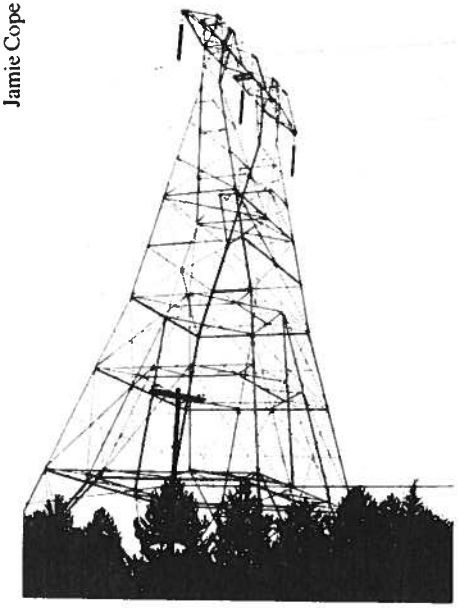
Jamie Cope

Willie & Kevin: Victims Of High Tension Wire Accidents

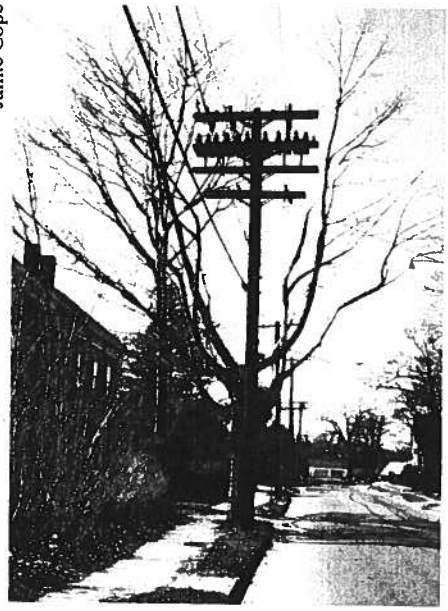
Jamie Cope



When Kevin was 17, he climbed a power tower along the highway. He is now 19.

"The tower is about 40 feet high, so you can get a pretty good view off it, and I never thought about the wires being there. It was just a boring night, it was really lousy, and I just had the idea that I would take a run over and climb up." ***Kevin***

Jamie Cope



"I was out in front, right down the street from my house, during the day. There was a bunch of kids out there...Somebody said, 'Climb up the top of that pole and I'll give you a cigarette, right.' Well, he was just fooling around, like he just said it, he didn't think I was going to do it." ***Willie***

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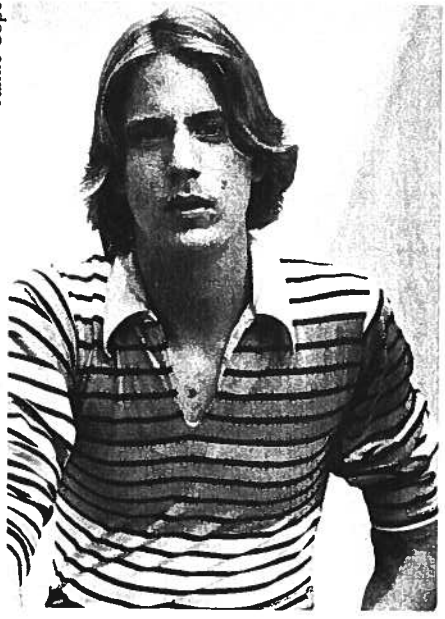
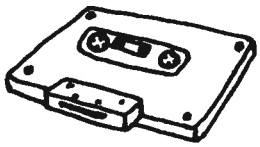


Willie was 14 when he climbed a utility pole. He is 16 in this picture.



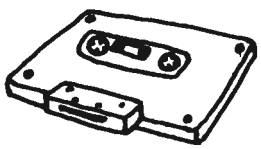
Willie and Kevin talk about their accidents in the tape that accompanies this unit. The first voice you hear is Kevin's. Willie talks next.

Listen to the first section of the tape.

out in your mind about Willie's and Kevin's accidents?

What are other people in your class thinking? Feeling?

Write down questions or comments that come to mind after hearing the tape.



You may wish to hear the tape again. This time, jot down questions as you listen.

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"I never even touched any of the wires; it just arced out at me." *Kevin*

Jamie Cope

"There was this kid down the street from the pole I climbed. He used to climb that same pole about every day, up to the top and down, you know, never get hurt, nothing at all ever happened to him. I tried it once, and what happens?" *Willie*

What Is Arcing?

Everyone knows that electricity travels easily through copper wires, but it can also travel through the air. When electricity travels through air, we say it is arcing. If something that can conduct electricity, like a person, comes close enough to a high voltage power line, arcing can occur.

