normal atmospheric pressures, which is what causes the appearance of "steam."

The anhydrous ammonia can escape suddenly and dangerously if a break in a rubber hose or valve occurs, or when there is a handling error. A break can result in a spray of caustic chemical more forceful than if it were from a fire hydrant.

NH_3 is a *hygroscopic* compound, which means that it aggressively seeks out and combines quickly with water, absorbing it. If this substance hits your body it will almost instantly dry out your eyes, lungs, and skin which destroys tissue much like a burn. Most deaths from NH_3 are caused by severe damage to the throat and lungs from a direct blast to the face. The throat can swell shut, and cause suffocation. The eyes can be badly burned, resulting in blindness. The chemical freezes on contact at room temperature, and "burns" much more severely than dry ice.

If you must be in the vicinity of anhydrous ammonia, the best ways to reduce risk of serious injury are to wear protective equipment and to know what to do in an emergency. Ventless goggles or full-face shield, plus rubber gloves with a long cuff and heavy clothing covering the rest of the body are necessary. NEVER wear contact lenses. At least 5 gallons of water must be accessible within several seconds. Prompt flushing with water for 15 minutes after exposure is a must. If water is not available any non-toxic liquid (even cold coffee) should be used to flush the affected tissues. And cold mildly acidic liquids like orange juice can help neutralize the NH_3 . Do not apply oils or ointments. DO seek professional medical help quickly.

Rescuers must be equipped with self-contained breathing gear and protective clothing to minimize risk to themselves. Can you describe a hypothetical event that might involve C.A.P. personnel being in the vicinity of an anhydrous ammonia leak? And what should they do about it?

SAFETY BRIEFING

AVOID RISK of ASSAULT

Adults and young people need to be aware of certain risk factors that can lead to personal assault. Following are some suggestions that you can follow to minimize your risk of being a victim.

IN VEHICLES:

1. Your car needs to be in good working order, and have ample fuel.
2. As you return to your car have your key ready, get in promptly, and lock all doors. Do not open windows. Before getting back into your car check the back seat area for someone hiding there.
3. Park only in well-lighted areas, as close to areas frequented by many people as you can.
4. If your car breaks down on the road, tie a white rag on the door handle or antenna. Then stay in your locked car until police arrive.

OUT OF DOORS:

1. Avoid deserted areas, and walk close to the curb, facing oncoming traffic.
2. Stay in well-lighted areas.
3. Do not walk through a group of men. Cross the street and go around.
4. Never hitchhike, or pick up hitchhikers.
5. As you approach your front door have your key ready and enter promptly.
6. Avoid overloading with packages. Keep yourself as free as possible to use your arms, and to run. Don't hesitate to drop your packages and run, if you sense you are in danger.
7. Stay alert for suspicious people and activity. Stay aware of your surroundings, and especially nearby footsteps, voices, and cars that may keep passing you, or are parked in a suspicious manner.
8. If followed ring the nearest doorbell. If you need to escape and cannot get anyone to come to the door, think about breaking a window to cause the occupants to call the police. It's better to pay for a window than to search in vain for help.
9. Wear sensible clothing and shoes, so that you can run if you must.
10. If you must consume alcohol drink sensibly. When intoxicated you are a target.

IN AN ELEVATOR:

1. Take another elevator to avoid being with a lone man who looks in any way suspicious.
2. Stand near the control buttons. If someone bothers you push as many as you can, including the alarm button.
3. Pay attention to the direction the elevator is going. Do not ride down to the basement if your destination is up.

AT HOME:

1. Light your entrances.
2. Keep doors and windows locked with effective locks. Do not rely on chain locks. Install a usable peephole, and use it before opening your door.
3. When you move into a new dwelling, have all locks changed.
4. Never tell anyone, except those you absolutely trust, that you live alone.
5. Keep shades and drapes pulled at night.
6. Never hide your key under the doormat, or in any conventional place.
7. Use only your last name on the mailbox.
8. If you suspect someone may have broken into your dwelling, do not enter it. Call the police from the nearest telephone.

SAFETY BRIEFING

PROTECTING your BACK

A strong healthy back is essential for a good quality of life. It can be strengthened and protected by a program of sensible exercise and by avoiding careless stresses. Posture, nutrition, and sleep habits also play an important part in keeping your back strong and healthy. For example, if you sleep on your side, bend your knees upward to reduce the strain on your back. However the following points focus on proper lifting.

- ❑ Before exerting yourself complete some warm-up exercises. Include gentle stretching movements.
- ❑ Wear appropriate footwear. A sudden slip or trip can strain your back, or cause injury from the impact of a fall.
- ❑ Size up the intended load, and get help if it looks beyond your safe capability.
- ❑ Check for nails, splinters, rough strapping or edges.
- ❑ Make sure your footing is secure.
- ❑ Make sure your route is free of hazards.
- ❑ Keep your back straight, with no curving or slouching.
- ❑ Center you body over your feet, get a good grip, and pull the object close to you.
- ❑ Move your feet if you need to turn with the load. Do NOT twist your back.
- ❑ If the load requires more than one person, work together as a team. Let one person direct the work for all. Make sure the other person has a firm grip before you hand off a load.
- ❑ Do all the work with your arms and legs, not your back.

SAFETY BRIEFING

ORGANIZE YOUR BACKPACK

On C.A.P. ground exercises a sturdy, light backpack is essential. But a poorly packed and unorganized pack will leave you frustrated, unnecessarily tired, and less prepared to complete the mission. Following are some ideas to alleviate problems.

1. Put the heaviest items at the top of the pack, if you will be walking on smooth trails, where an upright stance is more important than a top-heavy pack. Put heavy items in the middle while hiking over rougher terrain, since balance is more important than comfort. Packing a sleeping bag underneath the heavy items will fill the bottom with something light and soft.
2. Women should organize their packs somewhat differently than men do. Women generally have a lower center of gravity than men do, and should therefore pack their heaviest items slightly lower than where a man would.
3. Keep the items that you will use often close at hand. These would include: compass, map, sunglasses, sunscreen, flashlight, and rain gear.
4. Messy items like fuel bottles should be packed in side pockets. Such items should be put into plastic "zip-lock" bags before they are put into the pack.
5. Make sure all items are secure so they do not bounce around. And the pack itself must be adjusted to you, to minimize chafing and bouncing around as you walk.

SAFETY BRIEFING

EMERGENCY PACK

In Civil Air Patrol we never know when we might receive a telephone call to promptly begin a mission. Pilots should have their charts, plotters, flight computer, gridded chart, flashlight, etc. ready in a brief case or flight bag. But ground team members also need an emergency pack already prepared and ready to pick up at a moment's notice, which will fill the member's basic needs in the field. There usually isn't adequate time just before a real SAR or DR to think about what might be needed, and then locate these items in an organized fashion. The following list may prove helpful as a starting point, in filling your ground team emergency pack, so that it is ready when you need it.

ITEM	ITEM
Canteen (fill when called for mission)	Knife
First Aid Kit	Extra socks, underwear
Compass	String, cord
Raincoat/poncho	Sleeping blanket
Whistle (plastic best in winter)	Toilet paper (also great for marking trails; laying out signals to aircraft)
Flashlight (store batteries in reverse)	
Matches/lighter	Fire starting devices
Rations (MRE's, dry soup, granola bars)	Survival manual
Can opener	Aspirin, Tylenol, etc.
Insect repellent/sun screen	Sterno (canned heat)
Signal mirror	Water purifier
Candle	Flares
Finger saw	Mosquito net
Hatchet	Extra batteries

SAFETY BRIEFING

BICYCLE SAFETY TIPS

More than 75 million Americans ride bicycles, and at least 900 riders are killed annually in this country. Over 640,000 riders are treated in emergency rooms for bicycle related injuries each year. The League of American Bicyclists has suggested these safety ideas for your more healthful bicycling.

1. Wear a helmet designed for bicycling every time you ride. The helmet should be approved by ANSI or SNELL. Helmets reduce the risk of brain injury by 88%. A good helmet distributes and absorbs the energy of impact.
2. Stop, look, and listen at the end of the driveway. Frequently cars and bikes collide when youngsters ride into the street from a driveway or across a driveway while riding on a sidewalk.
3. Always ride on the right side of the roadway, with traffic. Remember that motor vehicles are involved in about 90% of all bicycle fatalities.
4. Obey all traffic signs. Your bike is a vehicle and you must follow the rules of the road, just like auto drivers must.
5. Be predictable. Do not make clowning, surprising, swerving moves.
6. Always signal when you make a turn.
7. Be visible. Wear light-colored clothes and a bright helmet. At night, use reflectors and lights.
8. Leave at least three feet between you and parked cars (because a door could open suddenly), and watch for cars pulling into your path.
9. Yield the right-of-way. Let walkers go first. Keep your speed slow on paths, trails, and sidewalks. Call out to warn the next person you are going to pass.
10. Never hitch a ride with a moving car.

SAFETY BRIEFING

COMMON BITES and STINGS

Any bite or sting can lead to infection, so you must always clean the wound thoroughly. Warm water and soap is the best cleanser. Rinse the wound in clear water, and apply an antiseptic. Then cover the clean wound with a dry, sterile dressing or handkerchief. If there is increased pain or inflammation over the next couple of days you should see a doctor.

SOURCE	PREVENTION	FIRST AID	LATER TREATMENT
Dog Bite	Avoid strange dogs	Wash & dress wound	Possible stiches & anti-tetanus treatment under a doctor's care
Mosquito	Proper clothing, <not dark>. Avoid stagnant water. take antihistamine	Apply antihistamine	Avoid scratching; cream, or cold water under a doctor's care
Ants	Use insect repellent. Do not sit on grass or disturb ant nests	Apply baking soda	Same as for mosquito
Ticks	Do not sit on grass used by livestock. Avoid strange dogs & cats.	Remove tick carefully with tweezers; if it becomes embedded, use Petroleum jelly, oil, alcohol to remove remainder of tick.	Use calamine lotion; if area becomes infected see your doctor.
Lice	Do not lend or Borrow combs	Use recommended soaps and shampoo; clean clothes & bedding.	Continue treatment untill all lice and nits (eggs) have vanished.
Bee Sting	Stay away from.	Remove any embedded sting; clean wound with baking soda; use lemon juice (or vinegar for <u>wasp</u> sting, as this venom is alkali.)	See a doctor if signs of infection or if shock sets in.

SAFETY BRIEFING

BURNS

Many people die or are severely injured every day from burns. The main cause is fire. But burns also result from touching hot objects, or are caused by scalding, harsh friction (e.g. sliding down rope), electric shock, or contact with corrosive chemicals.

A burn is classified according to the depth that it reaches into the skin. The three types are: first, second, and third degree burns.

DEGREE	PART DESTROYED	CHARACTERIZED	TREATMENT
First	outer layer	hair follicles, sweat glands are intact	cover with clean, dry cloth; let heal
Second	all but deepest layer is destroyed	hair follicles & sweat glands are destroyed	medical attention
Third	skin completely destroyed	nearly pain-free due to nerve endings being destroyed	medical attention

The first treatment for every burn is to cool it off, ideally with water. In the case of chemical burns contaminated clothing must be removed at once, but you need to avoid touching it yourself. Then flood the area with water for at least 10 minutes. Burns cause the following serious problems to the body: Shock (caused by lack of body fluid--plasma), stress on heart (from blood becoming concentrated due to loss of plasma), infection (as protective layer of skin is destroyed), damage to other organs (even far from burn) due to reduced blood supply caused by shock.

- DO** remove anything that constricts burned area (e.g. rings, bracelets)
- DO** keep a burned limb elevated to reduce swelling
- DON'T** apply creams, ointments, butter, or oil to burn (causes infection)
- DON'T** attempt to pull away anything stuck to the burn
- DON'T** roll victim around on the floor or ground to extinguish flames (just apply pressure to the area with carpet, blanket,, etc. to smother flames)

**SEND FOR AMBULANCE IMMEDIATELY FOR 2nd & 3rd DEGREE BURNS
REMEMBER: C.A.P. PROHIBITS CONTACT WITH BODY FLUIDS**

SAFETY BRIEFING

SAFETY AND CHEMICALS

We are so used to living around powerful chemicals that we tend to just take them for granted. We pump gallons of gasoline into our vehicles and lawn mowers with barely a thought about the explosive potential. We use pesticides and fertilizers with scarcely a grasp of their toxic and/or volatile natures. And most of us are totally ignorant of the dangers of MIXING some of these chemicals together. Sometimes two chemicals accidentally coming into contact with one another can lead to a violent reaction.

The five broad categories of chemicals include acids, bases, reactives, inerts, and organics. If you mix an acid and a base, you can expect to get excessive heat. Mixing acids and organics or organics and oxidizers often causes fires or explosions. When mixing acid and water remember the phrase, "do what you *oughta*-pour acid into water." If you do it the other way you risk an explosion.

One way to avoid problems is to store chemicals correctly. For instance store acids only with other acids. Organics must be stored with organics, etc. Some chemicals are corrosive (like battery acid) and must be stored in special containers. Make sure that labels are intact on containers, and that all lids are tight and in place.

The Material Safety Data Sheet (MSDS) can be checked for any questionable chemical to tell you the chemical's potential for fire, explosion, and reactions with other chemicals.

When you transfer chemicals from one container to another, and when you clean up, do not mix incompatible chemicals. Read and follow directions.

Keep disposal waste streams separate. Put each different class of disposable material in a separate container, so you reduce the likelihood of incompatible chemicals coming into contact with one another.

SAFETY BRIEFING

CIGARETTES

Health care professionals (except those who are employed by the tobacco industry) are in general agreement that smoking cigarettes is associated with a wide variety of illnesses in this country. For example it is estimated that cigarette smoking causes about 30% of all cancer among American citizens. Consider and discuss your experience and reading about the various risks of smoking. Below are some possible areas of discussion, but there are bound to be more.

1. Cancer.
2. Heart disease.
3. Emphysema and other pulmonary problems.
4. Eye problems.
5. Fire risks.
6. Distraction-caused car accidents.
7. Second-hand smoke problems.
8. Economic losses (what if everyone took as many breaks during the workday?)
9. What is the minimum age in your state at which you can buy them?

SAFETY BRIEFING

COMMON SENSE and the COMMON COLD

The common cold, and its cousin the flu bug, can make life miserable for several days. These diseases are so normal and widespread that we frequently don't give prevention much thought. Though most people take for granted the fact that they probably will have to endure the symptoms a couple of times a year, it cannot do any harm for us to be more alert so we don't contract the "bug" so often, and spread it to others. Consider at least the following common sense responsibility items.

1. Eat right, get enough sleep, and wear appropriate clothing.
2. Stay home, if you can, for the first couple of days, so you are less likely to spread the "bug" to others.
3. Try medications that suppress the symptoms. This will reduce the amount of airborne droplets you send into someone else's air.
4. Use the telephone to communicate with others when you are most symptomatic, to keep from spreading your problem.
5. Do not shake hands. Your explanation will be appreciated more than your germs.
6. Wash your hands often.
7. Always cover your face when coughing or sneezing.
8. See your doctor if symptoms seem odd or last too long.

SAFETY BRIEFING

EXPOSURE and COLD

EXPOSURE: Symptoms of exposure include physical and mental slowing down; decrease in reasoning power, change in mood, slurred speech, shivering and cramp, followed by possible collapse.

FROSTBITE: If subjected to intense cold, the tissues under the skin may freeze. This is caused by the formation of tiny ice particles and disruption of the blood supply brought on by clumps of red blood cells which in turn block the vessels. Where frostbite (numb white tissue) is suspected, remove wet clothing and constricting objects (such as a ring) from the affected part. Apply a dry, protective cover after gently dabbing away any moisture. Let the frostbite area warm up gradually. **DO NOT HEAT IT IN ANYWAY.** And do not rub it.

HYPOTHERMIA: Here the victim is extremely cold all over, with a puffy skin, which is white or blue (except for a child, who looks pink). The heartbeat will be slow and weak. When hypothermia occurs keep the victim in bed in the recovery position. Cover him/her with blankets, but keep them loose. Do **NOT use hot water bottles or an electric blanket.** Excessive heat may further injure the victim. If the victim is conscious give warm drinks.

GENERAL PREVENTION: To prevent the problems caused by extreme cold, restrict the loss of body heat from the extremities (head and feet and hands) with dry, insulative clothing. On long trips take along-high energy foods (chocolate, glucose, fat) and plenty of hot beverages. Remember that both the young and the elderly are particularly vulnerable to low temperatures. **NEVER DRINK ALCOHOL,** as this causes the body to lose heat, rather than retain it.

SAFETY BRIEFING

CORROSION

Since 1989, 57 aviation mishaps have been directly caused by corrosion. Corrosion is the silent killer of airplanes. Once started it is often difficult to detect and harder to get rid of. As with cancer, once started, the rate of corrosion growth increases, and the blight spreads. If it grows unchecked, corrosion weakens airplane components to the point of failure.

Aircraft must be strong, but light in weight. This means they are not "overbuilt" to allow for loss to corrosion "wear". Modern aircraft use lightweight metals like aluminum that are very vulnerable to corrosion.

Essentially corrosion is an effort by "*Mother Nature*" to take metal back to its natural state. The most readily corroded metals are those that are not found free in nature. The least corrosion-prone common metals (copper, silver, and gold) are found free in nature about like we find them in aircraft components. Aluminum and magnesium, by contrast are not found in the same free form in nature. And they are extremely vulnerable to corrosion. The generally accepted explanation for how corrosion works is that it is a **chemical change coupled with the production of electrical energy**. **Four conditions** are required for this corrosive electrochemical activity (the elimination of any one of which will stop corrosion):

1. something that corrodes (has higher electrical potential)
2. something that has lower electrical potential
3. a continuous liquid path (electrolyte, like salt or soil)
4. conductor (usually metal to metal contact like rivets, bolts, welds) to carry flow of electrons from #1 (anode) to #2 (cathode)

Corrosion "enhancers" include:

1. oxygen
2. higher temperature (promotes faster chemical reactions)
3. carbon dioxide (becomes slightly acidic when combined with water contaminants)
4. hydrogen sulfide (from exhaust emissions) combines with water & forms acid
5. chlorine (common tap water is acidic)
6. miscellaneous acids
7. miscellaneous alkaline environments
8. salts (increase electrical conductivity of water)
9. microorganisms (bacteria and fungus break down substances in water, and create acids; or the area where they die and decompose becomes acidic)

CORROSION (Continued)

There are nine common types of corrosion:

1. Uniform etch (direct chemical attack from urine, battery acid or water-compound acids)
2. Pitting (localized chemical attack)
3. Intergranular (selective attack along metal's grain boundaries). Even corrosion-resistant metals can break down when their individual component metals are attacked.
4. Exfoliation (visible form of intergranular corrosion, usually found on extruded metals)
5. Galvanic (where two dissimilar metals come together)
6. Concentration cell (when the amount of oxygen getting to the electrolyte varies along the corrosive region, for example where two sheets of metal overlap)
7. Stress (where tensile stress has been applied to a metal in a corrosive environment; for example where metal has been bent or where rivets have been driven)
8. Fatigue (stress applied in cycles)
9. Filiform (forms under painted surfaces, where water and oxygen have penetrated)

PREVENTION: [] Moisture is the common denominator in any corrosion reaction. The electrolyte comes from the atmosphere, spilled soft drinks, batteries, mud, bathroom areas, etc. Get rid of these contaminants promptly. The easiest way to get rid of atmospheric contaminants in engines and instruments is to run them up to temperature frequently, causing them to evaporate.

[] Moisture collects in insulation, in low spots, and at joints between metals. Keep drain holes clear, and air out the plane's interior. Plug leaks that allow rainwater into the interior. Vacuum the interior to remove moisture-retaining dirt. Check for battery leakage, and repair any faulty containers or drain lines.

[] Park away from corrosive environments. Store the plane out of the weather if possible. Wash the plane often with clean water, and then wax it (wax acts as a barrier to water, and should only be applied to a clean surface). Ensure that nesting creatures don't inhabit the plane. Lubricate appropriate points frequently. Clear drain holes. At least annually open inspection ports and inspect carefully with flashlight and mirror.

SAFETY BRIEFING

DEHYDRATION

Dehydration is a pronounced lack of body fluids, caused most commonly by sweating, excessive vomiting, diarrhea, or evaporation of fluids from the lungs. Signs of dehydration include extreme thirst, dark yellow to brownish orange urine, headache, dizziness, very dry "cottonmouth", difficulty in speaking coherently, fatigue, loss of appetite, nausea, drowsiness, and fever.

Treatment for dehydration includes avoidance of energy loss and replacement of fluids and salt. Get the victim out of a hot environment, and urge him/her to drink fluids. Individuals who are suffering from serious dehydration must have professional medical attention.

Methods of conserving energy and preventing dehydration include:

1. Drink all the water you need, and always when thirsty.
2. Drink water at regular intervals.
3. Drink water while eating. Do not skip meals. Eat light even if you are not hungry.
4. In a survival mode nibble food continuously.
5. Drink warm liquids in cold environments. What about eating snow?
6. Be in as good a physical condition as you can before starting an extensive trip.
7. Wear proper clothing for the environment. Discuss various options.
8. Keep dry, carry lighter loads, and avoid excessive perspiration.
9. Do not smoke or drink alcoholic beverages.
9. When endurance is going to be a problem cut down on unnecessary talking. Ration your water.

Discuss what would be a source of emergency water that is relatively safe to drink in your area of travel. Why is ocean water never to be used for drinking?

SAFETY BRIEFING

DIABETES

Nearly 14 million Americans have diabetes, and about half of them don't know it. Diabetes is a serious disease that can lead to blindness, heart attack, stroke, kidney failure, and amputations. It is the 4th leading cause of death by disease in the United States, killing more than 160,000 people annually.

The following are associated with higher risk for having diabetes.

1. Being African-American, Hispanic, or Native American.
2. Being significantly over-weight.
3. Being over 65 years of age.
4. Being a woman who has had a baby weighing more than nine pounds at birth.
5. Having a close relative with diabetes.

Maintaining a healthy weight and regular exercise can help you reduce your risk. Only a doctor can determine if you have diabetes. If you are at risk or exhibit symptoms, see your doctor and find out for sure. Symptoms include:

1. Extreme thirst.
2. Blurry vision from time to time.
3. Frequent urination.
4. Unusual tiredness or drowsiness.
5. Unexplained weight loss.

For more information on diabetes you can call the American Diabetes Association at **1-800-DIABETES (1-800-342-2383)**.