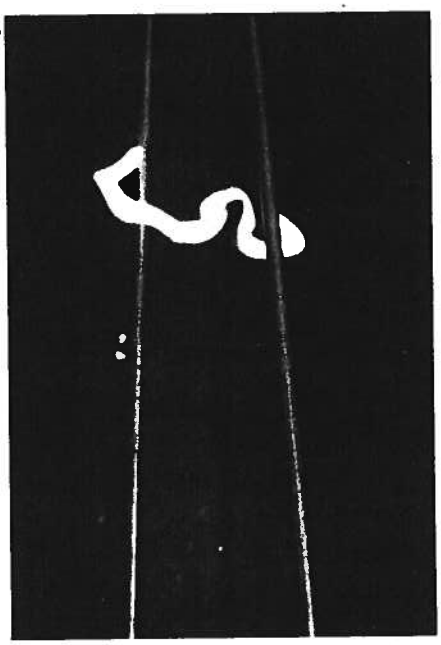
When electricity arcs, the air molecules, which normally are poor conductors of electricity, are broken apart and electrically charged (ionized). These ionized molecules are excellent conductors, and cause a rush of electricity to travel through the air. Extreme heat and a brilliant white light are produced along the pathway of this electrical arc.

"One kid was so close to the tower that he was blinded by the flash for a half hour." *Kevin*

You cannot predict whether electricity will arc. Many factors influence if and how the spark might jump: for example, the way the tower is constructed, your position on it, even the weather.

The reason it is dangerous to climb electrical poles and towers is that the arc does not exist until you

Jamie Cope



This is an example of arcing. In this photograph, electricity is arcing through the air from one copper rod to another. In Kevin's case, the electricity arced from the transmission line, two feet away, to him.

Lightning is an extremely powerful electric arc that forms between electrically charged clouds and the ground. It is a good example of how unpredictable arcing can be: during an electrical storm you never know exactly where or when lightning will strike.

Willie and Kevin had close calls. Both received extensive medical treatment before they could function normally again.

"Really I shouldn't have this arm."

Willie

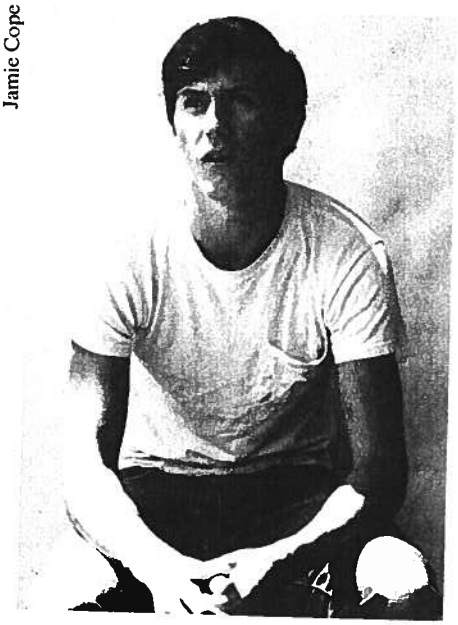
Jamie Cope

Willie sustained deep electrical injuries to his entire left arm and right upper thigh. He spent 71 days in the hospital, during which he had eight operations and received 15 pints of blood. Since his hospital discharge, he has been continuing physical therapy to improve the strength of his left hand and arm.

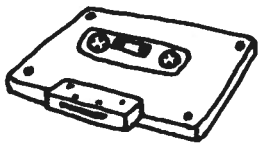
"I never knew pain could be so painful."

Kevin

Jamie Cope



Kevin sustained burns over 45 percent of his body surface area. He was hospitalized for one month. During this time third-degree burns on his chest, left arm, and flank were excised and grafted. He received 68 units of blood products. He has been readmitted once for plastic surgery on his shoulder.



Willie and Kevin talk about their injuries in the second section of the tape. Listen until you hear the signal ending that section.

It Could Have Been Worse.

Some people are not as lucky as Willie and Kevin. Amputation or death are often the outcome of an electrical injury.

The social service report below is taken from actual hospital records of a boy who was involved in a similar accident.*

10/25/72 PBD #32
2000
IN DISCUSSION WITH PATIENT AND MOTHER TONIGHT, IT BECAME EVIDENT THAT JOHN IS LOSING HOPE FOR HIS ARM. HE WANTS TO KNOW HOW MUCH MORE SUFFERING WILL BE REQUIRED & IF THERE IS REALLY ANY HOPE.

HIS MOTHER, ON THE OTHER HAND, IS QUITE EAGER TO HANG ON TO ANY SLIM CHANCE, ALTHOUGH SHE FREELY ADMITS, "IT'S UP TO YOU DOCTORS." THE MOTHER IS QUITE FRANK ABOUT JOHN'S HAVING PRIMARY SAY IN ANY DECISION FOR AMPUTATION. SHE RECOGNIZES THAT JOHN HAS TO MAKE UP HIS OWN MIND AND NEEDS TO BE AWARE OF THE PROBABILITIES TO MAKE THE MOST INTELLIGENT JUDGMENT.

It was written by John's social worker after a conference with his mother. John's accident occurred in October 1971. Three years later, in September 1974, his arm was amputated.

Medical Aspects of Burns: Electrical Burns

The filmstrip you are about to see shows what happened to Willie and Kevin. Three of the pictures (6-8) show Willie's arm, before, during, and after surgery. Picture 7 shows his arm cut open during surgery.

The following transcript, which accompanies the filmstrip on electrical burns, is included in case you want to look at the text after viewing the filmstrip.

Transcript:

1. Willie's picture, head on hand. One of the strangest things about accidents of this sort is that it is possible to climb a pole and have nothing happen. As Willie said, "There was this kid down the street from the pole I climbed. He used to climb that same pole about every day, up to the top and down, you know, never get hurt, nothing at all ever happened to him. I tried it once and what happens!"

Because people have climbed a high tension installation or seen other people do it without any harm, they don't realize how tremendously dangerous it can be. It is impossible to predict whether you will become a part of the electrical path. And because you can't predict, the only safe thing is to stay away.

This kind of accident can burn you in two ways: the electricity can enter your body, causing internal damage; the electricity can also ignite your clothing, causing surface flame burns; in the worst circumstances, it can do both.

2. Kevin on tower. Electricity arcs. It is not even necessary to touch the wire for the electricity to jump toward you. Kevin was on his way down the tower when the electricity arced out at him. Kevin sustained internal electrical burns, as well as extensive second- and third-degree burns where his clothing ignited.

3. Willie on pole. Willie, however, did make contact with the wire. Like Kevin, he was injured because the electricity entered his body. In this type of accident, your body becomes a conductor of electricity, a part of the circuit.

4. Same diagram of Willie on pole, with lines to indicate the path of electricity. When a person becomes part of an electric circuit, there is always at least one entrance point and one exit point. However, there is no known way to predict the path the electricity will take through the body. It can spread inside the body and exit in more than one place; for example, it might enter at one hand and exit through both feet. The location and depth of Willie's injuries suggest that the electricity entered at a point in his upper left arm and exited primarily through his upper right thigh.

5. Medical drawing of internal arm. The electricity must first penetrate the skin. Skin has a very high resistance, so the entrance point is always burned. Once inside the body, blood vessels and nerves are the best conductors of electricity because they offer the least resistance. Therefore, the electricity tends to travel along the blood they receive the most damage.

Bone conducts very little electricity, When the flow of current reaches a joint, composed primarily of tendon and bone, which are highly resistant, the electricity tends to "jump" across the joint to the nearest muscle. Bone itself receives little damage but the points where the electricity jumps and reenters are burned severely.

Blood vessels and nerves make up the neurovascular bundle, which is indicated in blue in this diagram. The bone area is gray. The muscle area is pink with black diagonal lines.

Sometimes an arm is lost because the neurovascular bundle is cooked; that is, the blood clots both the vein and artery, and the nerve is destroyed by the heat generated by the passage of electricity. Muscle dies when its supply of rich blood is cut off this way.

The next three slides are medical photographs of Willie's arm. The first one shows Willie's arm immediately after the accident.

6. Willie's arm after accident. Notice the red circular wound near Willie's armpit. Doctors think this point is the entrance wound, because it was beneath this area that the most severe internal damage occurred. To determine the extent of injury, surgeons opened Willie's arm along its entire length, as you will see in the next picture.

7. Internal arm. The blackened area near the armpit shows the destruction of the biceps muscle and the tissue around it. The muscle of the forearm was basically healthy. The neurovascular bundle was damaged but not completely destroyed. Surgeons removed all dead muscle. Luckily, they were able to save Willie's arm.

8. Willie's arm after the accident. This is Willie's arm six months after the accident. His upper arm is thin

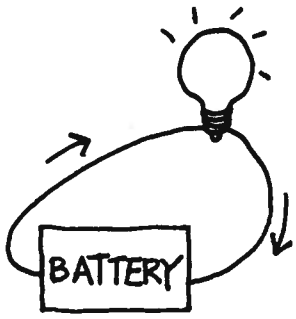
because his biceps muscle was removed. The scar that remains on this part of his arm is where the skin was sewn back together. Although there was less severe internal damage in the lower arm, the scars appear much worse there. This is because Willie also suffered second- and third-degree surface burns, which required grafting. His skin graft was placed directly over muscle, which accounts for the appearance of Willie's arm. The injury to the main nerve caused temporary paralysis of his arm. Little by little Willie has recovered movement and some strength.