SAFETY BRIEFING

DIABETIC REACTION

You may have worked alongside people with diabetes many times, and not even realized it, because in modern times this condition is generally well-controlled. The person with diabetes has a pancreas that does not work completely, and cannot process blood sugar (glucose) normally.

Occasionally a diabetic will fail to control their diet, or be subjected to something outside of their special routine, and may suffer diabetic or insulin shock. Signs of this condition include: **incoherence, confusion, unexplained combativeness, collapse, or seizures.**

First, look for a *medic alert* bracelet on the victim which should identify the condition causing the symptoms, whether diabetes or something else. When diabetic reaction is suspected, immediately give the victim sugar-rich foods and/or beverages (candy bar, regular soft drink, fruit juice, etc.).

Call for ambulance, and keep the victim safe. If the victim is indeed suffering from diabetic shock then they should improve within about 10 minutes of receiving sugar-rich food or beverage. If they do not, then you can be fairly certain that they are suffering from some other cause.

SAFETY BRIEFING

RESOURCES FOR DISASTER PLANNING

When disaster strikes it is a time of high stress for most people involved. In Civil Air Patrol we want to make ourselves available to serve our community as best we can. One thing that most squadrons could do is have a ready library of resource materials available for the general public, that focuses on problems that crop up in disasters. Following is a short summary of current resources that you may want to supply to your squadron library, before they become necessary.

1. ***Disaster Recovery Yellow Pages***. This is a 200-page reference to help users locate crucial but difficult-to-find recovery services around the country. Write: Systems Audit Group, Inc., 25 Ellison Road, Newton, Mass. 02159 (telephone: 617-332-3496)
2. ***Back From Disaster***. This booklet deals with emotional stresses and mental-health issues that are spawned by disaster. Write: Health Ink Publishing Group, one Executive Drive, Moorestown, NJ 08057 (telephone: 800-524-1176),
3. ***Disaster Recovery Journal***. This is a quarterly magazine about managing, preparing, or supervising contingency planning. Write: Disaster Recovery Journal, P.O. Box 510110, St. Louis, MO 63151 (telephone: 314-846-1001).
4. ***Disaster Mitigation Guide for Business and Industry***. A 312-page book about insurance coverage for business owners. Write: Publications, The Insurance Information Institute, 110 William St., N.Y., NY 10038 (telephone: 212-669-9200).
5. ***Disaster Survival Planning***. A 216-page book about developing recovery plans. Write: Disaster Survival Planning Inc., 669 Pacific Cove Drive, Port Hueneme, CA 93041 (telephone: 805-984-9547).

SAFETY BRIEFING

DOG BITES

More than 2 million dog bites are reported each year in the United States.

How to avoid being bitten:

Don't run past a dog. The dog's natural instinct is to chase and catch prey.

If a dog threatens you, don't scream. Avoid eye contact; try to remain motionless until the dog leaves; then back away slowly until the dog is out of sight.

Don't approach a strange dog, especially one that is tied or confined.

Always let a dog see and sniff you before you pet it.

How to be a responsible dog owner:

Spay or neuter your dog, as un-neutered dogs are more likely to bite!

When visitors come to your home keep your dog inside and away from the door in another room or on a leash.

Watch a child in the dog's family. Remember that the dog's instinct is to protect "its" child and the rest of "its" family.

Obedience training can teach your dog proper behavior, and help you control your dog in most situations.

For additional information about dog bite prevention and responsible pet ownership write to: The Humane Society of the United States, Dept. D., 2100 L Street N-W, Washington DC 2037-1525.

SAFETY BRIEFING

DRIVING DUMB

Following is a list of dumb things which traffic professionals see every day on the roadways in this country. Have you been guilty of any of these?

1. Putting on makeup while driving.
2. Talking on the telephone while driving.
3. Reading maps, newspapers, or magazines while steering with knees.
4. Following the next vehicle too closely.
5. Driving slowly in the "fast" lane.
6. Eating, drinking, smoking while driving.
7. Chasing emergency vehicles.
8. Letting kids ride in the back of a pickup truck.
9. Slowing or stopping on the "on-ramp".
10. Kids riding with their feet out of the window.
11. Cutting someone off.
12. Holding young child while driving. Not using safety seat.

The common thread running through these irritants is the selfish attitude of the driver. How many more of these careless, thoughtless acts have you observed on the road?

SAFETY BRIEFING

DETECTING DRUNK DRIVERS AT NIGHT

A significant proportion of drivers late at night are impaired by alcohol and other substances. Out of self-defense you should know some of the driving characteristics of drunks who are behind the wheel. They include:

1. Weaving and/or swerving, drifting
2. Nearly striking object or another vehicle
3. Wide radius turns
4. Straddling lane center marker
5. Driving off the designated roadway
6. Driving more than 10 miles per hour below the speed limit.
7. Stopping without cause in the turning lane, or slow to leave after red light changes
8. Following too closely
9. Braking erratically
10. Signaling not appropriate to driving actions
11. Turning abruptly or illegally
12. Headlights off, or fails to dim lights for oncoming traffic.
13. Accelerating or decelerating rapidly

SAFETY BRIEFING

ROAD ACCIDENTS

When you come upon a road accident (**and subject to the C.A.P. prohibition against coming into contact with another's body fluids**):

1. Stop your vehicle a short distance away and park well into the side of the road. Turn on your hazard flashers (and headlights if visibility is a problem) because you do not want to be the cause of another mishap. Do not allow anyone to smoke around the disabled vehicle, as fuel can be ignited.
2. If you can do it safely, extinguish any smoke coming from the victim's vehicle. But leave the victim(s) in position unless fire is a risk. Prevent further damage by immobilizing the vehicle. The vehicle should be made safer, by turning off the ignition, applying brakes (and possibly putting vehicle into gear or "park"). In some cases it may be advisable to block wheels with large rocks, the spare tire from your own trunk, etc.
3. Look for victim who may have been thrown clear of the vehicle (e.g. into ditches or over fences).
4. Treat victims in order of priority. Deal with breathing, bleeding, and unconsciousness in that order. Move victim(s) as little as possible. You must avoid causing increased injury by unnecessarily moving the victim. Cover victim(s) with a blanket, carpets, your own clothing, etc.
5. Set up a red warning triangle about 200 yards from the accident site. Ask any onlookers to control traffic.
6. Send the first available person to call an ambulance, giving appropriate information about location, number of vehicles involved, number of victims, and their type(s) of injuries.

SAFETY BRIEFING

WINTER VEHICLE AWARENESS

Vehicle accidents take a heavy toll in the winter. When cold weather hits, vehicles need extra attention, and drivers need to be especially vigilant and alert for the conditions they will face. Keep the following especially in mind:

1. Tire chains perform best in snow and mud. They tend to slip on ice and packed snow. Chains that are improperly installed can damage tires, and create their own hazard.
2. Mud and snow tires are less effective on icy roads than tires with commercial tread.
3. Anytime there is fresh snow you should suspect that there is ice underneath.
4. Bridges and overpasses tend to freeze before the rest of the highway.
5. In poor visibility and fog, drivers need to turn on low-beam headlights, even in the daytime. Keep in mind that all moving C.A.P. vehicles are supposed to have their headlights on at all times.
6. Ice or snow on pavement increases stopping distance 3 to 11 times.
7. In adverse conditions **SLOW DOWN**. It is easy to underestimate stopping distances in the winter.

SAFETY BRIEFING

DRIVING FATIGUE

The National Safety Council says that most people really do not realize that they are becoming too tired to continue driving. Fatigue leads to many injuries and deaths on our roads and highways. Fatigue causes judgment to be impaired, reaction time to be slowed, and reckless behavior.

When you find yourself staring blankly, driving at varying speeds despite the conditions, driving back and forth across lanes, it is time to stop and get some sleep. Following are some tips to minimize the effects of fatigue on your driving.

1. When you feel the need for caffeinated drinks, or other stimulants to stay awake, you are too tired to continue driving.
2. Avoid long drives at night. The glare of oncoming lights, plus the steady passing of dashed pavement marking, increases the danger of "highway hypnosis".
3. When drowsy, stop in a safe place and take a "cat nap". But do not stop on the shoulder of the road.
4. Adjust your car temperature and ventilation so that it is not too comfortable. Keep it cool, turn up the radio volume, and avoid soft, relaxing music.
5. Do not use cruise control when you are tired. Keep your body actively involved in the driving.
6. Watch your posture. Drive with your head up, shoulders back and legs flexed at about a 45-degree angle.
7. Take a break at least every couple of hours, and move around enough to boost your heart rate. It will help improve your alertness.
8. Do not let your eyes become fixed straight ahead. Scan the area ahead from side to side, and blink frequently.

SAFETY BRIEFING

DRIVING IN FOG

Driving in thick fog is dangerous. If you have a choice the best advice is DON'T. But if you find yourself in the "soup" think about the following tips:

- 1. Slow down gradually.** If you slow down too fast, the driver behind you may not be able to stop in time. And if you do not slow down at all you risk hitting the slower driver ahead of you. Be especially alert for those taillights that will pop up suddenly ahead of you.
- 2. Try not to tailgate.** It is easy to become mesmerized by the comforting red taillights just ahead of you. But do not follow too closely, because the driver just ahead may need to stop or turn suddenly as something looms up suddenly for him or her, and you will not have the necessary margin of safety you need to avoid a collision.
- 3. Turn on your low beams.** Your high beams will just be reflected back into your eyes by the water droplets that make up the fog.
- 4. Roll down your window and turn off the radio.** Listen carefully for the sounds of the traffic around you. Your peripheral vision will improve and you will be better able to see the edge of the road, without the window being in the way.
- 5. Be conservative.** Avoid tricky maneuvers and unnecessary passing. If the fog is especially thick or the traffic very heavy you should consider pulling off the roadway until visibility improves. Pull off as far as possible (into a driveway or small side-road is best) And put on your emergency flashers.

SAFETY BRIEFING

SLOW MOVING VEHICLES

When we travel about to accomplish our missions in Civil Air Patrol, we are very likely to encounter slow moving vehicles. Early identification of a slow-moving vehicle (SMV) will allow the driver to avoid a collision. Typically these SMV's will be farm machinery. About one-fourth of all tractor fatalities in Iowa involve another vehicle. Related problems occur when vehicles traveling at higher speeds try to pass the tractor, or the farm operator pulls onto a soft shoulder to allow a car to pass.

But from the driver's seat of the fast-moving vehicle the greatest danger is generally a rear-end collision with the SMV. It can be very difficult to appreciate the danger of approaching the SMV at highway speeds, until it is too late. For example, a car traveling at 50 miles per hour approaches a tractor moving in the same direction at 20 miles per hour. Even if the car is still 400 feet (can you compare this distance with something familiar in your life?) behind the tractor, the driver of the car has less than 10 seconds to react to avoid a collision with the tractor.

In those 10 seconds the car driver must recognize the dangerous situation for what it is, determine the relative speed at which the tractor is moving, and decide what action to take to safely avoid the collision. The time required to brake a car traveling at 50 miles per hour also must be figured into the driver's 10-second response time. Under ideal road and weather conditions, it requires at least one second (and about 55 feet of braking distance) to slow the car to 20 miles per hour to avoid the rear-end collision with the tractor.

And many farm implements are traveling down a gravel road at far slower speeds than 20 miles per hour, which just compounds the vehicle driver's problems. So the key message is to quickly slow down for farm implements ahead of you, and thereby increase your time and chances to make the correct driving decisions.

SAFETY BRIEFING

SCHOOL BUS SAFETY

Some 22 million students nation-wide go to and from school on a school bus. Even though the school buses themselves have become one of the safest of all public transportation vehicles, there continue to be far too many serious accidents. About two-thirds of the pupil victims were struck while on foot to or from the bus. Half of these were struck by the bus itself. In Civil Air Patrol we need to be especially watchful for the children who are going to and from their bus. The *National Safety Council* encourages parents to teach their children several rules for getting on and off the school bus, as follows.

1. While waiting for the bus stay away from traffic, and avoid "horsing around".
2. When the bus arrives wait until it stops, and the door opens; then get on one at a time, using the handrail.
3. Once on the bus find a seat and sit down. Do NOT distract the driver.
4. Never put your hands, head, arms, or feet out the windows.
5. Keep aisles clear of tripping hazards that can block the exit route, such as books and bags.
6. At your destination wait for the bus to stop completely before you get up from your seat. Then walk and use the handrail to exit.
7. If you have to cross the street in front of the bus, walk at least 10 feet ahead of the bus along the side of the road, until you see that the driver can see you. When the driver signals, you can walk across the road, keeping alert for sudden traffic changes.
8. Stay away from the rear wheels of the bus at all times.

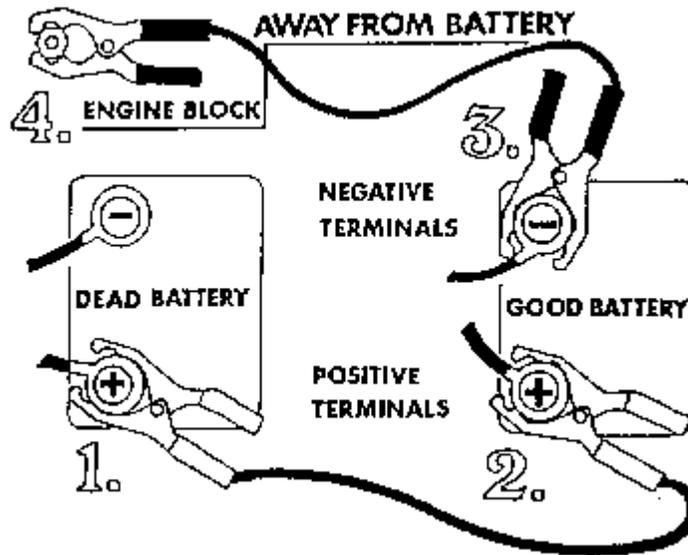
In C.A.P. we need to be vigilant when near any school bus, because many youngsters simply forget about other traffic when they approach or leave their bus. But remember that most of these common-sense safety rules would also apply to our members when they ride to and from missions in Corporate vehicles. Whether or not you are the driver try and assist in watching out for the safety of our cadets.

SAFETY BRIEFING

JUMP START SAFETY

The need to use another's battery to jump-start your vehicle can occur any time of the year. But because your vehicle engine requires more battery power to turn it over when it is cold, and because your battery's ability to produce electrical power deteriorates greatly when it is cold (chemical reactions run more slowly then) you likely will find yourself in need of a jump-start when the weather is cold. When you are in a hurry, and especially when you are cold yourself and frustrated by not having your vehicle start on command, it can be much too easy to forget safety considerations. A car battery looks harmless enough, but it is full of very corrosive acid, and can explode if one ignores safe techniques in jump-starting. **REMEMBER:**

1. Batteries must be the same voltage.
2. Both negative posts must be grounded.
3. Before connecting cables, check the fluid and make sure it is not frozen.
4. Make sure the two vehicles are not touching (causing a short circuit).
5. Ignitions should now be off, accessories off, and transmissions in "park" or "neutral", with brakes on.
6. Guard your eyes, clothes, and hands from contact with battery acid.
7. No smoking or fire around charging batteries (they produce explosive hydrogen).
8. Jumper cables must be as large a gauge as possible, as short as possible, and in good condition.
9. Attach the clamps in the order shown below. Remove them in the opposite order.



SAFETY BRIEFING

BRAKE FAILURE

What is the most common mechanical cause of traffic mishaps? A tire blow out? Steering failure? An engine that catches fire? A car hood that suddenly flies up in the wind? Obviously the title gives it away. The car crisis feared most by drivers, as well as the leading mechanical cause of traffic mishaps is brake failure.

But brake failure is nearly always preventable with proper maintenance. Consider brake inspection every 18 months by a professional. This should be more often if you tow a trailer or do lots of stop and go driving. A few tips follow.

1. When your master cylinder is out of fluid you are out of brakes. When adding fluid look for and fix leaks.
2. Replenish brake fluid from a fresh can. Once a can is opened it may be contaminated by moisture. Water in a brake system causes serious problems.
3. Have a professional check and repair your brakes whenever you notice odd noises, shudders, or pulling to one side when stopping.
4. Use the best repair parts you can afford when fixing brakes.
5. When you have your brakes checked make sure that it includes raising the vehicle and removing all four wheels. Examination must include: brake linings, pads, drums, rotors, brake lines, fluid level, and wheel cylinders. Have this done periodically, but do not wait if you suspect a problem.

SAFETY BRIEFING

WINDSHIELD WIPERS and SAFETY

Winter weather creates the most hazardous driving conditions for most of us during the year. The odds are worse if our vehicle has inadequate windshield wipers. Some studies indicate that as many as 25 percent of vehicles on the road have bad wipers. And severe winter weather can render even new windshield wipers useless.

Winter wiper blades must be capable of withstanding continual freeze-thaw cycles, shedding heavy snow, and providing smooth operation. Wiper blades in winter are sprayed frequently with road salt, and given regular beatings by owners using ice scrapers. Special winter blades use more steel and are engineered more strongly than regular blades. Think about switching blades for your added safety. Some other tips include:

- Clean windshields more often when they become contaminated by waxes and oils from the road.
- Use wipers designed with an aerodynamic feature to improve wiper performance at high speeds. Note that many types of wipers will lift off the windshield at higher speeds, and not keep sufficient contact with the glass to keep it clean.
- You should inspect wiper blades every six months, and replace worn, damaged, or defective blades promptly.

SAFETY BRIEFING

DROWNING

Discuss the following considerations, and the prevention of drowning.

1. Learn to swim, tread water, and generally become relaxed around water.
2. Never swim alone.
3. Adjust slowly to cool or cold water.
4. Do not swim if you are overly tired.
5. Do not swim or dive in unknown waters.
6. Do not swim in areas where riptides or strong undercurrents occur.
7. Do not swim in rivers. Why?
8. Follow U.S. Coast Guard rules in boating (for example life jackets).
9. If your boat overturns, stay with the boat.
10. If a storm is brewing, seek the closest shore.
11. Do not cross swollen streams or river beds.
12. Do not camp in areas prone to flash flooding.

SAFETY BRIEFING

PROTECTION FROM DUST

Exposure to grain dust, molds, pollen, animal dander, soil dust, welding fumes, and diesel exhaust can lead to serious respiratory problems. These dusts, though not toxic like some common chemicals, are suspended in the air and can easily enter the lungs and cause damage.

Dust in the lungs can cause additional physical stress, resulting in fatigue or shortness of breath. In the long term, dust exposure can be accompanied by congestion, coughing, or wheezing, ultra-sensitivity to dust, and frequent infections to the respiratory system. Serious pulmonary diseases include: asthma, emphysema, and chronic bronchitis.

If we in C.A.P. are involved in directing traffic or other exercises on dirt or gravel roads, or in some other area that exposes us to dust in a significant way, we should protect ourselves. Ideally we should be given respirators when we work in dusty conditions. If a respirator is not available, some substitute should be used. Can you think of any good examples? Whatever is used needs to seal well around the mouth and nose.

It would be best to limit your time of exposure. Do not be shy about asking for relief if you feel any discomfort. People have their own individual tolerance for dust (or other exposures for that matter), and we need not be in some kind of endurance contest. We want to do our jobs, without any risk to our own safety or health. And remember that a respirator is not designed to filter out many harmful chemicals. Nor can it supply oxygen where none exists in healthy quantities. So take a deep breath and **think lung protection.**

SAFETY BRIEFING

ELECTRICITY and SAFETY

You can be injured or killed by electric shock. This type of shock happens when the flow of electric current (called amperage) flows from the source through your body to ground (virtually any conductor leading the current to a place of lower voltage). How can electrical shock hurt you?

- [] Your breathing stops.
- [] Your nerve centers can become temporarily paralyzed.
- [] Nerve and muscle tissues are burned.
- [] Your heart beat can be interrupted, so blood stops circulating.
- [] It can cause internal bleeding.

What are the types of electrical injuries?

- Burns
- Mechanical injuries when machinery starts suddenly.
- Falling from losing your balance when you receive a shock.

Following are some safety tips:

1. Only qualified people should repair or install electrical wiring or appliances.
2. Properly grounded 3-prong outlets and plugs are to be used.
3. Avoid electrical outlets and equipment if you, or the area, are wet.
4. Use tools and machinery only in the way it was intended by the manufacturer.
5. Wear hand, foot, and eye protection where suitable.
6. Don't overload circuits or extension cords.
7. Read warning signs. And obey them.
8. Use ground fault circuit interrupters wherever possible.
9. Report, then replace or repair all defective or damaged equipment.
10. Be alert to overloading on electrical motors, often showing too much vibration or heat. Report unusual sounds, smell, or feel of electrical equipment.
11. Know how to rescue a shock victim safely (do not become another victim).

SAFETY BRIEFING

QUIZ ON ELECTRICAL/FIRE SAFETY

Fires are among the leading causes of accidental death in the U.S. The toll continues to increase every year, despite better fire equipment, alarms in the home, and telephone 911 availability to many areas of the nation. Try the following quiz to test your awareness in this area.

1. How many people die each year in home fires, in the U.S.?
 - (a) 1,100
 - (b) 2,200
 - (c) about 3,300

2. Most electrical fires in the home begin in the structure's internal wiring system. **True or False?**

3. A battery-operated smoke detector will alert the household to danger if you:
 - (a) test the detector once a month
 - (b) change batteries at least once a year
 - (c) never remove batteries to disable the alarm when set off by cooking smoke
 - (d) all of the above

4. A standard electrical outlet could safely handle which combination:
 - (a) air conditioner, hair dryer and clock radio
 - (b) family-sized refrigerator and microwave oven
 - (c) hand belt-sander and 50-watt trouble light
 - (d) 1500-watt motor at the end of a 200- foot length of 16-gauge cord.

5. The major causes of fires in the homes (where 3/4 of fires occur) are:
 - (a) improper use and care of heating appliances
 - (b) improper use and care of electrical appliances
 - (c) lack of functioning smoke detectors
 - (d) careless use of smoking materials
 - (e) all of the above

ANSWERS, in order of the questions: C; False; D; C; E.

SAFETY BRIEFING

ELECTRIC SHOCK

General Points

- The vast majority of electrical injuries occur in the home. So make sure that your electrical appliances and home wiring are in good working order.
- Do not touch a shock victim until he/she has been separated from the current, or the main supply has been turned off. If you do touch the victim, you may also receive a shock.
- If you cannot turn the current off use a dry implement made of non-conductive material (e.g.. broom, chair) to separate the victim from the "live" circuit. Act quickly.
- When the victim is free, check breathing. Artificial respiration must be commenced at once.
- Immediately call for an ambulance. Stay with the victim. Watch for signs of collapse (whiteness and sweating) until the ambulance arrives. Place the victim in the recovery position.
- After sending for the ambulance stay with the victim, watch the victim closely for medical changes. Do not allow a crowd to gather around. Keep the victim warm and comfortable.
- A severe shock will cause burns or even cuts and fractures, if the victim has fallen or been thrown. Use dry dressing to protect cuts and burns. Treat them appropriately.
- **Remember CAP policy regarding open wounds and blood-borne pathogen avoidance.**

SAFETY BRIEFING

HOLIDAY ELECTRICAL SAFETY

Inexpensive strings of colorful electric lights are strung inside and outside in ever-increasing quantities. And they are commonly used for several different holidays in this country. Electrical safety is important throughout the year, but it is especially crucial during the winter holiday season. Holiday lights, temporary extension cords, and portable heaters are the usual culprits when homes catch fire during the late autumn and winter months. Discuss the following precautions.

- Use only lights and appliances that have been safety-certified by a recognized testing facility like Underwriters Laboratory (UL).
- Before you plug in a new set of lights (new or old) make sure there are no cracked light bulbs, loose sockets, or exposed or frayed wires.
- Before hanging the lights on a tree or near other flammable objects, plug the lights in and place them on a nonflammable surface for 10 to 15 minutes. Watch the set for smoking, melting, or overheating. If a string of lights shows any flaws, return it for refund; or discard it.
- Never put lights on a metallic holiday tree. If there is a malfunction you could receive a dangerous electrical shock from touching any part of the tree.
- Be careful to keep lights from contacting ornaments or garland. The heat from the bulbs may cause melting or start a fire.
- Turn the lights off when you leave the house or go to bed.
- Never use indoor lights outdoors.
- Never use outdoor lights indoors, because they burn hotter.

SAFETY BRIEFING

EXTENSION CORDS

Extension cords have become essential and common-place in our lives. As such we often pay little attention to their potential for serious injury. An extension cord is designed only for temporary use. It should be unplugged and stored after each use. Following are some do's and don'ts.

1. Do not lay out an extension cord where it will be a hazard to persons who may walk by.
2. Never use an extension cord near water.
3. Generally do not plug more than one item into an extension cord.
4. Most extension cords are marked with a rating in amperes ("amps" or "A"). If this is not listed, and you know the device wattage, divide the wattage by 120 (common household voltage) to obtain the amperage that will be drawn by the device. For example a device uses 2400 watts. It will therefore draw 20 amps from a 120-volt circuitry. The extension cord should be rated no lower than 20 A, which would commonly contain 12 gauge wire. If the cord must be fairly long then a heavier cord must be used. The extension cord should not be used to power devices requiring amperage in excess of the cord's rated capacity.
5. Be aware that the longer the cord, the greater the drop in current-carrying capacity. A 25-foot cord, for example, has to be heavier than a 6-foot cord doing the same task.
6. An extension cord with a 3-prong plug contains a ground wire. Plug this type of cord only into a grounded (3-hole) type of outlet. Use only 3-wire type extension cords with devices that have 3-wire cords on them.
7. Common amperage numbers for extension cords are: 18, 16, 14, and 12. The smaller the number, the larger is the wire in the cord, and the greater is the cord's capacity to carry electricity. The thinner the cord, the lower is the cord's capacity to conduct electric current. Electrical devices that use relatively large amounts of current (like refrigerators) require the use of larger (e.g.. 12 gauge) extension cords.
8. If an extension cord is frayed, brittle, or feels warm to the touch during use, replace it with a larger cord in good condition.

SAFETY BRIEFING

EXERCISE

Exercise is extremely beneficial throughout our lives. A sensible and appropriate program of exercise provides these improvements.

1. Replacement of lost muscle mass.
2. Fat reduction and increased metabolism.
3. Increased bone mass, which in later years can counter osteoporosis.
4. Reduction of blood pressure; lower risk of heart disease.
5. Faster waste removal, which can reduce intestinal cancer.
6. Improved glucose tolerance, which reduces the risk of Type II diabetes.
7. Arthritis pain reduction.
8. Improved balance and movement control, including flexibility and range of motion.

Common sense is in order. If you are not in shape think about the following before undertaking a vigorous exercise program.

1. Get a physical from your doctor.
2. Go slow at first. Do not lock your joints. Never overload your muscles. When using weights use levels that let you do the entire range of motion in sets of 8 or 12 repetitions.
3. Use continuous non-jerking motions. Generally if you are using the right weight you should experience temporary muscle failure about 10 to 12 "reps" into the exercise.
4. Keep regular habits. Three times per week is best, but twice per week should provide about 75% of the maximum benefit.
5. Don't expect immediate results. Be patient. See your doctor if you experience problems.

SAFETY BRIEFING

EYESTRAIN

There is much evidence that conditions which lead to eyestrain over a period of time may lead to vision problems like myopia (nearsightedness), astigmatism, and focus or binocular coordination problems. While the jury is still out on these connections, it cannot hurt, and it may do much good, to follow some guidelines that many vision experts now suggest.

- 1.** For reading, writing, and other near-vision tasks, keep the object being viewed at least 16 inches for adults and 12 inches for younger children.
- 2.** Maintain good posture and adequate lighting. Reading and writing while lying down will tend to produce our holding reading material too close to the eyes.
- 3.** Illumination should be placed to avoid glare. Generally illumination from behind; over a shoulder is best.
- 4.** When reading, tilt the book up about 20 degrees.
- 5.** Read intensely no longer than 15 minutes without a change in focus on objects at more distant objects. Looking back and forth from distant to nearby objects reduces the tendency of the eyes focusing muscles to become cramped.
- 6.** Do not sit closer to the television, or your computer monitor than is necessary.
- 7.** Have your eyes checked periodically by a professional.

SAFETY BRIEFING

WATCH YOUR EYES

The *National Society to Prevent Blindness* offers the following sight-saving tips to help protect your vision:

1. Get regular eye exams
2. Report changes in your eyes or vision to your doctor
3. Learn first aid for eye emergencies
4. Follow your doctor's instructions on contact-lens care and use
5. Wear protective eye wear (safety glasses and goggles)
6. Protect your eyes from the sun's harmful rays
7. Wear safety belts and restrain young children in car seats
8. Keep hazardous products (like lye or cleaning agents) properly stored and out of the reach of young children
9. Leave fireworks to the professionals

How many other tips to protect your eyes can you think of?

SAFETY BRIEFING

EYE PROTECTION and INJURIES

We only get one pair of eyes. And they are very vulnerable to injury. Four out of ten accidents that cause blindness happen at home. The most common causes are:

- ❖ Cooking accidents.
- ❖ Do-it-yourself work on cars and homes.
- ❖ Chemical splashes from pesticides, drain cleaners, and cleaning sprays.
- ❖ Sports injuries.
- ❖ If an accident involving the eyes does occur **GET MEDICAL ATTENTION AS SOON AS POSSIBLE**, and keep the following in mind, for the various types of injury:

CHEMICAL SPLASH:

Flood eyes with cool water (do NOT use another neutralizer) for 15 - 20 minutes. Do not squeeze eyes shut. Hold them open with thumb & index finger.

FLYING PARTICLES:

Do not try to remove anything imbedded in the eye. Do not pull or squeeze the eye. Cover the eye to keep the light out.

RADIATION or BURNS:

If eyes are exposed to intense heat, flames, lasers, or arc welding, apply ice packs to relieve pain. Cover the eyes to keep the light out.

BLOWS to the EYES:

Apply ice packs to relieve pain.

EYE STRAIN:

Glare, poor lighting and long periods in front of video displays will cause eye fatigue, and related headache. Improve the lighting, take more frequent breaks from the eye-intense work. Use appropriate sunglasses. And check with your eye doctor if the strain symptoms persist.

SAFETY BRIEFING

ULTRAVIOLET LIGHT-EYE DAMAGE

UV-A is largely filtered out by the ozone (O₃) gas in the upper atmosphere. Unfortunately a great deal of the natural ozone shield has been depleted (possibly by chlorofluorocarbon contamination) and much more of the harmful UV-A radiation now reaches the level of the biosphere where we live, work, and operate aircraft. The Environmental Protection Agency predicts 600,000 additional cases of cataracts annually due to the decrease in the ozone density.

To filter out UV-A radiation and protect your eyes you need to wear proper sunglasses. Many sunglasses are now on the market that will filter out 98% to 100% of this harmful radiation. Very dark glasses that are not designed to filter out UV-A are much more dangerous for your eyes than not wearing glasses at all. This is because the dark glasses will permit your pupils to dilate (become larger) without providing the necessary protection. So pay attention to the kind of sunglasses you wear. Over the years you can damage your eyes profoundly by making the wrong choice.

SAFETY BRIEFING

FARM HAZARDS

Farming is a unique industry because a farm is both a work and home environment for many families. No other industry includes children in its injury and death rates. In the U.S. more than 300 children die annually in agriculture-related accidents. In 1993 the Iowa Department of Public Health recorded 468 farm-related injuries, and 6 fatalities to Iowans under age 19.

Potential hazards are associated with specialized equipment, structures, and farm animals. Consider and discuss hazards and possible safety precautions with the following:

1. livestock placed in strange surroundings, or protecting their young.
2. moving augers or belts.
3. the speed of snapping rolls in a corn picker compared to human reaction times (these rolls typically pull corn stalks in at a rate of 12 feet per second).
4. whether operators are "rusty" when they operate machines only a few days per year.
5. hazards of falling off large machinery (a large combine can be 14 feet off the ground, with the work platform 6 to 8 feet from the ground). Did you know that the most common combine accident is falling off?
6. farm chemicals
7. overhead electric lines when tall equipment is moved around them
8. confined spaces like silos, which can harbor lethal gases.
9. farm workshops (what hazards can you think of with a welder?).
10. extra persons riding on tractors.
11. unloading grain.
12. roll-over vulnerability of tractors.
13. damp uncured hay.
14. poor visibility that farm machines allow operators.
15. Can you add to this list?

SAFETY BRIEFING

FALLING HAZARDS AROUND MACHINES

Around large farm or construction machinery we should justifiably be concerned about moving belts, chains, gears, and cutting parts. We humans can easily be crushed or "sliced and diced" by these pieces of equipment that are designed to make our lives more productive.

But the most common injury-causing mishap around large driven machines is the run-of-the mill fall. And the farther the operator falls (and some of the working platforms can be surprisingly high off the ground) the more serious the injuries are likely to be.

Major contributing factors in serious falls are ladders and other access routes, which can become cluttered or slippery. To reduce the risk of falling remember to:

1. Keep the work platform free of tools and other loose objects.
2. Wear well-fitting, comfortable shoes, with non-slip soles.
3. Use grab-bars when mounting or dismounting machinery.
4. Be sure your position is stable before you perform maintenance.
5. Recognize that fatigue, stress, drugs, or alcohol, and age affect your stability adversely.
6. Review the operator's manual and instructions for the machine periodically.
7. Disengage the power when you leave the operator's station.
8. Replace worn or loose parts.

SAFETY BRIEFING

AGRICULTURAL AREA HAZARDS

CAP ground teams are likely to find themselves on farms (remember to get permission, and never trespass) in SAR and perhaps on DR exercises. Farms are hazard-rich areas. Those members who have been raised on a farm will generally be more aware of such problem areas, and should be especially prepared to share their knowledge and experience with others. Some of the more common hazards on farms are:

LIVESTOCK: Most of us know about the aggressive nature of bulls. Dairy breed bulls are especially dangerous. Mother hogs (sows) with small pigs are also very dangerous. They may look slow, but they can outrun you.

MACHINERY: CAP shouldn't be operating farm machinery on a mission, but we may find it necessary to rescue someone from such equipment. Any running equipment should be turned off if you know how. But be especially aware of turning power take-off drives (PTO's) and corn pickers and balers.

CHEMICALS: Farmers use many chemicals as fertilizers, and to control pests. These are poisons, and must be strictly avoided. One fertilizer is especially hazardous--*anhydrous ammonia* (NH₃). A farmer may occasionally have a tank on a trailer that looks very similar to a large LP (propane) tank. The anhydrous ammonia is in liquid form in the tank, under great pressure. On release it turns to gas, which has a white cloud-like appearance. This gas is extremely cold, but has the effect of burning skin very badly. It also causes breathing problems, and will severely and permanently destroy lungs and eyes within seconds, due to its great affinity (chemical attraction) to the water in these tissues. Deluge victims with water, and get them to a doctor immediately.

LOOSE GRAIN: Shelled corn and other small grains in storage can act like quick sand, causing suffocation death.

DETERIORATED BUILDINGS & WELLS: Abandoned farmsteads are now common, where old dilapidated houses and buildings are full of rusty nails, rafters about ready to fall, broken glass, old leaking chemical containers, wasp nests, etc. Be very careful around old wells, which may be covered by rotten boards which could give way, and allow you to fall through.

SILOS & HOG CONFINEMENT FACILITIES: Stored grain in silos (silage) and hog wastes in hog confinement buildings produce poisonous gases. Stay out of these structures.

SAFETY BRIEFING

SUFFOCATION IN GRAIN ACCIDENTS

Most people cannot imagine or appreciate the danger posed by stored grain. An all-too common tragedy on farms is the suffocation of farm workers or children who are on top of a wagon-load of grain or at the top of a grain bin, when it is emptied. Flowing grain acts much like a liquid, or quick-sand, and can draw a person below its surface in seconds. As farm equipment becomes increasingly more efficient (faster), humans have less time to respond appropriately to save themselves. For example a high capacity conveyor can move 5,000 bushels of grain an hour. And at that rate a 6-foot tall person will become submerged in only 15 seconds. And it takes even less time for this person to be sucked helplessly to a suffocating depth, if the grain is being removed from below into a wagon or truck. Since the grain acts like a fluid, heavy objects like people sink faster than lighter ones.

Even if the grain stops flowing, submerged people are extremely difficult to extract. The force required to remove an adult buried up to the chin can easily exceed 2,000 pounds (yes, one ton!).

How suffocation occurs:

Some victims ingest the grain, as it flows into their mouth and nostrils. In some victims grain has been found in victims' lungs and stomachs. More commonly the victim simply cannot make their chest cavity expand enough to get a full breath. Panic sets in and each successive effort to breath results in a smaller and smaller inhalation as the grain fills the void around the chest with each breath, and keeps the chest from expanding for the next breath. Also there becomes less and less oxygen to breathe as the victim becomes covered with the grain.

Prevention of Accidents: If you need to be at the site of moving grain, do it carefully, and use the buddy system. If you have no business around moving grain, then stay away from it.

SAFETY BRIEFING

RISKS AROUND CONFINED MANURE STORAGE

Long-term exposure to the various products of waste generated by livestock production on modern farms has probably been an underrated health risk for years. But now that many agricultural operations include large confinement facilities for livestock, or at least concentrated manure storage, there are very potent dangers to human and animal health lurking in the air, and capable of killing with little warning. Following are the several gases that are commonly generated by livestock and their manure kept in confined spaces, which pose the greatest threats to the health of people who may enter these spaces.

Carbon dioxide: This is the result of livestock respiration and the use of combustion-run equipment. At high concentrations it can cause respiratory distress.

Ammonia: Eye-irritating product of manure decomposition. It is deadly at a concentration of 5,000 + parts per million.

Methane: Product of manure decomposition. Dangerous due to its extreme combustibility (similar to natural gas). It is dangerous to lower ventilation fans into manure pits. At concentrations of 50,000 ppm + (about 5%) it can explode. It is colorless, odorless, tasteless, and therefore hard to detect.

Hydrogen sulfide: It is the most dangerous gas associated with enclosed livestock operations, and it is responsible for the most manure-related deaths of both animals and people. The maximum allowable concentration is 10 ppm. This gas is heavier than air and therefore accumulates in low-lying areas of enclosed spaces. Although it is readily sensed by human noses at levels of less than 1 ppm (rotten egg odor), this gas will paralyze the human sense of smell at higher levels.

NEVER try to rescue a victim in a manure pit. Multiple deaths are common, when would-be rescuers also succumb. Get professional help fast, and try to assist in some fashion that keeps you outside the confined space.

SAFETY BRIEFING

HUMAN FATIGUE FACTORS

The study of the various human factors which contribute to mishaps is not an exact science. If asked most people could explain what FATIGUE is. But they probably could not recognize many of its symptoms, because of its initial insidious nature. Also, since CAP members are frequently "go oriented" people who want to accomplish the mission, they often disregard the signs of fatigue (if recognized) and push on. Fatigue is also extremely difficult to pinpoint as a contributing factor in a given mishap.

A number of factors occur in a fatigued state and, although the order may not be exactly the same, the general trend is for the complex and voluntary functions to fail first. This is often the first signal that the body is beginning its withdrawal into a dangerous condition.

FATIGUE FACTORS:

1. Complex voluntary actions deteriorate
2. Poor control of equipment/machinery
3. Poor hand-eye coordination
4. Less voluntary movement of the eyes
5. Falling behind in copying instructions
6. Reaction time slows
7. Economizing of energy expenditure
8. Writing begins to slope downward
9. Less eye movement
10. Eye blinks are longer
11. Use of simpler terms in speech
12. Silent periods increase
13. Slumping in seat
14. Withdrawal from external to internal world
15. Tunneling of vision
16. Putting off tasks that require monitoring
17. Microsleeps increase
18. Rationalizing that dozing for a minute is OK
19. Loss of directional control
20. Minimal voluntary movement
21. Mistaken locational awareness

Remember that bad judgment seems to accompany fatigue, and lead to mishaps. Do not be too shy to suggest that your companion take a break, if you detect the above factors setting in.

SAFETY BRIEFING

RECOGNIZING FATIGUE

By the end of the week we feel fatigued. But are we unfit to fly? Unfortunately, there is no good way to know objectively if you can fly safely, or if your skills have been severely compromised. The dilemma is that fatigue can erode your performance skills before you feel fatigue. Another problem with fatigue is that it is difficult to define. It may be mental or physical, or a combination of both.

Most people recognize that lack of restful sleep is a major cause of fatigue. But a healthy body can overcome that kind of fatigue for many hours. Some of the other more insidious causes of fatigue are:

1. Noise and vibration.
2. Illness.
3. Unresolved stress.
4. Hypoxia and dehydration. Once the aircraft cabin exceeds about 5,000 feet above sea level, you are subjected to the effects of hypoxia. Because cabin humidity typically drops to under 10%, the combination of depleted oxygen and moisture quickly generates symptoms of fatigue.
5. Skill fatigue. The motivation to fly often exceeds the body's ability to perform skillfully. Fatigue results from the high demands of persistent concentration using high degrees of skill.

Try to recognize your personal limits. Recognize if you can the individual causes and symptoms of fatigue that attach to you. And let your colleagues know if you sense that they seem to be suffering from fatigue. It is very difficult to see fatigue build in ourselves. So let the next person know when you see it in them, and hope they will favor you with the same consideration. Accept another's observations about your possible fatigue graciously. They are doing you a big favor.

SAFETY BRIEFING

PROTECTING your FEET

Most of us are lucky and have two functional feet and ten toes. Following are some thoughts about protecting them. The more common injuries to feet, toes, and ankles can be traced to:

IMPACT

Sharp or heavy objects may fall and bruise or puncture. Sometimes you can injure your feet by striking them against an object.

COMPRESSION

Heavy objects or machinery can crush feet or toes.

SPLASHES or SPILLS

Molten metals or caustic liquids can spill or seep into footwear and cause thermal or chemical burns.

ELECTRIC SHOCK

Shocks and burns result from contact with electricity.

SLIPPING

You can slip and fall on spilled liquids or on ice, or on loose surfaces.

EXTREME HEAT or COLD

Your feet or toes can be frostbitten or burned from work in intense heat or cold, or exposure to some chemicals.

Special footwear is available for various hazardous environments to prevent or reduce injury. They include Neoprene, Nitrile, or reinforced or insulated shoes and boots. Some have special soles to prevent slipping or electrical shock. Some have steel safety toes. Some have special reinforcing or padding to the ankles or toe area. Some are designed to protect against specific chemicals. Select the right kinds of shoe or boot for the best protection for the job, make sure they are sized right (also wear the correct socks) and use them where appropriate.

SAFETY BRIEFING

BLISTERS

The skin has two layers. The outer one, called the *epidermis*, consists of layers of dead skin cells and contains no nerve cells or blood vessels. The deeper one, the *dermis*, contains both vessels and nerves. When fluid collects between the two layers, a blister is formed.

Blisters can be caused by: **friction** (rubbing or chafing produces friction and heat, which cause a blister to form), **sunburn**, **insect bite**, **viruses** (e.g. chicken pox or shingles), **herpes** simplex virus (cold sores), **bacterial infections** (impetigo, eczema), or by **chemical irritation**. In the most common types of blisters the damage to the deep layer of the skin causes an outflow of fluid from the blood capillaries, which then pools to form blisters under the outer layer of skin.

Blisters can be extremely uncomfortable. But the most common danger from blisters is the possibility of infection if the skin is broken. Treat a friction blister by cooling and cleaning the area. **If the blister becomes infected seek medical help.**

HOW TO AVOID BLISTERS ON FEET:

DO:

- Wear well-fitting footwear. Too tight a shoe allows friction and causes pressure. Too loose a shoe produces friction where the foot slides within the shoe.
- Wear comfortable, substantial footwear for long-distance walking
- Wear additional heavy socks in rigid walking boots
- Choose thick soft socks without ridges or large darns
- Cool, wash and powder feet regularly

DON'T:

- Wear new shoes for the first time on a long walk...break them in gradually
- Choose shoes with internal ridges that rub
- Wear old, harsh or thin socks.

SAFETY BRIEFING

FIRE SAFETY OUTDOORS

In Civil Air Patrol we frequently improve and test our search and rescue skills in the areas where they will most likely be needed—in the “boondocks”. To the extent that these areas are dry and covered with nature’s fuels (tree branches, sticks, grass, brush, etc.) we should take a few minutes to remember some ordinary precautions about fire safety.

- 1.** Your vehicle should be equipped with a working spark arrestor.
- 2.** Lanterns, stoves, and heaters should be allowed to cool before filling them with fuel. Refueling should be done on the ground in a cleared area. If fuel is spilled, move the lantern or stove to a new clearing before lighting it.
- 3.** Re-cap and store flammable liquid containers in a safe place.
- 4.** Never light lanterns or stoves inside a tent, trailer, or camper.
- 5.** Make sure you have adequate ventilation when using lanterns or stoves inside tents or trailers.
- 6.** Drown unused hot coals and embers in water. Do not just sprinkle them. Be sure they are COLD before leaving the site.
- 7.** If you must smoke, make sure you are sitting or standing in a cleared space at least 3 feet in diameter around you. Grind out tobacco products in bare dirt. Never put these products out by grinding them on a log or stump. It is unsafe to smoke while walking. Use your car ash tray when it is available.