Before you go on to the next section, which answers questions about the way electricity works, you might like to respond to what you have seen and heard so far. What were your reactions to Willie and Kevin? To the filmstrip you have just seen? How are other people in your class feeling? Take some time to share your feelings.

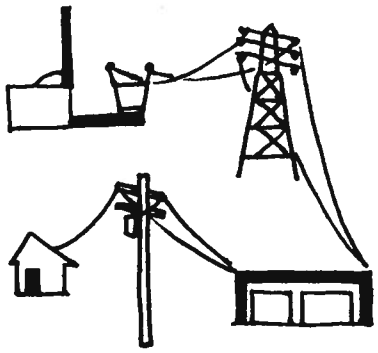
Electricity Follows The Path Of Least Resistance

Willie and Kevin received severe electrical burns because they both became part of an electrical circuit.

A circuit is a closed path, like a loop, that electrical charges follow. A circuit must be made of materials that can conduct electricity.



In this simple circuit, the battery pushes electrical charges through a copper wire, through a light bulb, into another wire, and back to the battery.

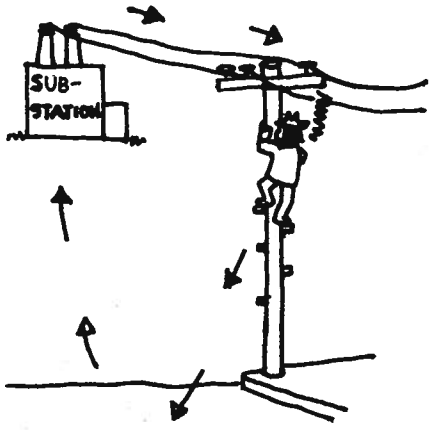


The normal path for the electricity generated by power stations is through the electrical appliances in homes and businesses and back through the transmission lines to the power station.

(This circuit is really more complicated than shown here, because in real life there are substations, transformers, circuit breakers, and other devices along the route.)

Although the normal path for electricity is through wires and appliances, the earth can also become part of the circuit. If an easier shortcut is formed between two wires, or between a wire and the ground (or anything connected to the ground), the electricity will take the easier path. The easiest path for electricity to take is often called the "path of least resistance." When electricity takes a path of least resistance that goes from the wire to the ground (or anything connected to the ground) we say the electricity has been "grounded."

You can become part of the path of least resistance.



If you climb a utility pole, a complete circuit can be formed. The electricity can arc to you, travel through your body to the tower or pole, travel down the pole to the ground, and return to the power station through the ground.

Some materials conduct electricity better than others. Copper, aluminum, and a few other metals

copper or aluminum offer more resistance to the electrical flow. Whenever resistance is encountered, heat is produced.

The human body does not conduct electricity as well as a copper wire. Even the tissues that offer the least resistance—nerve and blood vessels—offer some resistance and cause heat to be produced. When electricity travels through a person, it heats whatever it finds along the path. Everybody has been burned by touching something hot, like an iron or a frying pan. But an internal electrical burn is like having a red hot wire running right through your body!

& Answers About Electricity

What Is Voltage?

Voltage is a measure of the push behind the electrical flow, or current. It's a little like water pressure in a garden hose. The greater the pressure, the further the stream of water can shoot. The greater the voltage, the further electricity can arc through the air.

The voltage in ordinary street lines can range from 5,000 to 10,000 volts; in the high lines (like the ones carried by the power tower shown on page 3), voltage ranges from 110,000 to 345,000. Most automobile batteries are only 12 volts, and flashlight batteries generally have only 1.5 volts.

What Is Current?

Current is a measure of how much electricity is flowing. The more lights and appliances turned on in a home, the greater is the total current. This is usually measured in amperes (amps for short) and is also called amperage.

What Is Conductivity?

Conductivity is a measure of how easily electricity can flow through a material. Copper, aluminum, gold, and silver are very conductive; glass, ceramics, and plastics are nonconductive; people are in between.

What Is Resistance?

Resistance is a measure of how difficult it is for electricity to flow through something. The greater the resistance, the greater the voltage needed to push the same amount of electrical current through it. This relationship is stated precisely by the formula:

$$V = R \cdot I$$ where V = voltage, R = resistance, I = current

This relationship is known as Ohm's Law.