SAFETY BRIEFING

FIRE and YOUR SAFETY

We are so familiar with fire that it is easy to become careless. A number of everyday things and events are associated with nearly all destructive fires, which include:

1. **Flammable liquids.** See how many around you now that you can name. How can oily rags cause fires?
2. **Electrical hazards.** What hazards are posed by extension cords?
3. **Smoking.** Why are smokers in a disproportionate number of vehicle accidents? How would careless disposal of cigarettes lead to a fire?
4. **Hot surfaces.** What scenario can you discuss that would relate to a C.A.P. activity and destructive fire?
5. **Sparks and Static Electricity.** Where have you seen these cause problems?
6. **Flammable Materials.** What other things around you right now could burn and endanger you? Discuss worn motor bearings, over-hot rubber drive belts, etc.
7. **Broken Equipment & Clogged pipes and flues.** What do you do when you discover something wrong with equipment? Besides limiting damage to the equipment itself, could you be preventing fire damage?

As you are listening to this talk, do you know where the nearest fire extinguisher is? Where are the nearest exits? How would you get to those exists if you were absolutely blind from smoke? What are the various CLASSES of fires (A,B,C,D), and what kinds of extinguishers do they require? How does clutter contribute to the risk of fire?

SAFETY BRIEFING

FOREIGN BODY FIRST AID

If the foreign body is in the eye:

1. Do not rub the eye.
2. Try to make the foreign body lodge on the inside of the eyelid.
3. Roll back the eyelid and remove the object with the corner of a handkerchief or tissue.
4. If the object is embedded, close the eye and bandage it shut. Then get prompt medical attention.

If the foreign body is in the air passage:

1. If the victim is conscious but unable to cough or speak, give 4 blows on the back with the heel of your hand.
2. If that does not clear the airway, stand behind the victim, wrap your arms around victim, placing the thumb-side of one fist into the abdomen above the navel, but below the ribs.
3. Give 4 inward and upward thrusts.
4. If ineffective repeat the sequence.
5. If victim is unconscious, try to give artificial respiration.
6. If unsuccessful, roll the victim toward you and give 4 back blows.
7. If ineffective, position yourself alongside the victim and give 4 manual abdominal thrusts.
8. If ineffective, open the victim's mouth and, using the index finger of one hand, sweep across the back of the victim's throat from one side to the other and remove any foreign matter.
8. If these maneuvers are ineffective, repeat the Procedures.

**ALWAYS CALL FOR PROFESSIONAL MEDICAL HELP AS
SOON AS POSSIBLE.**

SAFETY BRIEFING

IMMOBILIZING FRACTURES

Where bones are broken it is important to restrict movement of that part of the victim's body which may otherwise cause increased injury, until such time as professional medical attention is available. Many injuries can be deceptive, and the presence of a fracture is not always obvious. Taking account of the history of the injury is important (e.g. there is significant likelihood of fracture if the victim has fallen or been struck with considerable force). When in doubt it rarely is harmful to the victim to treat a suspicious injury as if it were a fracture. Following are some helpful pointers for immobilizing a number of common fractures.

JAW: Gently clear the mouth of any blood or dentures. Put thick pad under and around jaw. Secure by bandage over the pad, bringing the ends over the victim's head and tying knot.

COLLAR BONE: Keep point of elbow on side of injury supported, until a sling can hold it. Place soft pad under armpit, and secure upper arm against chest.

LEG: Keep victim lying down, and place pad between legs from groin to just above ankles. Bandage around the knees, and tie on side. Secure around feet and ankles.

ARM: If elbow can be bent without pain, place pad in armpit, and support forearm with sling. Ensure that forearm slopes slightly upward. If elbow is straight and painful to bend, keep patient lying down. Place padding between arm and body. Secure arm to body with 3 wide bandages along arm's length.

NOTE: Unless the victim is in a dangerous situation, warn him/her not to move. If expert help is likely to come quickly, let the victim wait as comfortably as possible, lying quietly. If expert help is delayed, or if it is essential to transport the victim immobilize the fractured part, ensuring that the whole part is secure, and also that any joint is secure. Protect the victim from shock, by using blankets, your own clothing, or whatever is reasonably available to keep the person warm. If there is any possibility of back injury leave the victim lying without movement. Prevent movement by blocking with padding, rolled carpet, etc.

In general:

- use a sound part of the victim's body as a part of the splint.
- whenever possible move uninjured part to the injured part.
- tie any knots over uninjured part, and ensure nothing is so tight as to cut circulation of blood.
- do not give food, liquid, or tablets to victim before professional help arrives.

CIVIL AIR PATROL PROHIBITS CONTACT WITH BODY FLUIDS.

SAFETY BRIEFING

FLOODS

BEFORE A FLOOD:

1. Know what has occurred on local property during past floods, and take appropriate precautions.
2. If you are considering flood insurance consult a local licensed insurance agent, but be aware that most policies will have a waiting period before they become effective.
3. Install check valves in sewer traps to prevent floodwaters from backing up out of sewer drains. Check into large stoppers which are designed for this purpose.
4. Obtain sandbags, plastic sheeting, lumber, and towels to help stop up leaks.
5. Obtain a large wet-dry vacuum for later clean-up (they may be in short supply after a flood has commenced).
6. Fuel your vehicles in case evacuation becomes necessary (what emergency items need to be in them?).
7. Monitor weather conditions and heed warnings.

DURING A FLOOD (if there is time):

1. Disconnect all electrical and gas appliances. Shut off the water main to keep contaminated water from the water heater (a source of emergency drinking water). Shut off the main gas valve on the outside of your residence.
2. Bring outdoor possessions inside.
3. Move valuables and essential items to upper floors.
4. Sandbags should be stacked well away from the building to avoid damaging walls. If major flooding is expected, flood the basement with clean water to equalize the water pressure on the outside of your basement walls and floors. This is to prevent worse structural damage from the tremendous hydraulic pressures of saturated soil outside.
5. Take care of pets.

EVACUATION:

1. Use travel routes recommended by local authorities.
2. Keep a radio on for news and updates.
3. Watch for flooding at bridges, viaducts, and low areas.
4. Don't drive over flooded areas, which can sweep your car off the road and hide deep spots and dangerous debris and objects.
5. Never try to cross flowing water above your knees.
6. All passengers should abandon a stalled vehicle immediately and move as a group to higher ground.

FLOODS (Continued)

AFTER A FLOOD:

1. Return home only when authorities say it is safe.
2. If there is major structural damage or there are utility breaks, have qualified workers inspect your home, and make repairs before you re-enter.
3. Be very cautious about inspecting your own property the first time.
4. Use a flashlight, not a torch or flame-type lantern.
5. Check for gas leaks (using your nose or soap mixture).
6. Wear rubber-soled shoes and rubber gloves in case of severed electrical lines.
7. Don't turn on electrical lines until you are absolutely certain there will be no shock or fire hazard.
8. Be careful about turning on electrical switches for the same reasons.
9. Check electrical circuits only when the electricity has been shut off to that circuit.
10. Don't use wet or soaked electrical appliances until they have been repaired.
11. Don't drink municipal or well water until the health department has declared it safe.
12. Don't rush to pump out a flooded basement. If the water is removed all at once the walls may cave in due to the sudden pressure change. Pump out about a third of the water a day. Mud is easier to shovel while it is still moist.
13. Do NOT over exert yourself, as you risk a heart attack, back injury, or other health problems.
14. Work with friends or adult relatives so that someone can help you if you become injured or otherwise need help.
15. Be extra careful about cuts and other such injuries due to the higher risk of infections.

SAFETY BRIEFING

WINTER FLYING

In most parts of the country flying in the winter season requires more preplanning and precautions than during the rest of the year. Following are a number of "cold considerations" for your review and discussion.

1. Fill your fuel tanks as soon as possible after landing to prevent water in the fuel from condensing and freezing.
2. Never let deicing fluids enter the pitot-static system.
3. Ensure the fire extinguisher will work at low temperatures.
4. Check the oil breather for ice.
5. Use only lubricants specified by the manufacturer for the seasonal temperatures in which you are operating.
6. An aircraft parked outside will benefit from covers and baffles approved for your airplane.
7. The cabin heating system must be checked to prevent carbon monoxide leaks. Consider installation of CO detectors.
8. Check your battery frequently. Wet cells should be kept fully charged to prevent freezing or loss of electrical power.
9. During descents use power to prevent shock cooling of the engine, and use carb heat as recommended by the manufacturer.
10. Watch out for "black ice", and check your brakes. Taxi slowly.
11. Beware of snow banks, which might be frozen solid, and tall enough to snag a wing tip.
12. Add sensible cold-weather survival gear to the cockpit. Plan your clothing as if you will have to walk several miles across open country.
13. Always remove all frost and snow accumulations from all flight surfaces. And beware of melt-water that can enter hinges or pitot tube, or pitot-static system. Review what happens on your panel when it is inoperative.
14. Allow for fewer daylight hours, and be night current, and equipped.
15. Call ahead for runway conditions. Keep in mind that snow covers many potential hazards, and it will be almost mandatory to pick a road for an emergency landing, if that becomes necessary.

SAFETY BRIEFING

AIRCRAFT ICING

Icing is potentially one of the most dangerous natural hazards to flight. It reduces lift, increases weight, decreases thrust, and increases drag. Each effect tends to force the airplane downward, or at least slow it down. Icing can also seriously affect engine performance, damage radio antennae, contribute to false instrument readings, adversely affect control surfaces, and decrease control and braking on the ground. There are three primary types of icing we are concerned with in C.A.P. They are (1) **structural icing**;; (2) **induction system icing**; and (3) **instrument icing**.

Two conditions are necessary for structural icing in flight: (1) airplane must be flying through visible water; and (2) the temperature at the point where the water strikes the plane must be at freezing or colder.

The way in which the water freezes determines the type of icing. The types are: (1) **clear**; (2) **rime**; and (3) **combination** of those two. Clear ice is hard and heavy, and removal can be very difficult. Rime ice is lighter in weight, but its irregular shape and rough surface make it effective in increasing drag and decreasing lift. Rime ice is brittle and rather easily removed compared to clear ice.

Induction icing frequently forms in the air intake of an engine, robbing it of sufficient air to support combustion.

Instrument icing forms on radio antennae, distorts the shape, increases drag, and can cause vibrations which breaks the antennae. Icing of the pitot tube reduces ram air pressure and causes unreliable indications on the airspeed indicator. Likewise icing of the static pressure port affects the airspeed indicator, rate-of-climb indicator (VSI), and altimeter.

If icing is a possibility consider the following:

1. Before takeoff get a good weather briefing.
2. AVOID icing conditions.
3. Always remove ice or frost before attempting to take off.
4. In cold weather avoid running through mud, water, or slush.
5. Be alert for erroneous readings from your instruments.
6. Avoid abrupt maneuvers if the plane gets coated with ice since some aerodynamic efficiency is compromised.
7. If the plane is carrying ice fly the landing approach with power.
8. Do not take chances. If you see ice forming take immediate evasive action.

SAFETY BRIEFING

EMERGENCY LANDING

Most of us will never experience an actual emergency landing, nor would we want to. Standard practice procedure includes climbing to at least 2000 feet AGL over a relatively low-population area, and pulling the power back to idle. Then we should promptly trim to hands-off "best glide", and select an appropriate landing site. Once these steps have been taken (and if it does not jeopardize keeping good control) you should rapidly check your fuel tank selector, mixture, carb heat, etc. Then set your transponder to **7700**, and broadcast your predicament and position on 121.5. But in "real life" what other factors should you consider? Discuss the following, and add to the list if you can.

1. During powerplant failure your prop will be a very effective airbrake, much different than the turning prop you have practiced with at idle. How does that affect pitch, and your options for landing sites?
2. You can "zoom off" excess speed in exchange for higher altitude.
3. Just before the emergency landing unlatch one door so you'll be able to exit if impact forces jam the doors.
4. Don't wait for the force of the landing to activate your ELT. Turn it on now.
5. Be prepared to sacrifice the aircraft in order to minimize injury to pilot and passengers. For example in a wooded area, and just before touchdown, fly between two trees, which will remove the wings and significantly slow down the plane. Almost all crashes below 50 mph are survivable, whereas nearly all above 60 mph result in serious injury or death. Remember that doubling the impact speed quadruples the force of impact.
6. Touchdown should occur slightly above the stall speed to minimize impact force. But it is desirable to maintain enough speed to make minor corrections during the final stages of landing, so obstacles can be avoided.
7. If you are in an isolated area, what survival techniques in various types of terrain, and seasons of the year would you consider?

SAFETY BRIEFING

PROFESSIONAL PILOT'S 12 RULES

The Flight Safety Department of the *National Aviation Insurance Group* has prepared 12 Rules for professional pilots. Following are these Rules, slightly altered.

1. **CHECK-OUT.** Plan Ahead so that you never attempt to exercise the privilege of your pilot certificate in any aircraft unless checked out by a well qualified instructor, at least completing:

- (a) one-hour ground familiarization with all controls/systems and operating limits (b) 8 regular take-offs and landings
- (c) 2 cross-wind take-offs and landings
- (d) 2 short field takes-offs and landings

2. **PRE-FLIGHT.** Plan ahead so you never start the engine until:

- (a) You have checked weight and balance data
- (b) You have ensured any objects carried in the cabin are properly secured and free of the controls
- (c) Completed walk-around preflight inspection
- (d) Double checked fuel quantity, including legal reserves
- (e) Fuel contamination checked from all tank drains

3. **VIGILANCE.** Plan ahead so you never occupy any area on the ground or in the air without double checking for possible existing or potential hazards

4. **CONTROLS and SYSTEMS.**

- (a) Only operate an aircraft when fully familiar with operation and correct use of all controls and systems
- (b) Never start engine or commence other operations until all prescribed procedures are completed from "memorized" checklist, then double checked against written checklist
- (c) Never operate an aircraft with a known malfunction. If malfunction occurs in flight land at nearest airport
- (d) Never raise flaps after landing retractable gear aircraft until well clear of active
- (e) Always be alert for formation of carburetor ice, and use "carb heat" at first sign of icing.

5. **WEATHER.**

- (a) Study enroute forecast, enroute conditions, and plan escape route to good weather
- (b) Never lose good ground reference when below low ceiling or poor visibility
- (c) Never risk I.F.R. weather unless you are rated and current IFR pilot in IFR plane

6. **SPEED/STALL CONTROL.** Plan ahead so you never abruptly change attitude of aircraft nor allow airspeed to drop below:

- (a) At least 160% of stall speed when maneuvering below 1000 feet
- (b) At least 140% of stall speed during straight approach or climb out
- (c) At least 120% of stall speed over threshold and ready for touchdown

7. **NAVIGATION.**

- (a) Reach destination one hour before sunset unless qualified and prepared for night flight
- (b) Never operate at an altitude less than 500 feet above highest obstruction (2000 feet in mountain areas) except on straight climb from take-off or straight in approach to landing

PROFESSIONAL PILOT'S 12 RULES (Continued)

(c) Predetermine "ETA" over all check points. If lost never deviate from original course until oriented. Always hold chart so that plotted course coincides with flight path

(d) Divert to nearest airport if periodic fuel check indicates you won't have 45 minutes reserve at destination

8. TAKE-OFF or LANDING AREA.

(a) Never take off or land unless on designated airports with known, current runway maintenance.

(b) Restrict operations to runway length equal to plane manufacturer's published take-off or landing distance plus 80% safety margin (hard surface), 100% margin (if sod) and 300% safety margin (if wet grass or ice)

(c) At night never operate except on well-lighted runways, and then use steeper approach/take-off attitude to clear unlighted obstacles

9. TAKE-OFF or LANDING LIMITS.

(a) Always plan touchdown 200 feet inside of runway threshold

(b) Abort take-off if not solidly airborne in first half of runway

(c) Abort landing if not solidly "on" in first half of runway (1/4 if wet grass)

(d) Never relax control "till the wheels have ceased to roll"

10. WIND LIMITS.

(a) Never attempt taxiing in cross winds or gusts exceeding 50% of stall speed unless outside assistance is available and used. Taxi very slowly when winds exceed 30% above stall speed.

(b) Never attempt take-off or landing when 90° cross surface winds exceed 20% of stall speed or 45° surface winds exceed 30% of stall speed

(c) Never taxi closer than 1,000 feet from "blast" end of powerful aircraft, and then only when headed into remaining blast effect

(d) Never get close to powerful aircraft on take-off, in air, or landing without allowing time for turbulence to subside--at least 2 minutes for heavier jets

11. PHYSICAL CONDITION.

(a) No alcohol ("twelve hours bottle to throttle" [24 hours if "big bottle"])

(b) Don't fly if extremely fatigued

(c) Don't fly if taking tranquilizing or sleep inducing drugs

(d) Don't fly if hypoxic from oversmoking or operating above 10,000 feet without oxygen

(e) Don't fly if emotionally upset

12. STARTING ENGINE.

Never, never attempt to hand-start an aircraft unless qualified person is at the controls

SAFETY BRIEFING

CAUSES OF FLIGHT MISHAPS

There are many causes of aircraft flight mishaps which have been identified over the years by the *National Transportation Safety Board* (NTSB). However the following are probably the most significant, as being contributing factors in most flight mishaps. In order for one common type of aircraft they are:

1. FUEL PROBLEMS. Problems here included water in the fuel; ice obstruction; starvation; gascolator (sediment bulb) obstruction. Poor fueling techniques and lengthy aircraft storage, as well as poor preflight techniques were important factors.

2. KNOWLEDGE OF AIRCRAFT: Problems included general lack of knowledge of TYPE characteristics; density altitude; weight and balance.

3. MISJUDGED FLARE and APPROACH: Problems include many that simply relate to training and experience.

4. FAILURE TO MAINTAIN CONTROL: Greatest problems were loss of directional control, and loss of airspeed and stalls.

5. MECHANICAL: A variety of problems related to magnetos, poor repairs, electrical problems, engine rods, valves, and oil shortage.

6. LACK OF PREFLIGHT PLANNING: Attention to this critical factor often alleviates Mechanical and Fuel factors that sometimes cause mishaps.

7. INADEQUATE COMPENSATION for CROSSWINDS/DOWNDRAFTS: This may be one of the most difficult problems to overcome; but complete preflight planning and pre-landing planning can certainly reduce the number of mishaps caused here.

8. ALCOHOL and DRUGS.

9. WEATHER.

10. INADEQUATE LOOKOUT.

SAFETY BRIEFING

TEN COMMANDMENTS of AIR SAFETY

Sometimes a little humor can help us remember basic safety rules. Following are the ten commandments of aviation safety.

- I.** Beware of intersection takeoffs, for verily the runway behind thee and the altitude above thee be no more than a hole in thy head.
- II.** Tarry not on active taxiways, for mad confusion may result, causing thee to become as a chopping block.
- III.** Ignore not thy checklist, for many are the switches, valves, and levers waiting to take vengeance upon thee.
- IV.** Look to thy left and thy right as thee journey through the sky, or thy fellow pilots will surely buy beers for thy widow, and console her/him in multitudinous other ways.
- V.** Buzz not, for this incurreth the wrath of thy neighbor, and bringeth forth the fury of the FAA on thy head and shoulders.
- VI.** Take thy measure of thy fuel, for verily a tank full of air is an abomination.
- VII.** Push through not the scud, lest the angels await thee on the other side.
- VIII.** Trifle not with the Thunderstorm; for thy wings and tailfeathers are likely to be shorn and cast about thee, whilst thou observist the firmament from many new and terrifying angles.
- IX.** Be wary of weather prophets, for the truth is often not in them.
- X.** Check frequently thine airspeed on final approach, lest the ground rise up and smite thee.

SAFETY BRIEFING

SAFETY FIRST for PILOTS

Safety is many things. But it is especially an attitude. Following are some general attitudes we should encourage among C.A.P. pilots.

1. Ignorance is never an excuse. Develop a healthy skepticism about the accuracy of information you receive in briefings, the suitability of charts for your proposed mission, and the possibility that the airplane may have a serious mechanical problem that can be spotted if only we look more closely and carefully.
2. We all have personal limitations, which should guide our actions.
3. Pilot error causes nearly all airplane accidents. And the likelihood of error increases with fatigue and stress.
4. Make everything right on the ground, and you will have less trouble in the air. Do not leave the ground with a known problem, either with the airplane or with yourself.
5. Flying the airplane requires your full attention. Save the horseplay for later.
6. There is rarely justification for departing from the rules and regulations. Know them and obey them.
7. Fly high on routine flights. The more sky you have below you the more time and options you have if something goes wrong.
8. To live long, plan well. Take advantage of all available information.

How many other common sense rules can you think of?

SAFETY BRIEFING

FORAGING

The only safe way to choose edible food in the wild is to have some training about what is appropriate in your section of the country. Read and travel with people who can teach you first hand. In a true emergency some general rules of thumb can save your life.

Natural foods are usually abundant in most green areas of the country. If your food supply is short, do not waste it. Food is necessary to maintain strength, satisfy hunger, and bolster morale. But most humans can survive without food for 2 to 3 weeks (except in extremely cold conditions) without any long-lasting adverse effects. But you absolutely need water.

Fish will provide protein. Roots and tubers will provide carbohydrates; and berries provide vitamins and sugar. Edible plants are usually easier to obtain than animals. Do not expend more energy in obtaining wild food than it will provide you in nutrition. Therefore concentrate your efforts in searching for edible plants and insects. Some plant parts may be eaten raw, but are usually easier to digest if cooked or toasted over a fire. Boiling is perhaps the best way to cook most edible foods, as it preserves the juices and may remove tannic acid. You can pack tubers and roots in mud, or wrap them in foil to cook in the coals of the fire.

To determine if a plant is edible use the "taste test". Place a small amount of a leaf or berry on the tongue. If it is bitter spit it out, and eat no more. If it is not bitter, place a small amount in your mouth for 5 minutes. If there is no bitter taste or burning sensation, swallow it. Wait at least 4 hours before eating more. If you feel no ill effects the plant is probably safe to eat.