Why Does Electricity Produce Heat?

Whenever electricity must push through the resistance of a material, heat is produced. More energy is required for the electricity to get through the material. This energy creates heat.

For example, when an electric current flows through a light bulb, the tungsten filament resists the flow. The energy that the electricity must use to get through that resistance heats the filament and turns it white hot.

How Dangerous Is Regular Household Electricity?

Household electricity is 110 volts (or 220 volts for some stoves, clothes dryers, and air conditioners). This electricity can arc only a fraction of an inch. Because the voltage is too low to push a lot of current through a person's body, it doesn't usually cause severe internal burns. However, electricity does not only cause burn injuries: it can also affect your heart and stop your breathing. It takes only a small current to electrocute you in this way. So, if you become part of a path for electricity in your house, you can be killed.

How Can You Avoid Becoming a Conductor for Electricity?

Beware of long metal objects, such as CB antennas, ladders, sailboat masts, tree trimming poles, and cranes, that could make contact with overhead wires. You can become part of the electrical circuit, if you are in contact with any of these objects while they are touching a wire or high tension installation.

It is not too hard to be safe with household electricity. Household electricity cannot arc very far, so if you don't touch any bare wires (or anything metallic or conductive that touches bare wires) you shouldn't become part of an electrical path. Problems arise when people don't realize that they are touching an electrical wire and becoming a part of an electrical path. For example:

- sticking a fork into a toaster
- pulling on a frayed cord
- touching an electrical fixture with wet hands or feet
- touching a metal appliance in which a wire has come loose

For very young children (crawlers and toddlers) there are two added dangers: sticking fingers or objects into outlets and sucking on extension cord joints (which carry electricity if they are plugged into an outlet).

Don't Fuses and Circuit Breakers Make Household Electricity Safe?

Just as the flow of water over dams is controlled to avoid flooding, the amount of current in your home must be controlled. Too much current could overheat the wires and cause a fire. Fuses and circuit breakers cut off the power if too much current starts to flow through the circuits in your house. This could happen if too many appliances are plugged into the same circuit or if there is a short circuit.

What Is a Short Circuit?

A short circuit is formed when two bare electrical wires touch. A shortcut path like this offers almost no resistance to hold back the electrical flow. An enormous current starts to travel through the circuits to your house unless stopped by a fuse or circuit breaker.

How Do Fuses and Circuit Breakers Work?

Each fuse contains a special piece of metal that conducts all the electricity for one circuit in your house. This piece of metal melts if the current goes higher than the value for which it is designed.

A circuit breaker contains a small electromagnet which trips the breaker when the current reaches a certain value.

It is important to use the proper fuse or circuit breaker. Fuses regulate the amount of current flowing through the wires in your house. If you use a fuse that allows too much current to flow, the wires will overheat and start a fire.

Can You Make Yourself Safe for Climbing Utility Poles and High Tension Towers?

No. Electricity can arc a great distance. Furthermore, lines are never insulated, because insulation could do little to hold back such a powerful arc. The only way to be safe is to stay away.

Why Aren't Birds and Squirrels Killed When They Sit or Walk on Electrical Wires?

Sometimes they are. But usually they don't form a shortcut path for the electricity to take. If a bird sits on a wire and is not close to another wire or anything connected to the ground, no shortcut path through the bird is formed. If the bird or squirrel could stretch itself between two wires or a wire and the tower structure, it could become part of the circuit.

In states where eagles are found, eagles could easily be electrocuted when they spread their wings, because they could make contact between two wires. Utility companies have increased the distance between wires to protect the eagles.

photographs, there are many different kinds of risk. A risk can be exciting and make life more fun. It can involve a dangerous challenge, like mountain climbing or deep sea diving, which, if we do it successfully, makes us feel good about ourselves.

There are other kinds of risks, ones that don't involve physical danger, but do affect how we feel about ourselves and how other people feel about us: for example, trying out for the team, performing before an audience, or sticking to an unpopular opinion.

There are many kinds of risk and there are also many reasons for taking them. A risk can be necessary—to save a life, to help someone, to stand up for something we believe in. Risks can help us grow; they can help us learn what we can do; they can extend our abilities and expand the world we feel safe in. Taking risks is an important part of life.

But some risks are foolish. They are the kind we look back on later and say, "I don't know why I did it." Often, these risks are done in anger or excitement. At the other extreme, they may be done in the absence of strong feeling: when we are bored or feeling we don't really care what happens.

Each of us can probably think back to a time when we chose to do something that now seems crazy. Acting on a sudden impulse, we may have plunged headlong into something that could have led to serious trouble or disaster.

The problem is, we don't think about the danger at the time. Even if we know something could happen, it's easy to say, "Oh yes, but it won't happen to me." At the time, the attraction of the risk outweighs our fear of the consequences.

The type of risk discussed in the rest of this unit is the kind that could result in physical injury, and that could lead to serious trouble or disaster. As you think about this kind of risk taking, begin to consider:

- **What has influenced you in the past to take or to avoid taking risks?**
- **What alternatives does a person have when faced with a compelling but foolish risk?**

RISK

Something you choose to do that may result in serious injury to you or to someone else.

Something that you know involves danger, although the full extent of the possible consequences may not be known to you.

Three Risks

John

Maureen had just broken up with me. That was it, finished. A year and a half and all I got was, "Well, John, maybe we can be friends."

I didn't care what I did. I didn't care what happened. I just wanted to get away, to move, to travel faster than the thoughts racing in my head.

I must have been going at least 110 m.p.h. when I saw the concrete wall in front of me.

Kathy

I was feeling on top of the world, like I could do anything that night. Most of all I wanted to get away, far away. I felt free, like it was a good time to see the world, so I hitched a ride with the first car that stopped, and we started off.

Mark

Bill was always being the bravest or the strongest or the fastest. Guess he just had to be. Thing was, he was always getting me to go along with him.

No fool would climb out on that skinny branch—it was so shaky, and it hardly stuck out over the edge of the river. To dive from it to the deeper part of the river, you'd have to give yourself a flying leap and hope for the best.

But, of course, Bill did it. Everyone was cheering and hollering, and Bill was standing there with his wide smile, staring at me, and waiting, just waiting. "Well, Mark," he finally said. Everyone went quiet, and I knew it was my turn.

It's Everywhere!

It's Everywhere!

In movies and television we see apparently ordinary people succeeding against all odds at feats of unbelievable strength or cunning.

Watch ten minutes of any television show or movie. Make a note every time a character takes a risk that in real life would probably have very dangerous consequences.

- *What kinds of risks were most often portrayed?*
- *What was the success rate of the characters?*
- *Do you think people believe they can do these things in real life?*

Have you ever been in a situation in which you put yourself or someone else at risk?

Think about the situation.

- Where were you?
- Who were you with?
- What was going on?
- What did you decide to do?
- What sort of consequences could there have been?
- What consequences, if any, were there?

Choose someone in the room and tell him or her your story.

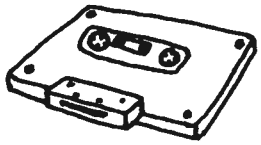
If you can't think of your own risk story, think about other people you know or have heard about. What risks have they taken? Tell one of these stories to your partner.

It will be important later to have a record of these stories, so ask your partner to take notes.

When you have finished telling about your risk, check your partner's notes. Be sure they include enough information so that someone who didn't know anything about the situation could understand what happened.

Listen to your partner's story and take notes on it.

Keep the notes in a safe place.



We asked Willie and Kevin to discuss why they decided to climb the utility pole and the tower. In the third section of the tape, Willie and Kevin talk about why they took their risks, and they offer some reasons why they think other kids might do risky things.

Listen now to the third section of the tape.

- What are some of the reasons they give for their own behavior?
- What are some reasons they believe other people might become involved in a similar kind of accident?
- Do you agree?

Below is a list of statements people might make to explain how they happened to become involved in a risky situation.

Some of the statements were made by Willie and Kevin; others could apply to people in other situations.

- *I was in a hurry.*
- *It seemed easier.*
- *It was going to save time.*
- *It was going to save me some money.*
- *It was more convenient.*
- *Everyone was watching me.*
- *He/she dared me.*
- *I was angry.*
- *I felt like getting off on my own.*
- *It was exciting.*
- *I felt I could do anything that day.*
- *I thought it would be a lot of fun.*
- *I was bored.*
- *I was careless.*
- *I didn't realize I could get hurt.*
- *It was a joke.*
- *Why not?*
- *I wanted to see if I could do it.*
- *No one else had ever done it.*
- *They were expecting me to do it.*
- *It was a challenge.*
- *I was feeling good.*
- *I was feeling rotten.*
- *I wanted to see how strong (funny, quick, etc.) I could be.*
- *I was so mad, I thought if I didn't get off by myself I might hurt somebody.*

Think about your own risk story. Check off any statements that describe how you were feeling just before you took the risk. (Feel free to add any other statements that apply.)

Which statements apply to your partner's risk story?

How We Feel Has A Lot To Do With How We Act

There may be a lot of reasons why we take risks. But whatever our reasons, how we feel has a lot to do with how we act.