Animals may eat many plants that are very toxic to people. So do not eat a substance just because you observe some animal doing so. Do not eat mushrooms unless you truly know which ones are safe. They offer little nutrition anyway. The nuts or seeds from most edible fruits (cherry, peach, apricot) are poisonous. Most blue berries and black berries are edible. Red berries are questionable; and white berries should not be eaten. The inner bark of many trees (birch, beech, willow) is edible. Grubs, grasshoppers, and most other insects are nutritious. Just pull off their heads, boil in water, strain, and enjoy an excellent broth. Wild animals do not eat any organs that are lumpy or that contain parasite holes. Birds and their unspoiled eggs are very nutritious. Always drink lots of water with wild edible foods to ensure better digestion.

As a general rule, if you need food **HEAD FOR WATER**. The area water supply will be your supermarket in the wild. Remember that the water itself, if near civilization or downstream from any habitation is nearly always unsafe. Boiling is the minimum treatment for any water you drink in the wild. Boil water at sea level for at least 10 minutes. And add 2 minutes boiling time for every 1000 feet you are above sea level.

SAFETY BRIEFING

PRE-SEASON FURNACE CHECK

Depending on your geographic location, in September or October every year it is time to think about routine furnace maintenance and operational safety. Here are some steps to take before the heating season begins.

1. Replace dirty, depleted filters, and dispose of them safely
2. Wash permanent filters according to their instructions
3. Clean warm-air registers and cold-air returns of accumulated dust. Make sure they are not blocked by curtains, rugs, furniture, etc.
4. Clean and inspect your humidifier for optimum performance
5. Keep the furnace area clear of combustibles
6. Have a qualified professional check your furnace and chimney each year, and lubricate the fan or blower motor
7. Install and/or maintain a carbon monoxide detector in the furnace area

SAFETY BRIEFING

GAS

One of nature's nearly perfect fuels is natural gas. It is invisible to the eye, and in its natural state it has no odor that people can detect. What we think of as the pungent smell of gas is caused by the utility company adding on odor-causing agent, so that we can more readily detect leaks. However this "odorant" sometimes is not fool-proof, and may become so weak that we cannot readily smell a gas leak. If you suspect a gas leak you cannot always trust your nose. If you do smell a gas leak:

1. Evacuate your family from the house. If you know how, shut the main gas valve off on the outside of your house.
2. Do NOT use your own phone, but go to a neighbor's house, so you do not risk a spark touching off a fire or explosion.
3. Do NOT switch lights in the house on or off, for the same reason.
4. Do NOT use any electrical appliance for the same reason.
5. Report the leak immediately to the gas company.
6. After the leak is repaired let the gas company turn the gas back on.

PROPANE GAS

Propane (or LP gas) is sometimes confused with natural gas, because it is used in our homes and on our farms in much the same way. The above precautions if a leak is detected would be similar for both of these fuels. But there is one key difference between them that you should know.

Propane is heavier than air, and it will therefore tend to "pool" in lower areas, such as basements, after it has leaked out of appliances like water heaters. It can therefore be harder to smell, because it may be concentrated around your feet, instead of rising around your nose, as Natural gas does. Propane may also not become so readily dispersed as Natural gas, after the leak is repaired, because it will not so easily rise and float out of open windows and doors. So be extra careful around propane leaks, even after you think they are fixed.

SAFETY BRIEFING

LP GAS

Liquefied Petroleum Gas (LP-gas) is a common fuel found in many homes (particularly in rural areas where it is drawn from tall bottles or long white tanks for stoves and furnaces and some tractors), and it is widely used for back yard grills, and for many other recreational purposes. LP can be either butane (seen most commonly in lighters) or propane. Because of its convenience, portability, and use everywhere LP is all too easy to take for granted. And we forget how hazardous this fuel can become when mixed with carelessness.

LP is non-toxic, and in its original state it is also odorless and colorless. But for consumer purposes it has been odorized, so that in the event of a leak, it can be readily detected. If you do not know what LP smells like you should visit a dealer and ask for a demonstration smell test so that you will know what it is if a leak should occur in your environment.

Most portable cylinders for LP are designed to be carried and used upright only. Some are designed for horizontal use. Never carry or use a cylinder in a manner it is not designed for. Also the cylinder should never be overfilled. Generally 80% full is the maximum, leaving at least 20% of the volume for vapor. A smaller vapor space will cause dangerous high pressures, or permit liquid to flow into vapor lines.

A regulator is installed between the supply tank and the appliance or engine. This device delivers a constant low pressure at the point of combustion, automatically adjusting for changing temperatures and tank volume. Always protect the regulator from all sources of moisture, as corrosion or freezing can cause the regulator to malfunction, creating dangerous high pressures at the point of use. Always keep the cylinder valve closed when it is not in use, to exclude moisture.

Never transport either full or "empty" cylinders in your vehicle's passenger compartment. Since LP is heavier than air even a slight leak can settle dangerous levels of the gas into a place where it can readily burn or explode. Keep LP tank cylinders painted with reflective or white paint, which keeps temperatures generated by sun exposure at a lower level. Check the color of the burner flame. Blue is best, and yellow indicates incomplete burning, which produces carbon monoxide. Adequate ventilation is essential. About 23.5 cubic feet of air is needed to burn just one cubic foot of LP. Any problems should prompt you to call a qualified service technician immediately.

Liquefied Petroleum Gas (LP-gas) is a wonderful modern fuel. It is so popular because it is readily available, inexpensive, and it burns easily and with an excellent heat output. These latter qualities make it dangerous too, when used carelessly. Following are some rules to follow around this fuel.

1. Maintain good ventilation. The flame needs lots of oxygen, and the combustion products need to escape safely to the outside.
2. If ignited LP will burn or explode. Keep matches and cigarettes away. Leaking propane will settle into low spots like basements because it is heavier than air. It will not rise and depart out open windows like natural gas does (because Natural gas is lighter than air).

LP GAS (Continued)

This means that a repaired LP gas leak in a basement can still leave dangerous accumulations of gas floating near the floor surface.

3. Do not operate electrical switches or appliances where there is a gas leak.
4. Use leak detection fluid or a soapy solution to detect leaks. If you cannot readily fix the leak shut off the gas supply (if you can do it safely), Call a qualified service technician from off the premises, and stay away until the leak is fixed.
5. Keep combustibles away from open flame.
6. When you light a burner or pilot, light the match first, then turn on the gas. Follow all instructions on the appliance.
7. Keep burner areas clean.
8. Keep a fully charged BC-rated fire extinguisher handy. Know how to use it.
9. Never repair your gas system or gas appliances yourself. Call an expert.
10. Keep your head away from tank valves during refill. A sudden discharge could cause injury.
11. Shut off all gas appliances before refilling your tank.
12. Always protect the regulator, and have it properly and promptly repaired if there is any problem.
13. Never store a cylinder inside a vehicle or any building. A spare cylinder should be stored outside, up off the ground on masonry or a rock footing. The cylinder must be secured in place to keep it from being knocked over. Keep its exterior surface painted a reflective or white color.
14. Know the symptoms of carbon monoxide poisoning, and seek immediate medical help to follow up if you have the symptoms.
15. Never use an outdoor appliance to heat something indoors.

SAFETY BRIEFING

PROPER GUN HANDLING

Firearms are prohibited at any Civil Air Patrol function or exercise. However many of our members enjoy hunting or other activities with guns, and some basics about safe gun handling practices should be discussed periodically. The Ten Commandments of Shooting Safety (from the *New York Hunter Education Program*) would be an excellent place to start.

- 1.** Treat every firearm with the respect due a loaded firearm.
- 2.** Watch your muzzle. Keep your safety on until ready to shoot.
- 3.** Know the identifying features of the game you seek.
- 4.** Be sure that the barrel and action are clear of obstructions and that your ammunition is of the proper size for the gun you carry.
- 5.** Unload guns not in use. Firearms should be carried in cases to the shooting area.
- 6.** Avoid all horseplay with a gun. Never point a firearm at anything you do not want to shoot.
- 7.** Never climb or jump an object while carrying a loaded firearm. Never pull a gun toward you by the muzzle.
- 8.** Never shoot at a flat, hard surface or at water. At target practice, make sure your backstop is adequate.
- 9.** Store firearms and ammunition separately, and keep both out of the reach of children or careless adults. Install trigger locks.
- 10.** Avoid alcoholic beverages before or during shooting.

In addition to these rules a hunter must never shoot at a mere sound or a patch of color. Don't fire until you are absolutely sure of what you are shooting at. And do not be too "polite" to remind your companion if you see an unsafe practice. Too many people are accidentally shot by their hunting companion. Do not continue carrying a loaded firearm if you are ill, under stress, or fatigued. Also get permission from landowners when you want to hunt on their property. Finally, do not carry a damaged firearm. Get it fixed by a professional

SAFETY BRIEFING

PROTECTING your HANDS

Your hands and fingers are priceless. Approximately twenty percent of work injuries involve the hand. Following are some considerations for safeguarding your hands and fingers. There are three broad types of injury to the hands, as follows:

TRAUMATIC INJURY:

Here the injury is caused by cuts, abrasions, punctures, crushing, broken bones, and sprains. Causes are very numerous, and include such common things as tools & machines, splinters, fasteners, glass, objects in nature like rocks, car doors, fishhooks, etc. Protection should be obvious in most cases, but would include wearing appropriate gloves, avoiding dangerous objects, keeping machine shields in place, reading and obeying instructions for machines, and using the right tool for the job. Also remove rings, watches, and bracelets before working with moving machinery. And don't use your bare hands on any rough or hot or cold materials. Turn off power to machinery before you repair, inspect, or clean it.

CONTACT INJURY:

This involves contact with caustic chemicals, or biological substances (such as bacteria, fungi, mites, or viruses), or mechanical items and forces. Compression, friction, and vibration are often culprits. The injury can be mere irritation of the skin, or severe burns. Prevention includes common sense washing with soap and water, prompt treatment of blisters and rashes, following instructions and warnings on products, and wearing of appropriate hand protection.

REPETITIVE MOTION PROBLEMS:

This type of injury to the hand results from doing the same thing with the same hand over and over. Some people experience severe repetitive motion injuries in a relatively short time. Generally tingling, numbness, and loss of strength in the grip are symptomatic. Rest your hands as often as you can, and do some exercises for your hands and wrists before, during, and after repetitive work. You should see your doctor about chronic pain and numbness.

CARE OF GLOVES: Check for damage, and replace gloves if you find it. Wash chemicals from gloves before you take them off. Don't leave chemical gloves inside out, as this can trap chemicals or vapors inside, or rot the material. Don't store gloves with the cuffs folded over, as this weakens the cuff at the crease. Store gloves in a cool, dry place away from sunlight.

SAFETY BRIEFING

HARD HAT AREA

In Civil Air Patrol we are not accustomed to wearing hard hats. But there may be a time that it would make sense, if there is a risk of falling objects, such as rocks or debris from above. In any case it should be useful to explore some features of hard hats, so that we have a better understanding of how they offer protection to one of our most vulnerable body parts...our heads.

The *American National Standard Institute* categorizes hard hats into three groups, according to how much protection they afford against electric shock. Class C does not protect against electric shock at all; Class B protects against high voltage shocks; and Class A protects against low-voltage shocks. All safety hats are designed to protect the head against falling objects.

The shape and setup of a hard hat is designed to resist and deflect blows to the head. The brim can offer protection for the face, scalp, and neck against overhead spills of injurious liquids. But it is the hat's suspension system that offers the most significant protection, by acting as a shock absorber. The suspension is an internal cradle which rests on the head directly, and helps absorb the impact and force sustained by the outer shell, and spread it out over the entire area of the hat. The suspension system must be adjusted to a proper fit, and must not be defeated by improper wearing of the hat, or putting objects in the inner webbing, such as packs of cigarettes. If the suspension system is too rigid the force of an impact will be transferred to the wearer's neck. If it is too flexible, the hat's shell may hit the head during impact, increasing the likelihood of head or brain injury.

A number of accessories can be attached to some hard hats, such as a visor over the face area, or hearing protectors, or communications systems. And bright colors can increase the wearer's visibility. Remember that when you see a sign advising "Hard Hat Area" it is dangerous to enter that area without a proper hard hat, and possibly other safety equipment as well.

SAFETY BRIEFING

HEART ATTACK

The heart muscle depends on small arteries for its own blood supply. If these vessels have become so narrow that they cannot provide the extra blood needed when a person exerts him or herself or feels strong emotion, the result is a pain in the chest. This condition is known as *angina*. The pain is vice-like, and sometimes spreads to the neck, shoulders and arms.

During a severe heart attack a clot blocking one of the arteries cuts off the blood from part of the heart muscle. This is known as *coronary thrombosis*, and it causes intense pain. The victim collapses, is pale, sweats and has a fast, weak and sometimes irregular pulse. In some cases the symptoms are mild and similar to those of indigestion. When in doubt treat it as a heart attack.

Acute heart failure is different from the above conditions. Here a weakened heart muscle suddenly ceases the normal pumping action. Blood flowing into the heart from the lungs is not fully propelled forward and the lungs become congested. There is no pain but the victim's breathing is very wet and bubbly, and he/she may cough up watery, blood-tinged sputum.

You should generally do the following:

1. Place the victim in a resting position at once.
2. Loosen clothes at the neck and the waist.
3. If the victim appears short of breath let them sit up, and use whatever is available as a prop.
4. Keep the victim well, but loosely covered. If inside then open a window, and ensure adequate ventilation.
5. Call for an ambulance.
6. Alleviate the victim's fears, by being calm yourself and by blending sympathy with confidence about the person's prompt recovery.
7. Prevent others from crowding around
8. If the victim quits breathing, or their heart stops, then commence appropriate CPR.

SAFETY BRIEFING

HEARTBURN and HEART ATTACK; a comparison of symptoms

Some experts estimate that about 70% of emergency room patients who believe they are having a heart attack are actually suffering from heartburn. Heartburn (also known as "acid indigestion") is a painful burning sensation at the base of the breastbone. Sometimes the pain is so intense that it is mistaken for heart attack. Heartburn is caused by a back flow of stomach acids into the esophagus (the tube taking food from the mouth to the stomach). With a weakening of the sphincter (valve) muscle at the top of the stomach can come an occasional backflow of powerful stomach acids, which is the cause of the severe burning sensation. Things that increase the occurrence of heartburn are: overeating, consuming alcohol, cigarette smoking, and consumption of fatty or spicy foods. Lying down within two hours of eating can result in heartburn. Also a hiatal hernia (where a portion of the stomach pushes up through the small opening in the "valve" above the stomach) can allow the backflow of acids. Non prescription antacids are usually sufficient to relieve an attack of heartburn.

But one should consult a doctor immediately if: the pain is unusually severe and is accompanied by nausea or vomiting, numbness in a limb, or a cold, clammy sensation. Heart attack pain often radiates to the neck, jaw, back, or arms. It frequently is accompanied by breathlessness and fainting. These are serious symptoms that should not be confused with "mere" heartburn.

Additionally frequent heartburn symptoms over a period of time may indicate a peptic ulcer. See your doctor if problems persist.

SAFETY BRIEFING

HEPATITIS

Hepatitis is a highly infectious virus disease, involving inflammation of the liver. The virus is transmitted in blood, feces, or saliva. It is a disease affecting people of all ages, but tends to occur more in the young or among those handling contaminated material. This is one reason that CIVIL AIR PATROL prohibits its members from coming into contact with any body substances, when attending to victims of mishaps.

CAUSES: There are two viruses that are chiefly responsible--*hepatitis A* (once called infectious hepatitis) and *hepatitis B* (once called serum hepatitis).

Hepatitis A is usually transmitted by food or water that has been contaminated. The A-virus can also be transmitted in infected blood. This virus is only infectious in the incubation stage, and it is not transmitted by carriers. This is the type of disease that can be caught on a trip into areas of poor sanitation, for example, after eating contaminated food.

Hepatitis B takes longer to incubate, probably many months. Although it may be transmitted in the same way as the A-virus, the B-virus is more often transmitted in infected blood, either from hypodermic needles or as a result of a transfusion of infected blood or plasma. It has also been transmitted from the use of un-sterile tattoo needles or razor blades. Some believe that this virus can also be transmitted sexually.

SYMPTOMS: The majority of infections are mild, and may pass unnoticed for a long time, though a blood test would detect its presence. When the disease is severe enough to cause sufficient inflammation of the liver to block the drainage of bile, the victim becomes jaundiced. When this happens, the skin and the whites of the eyes develop a yellowish tinge. Jaundice may occur fairly rapidly after an infection by hepatitis A, but is usually slower if the illness is due to hepatitis B. In time pain is felt high in the abdomen, on the right side. There may also be arthritic-type pains in the joints, as well as a rash. While the jaundice is most marked, the victim feels sick and frequently vomits. The jaundice does not usually last for more than 10 days, and recovery takes place within six weeks or so.

AFTER-EFFECTS: Once a person contracts hepatitis their liver is damaged. And they must refrain from intake of alcohol, and many prescription drugs (for example a woman could not take oral contraceptives) and over-the-counter drugs. A physician should always be consulted about treatment and aftercare.

SAFETY BRIEFING

HYPOTHERMIA

Hypothermia occurs when the body's core temperature drops below 35° C (95° F), and is considered severe when it falls below 28° C (82.4 °F). Shivering fades and is lost around 31° C (87.8° F). The blood vessels constrict and decrease peripheral circulation, contributing to frostbite, as the body sacrifices the extremities to maintain heat and shunt blood to the vital organs. A chilled heart muscle puts the hypothermic victim at risk for cardiac arrhythmias (harmful heart flutter which fails to circulate the blood).

When the victim is moved to a warm place special care must be taken. One should generally cover and warm the trunk, head, and chest areas first. If the extremities are warmed at the same time an "afterdrop" of core body temperature can result due to blood return from the still-cold limbs, which can provoke arrhythmias ("rewarming shock").

Obviously professional medical personnel must be called as soon as possible. They can monitor and protect the heart and other vital organs. And they can do sophisticated things like provide heated, humidified oxygen; infuse warmed saline solution; and catheterize to irrigate the bladder with warm saline solution.

The main point of this discussion is to illustrate the absolute need to obtain professional medical attention as soon as possible for such injuries, despite the fact that the solution may seem obvious. After all most of us would simply place the hypothermic victim in a warm room, under a lot of blankets, and assume the only problem might be frostbite to the toes and fingers. Right??

Discuss similar instances of "obvious solutions" to injury not being correct. Consider such things as bee stings, allergies to various environmental things, and the several kinds of shock. ALWAYS call the Emergency Services professionals as soon as you can.

SAFETY BRIEFING

HYPOTHERMIA and COLD WEATHER DANGERS

Hypothermia is a condition of reduced body temperature, often caused by exposure to winter cold or immersion in cold water. Other common cold-temperature dangers include frostbite and carbon monoxide poisoning. Make sure your cold weather plan includes:

1. Have a buddy system.
2. Never wear wet clothes unnecessarily.
3. Change socks regularly.
4. Drink water regularly. Do not wait until you are thirsty. Beware of dehydration.
5. Never sleep in vehicles with the engine running, or in a confined area with a portable heater. Symptoms of carbon monoxide poisoning are: nausea, dizziness, headache, tightness across the chest, inattention, fatigue, lack of coordination, weakness, and confusion. Good ventilation is the best prevention for Carbon monoxide poisoning, and fresh air is the best INITIAL treatment. Bear in mind that although carbon monoxide itself has no odor, it may mix with gases that do. Thus the smell of gas does not necessarily mean an absence of carbon monoxide.
6. If you are winter-camping in a tent, and there is an open fire you should have a fire guard posted at all times.
7. Wear LAYERED clothing. Standard cotton underwear and wool "long johns" keep sweat in contact with the skin; and therefore should not be worn for extended cold-weather exercises. Use of "Gore-tex" ® and polypropylene is recommended.
8. Beware of the typical hazards of driving: slippery roads; extended stopping distances; visibility problems--clean those windshields. Also be careful about crossing icy areas, and assume that ice on a water body is too thin to support your weight, and stay off of it.

SAFETY BRIEFING

HYPOXIA

Hypoxia is a shortage of oxygen in the body, caused 'by any number of circumstances. Acute hypoxia can occur in healthy people if the oxygen content of the air they breathe suddenly gets very low, which can happen at high altitudes, or if something interferes with breathing, or prevents the transport of oxygenated blood from the lungs to the body tissues. Possible causes include suffocation, damage to the chest, or some forms of poisoning, including intake of smoke. At normal body temperatures the brain is probably damaged if it lacks oxygen for more than four minutes or so. Air pressure, and the amount of oxygen available to the lungs in each breath, decreases with altitude. A normal healthy person probably will not have much trouble until reaching 14,000 feet, but the level of physical exertion they are used to at lower altitudes will become progressively difficult with increasing altitude, until they acclimate to the higher altitude.

Chronic hypoxia may result from any disease or defect that reduces the efficiency of the lungs in carrying oxygen to the cells. Possible causes include chronic bronchitis (which obstructs the air flow in and out of the lungs) and emphysema (which impairs the diffusion of oxygen from the lungs into the blood). Heavy smoking is one cause of chronic hypoxia, due to the small amounts of carbon monoxide (a poison which reduces the blood's oxygen carrying capacity by binding to a substance in the blood called hemoglobin, which carries oxygen to the cells. Smoking also increases the risk of lung, heart, and blood vessel disease, which themselves may cause hypoxia. Chronic hypoxia causes increased stress on the heart in its effort to pump more oxygenated blood to the tissues. This extra load may eventually cause heart failure.

SYMPTOMS: Symptoms of acute hypoxia are breathlessness, blue coloration of the skin (most noticeable in the lips, earlobes and under the fingernails). Symptoms of chronic hypoxia are fatigue, headache, dizziness, and rapid pulse.

TREATMENT: Victims must be removed from the source of their distress. Obviously, drowning victims are pulled out of the water; carbon monoxide victims are placed in well-ventilated spaces; and anything blocking the windpipe is removed. If the victim has stopped breathing, artificial respiration may be required. And if the heart has stopped cardiac massage should be given. In all cases, an ambulance must be called immediately.