For example, in the story about John and Maureen, John was feeling angry and hurt because Maureen had broken up with him, so he started speeding and ended up in a car accident.

A diagram of the story would look like this:

situation	*feelings*	*action*	*result*
Maureen breaks up with John	anger hurt rejection	he starts speeding	car accident

Whenever people are angry or have strong feelings of any kind, they find ways to express their emotions. John's way of expressing anger was to drive too fast. Perhaps he chose to do this rather than confront Maureen because he was afraid he would hurt her. (It is important to remember that sometimes people put themselves at risk to protect others from emotions that feel out of control and dangerous.) But there are other ways John might have acted, other ways he could have expressed his anger that would not have led to disaster.

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In the diagram below, we have kept the situation and John's feelings the same. But we have suggested some other ways John could have acted.

situation	*feelings*	*action*	*result*
Maureen breaks up with John	anger hurt rejection	he tells Maureen off	she doesn't even want to be friends anymore
		or	
		he goes off on a long walk by himself	
		or	

Given the way John was feeling, what are some other ways he could have acted that would not have had such serious consequences?

Use the empty boxes above to diagram your suggestions.

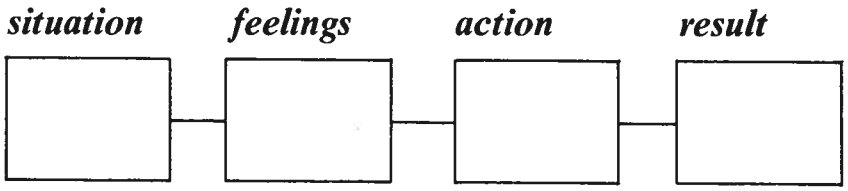
What Are The Alternatives?

Go back now to your own risk stories.

Divide into small groups and distribute the stories, so that each group has four or five.

Choose someone to read the stories out loud quickly to the rest of your group. Pick one story for the group to discuss.

Draw and fill in a diagram like this, to describe the story you have chosen.

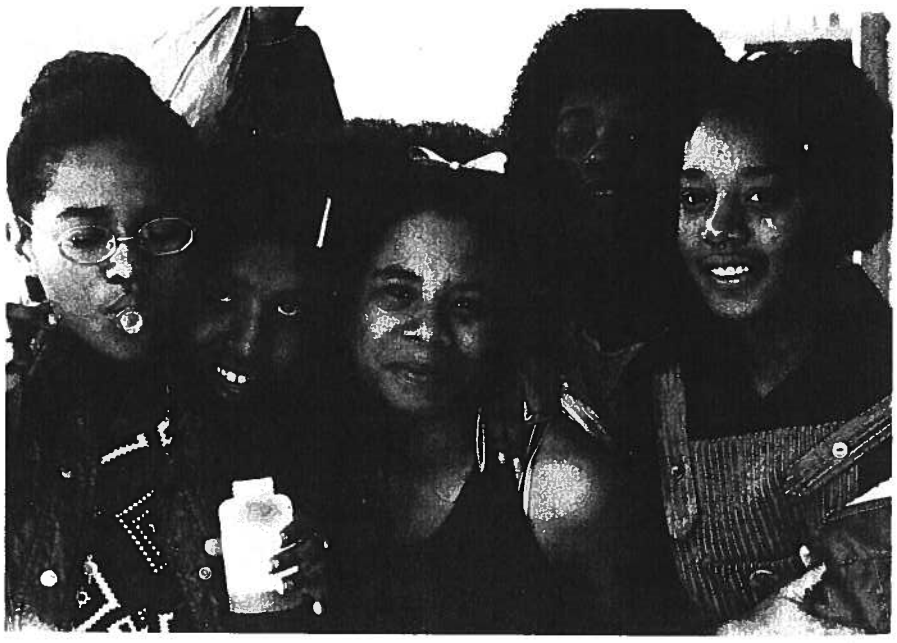


Be sure to include all the feelings you think the person was experiencing.

Discuss other ways the person might have acted that would not have resulted in such severe consequences.

Now expand the diagram to look like the one on page 17. Without changing the situation or the person's feelings, suggest different actions and guess what other results might have occurred. (Add as many "action" and "result" boxes as you need.)

Work on as many stories as you have time to do.



Jamie Cope

Questions For Discussion

After you have worked on several stories, come together as a larger group to dicuss the following questions.

1 What *kinds* of suggestions did your group tend to make? For example:

- Going to a friend?
- Going off by yourself?
- Physical activity?
- Shouting?
- Talking it through?
- Planning something fun to do instead?

List the suggestions your class made on the chalk board or on newsprint.

- Did you make some suggestions more often than others? If so, star the suggestions that occurred most often.
- Do the suggestions on the board make you think of other things you could have recommended? If so, what?