SAFETY BRIEFING

HYPOXIA-SUPPLEMENT (call ambulance first)

CAUSE	EFFECT	TREATMENT
High altitude	Low air pressure causes reduction in amount of oxygen entering lungs, causing breathlessness, dizziness and nausea	Administer oxygen and descend to a lower level
Strangulation, Smothering, choking, Drowning, crowd Collapse	Breathing is impossible or difficult	Remove from source of Ensure nothing is blocking windpipe. If breathing is difficult, give oxygen. If Breathing has stopped, Give artificial respiration or Cardiac massage where Heart has stopped.
Overcrowded, Under-ventilated room	Reduced oxygen content of air causes lethargy And headaches	Ventilate room and reduce crowding
Broken ribs, other Chest damage	Breathing difficult or painful	Ventilate room and reduce crowding
Poisoning with Curare, certain snake Venoms, nerve poisons	Paralysis of muscles throughout the body; breathing difficult; Suffocation	Remove venom, wash with soap and water, clean and cover any wound; artificial Respiration if needed
Severe asthmatic Attack or other Allergic reaction	Lung passages constricted, and breathing difficult	Use bronchodilator aerosol drugs
Carbon monoxide Poisoning	Reduced oxygen carrying capacity due to lack of	Remove to fresh air. Give oxygen.
Barbiturate overdose	Brain center controlling Breathing suppressed; Suffocation	Make comfortable; retain container of to show doctor

SAFETY BRIEFING

LYME DISEASE - Part 1

Lyme disease was discovered in Lyme, Connecticut in 1976. It is characterized by a range of symptoms. Most recognizable of the symptoms is a red rash on the skin that is circular in shape, and resembles a breakfast food Cheerio. During the rash stage, or sometimes before the rash, other symptoms such as fever, headache, fatigue, stiff neck, muscle or joint pain may be present. These may last for several weeks.

If left untreated, within a few weeks to months after the rash, other symptoms begin appearing slowly. They include arthritis, migraine headaches, hearing abnormalities, lost vision, and fatigue. If the disease remains untreated long-term symptoms include debilitating arthritis, cardiac and neurological problems.

Lyme disease is carried by infected deer ticks, which are smaller in size and far less common than dog ticks or wood ticks.

When you are in an area where ticks are common, and to lessen the chance of becoming infected by tick-borne diseases such as *Lyme disease*:

- Wear light-colored clothing, so ticks can be easily spotted.
- Keep your body covered with clothing; wear long pants and long-sleeved shirts.
- Wear insect repellent with *Diethyltolusmide* (DEET) to repel ticks.

If you find a tick on your body, remove it with tweezers; wash the area and then apply an Antiseptic. Health officials do not recommend burning the tick off because it can cause the tick to discharge bacteria into your body. Also if the tick is jerked off of your skin, part of the tick can remain attached to your skin causing infection. See a doctor if that happens.

SAFETY BRIEFING

LYME DISEASE - Part 2

Lyme disease is an infectious disease that causes joint pain and inflammation and possible heart and nerve complications. It was first recognized in 1975 when several people in Lyme, Connecticut developed a strange type of arthritis. Now it is known to exist most commonly in the Northeast, the upper Midwest, and the Pacific Northwest. The disease is caused by a spirochete form of bacteria that is spread by the bite of the deer tick, which is an insect about the size of this period. Despite their name this small tick is also found on birds and rodents. Lyme disease is diagnosed on the basis of blood tests and symptoms.

The symptoms include: rash at the site of the tick bite, that forms a raised, red circle with a clear center; flu-like symptoms, such as headache, fatigue, fever, chills, sore throat, and muscle aches; arthritic complications like painful joints and muscles and tendons; paralysis (usually of the face), abnormal skin sensations, insomnia, and hearing loss; irregular, rapid, or slowed heartbeat, chest pain, fainting, dizziness, and shortness of breath. Due to the diversity of its symptoms, Lyme disease is often misdiagnosed as rheumatoid arthritis, meningitis, or multiple sclerosis.

Lyme disease is most often contracted in the late spring and early summer. It is treated with antibiotics. Treatment is most effective if it is started early. Arthroscopic surgery may be needed to repair knee joints.

Follow these precautions to avoid this terrible disease: Walk along cleared surfaces in tick-infested areas, rather than through tall grass or wooded areas. Wear long-sleeved shirts, long pants tucked into socks, and closed shoes. Shower as soon as possible after returning indoors. Use insect repellents containing DEET. Remove ticks immediately.

SAFETY BRIEFING

MOTORCYCLE SAFETY - Part 1

The title of this outline may seem to be an oxymoron. How can the concepts of "safety" and "motorcycle" go together in one thought. But riding these two-wheeled marvels can certainly be made safer. They need not be thought of as "donor - cycles". Consider the following:

1. A motorcyclist must be more alert and constantly on the lookout for potentially dangerous situations.
2. You can have both added safety and added comfort by wearing:
 - over-the-ankle boots with nonskid soles.
 - jacket or long-sleeve shirt
 - long sturdy pants
 - snug-fitting gloves that protect the entire hand
 - proper helmet with face protection (a non-helmeted rider is 5 times more likely to sustain a critical head injury than one wearing a helmet)
3. Wear bright colors so you are more easily seen by other drivers
4. Ride defensively. Nearly two-thirds of all motorcycle accidents are caused by a car driver who is violating the cycle rider's right of way. Usually this was because the cycle rider was not seen. Therefore ride so you can be seen.
 - Always ride with your headlights on.
 - Slow down at intersections and be extra careful about side traffic.
 - Watch for turning vehicles. They will turn right in front of you.
 - Stay out of car drivers' blind spots.
 - Signal well in advance any change you intend to make.
 - Don't assume the driver sees you, even if eye contact is made.
 - Don't be shy about using your horn.
 - Never mix alcohol/drugs and cycle operation.

Nearly **75%** of motorcycle accidents happen during the day, on straight roads and in good weather. And over **80%** of them happen within the first 18 minutes of the ride. So be extra careful then.

SAFETY BRIEFING

MOTORCYCLE SAFETY - Part 2

Riding a motorcycle is both one of the most enjoyable and one of the most dangerous ways to travel. Your chances of having an accident are much greater when riding a motorcycle than when driving a car. Over 75 percent of motorcycle accidents happen during the day, on straight roads and in good weather. And over 80 percent of accidents happen within the first 18 minutes of the ride. If you must be one of the millions in this country who enjoy operating a motorcycle think about the following:

Head injuries are the most common injury in motorcycle accidents. The best way to reduce or prevent these injuries is to wear a helmet. A rider not wearing a helmet is five times more likely to sustain a critical head injury than a helmeted rider.

Nearly two-thirds of all motorcycle accidents are caused by a car driver violating a motorcycle rider's right of way. Usually this is due to the motorcyclist not being seen. To avoid this you must ride as if no one else on the road can see you. Observe the following.

- Always ride with your headlights on--day and night.
- Slow down at intersections and ride through carefully.
- Watch for turning vehicles.
- Stay out of drivers' blind spots.
- Signal well in advance of any change in your driving direction.
- Do not assume the other guy sees you, even if eye contact is made.
- Use your horn when necessary, or if you think the other guy doesn't see you.
- Be careful when you approach another vehicle. It's difficult for drivers ahead of you to accurately judge how fast your motorcycle is moving.
- Make sure there is plenty of space between you and the vehicle ahead.
- Wear brighter clothes and reflective fabrics and tapes to increase your visibility to others.
- Avoid alcohol. Over one-half of all motorcycle fatalities occur when the rider has been drinking.

SAFETY BRIEFING

PESTICIDES

Pesticides are designed for one purpose--to kill unwanted insects and plants (a "weed" is just a plant out of place) as inexpensively and easily as possible. Many chemicals that were common in the 1950's and 1960's were later banned. But unfortunately some are still around. Following is a list of many of these obsolete and hazardous pesticides.

aldrin, carbon tetrachloride (liquid fumigant), chlordane, chlordimeform, daminozide, DBCP, DDT, dieldrin, dinoseb, ethylene dibromide (liquid fumigant), endrin, EPN, heptachlor, kepones, pentachlorophenol, silvex/2,4,5-T; 2,4,5-TC; toxaphene, trichlorophenol.

Pesticides are commonly stored around farms and homes. Consider them all hazardous, and handle them only if you are qualified (which means at the very least that you have familiarized yourself with the instructions on the container). Storing unused pesticides leads to many problems, because they tend to lose their usefulness due to excess heat or cold, and due to lengthy storage. And they remain a tempting curiosity to young children. It is best to buy only the amount of chemical that you can promptly use, and then safely dispose of the rest. And do NOT just pour excess chemicals on the ground. One ounce of chemical can contaminate 3500 gallons of groundwater to a level of 1 part per million. What pesticides you do store must be locked away and kept at moderate temperatures, and in their original labeled containers.

Information on pesticide disposal can be answered by the Iowa Dept. of Natural Resources at 1-800-367-1025. When handling pesticides wear rubber gloves, and minimize breathing the fumes or touching them. Always promptly wash hands.

Remember that many pesticides can be absorbed through your skin, and poison you. If you have handled a pesticide (or other dangerous chemical) you can expect that your clothing has become contaminated. If the contamination is especially noticeable you may want to consider disposing of it. If you plan to wash such clothing, then do that safely too. Pre-rinse in a separate tub or on a line with a garden hose. Wash separately from other clothing in hot water with heavy-duty detergent, and do not overcrowd the washer. Use longest wash-time cycle. Wash twice the same way. Use the highest water level, even for a small load. If your washer has a "suds-saver" feature, NEVER use it to wash pesticide-contaminated clothes. Hang the clothes to dry in the open air and sun (the sun can break down many chemicals). Incidentally, NEVER use bleach and ammonia in the same wash load, as toxic fumes can result. Remember that the pesticide container label may have additional helpful information regarding washing of clothes.

SAFETY BRIEFING

POISONING

FUMES & SMOKE:

1. Do not rush into the danger area unprepared. Have a safety cord tied around you, with a capable person on the other end.
2. Put a moist towel or handkerchief over your mouth and nose. Take a couple of deep breaths before you go in; then hold your breath.
3. If smoke is from a suspected fire, travel low along the floor, where the air is.
4. If victim cannot walk drag him/her out with hands under armpits.
5. Open doors & windows if there is no fire or smolders.

PESTICIDES:

1. Symptoms and effects are quite variable, but most dangerous in spray form.
2. Generally get victim out of area, and put him/her to rest.
3. Wearing gloves remove contaminated clothing & put into closed plastic bag.
4. Thoroughly wash skin.
5. Check container label for advice. Call poison control center.

POISONING BY MOUTH:

Where Conscious

1. Dilute with glass of water or milk, IF victim not convulsing
2. Save label or container of suspected poison, or a sample of any material the victim vomits.

Where Unconscious

1. Maintain an open airway by tipping victim's head back
2. Administer artificial respiration or CPR, if you are properly trained.
3. Save the container of the suspected poison, or a sample of the vomited material.
4. Do not give fluids to an unconscious person.
5. Do **not** try to make an unconscious person vomit.
6. Never make a person vomit who has swallowed a strong acid, strong alkali, or petroleum product.

IN ALL CASES, IMMEDIATELY SEND FOR AN AMBULANCE; KEEP CROWDS BACK; WATCH THE VICTIM CLOSELY & START RESPIRATORY CARE & CPR WHERE NECESSARY.

SAFETY BRIEFING

CARBON MONOXIDE POISONING - Part 1

Carbon monoxide (CO) is a colorless, odorless gas that may be formed when various fuels are not completely burned. When inhaled (even in small quantities), CO is absorbed into the bloodstream where it interferes with the blood's ability to transport oxygen. If you suspect you are breathing carbon monoxide you must get fresh air immediately, and then see your doctor.

Conditions often leading to CO formation and infiltration:

1. Vent system is plugged (often by bird nest, or by collapse of masonry chimney, or by damage to vent piping).
2. Vent system leaks into living spaces, due to rust or physical damage.
3. Plugged fresh air vents.
4. Excessive caulking or insulating that reduces fresh air intake.
5. Improper air adjustment, wrong burner orifice size, or misalignment in appliances.
6. Vehicles left running in attached garages.

Common indicators of carbon monoxide contamination include:

1. Chronic headaches, nausea, or eye irritation when indoors. Later stages of carbon monoxide poisoning are characterized by headache, dizziness and sleepiness. As more carbon monoxide is absorbed, the symptoms include nausea, vomiting, fluttering and throbbing of the heart, and finally unconsciousness and death.
2. An unidentified chronic odor inside the building.
3. Dying house plants.
4. Condensation on cool, indoor surfaces.
5. Discoloration or soot buildup at warm air outlets of the heating system.

SAFETY BRIEFING

CARBON MONOXIDE POISONING-Part 2

Proportion of CO present in the Air
Up to 0.005 per cent (1 part in 20,000)

Symptoms

Generally safe—no symptoms

Above 0.05 per cent

Risk of coma and death. First
Mild symptoms will be tightness
Across forehead, slight headache,
Flushed skin, yawning. Long
Exposure will produce headache,
Dizziness, palpitations, possibly
Double vision, and ear trouble

Above 0.4 per cent

Severity of symptoms will depend upon
strength of victim and length of
exposure. Grave weakening of heart rate
and breathing. Certain coma. Failure of
lungs. Fatal if rescue is not immediate.

TREATING CARBON MONOXIDE POISONING

When you find someone collapsed in a space that smells of gas, or where the victim has the symptoms outlined above:

- [] Take 2 to 3 deep breaths of fresh air.
- [] If smoking, put out your cigarette.
- [] Avoid operating electrical switches (may set off an explosion from spark).
- [] Enter room & immediately open windows and doors to let gas escape.
- [] Check for the cause of the gas leak, turning off any open valves (at meter is best).
- [] Get victim out of the space.
- [] Call for ambulance.
- [] If victim not breathing begin artificial respiration.
- [] If victim is breathing, but unconscious, roll them onto side.

SAFETY BRIEFING

FOOD POISONING

Food poisoning can have many different causes, but most frequently the culprit is one of the SALMONELLAE BACILLI. There are at least 1400 different types of food poisoning salmonellae. But only a small number regularly cause any serious trouble in people. Related to this group of bacteria is the organism that causes typhoid fever. This disease is rarely caused by contact with animals, and usually results from contact with water which has been contaminated by infected humans.

However the subject of this paper will be limited to the food poisoning variety. Even tiny slips in hygiene can lead to large outbreaks of this common disease. The main symptom of salmonella food poisoning is diarrhea, which is often accompanied by pain in the abdomen. There may be a little vomiting, but this is not often severe.

In a few cases some of the organisms may spread through into the bloodstream, and cause the sort of feverish illness that typhoid causes. Occasionally there may be an infection in odd places like the membranes of the brain (meningitis) or an infection in the bone (osteomyelitis).

Salmonellae live naturally in the intestines of a wide range of animals, including poultry, rats, cattle, frogs, shellfish and birds. Poultry in general are particularly likely to harbor the disease. And eggs (BEWARE of MAYONNAISE) especially duck eggs, can also be infected. Vegetables may be a source of salmonella if they have become infected as a result of contact with infected water or animal waste. Some people can become carriers of the disease. Salmonellae always enter the body through the mouth.

Salmonellae are killed by being HEATED. So freshly cooked food should be quite safe provided that it has been heated right through, and cooked for at least 4 minutes at 165.6° or higher. BEWARE that freezing food does NOT kill the organism, although it inhibits its growth. When cooking frozen infected food, cooking will be insufficient to kill the salmonellae unless first completely thawed, and then cooked completely through. Remember that perfectly clean food can become infected by hands or utensils that are infected. Therefore these must be washed thoroughly before they touch food. And food that is left out should be covered so that flies and other insects cannot come into contact with it.

THERE IS NO EFFECTIVE TREATMENT FOR SALMONELLA FOOD POISONING. The only useful treatment is probably bed rest and drinking plenty of fluids, with medication to alleviate the problems of diarrhea. Antibiotics are usually ineffective, and may even be dangerous as they suppress the growth of the normal intestinal bacteria, which (when killed by antibiotic) can allow the salmonella to thrive--making the disease much worse. Food poisoning comes on within 48 hours of eating infected food. Recovery usually is complete in two days.

SAFETY BRIEFING

LEAD POISONING

Doctors and other scientists have reached agreement on the permissible levels of lead in the human body: 0. Unfortunately lead lurks all around us: in plumbing pipes, paints, dishes and pottery, and in some canned foods. When ingested or inhaled, lead can cause high blood pressure, kidney disease and brain damage. Because of their smaller size, children and unborn babies are most at risk.

Children do not always show signs of lead poisoning. Some children who have been lead poisoned may not be able to pay attention, they may have stomach aches, or be more tired than normal. Children with very high levels of lead may develop seizures, become unconscious or even die. Other children show no symptoms, but may have learning or behavior problems as they grow older.

What are the most common sources of lead? Almost every home built before 1960 used lead-based paint for indoor and outdoor painting. With the decrease in affordable housing, more families are living in or remodeling older homes. Most young children eat materials or objects they pick up. They may gnaw on stair railings or other objects that have lead-based paint on them. Household dust in older homes often contains lead from old paint, which gets on children's hands, toys, etc. Especially suspect is the area around window sills. Even soil surrounding the home can be contaminated with lead chips from the old paint falling off the house. Other common sources are tap water from old plumbing that has lead-based solder joints, lead-soldered cans for various foods, and certain glazes on pottery cooking utensils.

The only way you can tell for sure if you or your family members have lead poisoning is to have a blood test done.

Discuss ways that lead poisoning can be avoided, or the likelihood lessened.

SAFETY BRIEFING

RABIES

Rabies is one of the most terrifying diseases in the world. It is transmitted by the bite of an animal driven to frenzy by the disease. The horror of the disease is intensified by the knowledge that it is virtually unknown for a victim to recover, if intensive treatment is not completed right away.

Rabies is caused by a virus. It is found almost everywhere in the world. Infection by other people is very rare. One documented case of human-human spread involved two people who received corneal grafts from an infected donor. All died of rabies.

Although rabies is carried by a variety of animals (skunks, foxes, raccoons, etc.) it is the DOG that is most likely to infect a person. This is because a dog is the creature most likely to come into contact with people. The animal that attacks and bites will always die from the disease.

Once the infecting virus has made its way through the skin, it may lie dormant for some time. After the skin stage the virus enters the nerves of its victim, and works its way up the nerves through the nerve cells themselves until it establishes itself in the brain. Once in the brain the symptoms of the disease break out. The fact that the virus has to make this journey through the nerves explains why the incubation periods seems to be longer in those people who are bitten on the foot compared with those who are bitten on the hand or the face. The further the virus has to go from its site of entry to reach the brain, the longer it is going to take for the victim to exhibit symptoms that are clearly those of rabies. The first symptoms are usually a few days of ill health, fever, sore throat, and muscular aches. There often is a period of restlessness and insomnia. Another clue in the early stages is that there has been pain and tingling at the site where the person has been bitten. Then there is general involvement of the nervous system, including spasms, episodes of wild, confused excitement alternating with lucid periods. Often there is an exaggeration of such automatic functions as salivation and sweating. In about 1 out of 5 people paralysis is a major feature. A very obvious symptom for many victims and infected animals is HYDROPHOBIA. This is extreme thirst for water accompanied by terror and spasms at the very sight of it. Eventually the victim lapses into a coma and dies.

PREVENTION is the only sensible solution. Avoid all strange animals, and especially stay away from strange dogs. However, if you are bitten (keeping in mind that the disease can be spread by an animal licking a scratch) you should:

- Scrub the wound under running tap water, with soap, for at least 5 minutes.
- Remove any foreign substance in the wound.
- Rinse the wound with iodine or strong alcohol.
- Leave the wound open.
- Seek medical help IMMEDIATELY.

SAFETY BRIEFING

AN ATTITUDE OF READINESS

The keys to coping with an emergency are ***awareness and planning***. Consider the following:

1. Do you know every possible evacuation route out of your home, from every room? If you had to break a window to get out, what would you use? Would you need to step on a chair to get out of a basement window, and where would you get it? If you had to flee through choking-thick smoke what would you use to cover your mouth?
2. What emergency phone numbers might you need, and where would you find them (Police, fire fighters, utilities, ambulance)? 911 telephone service is wonderful, but what if it were not available?
3. How do you shut off the electricity, gas, and water in your home? Do you know where the street water shut-off valve is to your home, and where you could find a long-handled wrench to reach and work the valve? If the gas shut-off at the meter is "frozen" where could you find a wrench to turn it off?.
4. Where are all the fire extinguishers in your home? Do you know how to tell if they are the appropriate kind for a given kind of fire? What about using water on some kinds of fire? What would you use to smother a fire? What, if anything would you use to treat a burn?
5. Where could you get emergency water to drink in your home (water softener, water heater, toilet tank, pre-filled bathtub)?
6. Where are the flashlights in your home?. How do you know they work?
7. If you had one-half hour to save the most valuable things in your home what would you grab (photos, records, seasonal clothes, money)?

SAFETY BRIEFING

SAFETY AWARENESS

Use the following outline to discuss the most important aspects of safety-awareness and attitude.

1. What is Safety?
 - A. Attitude
 1. Be Positive
 2. Be a good example
 3. Communicate
 - B. Awareness
 - C. Preparedness
2. Why Safety?
 - A. Protect CAP assets
 1. Personnel
 2. Aircraft
 3. Ground Transportation
 4. Radios and other equipment
 5. Permit mission to proceed and terminate successfully
 - B. Promote safe practices in CAP and elsewhere
3. CAP Safety Program
 - A. Highest priority is safety
 - B. Everyone is responsible to observe and communicate problems
 - C. CAPR 62-1 sets out responsibilities and procedures
 1. Monthly safety briefings
 2. All members must sign roster to document they have had Briefing
 3. At SARs no one can participate unless they attend the safety briefing (to learn of weather, road hazards, emergency procedures, etc.)
4. CAP FORM 26 SAFETY IMPROVEMENT/HAZARD REPORT
5. CAP FORM 78 MISHAP REPORT FORM
4. Serious injury or death requires investigation as authorized by NATIONAL ONLY. WING Commander appoints BOARD of one or more (file CAPF 79)
5. Accidents HAPPEN, but safety does NOT...**YOU must make safety happen.**

SAFETY BRIEFING

CONSUMER SAFETY HAZARDS

The Coalition for Consumer Health & Safety has published a guide listing the 10 most dangerous consumer safety hazards. In order from 1 to 10 they are:

1. Accidental drowning of small children in five-gallon buckets
2. Falls down stairs in baby walkers
3. Rollover crashes in sport and utility vehicles
4. Failure to use lap belts when riding in motor vehicles
5. Falls from playground equipment
6. Poisoning from improperly cooked foods
7. Effects of secondhand tobacco smoke
8. Risks of excessive drinking
9. Sexually transmitted diseases resulting from improper contraceptive use
10. Head injuries from not wearing bike helmets

For a free copy of the brochure, contact the Consumer Federation of America at (202) 387-6121.

SAFETY BRIEFING

OSHA Regulations: Blood Borne Pathogens

The OSHA regulations regarding exposure to possible Blood borne Pathogens actually apply only to employees in jobs that involve "occupational exposure" to blood borne pathogens. They do not apply to volunteer situations like CAP. However NATIONAL, in the interest of promoting the safety of all CAP personnel has required that we observe appropriate precautions.

Keep the following considerations in mind in order to minimize your exposure to the several very serious health risks that are associated with CARELESS contact with others' body fluids.

1. As a precaution you should consider a Hepatitis B vaccination. Keep in mind that CAP does not underwrite the cost.
2. Treat all blood as if it were contaminated with blood borne viruses.
3. Do NOT use bare hands to stop bleeding.
4. Always use a protective barrier.
5. Always wash exposed skin with hot water and soap immediately after contact.
6. Keep the following equipment with your field pack:
 - a. latex or vinyl gloves
 - b. a mouth-barrier device, for rescue breathing/CPR
 - c. plastic goggles or other eye protection
 - d. antiseptic, for use in sterilizing or cleaning exposed skin.
7. Keep in mind that CAP has now required that we have NO CONTACT with a victim who has any exposed body fluids, even if we have protective gear on.



SAFETY BRIEFING

HOLIDAY HAZARDS

A number of items make their appearance during the winter holidays, that are subtle dangers. Discuss the following.

- Mistletoe berries are extremely poisonous. If anyone eats them, call the poison control center immediately. It is much safer to use fake ornaments.
- Although not highly poisonous, the poinsettia can cause mouth irritation or stomach distress if ingested.
- Jerusalem cherries, which look like cherry tomatoes, are poisonous.
- Needles from Christmas trees are sharp enough to cause irritation and bleeding.
- Tree preservatives are dangerous if swallowed.
- Pieces from artificial trees made of plastic or aluminum can obstruct air passages and interfere with breathing.
- Beware of bubble Lights, glitter, and angel hair around small children.
- Melted candle wax can cause serious burns.
- Even small amounts of alcohol can cause severe brain damage in a child, so do not leave unfinished drinks out. Items that contain alcohol are similarly dangerous, such as perfumes, colognes, and after-shave products.

Put safety first on your holiday list.

SAFETY BRIEFING

EMERGENCY PREPAREDNESS

The keys to effectively coping with an emergency are awareness and planning. At home you can be prepared to help your own family by the following.

1. Schedule a periodic family conference to discuss procedures to follow in different kinds of emergencies. Know where emergency equipment, water shutoffs, electrical shutoffs, and emergency phone numbers are located.
2. Hold regular practice drills. For example, can you find your way out of a bedroom or a finished basement with your eyes closed and while crawling on your knees, to the front door? This can be good practice for finding your way out when smoke totally obscures your vision, and you need to be near the floor to breath whatever air is in the room. Of course practice this carefully with a responsible person watching so you do not injure yourself during practice.
3. Assemble and store a survival kit containing:
 - flashlights and portable radio with batteries.
 - first aid kit with manual
 - wrenches and pliers for turning off utilities
 - chlorine bleach for water purification
 - fire extinguisher
 - emergency food and beverage supply
 - spare eyeglasses, prescription medicines, baby food
 - manual can opener; eating utensils
 - sanitation supplies, including large plastic trash bags
 - soap, toothpaste & brushes, toilet paper, feminine supplies
 - blankets and towels
 - cooking equipment and some means of cooking (combustion outside)
 - complete change of clothes for each family member
4. Learn first aid and C.P.R.
5. Establish a location where the family should reunite if members become separated.
6. Learn the emergency plans of your schools, power company, workplace.
7. Determine evacuation routes away from the community.
8. Know how to turn off utility service (water, gas, electricity) if trained personnel are unavailable.

SAFETY BRIEFING

EVERYDAY PRECAUTIONS

In the United States we are abundantly blessed with many things that make our lives easier, more entertaining, and generally afford us more time than our ancestors to enjoy many of these blessings. We have become so used to products and gadgets that we often give them little thought, and certainly we don't view them as dangerous. Consider the following precautions around everyday objects, to increase safety.

1. Firearms kept unloaded and locked up.
2. Electric heating appliances disconnected when not in use.
3. Vehicles fully out of the garage if they are left running.
4. Prompt disposal of trash, rubbish, discards.
5. Safe lighting of gas appliances like barbecue grills.
6. Tied shoelaces and no dangling sleeves around open flame or moving machines.
7. Tools kept sharp (sharp tools cut material; dull tools cut people).
8. Keep floors clear of clutter.
9. Never use liquid fuels to start fires.
10. Never smoke in bed.
11. Never place electric appliances near wet areas, especially your bath.
12. Keep tiny objects, open containers of fluid, plastic bags, or sharp things away from small children.
13. Do not unjamb tools or machines while they are still activated. Turn them OFF.
14. Do not defeat safety features (like guards) on tools or machines.
15. Read and obey labels.

SAFETY BRIEFING

SEXUAL HARASSMENT

"It is easier to perceive error than to find truth, for the former lies on the surface and is easily seen, while the latter lies in the depth, where few are willing to search for it."
Johann Wolfgang von Goethe

Like any other organization Civil Air Patrol can unfortunately expose some of its members to sexual harassment. And more tragically some of our members may be perpetrators, many without even realizing it. Sexually harassing another is illegal, and detracts from our goals in many ways. Perhaps just defining sexual harassment will assist many members in avoiding being a part of the problem.

What constitutes sexual harassment?

1. Demanding sexual favors in exchange for favorable treatment.
2. Engaging in continual unwanted sex jokes, language, epithets, propositions, advances.
3. Making graphic verbal comments about another's body, sexual prowess or deficiencies.
4. Using degrading sexual or vulgar words to describe another.
5. Leering, whistling, touching, pinching, coercive sexual contact.
6. Displaying sexually suggestive objects, pictures, graffiti in activities situations.
7. Asking questions about sexual orientation or preference or activities.

Treat others as you would want to be treated and you probably cannot go wrong.

SAFETY BRIEFING

SHOCK

Shock is caused by a marked loss of body fluid. This may be in the form of external or internal bleeding. Or it may be caused by blood plasma loss as a result of serious burn damage.

Body fluid loss causes the heart to beat faster and weaker, and blood pressure then falls. The body receives inadequate supplies of oxygen as a result. A badly shocked victim will look pale, bluish, cold, sweaty, and be mentally slow. Breathing will be shallow, and the pulse will be fast and feeble.

First aid should be given to prevent shock even if the accident victim looks and feels fairly fit. But always treat for breathing, bleeding, burns and fractures first. The victim should be positioned with head low and legs raised about 18 inches. But be careful about vomit being aspirated (breathed in). Loosen tight clothing such as belts or collars. If the injuries allow you can put the victim in the recovery position. If the victim is thirsty, soak a piece of cloth, such as a clean handkerchief, in water and let him/her suck on it. Reduce movement to a minimum.

And of course you should already have called for an ambulance. Keep a careful watch on the patient to make sure he/she is breathing properly, and that bleeding does not resume. Ensure that the victim is positioned so that any vomit will not be breathed in. Cover the victim with blankets, but do not heat the victim with hot water bottles or electric blankets. These will draw blood away from vital organs where it is needed. Do not give the victim any food, drink, or tablets, or alcohol or cigarettes.

Even if the victim appears to be unconscious, do not talk or whisper to bystanders within earshot, because he/she may hear you. The victim needs reassurance, not more anxiety.

- **Remember CAP policy regarding open wounds and blood-borne pathogen avoidance.**

SAFETY BRIEFING

SAVING YOUR SKIN

It is reported by the **National Safety Council** that skin disorders cause more than a third of all reported work-related illnesses. And one of every four workers is exposed to something that will irritate their skin. Skin damage can range from minor irritation to major and life threatening. Skin damage can be prevented by taking certain precautions, which include:

1. Wear protective equipment, such as gloves, boots, and safety glasses that are suited to the activity.
2. Be especially careful when around hazardous chemicals.
3. Know how to limit damage when it happens.
4. Wash your hands regularly with soap and water.
5. Use hand cream to restore moisture to dry skin.
6. Be careful around cleaning solvents, cutting oils, re-used rags, glues, adhesives, epoxies, fiberglass, pesticides, and fertilizers.
7. Seek professional diagnosis and treatment for any skin problems that do not resolve themselves promptly.
8. Read and heed labels.
9. Change clothes that have come into contact with irritating chemicals.
10. Limit your exposure to the sun, and wear appropriate sunglasses and sun block.

Categories of Skin Damage Causes are:

CHEMICAL

solvents, acids,
pesticides, etc.

MECHANICAL

vibration, friction
crushing, cutting

PHYSICAL

heat, cold
solar exposure

BIOLOGICAL

bacteria, fungi,
viruses, mites

Discuss possible scenarios for each of the causes as C.A.P. members might encounter them in exercises.

SAFETY BRIEFING

SNAKE BITE

There are about 150 different species of snakes in the U.S., but only four are poisonous: rattlesnake, copperhead, cottonmouth (water) moccasin, and coral snake. Only Alaska, Hawaii, and Maine do not have at least one species of venomous reptile. Generally these useful creatures are timid and retiring. They rarely bite unless provoked, angered, or accidentally injured (as when stepped on). Moccasins may be an exception, in that they can be pretty aggressive.

Most snakebites occur between April and October when the creatures are active. Most bites involve young males, and most occur within a very few states--Texas, Louisiana, Georgia, Oklahoma, North Carolina, Arkansas, West Virginia, and Mississippi. In the U.S. snakebites are fairly common, with 40,000 to 50,000 being reported annually. About 7,000 of these are bites of poisonous snakes. Fatalities are rare, with about 15 per year for the entire country. About 1/3 of all snakebites result in severe local or systemic problems.

The coral snake is a small colorful reptile with a series of bright red, yellow, and black bands that completely encircle its body. To distinguish this species from the many similar, but harmless varieties there is a helpful rhyme, that goes, "Red on yellow will kill a fellow, but red on black, venom will lack..." The coral snake has tiny fangs and imparts its venom (which attacks the nervous system) by a chewing motion, not injection, as in the vipers. Except for the coral snake, all of the venomous snakes are vipers and have hollow fangs in the roof of the mouth, which literally inject the poison from two sacs at the back of the head. The typical poisonous snake bite (with the exception of the coral snake) then appears as two small puncture wounds, usually about 1/2 inch apart, with surrounding discoloration, swelling, and pain. These local signs appear in about 5 to 10 minutes after the bite. Systemic signs may also appear, including: weakness, sweating, fainting, and shock.

Emergency treatment is directed primarily at local containment of the venom, and then at the systemic effects. Professional help is necessary, but the following can be done as appropriate and as you are trained:

Continued on Next Page

SNAKE BITE (Continued)

1. Calm and reassure the victim. The victim should be lying down and kept quiet, with the explanation that this will slow the spread of the poison.
1. Locate and clean the bite area, using soap and water, or a mild antiseptic.
2. Wrap soft rubber tubes about the extremity above and below the fang marks, and tighten them just enough to stop venous circulation. The distal pulse in the extremity should not disappear.
4. Immobilize the extremity with a splint.
5. Monitor the vital signs: blood pressure, pulse, and respiration.
6. If there are any signs of shock, place the victim in the shock position and treat accordingly.
7. If the snake has been killed make it available to the professional treatment workers. Correct identification can greatly assist in administration of the correct antivenin.
8. Transport the victim promptly to a hospital, and describe the snake to the professionals there.
9. Be alert for vomiting, which is usually caused by victim anxiety, rather than the effects of the toxin itself.
10. Do not give anything by mouth, especially alcohol.
11. If the victim shows no sign of envenomation (the toxin did not enter the body) basic life support should be provided as needed. A sterile dressing should be placed over the suspected area of the bite, and the victim should be immobilized.
12. Do not try sucking the venom out except on the specific instructions of a medical doctor. And then never attempt this with your mouth. You will probably just poison yourself through small cuts that most of us have in our mouths. And of course you must remember the C. A. P. prohibition against coming into contact with the body fluids of others.

SAFETY BRIEFING

SOUND DANGERS

Your sense of hearing is precious. It (along with your other senses) permits you to enjoy the world around you, interact with your fellow humans, and learn almost without limit. Hearing loss can be caused by illness, aging, and environmental factors. Much of this loss can be prevented or reduced.

The quantity of noise is measured in decibels (dBA). Federal law protects workers against too much noise in the workplace. Workers exposed to an average of 85 dBA or more over an 8-hour period must be included in a hearing conservation program. In Civil Air Patrol we operate around airports and aircraft where noise is a fact of life. As an example of decibel levels consider the following examples of sounds around us in everyday life.

0-20 dBA - about the weakest sounds that a person with good hearing
can detect (gentle breeze or a buzzing bee)

30-40 dBA: bird chirping

50-60 dBA: normal conversation

70-90 dBA: vehicular traffic, machinery, or electric motors

100-120 dBA: jackhammer

140+ dBA: standing close to jet aircraft taking off

What hurts your hearing is extra loud noise that lasts for a long time. Hearing loss can happen either quickly or slowly over time. Only you can protect your hearing. It is very important that you select and use appropriate hearing protection. What are two good reasons to wear headsets while in an airplane cockpit? If protective devices are not available you must avoid the noisy environment. Avoid things that cause ear injuries (pins or chemicals to clean your ears) and infections (stay out of lakes or swimming areas that are not clean; don't share earplugs). And see your doctor if you detect a problem. Get periodic hearing tests.

SAFETY BRIEFING

SPIDER BITES

Spiders are very useful creatures because they help control insects. Of the few native American species of spiders that bite humans, only the black widow and the brown recluse spider have bites that can be fatal. Thirty-one percent of fatalities associated with insect stings and bites are related to spiders. Death from spider bites fortunately is not very common. From 1950 to 1960 there were 10 recorded deaths in the U.S. caused by spider bites. However serious reactions are fairly common, and education and caution is in order.

It is the female (not the male) **black widow** that is the dangerous one. She is about one-half to one inch long, and has the distinctive yellow or red hourglass design on the underside of its shiny black body. She often lives under furniture, in debris or in outbuildings. This spider is found in every state except Alaska. Frequently the victim of a **black widow** bite cannot recall the spider itself, which injects a neurotoxic venom, which directly attacks spinal nerve centers. Symptoms include severe cramps, with boardlike rigidity of the abdominal muscles. Tightness in the chest, and difficulty in breathing occur over 24 hours. Abdominal symptoms are more commonly seen with bites in the lower half of the body. Chest symptoms tend to accompany bites on the upper parts of the body. Other symptoms include dizziness, sweating, vomiting, nausea, and skin rashes. A specific antivenin can be administered by a physician for very severe cases. In general basic life support by a professional to relieve respiratory distress and pain is all that can be done.

The **brown recluse** spider, just as its name suggests, is dull brown in color. It is smaller than the black widow. It has a dark violin-shaped mark on its head, which can be easily seen from above. It is generally found in the southern and central U.S. It tends to live in dark areas, corners, old unused buildings, under rocks, and in woodpiles. It will move indoors in cooler areas and will inhabit closets, drawers, cellars, and old piles of clothing. The bite from the brown recluse, in contrast to the black widow, produces local rather than systemic problems. The venom of the brown recluse causes severe local tissue damage, which will result in local gangrene and a large, non-healing ulcer, if it is not treated promptly. Usually the bite is not painful initially, but becomes so within hours. There is no antivenin for this toxin, and the only effective treatment to avoid the long-term painful ulceration is prompt surgical excision of the area.

Because most spiders look similar to the untrained eye, it is best to treat the bite, and not be overly concerned about identifying the biter. While you are transporting the victim to professional medical care you should generally keep the bite site lower than the heart, and apply ice or a cold compress to it. A paste of baking soda and water will help soothe the pain.

SAFETY BRIEFING

PREVENTING SPORTS INJURIES

From time to time in Civil Air Patrol we participate in sporting activities for relaxation, such as volleyball and softball. Some of us are getting a little on in years, and are not in the physical condition we used to be. Whether young or older we need to think about a few basics, in order to avoid or minimize injuries from these enjoyable activities.

1. A complete periodic physical is important for many reasons, but is extremely important before strenuous activities.
2. Proper conditioning before the activity is essential. Warm up, gently stretch, and when finished cool down slowly.
3. Do not ignore pain.
4. Watch the weather. Be especially alert if the temperature is higher than 85 degrees, and the humidity exceeds 70 percent. Water breaks must be frequent and mandatory.
5. Make sure the area in which the activity takes place is clear of hazards, and reasonably level.
6. Youngsters need proper supervision.
7. Youngsters must be matched as to size and weight, and protective equipment must be used.
8. Watch for proper biomechanics, such as throwing a ball properly.
9. A person who is already injured should not continue in the activity.
10. Avoid excesses. And know where to get medical help if needed.

SAFETY BRIEFING

STRESS

"Everything should be made as simple as possible, but not simpler." Albert Einstein

We all are subject to stress. Besides making life for ourselves and our loved ones less rewarding, stress can contribute to our being vulnerable to disease, accident, and injury. In order to reduce stress, and keep it at a manageable level you can make some mental and behavioral changes. Developing more effective time-management skills is a good beginning. Try the following:

1. Determine your goals.
2. Prioritize your goals.
3. Accomplish your highest priority goals before they become urgent.
4. In summary: don't manage by crisis; don't procrastinate; delegate effectively; don't allow your day to be interrupted by unimportant activities that interfere with achieving your goals.

Wisdom for Workaholics:

1. Exercise may help. But don't substitute excess exercise for excessive work, as excess exercise may only alleviate some symptoms, without resolving the underlying causes of your stress.
2. Admit you have an unhealthy attachment to work.
3. Really determine why it is you work so hard.
4. Put strict limits on your workday.
5. Take the last half-hour of this day to think about the next day, and plan accordingly.
6. Spend time with family and friends.

SAFETY BRIEFING

STRESS MANAGEMENT

Stress is a normal part of active human life. However, stress that goes unrecognized and unrelieved for too long a time can play havoc with the family, one's personal health, and contribute to mishaps and injuries. Commonly contributing to stress are things like long work hours, lack of control over important areas of one's life (like financial strains, family disagreements and unsought changes) and unexpected disruptions to one's life. Long-term stress can definitely destroy the quality of life and a person's health. The essential purpose of this discussion is to focus on identifying when the level of stress is becoming a serious concern, and to suggest a few things that can be done to alleviate it.

Try taking this quiz: **For each statement below, if you feel that way rarely, put 0 in the blank; if you feel this way sometimes, put 1 in the blank; if you feel this way often, put 2 in the blank.**

- _____ 1. I feel tense or anxious.
- _____ 2. People or some given objects make me feel irritable.
- _____ 3. I drink, smoke, or take drugs to relax.
- _____ 4. I have tension headaches or pain in the neck or shoulders.
- _____ 5. I have trouble going to sleep or staying asleep.
- _____ 6. I find it difficult to concentrate on what I'm doing.
- _____ 7. I have a difficult time finding time or being able to relax.
- _____ 8. I feel sad or depressed for no good reason.
- _____ 9. I feel tired even after I rest or sleep.
- _____ 10. I argue with family or co-workers.
- _____ 11. I give others the "silent treatment" when I'm upset.

SCORING: 0 - 5 points: You probably handle stress well.

6 - 11 points: Try some stress reduction techniques.

12-15 points or more: Stress is a problem; see a professional. **Following are a few common stress reduction techniques:**

- Recognize your own personal stress symptoms.
- Eat nutritious foods daily.
- Have wholesome talks with family and friends.
- Take time to relax every day.
- Do aerobic exercise at least three times weekly.

SAFETY BRIEFING

SAFETY IN THE SUN

It is 93 million miles away, and life would not exist without it. Its energy moves the winds, permits life-giving rains to develop and fall, and is the engine behind plant growth, which supports the food chain and oxygen cycle. In ways beyond measure we depend upon this nearby star. But foolish exposure to sunlight can be harmful to human health. Following are some of the things to think about when you spend significant time out of doors.

1. Ultraviolet rays can damage the eye's sensitive retina and cornea. Long-term exposure can cause cataracts, which can lead to permanent blindness or other vision problems.
2. Skin cancer is usually related to overexposure to the sun. It is one of the most common forms of cancer in the U.S., and becoming more common. About 600,000 cases are diagnosed annually, and about 6,700 people die every year from melanoma, the most serious skin cancer. Skin cancer is not associated with a single event, like a painful sunburn, but is the product of long-term (and therefore "hidden") exposure.

Protection from excessive exposure to the sun is simple, commonsense, and effective in avoiding later health problems. Do the following.

- A. Wear protective clothing, including hats and proper sunglasses. Remember that poor-grade sunglasses are worse than none at all. Why?
- B. Wear proper sunscreen (SPF rating of at least 15). But don't use these products as a crutch.
- C. Limit your exposure to the sun, even if you have proper clothes and sunscreen.
- D. See your doctor if you notice a new growth, mole, or discoloration, or a sudden change in an existing mole. Detection of skin cancer is the first step for successful treatment.

SAFETY BRIEFING

THUNDERSTORM

The only sensible rule with thunderstorms is to avoid them. No aircraft has been built strong enough to survive the highest levels of thunderstorm activity. Following are a few rules to minimize your likelihood of encountering a thunderstorm during flight.

1. Maintain VFR conditions in order to observe and avoid towering cumulus buildups.
2. Do NOT attempt to out-fly or out-climb a thunderstorm, since its vertical development can exceed 3,000 feet per minute.
3. Do NOT attempt to fly beneath a thunderstorm, since wind shear turbulence can be deadly.
4. Monitor Flight Watch (122.0) to stay current on weather conditions. Also occasionally check VOR and NDB frequencies for transcribed weather broadcasts and SIGMETS.
6. Remember that the safe airspace around high-density airports will become very congested during IFR weather. This means that there will be much less space for controller-approved deviation around those airports.

A Note About LIGHTNING: At any given moment there are about 1800 thunderstorms in progress somewhere over the Earth's surface. And all of them, by definition, contain lightning. This fascinating form of energy comes in many variations, which include: flashes, bolts, sheets, ribbons, glow, and balls. Hazards to flight include: burn destruction to the aircraft (holes in radomes are common), broken cockpit windows, and activation of various electrical switches. Remember to protect your vision when in close proximity to lightning. Any suggestions as to how?

Why so few thunderstorms during cold winter weather? During thunderstorm buildups the cloud tops usually reach upward from 25,000 to 45,000 feet. Sometimes they can reach above 65,000 feet. In cold winter months the freezing level is much lower, and the cloud tops can not reach as high before they turn into ice crystals. In the hot summer months the freezing level is of course much higher, and there is much more heat available to ignite these explosive storms.

SAFETY BRIEFING

THUNDERSTORMS~BLUNDERING THROUGH

The only sensible rule with thunderstorms is to avoid them. But in case you should ever inadvertently find yourself in one of these monsters the following may help you to survive:

1. Slow the plane to recommended penetration speed. For most general aviation aircraft this is listed as the maneuvering speed (V_a), which is the highest safe airspeed for abrupt control deflection, or for operation in rough air.
2. Prepare the aircraft and passengers. Secure all loose items, fasten seat belts snug, consolidate all necessary charts, and have your flashlight handy.
8. Keep wings level and use smooth, moderate elevator control to maintain pitch attitude. Do NOT chase altitude. Sacrifice altitude (as long as safely above obstructions) to maintain airspeed and attitude.
4. If using an autopilot conform with its operating instructions and limitations. To avoid abrupt control inputs and reduce airframe loads, many operators recommend not using the altitude-hold function in severe turbulence. Monitor attitude, airspeed, and altitude--in that order of importance.
5. Verify that pitot heat is on, and adjust carburetor heat as necessary.
6. Keep your eyes on the instruments, and turn the cockpit lights up to minimize blinding by lightning flashes.
7. Stay relaxed, maintain positive control and let the airplane "wallow" through.

SAFETY BRIEFING

SEVERE THUNDERSTORMS

One of the most common natural hazards is the severe thunderstorm. Watch for the conditions that may accompany this disturbance, which may include:

HAIL--large hail can cause serious injury, so avoid the outdoors while a storm is in progress. Protect vulnerable property, such as vehicles, but do not risk personal injury to do that.

LIGHTNING--Lightning kills more people in the United States than any other natural hazard. It may strike some miles from the parent cloud.

1. avoid being the highest object in any area. Stay away from hilltops, lone trees, or telephone poles. In a forest, move under a thick growth of small trees.
2. Do not enter a small structure in an open area.
3. If suitable shelter is not available, seek a ravine or valley, and drop to the ground in a crouched position, hands on your knees. Do NOT lie flat.
4. Abandon metal equipment (tractors, golf carts, bicycles, aircraft). Drop golf clubs and remove golf shoes with metal cleats.
5. Keep several yards away from other people.
6. Get away from swimming pools and open water.

FLASH FLOODS--In many parts of the country flash floods occur without warning following upstream heavy rainfall. Drainage canals, streambeds, canyons, or areas downstream from a dam are potential flood areas. Monitor current weather conditions and make evacuation plans. Roads and trails that parallel existing drainage systems may be swept away by flood waters. When a flash flood warning is issued, or you realize a flash flood is coming, act quickly to save lives. Seconds count!!

1. Go to high ground immediately.
2. Do NOT drive through already flooded areas. Shallow, swiftly flowing water can sweep a car from the road, or disguise a washed out roadbed.
3. Do NOT attempt to cross a flowing stream on foot where the water is above your knees.

TORNADOES--See the Briefing on this subject.

SAFETY BRIEFING

LIGHTNING SAFETY

Lightning kills more Americans each year than tornadoes and hurricanes. Remember these rules if lightning threatens:

- Get inside a home or large building.
- Avoid using the telephone.
- Stay away from open doors or windows.
- Avoid using water faucets or appliances that carry an electrical charge.
- Do not stand under tall objects that may act as lightning rods.
- Keep low to the ground.
- Get away from open water.
- Get off tractors and other metal farm, yard, or recreational equipment.

SAFETY BRIEFING

HANDTOOLS

1. Select handtools with care. Tools must be appropriate for the job, and in good condition. The points of screwdrivers must not be worn excessively, and they should be the proper size for the work. Pliers or cutters should never be used on nuts or pipe fittings. Screwdrivers should not be used as punches, pry-bars, or chisels.
2. Always hold pliers or cutters so that the fingers are not wrapped around the handle in such a way that they can be pinched or jammed if the tool slips.
3. When cutting short pieces, take care that parts of the work do not fly and cause injury.
4. Never put extensions on tool handles to increase leverage.
5. Be especially careful when using metal (conductive) tools around electrical power sources.
6. Portable power tools should be inspected before use to ensure they are clean, well lubricated, switches operate normally, and cords are free of defects. They should be double insulated, or properly grounded.
7. Never use too small an extension cord, or one on which the grounding plug has been defeated. Make sure that your activity does not damage the electrical cord. Replace damaged cords, rather than repair them with tape. Sparking electrical tools should never be used in places where flammable gases or liquids or exposed explosive substances are present.
8. Items being worked on need to be properly secured in such a way that they will not break loose and injure someone, or expose someone to harm.
9. Never remove a safety guard designed to be used with a tool or machine.
10. Never try to clear a jammed machine without first shutting it off.
11. Wear safety clothing, hearing protection, and glasses or goggles as appropriate.

SAFETY BRIEFING

PORTABLE POWER TOOLS

When around power tools, such as saws, drills, trimmers, etc. be alert to the following:

1. If they are not double-insulated [what does this mean?] plug them into a Ground Fault Circuit Interrupter.
2. Do NOT operate any electrical device while standing in water, rain, or near explosives (such as gasoline).
3. Inspect the tool and its electrical cord, and any extension cord.
4. Never yank an electrical cord to unplug the tool. Also never raise, lower, or carry a tool by its power cord.
5. Always disconnect the tool from its power source before changing blades, bits, or servicing it.
6. Use a tool only when you are properly clothed and equipped with protective gear, such as safety glasses or goggles, and appropriate gloves.
7. Whenever possible review the manufacturer's operating manual.

SAFETY BRIEFING

CHAIN SAW

In its environment there is nothing quite so impressive as a chain saw. There is also nothing quite so dangerous among common tools. If you must use a chain saw, think about the following:

1. Use adequate eye, ear, and face protection. When a wood chip strikes your eye you are going to be holding one very powerful cutting machine.
2. They won't stop a direct cut from the saw, but leather gloves will give you a better grip, absorb some of the vibration, and reduce the risk of cutting yourself on the saw or on your work.
3. Safety shoes with high leather tops and slip resistant soles might save your foot or toes.
4. Long pants and long-sleeved shirt will reduce the risk of serious burns from contact with a hot saw, and prevent cuts and scratches from tree limbs and brush.
5. Start the saw on a clear, level surface. Never rest the saw on your leg to start it, or do this when in a tree.
6. Do NOT carry the saw while it is running.
7. Do NOT defeat the safety features that are built into modern saws.
8. Do NOT refuel the saw when it is running. Be careful gas is not spilled on hot engine or exhaust.
9. Keep the chain blade sharp and well lubricated. A saw that is sharp won't bind and vibrate as much or be as tiring to operate.
10. Keep other people at a distance, but don't work alone. When chain saw injuries occur they are nearly always serious.

SAFETY BRIEFING

TORNADOES - Part 1

Of all the forces of nature seen inland, none has the concentrated brutal violent power of tornadoes. They have more than enough power to throw railroad cars from their tracks, and convert shafts of straw into deadly missiles. The United States has the most severe and damaging tornadoes in the world. They occur most frequently in summer around the Great Plains, the Central States, and the Gulf States. But they can occur anywhere in any season. Across the nation about 700 of these storms are reported each year, killing more than 100 people.

It is commonly thought that most tornadoes approach from the southwest, which is true. But about 30% come from the west and northwest.

A tornado is a violent, rotating column of air twisting down from a thunderstorm cloud. Typically tornado winds rotate counter-clockwise at 100 to 300 miles per hour, within the column creating a funnel which sucks up debris along its path. These "twisters" come in many shapes and sizes, and their causes vary. They are destructive because of the combined effects of their strong rotary winds and the reduced pressure in the center of the vortex. A tornado also destroys by driving debris.

Among the most vulnerable structures to tornado winds are mobile homes. Evacuation of mobile homes is absolutely essential when a tornado approaches.

Consider the following tornado safety tips:
Keep a battery-powered radio nearby and listen for the latest weather. A tornado *WARNING* means seek inside shelter and stay away from windows. Protect your head and eyes. Away from home go to interior hallways on the lowest floor, or a designated shelter. At home go to the basement if you have one. Seek shelter under something sturdy, like a heavy workbench, pool table, or sturdy furniture. In open country, if there is no time to find proper shelter, lie flat in the nearest depression, such as a ditch or ravine. Get out of your car.

Remember, the best of tornado warning systems are only as good as the swift protective response of those in the path of the tornado.

SAFETY BRIEFING

TORNADOES - Part 2

Tornadoes are very common in many parts of the country, and they can occur anywhere, and in any season of the year. They are most common in the Midwest in the summer. Following are some helpful tips about these potent storms.

PREPARATION:

1. Keep an emergency stock of tools in the safest place to wait out a tornado. These might include:
 - (a) flashlights and fresh supply of batteries
 - (b) crowbar, hammer, pick, shovel, pliers, screwdriver, small hydraulic jacks
 - (c) can you think of other items?
2. Mobile home occupants should have their homes professionally tied down.
3. Bring portable furniture, equipment, and pets inside on a day when thunderstorms are expected.

IF TORNADO WARNING IS ISSUED:

1. **Stay inside your home.**
2. Immediately go to the lowest level in the building, preferably a basement. Seek out an interior hallway or small interior room away from windows.
3. Crouch under a heavy table, desk, bench, etc.
4. If there is no suitable heavy furniture, crouch and brace yourself against an interior doorway or corner, where the structure is stronger.
5. Leave a mobile home before the storm hits and go promptly to a community shelter.
6. In a store or office building, don't stampede toward the exits. Move away from windows, and generally stay on the same floor. Do NOT use the elevator. Crouch under the heaviest piece of furniture you can find.
7. On foot, go inside the nearest sturdy building. If there is no time to enter a building then crouch next to one.

Continued on Next Page

TORNADOES - Part 2 (Continued)

8. If there are no sturdy buildings nearby then lie flat in the nearest ditch, ravine, or culvert. Cover your head with your hands and arms. Protect yourself from flying debris.
9. In a vehicle, do NOT try to outrun the tornado. Leave the vehicle and follow the above directions.

AFTER A TORNADO:

1. Treat the injured to the extent you have been trained. Remember the Civil Air Patrol prohibition against coming into contact with the body fluids of others.
2. Call for professional medical assistance, as appropriate.
3. Do NOT attempt to move severely injured persons unless they are in immediate danger of further injury, which can be alleviated by moving them
4. Use phones only to report true emergencies.
5. Do NOT use candles, matches, or fire in any form in case there is a gas leak.
6. Rely on flashlights.
7. Call trained technicians if utility lines are ruptured.
8. Use battery-powered radios for information and instructions.
9. Wear heavy shoes and gloves for walking over and removing glass and debris.
10. Do not exert yourself, and spare yourself needless injury, and work in the company of capable adults, in case you need help or assistance.

SAFETY BRIEFING

TORNADOES - Part 3

The word "*tornado*" comes from the Spanish language and means "a turning about". The tornado is an extremely violent wind that is capable of destroying virtually everything in its path. Following are a few simple rules to follow should you find yourself in the vicinity of one of these freakish storms.

INDOORS:

1. Stay away from windows, doors, and outside walls.
2. Go to a basement or an interior part on the lowest level. Closets, bathrooms, or interior halls can serve as protection. Get under something sturdy like a heavy desk, table, etc.
3. Protect your head.

OUTDOORS:

1. Get indoors if possible.
2. Lie flat in the nearest ditch, ravine, or culvert.
3. Protect your head.

MOBILE HOMES OR VEHICLES:

1. Leave them and go to the nearest substantial structure.
2. If there is no shelter nearby lie flat in the nearest ditch, ravine, or culvert.
3. Protect your head.

Know what severe weather terms mean.

SEVERE THUNDERSTORM WATCH means that severe thunderstorms are possible.

SEVERE THUNDERSTORM WARNING means that you should take shelter. Severe thunderstorms produce damaging winds in excess of 60 mph and hail 3/4" in diameter or larger. Remember severe thunderstorms occasionally produce tornadoes with little advance warning.

TORNADO WATCH means tornadoes and severe thunderstorms are possible.

TORNADO WARNING means a tornado has been detected. Take shelter immediately.

SAFETY BRIEFING

TOY DANGERS

Children face many risks around their homes, not the least of which can be caused by their toys. More than 100,000 children in this country are hurt every year by toys. These injuries do not have to occur, if a few suggestions are followed.

1. Age labeling is required by the federal government. But it does little good if we ignore the label. If the label says the toy is suitable for children over age 5, that does not mean that it is safe for your "advanced" 4-year old. The label means that the toy has small parts that can break off and endanger a younger child.
2. Check crib toys carefully. Any toys with strings or elastic can be especially hazardous.
3. Be tough on a toy before your child is. Children have surprising skill in taking things apart. Make sure nothing can be pulled off or broken off that will cause a safety problem.
4. Avoid toys with sharp edges or points, or that are easily broken.
5. Bike helmets. Bikes are a major source of childhood injuries. Never let your child ride without a proper helmet.
6. Certain products are inherently dangerous. Avoid things like lawn darts, air rifles, firearms, and firecrackers.

How about a discussion on how each person in the group has been injured while playing with a common type of toy? And what could have been done to avoid the problem?

SAFETY BRIEFING

TOY HAZARDS

Let's take a few minutes to talk about some of the common toys around us everywhere when we were young children, that we now recognize as dangerous. Much of the problem then, as now, was connected with the fact that many toys can be made available to small children when they are not age-appropriate. But some are inherently dangerous for a wide range of children. Do you remember Lawn darts, trampolines, BB guns, and dart guns? The National Safe Kids Campaign, a non-profit group in Washington working to reduce preventable injuries to children, reminds all of us to be more vigilant

The leading cause of toy-related deaths comes from riding toys, primarily tricycles and wagons. These cause many serious injuries. But deaths have typically come when the child rides into traffic, or into deep water, like a swimming pool. That means that we need to be vigilant about where a given toy is being used. Think "age appropriate" and "place appropriate".

The next leading cause of death is choking on latex balloons, followed by choking on small balls, including marbles. Children can choke on the latex shards created when a balloon bursts, or when the child accidentally sucks in a balloon being inflated.

Other causes of toy-related deaths with small children are choking on pieces that break off from toys, or small game pieces, which are put into the child's mouth. With some other toys, a pull-string or cord can result in the child being strangled.

How many toys can you think of now that would pose a risk for your young brothers, sisters, nieces, nephews, or grandchildren?

The *United States Consumer Product Safety Commission* can supply more information about these and other risky products. Their phone number to report problems with products, or to obtain information about recalls, is: **800-638-2772**.

SAFETY BRIEFING

HAZARDOUS TOYS

The U.S. Consumer Product Safety Commission says that more than 130,000 children annually are admitted to hospital emergency rooms for treatment of toy-related injuries. Toy caused eye injuries accounted for 14,000 of these hospital trips. Consider the following precautions:

1. Avoid toys that shoot projectiles or include parts that fly off.
2. Inspect toys for sound construction. Items given to young children should be especially durable, with no sharp edges or points.
3. Toys with small parts should never be given to small children.
4. Look for the label showing "ASTM" which stands for the American Society for Testing and Materials. This means that the product has met national safety standards.
5. Toys that produce loud noises, such as caps and guns, may permanently harm hearing.
6. Children under 8 years old should never be given electric toys.
7. Keep un-inflated balloons out of the reach of young children. And discard pieces of broken balloon because of the serious choking risk.

SAFETY BRIEFING

WATER SAFETY

Drowning ranks fourth among the causes of accidental death in this country. Most drowning victims could have saved themselves if they had known how to swim. If you are not a proficient swimmer, then make an effort to learn, because you will almost certainly find yourself around deep water many times in your life.

But even excellent swimmers need to be careful. Following are a few safety rules:

1. Always swim with a companion.
2. Stay out of the water at least an hour after eating.
3. Diving is dangerous. Do it only in known safe places, which are deep enough.
4. When swimming for distance, swim parallel to the shore or have someone accompany you in a boat.
5. Do not swim close to where others are diving
6. Never swim in bad weather.
7. Never engage in horseplay in the water.
8. Always wear a life jacket in a boat.
9. Never swim in rivers, as they have unseen, strong currents.
10. Never swim, boat, wade, or fish near dams.
11. Remember that cold water paralyzes and kills quickly. The human body cools 23 times faster in 50- degree water than in 50- degree air.

SAFETY BRIEFING

WATER-STATES OF MATTER

As with any substance on Earth water can be found in any one of three states. But water is unique in appearing very commonly in all three of its states (**gas, liquid, solid**) at the normal range of temperatures in which we live. Since a major part of our weather is directly related to water, and its changing state, it is helpful to briefly review this phenomenon. Air always contains water in some form. Water vapor is an invisible gas, similar to nitrogen and oxygen, the two gases which make up 98% of our atmosphere.

We see clouds and fog when the gaseous water vapor is cooled sufficiently to allow a change of state from gas to liquid. We see snow, sleet, and hail when the liquid water is further cooled to a solid state. And when water changes directly from gas to solid it becomes frost, through a process called "sublimation".

In the process of changing state there is a large giving up or taking on of energy in the form of heat. The "heat of fusion" amounts to 144 BTU (British Thermal Units) per pound. It is the additional heat energy needed to transform one pound of ice at 32° F (0° C) to one pound of liquid water. Or it is the amount heat energy given off when one pound of liquid water is frozen. Related is the "heat of vaporization"--970 BTU per pound which is required to transform one pound of liquid water which has already been heated to 212° F (100° C) into invisible steam. And of course the same amount of heat energy is released when steam is condensed back into one pound of liquid water (in the form of cloud-like droplets we are used to calling "steam").

One example of a subtle but very dangerous change of state is **VIRGA**. This occurs when precipitation falls into clear air and "disappears", never hitting the ground. Instead it is evaporated back into the air below the cloud. As the liquid water evaporates it "sucks up" heat in the surrounding air at a tremendous rate, causing that air to cool rapidly. If you fly through this apparently clear air below the cloud layer you may find a tremendous downdraft as the heavier cool air falls. It could contain a "dry microburst". And there can be large shifts in wind speed and direction. So never fly below disappearing precipitation. Another more common example of the dangers of heat transfer when water changes state is the thunderstorm. Just imagine all of the heat given up when tons of water vapor changes suddenly into liquid form. It is that heat energy that is the engine behind the storm, as millions of gallons of water change state within seconds.

Discuss the various states of water, and how each can be a hazard to flight.

SAFETY BRIEFING

ICE AND FROST

Water affects our aircraft in many ways. Particularly dangerous is water in the form of ice or frost. With the coming of winter pilots need to be especially careful to clean wings and control surfaces of any accumulation of ice, snow, or frost, because these substances can dramatically alter the airfoils, and affect their ability to develop lift. Additional considerations follow.

1. Additional weight can unbalance control surfaces, and lead to "flutter", a dangerous aerodynamic condition.
2. Water and slush can freeze on brakes and landing gear, and ice crystals can form in the fuel.
3. Ice can form on the pitot tube and static vent, disabling the airspeed indicator, altimeter, and vertical speed indicator (VSI). It can also build up on antennas, distorting radio signals, and cause the loss of navigational and communication capabilities. It can also cause the breakage of antennas.
4. Ice accumulating on propellers greatly reduces their thrust potential, just when more thrust is required to overcome the loss of lift and extra weight caused by the ice on the airframe.

Although ice can occur in clear skies, icing is most prevalent in conditions of visible moisture, such as in clouds. All clouds at subfreezing temperatures have the potential for ice formation, but the type of ice formed depends on several factors, including water droplet size and distribution, and the aerodynamic effects of the aircraft.

Ice comes in three basic varieties: **rime** ice, **clear** ice, and a **mixture** of the two. **Rime ice** usually forms in conditions where the droplet sizes are small, and is brittle and frost-like. Air trapped within the ice as it forms gives it a white or milky appearance. It generally accumulates on leading edges and the front of anything projecting into the airstream, such as antennas. It is more easily removed than clear ice. **Clear ice** forms when water droplets spread out on the surface before freezing, and is clear and hard. It adheres to all exposed airframe areas, and is very difficult to remove. It generally forms in rain and cumliform clouds.

Clear all frost, ice, or snow off aircraft before take-off. Do not fly into areas forecast to have ice or freezing rain. If these occur in flight, turn, climb, or descend to dry air immediately. If necessary declare an emergency and do whatever is needed to fly out of danger.

SAFETY BRIEFING

WINTER STORMS

Severe winter storms with high winds and drifting snow occur frequently in many parts of the country. Often these "pounce" with little warning. Think about these tips:

1. Keep posted on weather conditions.
2. Prepare for isolation at home (what would be good in a survival kit?).
3. Think about alternate heat if the electricity goes out for an extended time. Remember that your ordinary furnace will not work without electricity even if it burns natural gas, propane, or fuel oil, because it uses electricity to run its thermostat, pumps, blowers, and fans. But you may use a wood stove, small kerosene heater, or other alternate heaters which are designed for the purpose. Do NOT use grills or other heating devices which are designed for outdoor use only (they produce deadly carbon monoxide gas).
4. Prevent fire hazards due to overheated wood stoves, fireplaces, or electric heaters.
5. Fill all liquid fuel heating devices outside buildings.
6. Stay indoors unless dressed properly. Overexertion such as snow shoveling is a major cause of winter storm deaths.
7. Dress in warm layers.
8. Travel only if absolutely necessary, and then only in daylight on major roads.
9. Do not travel alone. Let someone know your schedule and destination.
10. Carry an emergency kit in the trunk of your car (what should this contain?).

SAFETY BRIEFING

THIN ICE

In winter some activities may result in our being on frozen-over lakes. The potential dangers are rather obvious, but frequently ignored. If you break through the ice into deep water you will quickly become disabled by the cold water. Drowning quickly is a very real possibility. And even if you manage to crawl out of the water onto a solid surface you will quickly succumb to the various symptoms of hypothermia. But what thickness of ice would be relatively safe? Below is a table that might prove helpful when you try to determine what amount of weight can be supported by ice. Keep in mind that ice thickness will vary, as it stretches out before you. Never trust it.

<u>Thickness (in inches)</u>	<u>Maximum safe load</u>
2	1 person on foot
3	group in single file
7.5	Car (2 tons); snowmobiles
8	light truck (2.5 tons)
10	medium truck (3.5 tons)
12	heavy truck (8 tons)
15	10 tons
20	25 tons
25	45 tons
30	70 tons
36	110 tons

Discuss common-sense safety ideas in connection with C.A.P. activities that might be conducted on ice.