2 Some risks involve more severe and long-lasting consequences than others. Were there times when you suggested taking a lesser risk over a higher risk? When?

3 Often, people take risks when they are excited or upset.

- Did you suggest ways to "cool off" before acting?
- Do you think "cooling off" is something people can learn to do?
- Do you think it's a good thing to learn?
- If so, when? When not?

"I climbed the tower, for one, because I was bored and I didn't feel like being with the kids that were around me because they were boring, and so I felt like getting off on my own ... Whatever seems like it's going to be different from just hanging around, you just do it. You don't even try to think about the consequences, 'cause that'll just sort of make it boring."

Kevin

"But you know, it wasn't really a bad mood, I guess I was just getting bored. Nothing to do so I might as well climb the pole."

Willie

4 Both Willie and Kevin felt their biggest reason for climbing was boredom.

- In your class, how many times did boredom occur as the feeling that motivated someone to take a risk? Do you think a lot of kids feel bored?

If you think boredom is a general problem kids face in your town, go on to the following questions.

- If you were talking to an adult in your town, what advice would you give on how to reduce boredom?
- Make a list of some things you and your friends could do personally to reduce your own boredom.

only little kids dare one another to do risky things, and that daring didn't have much to do with the kind of risk we've been looking at in this chapter.*

But there are many different dares. There can be inside dares and outside dares, spoken dares and silent ones. A dare can be a voice inside that wants to know if you can do it, or it can be other people watching and expecting something of you.

Take Mark's story on page 15, for instance. Bill dared him to jump into the river from a very dangerous branch.

Sometimes People Don't Say What They Mean

waiting for him to jump. Only Bill's end of the conversation appears in the story, but you can imagine what Mark and the others might have been saying in between Bill's lines.

What Mark might have said

Hey, Bill, that was pretty good.

You're good at it, you know.

So you want to see me do it, eh?

Sure, it doesn't look too hard.

feeling, so we have written two columns. The column on the left shows what Mark might have said out loud, and the column on the right shows what he might have been feeling inside.

What Mark might have felt

Hey, Bill, that was crazy.

What luck he's got. I don't feel so lucky.

Won't you feel great if I miss!

I'll be lucky if I get away with just a broken leg!

Knowing how Mark really felt at the time, what could he have said or done, so he wouldn't end up doing something he didn't want to do?

*To hear more about what Willie and Kevin have to say about dares, listen to the fourth and final section of the tape.

Something To Think About

Think of a time you felt you had to do or say something because you were worried what other people (or what you, yourself) would think of you, if you didn't. Recall the time and place. Try to remember who was there, what was said, what was going on. Remember how you felt.

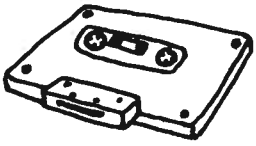
Make a mental picture of the scene —of the moment just before you did whatever it was you were worried about doing. See yourself clearly in the picture.

- If you could go back to that moment in time, what would you now say to the you then? What advice could you offer yourself?

Throughout life, you will face risks and have to decide whether the risks are worth taking. This unit has tried to suggest some ways to think about this problem, in the hope that they will help you to recognize when risks are necessary and when they are not, and to consider less dangerous alternatives when the risk isn't worth it.

Dan Knew Gasoline Was A Highly Flammable Liquid, But...

When Dan was 18, he was badly burned in a gasoline accident. He is shown here at 22, when he told us how his accident happened.*



*All the information about Dan is true and is used here with his permission. You have heard Dan's story briefly in the slide presentation that introduced these materials. If you want to hear Dan tell his story again, listen to the optional tape that accompanies this unit.

"I had just started working at the gas station. It was a busy night, and I was there alone.

"Two, three cars pulled up. I left the hose pumping gas into one car while I did something else. When I came back and pulled the hose out, the gas overflowed on to the left leg of my pants. Not thinking too much of it, I wiped it off and kept working.

"Half an hour later my pants were dry. The station was empty so I went inside to watch a football game. I relaxed and lit a cigarette. The game got exciting. I slapped my knee with the hand holding the cigarette, and suddenly my pants burst into flames. The cigarette hadn't even touched them.

"I ran to the men's room. I had to untie my boots, which were in flames, to get my pants off. Finally I got them off, but my skin was burning. I splashed cool water on it to stop the burning. I ran to the phone and called my boss, who called an ambulance.

"Then the pain hit me. It was unbelievable."

An investigative report of Dan's accident appears on the following pages.

Jamie Cope

Flammable Liquid Case No. ___

Victim's Name: DAN PRINDALL

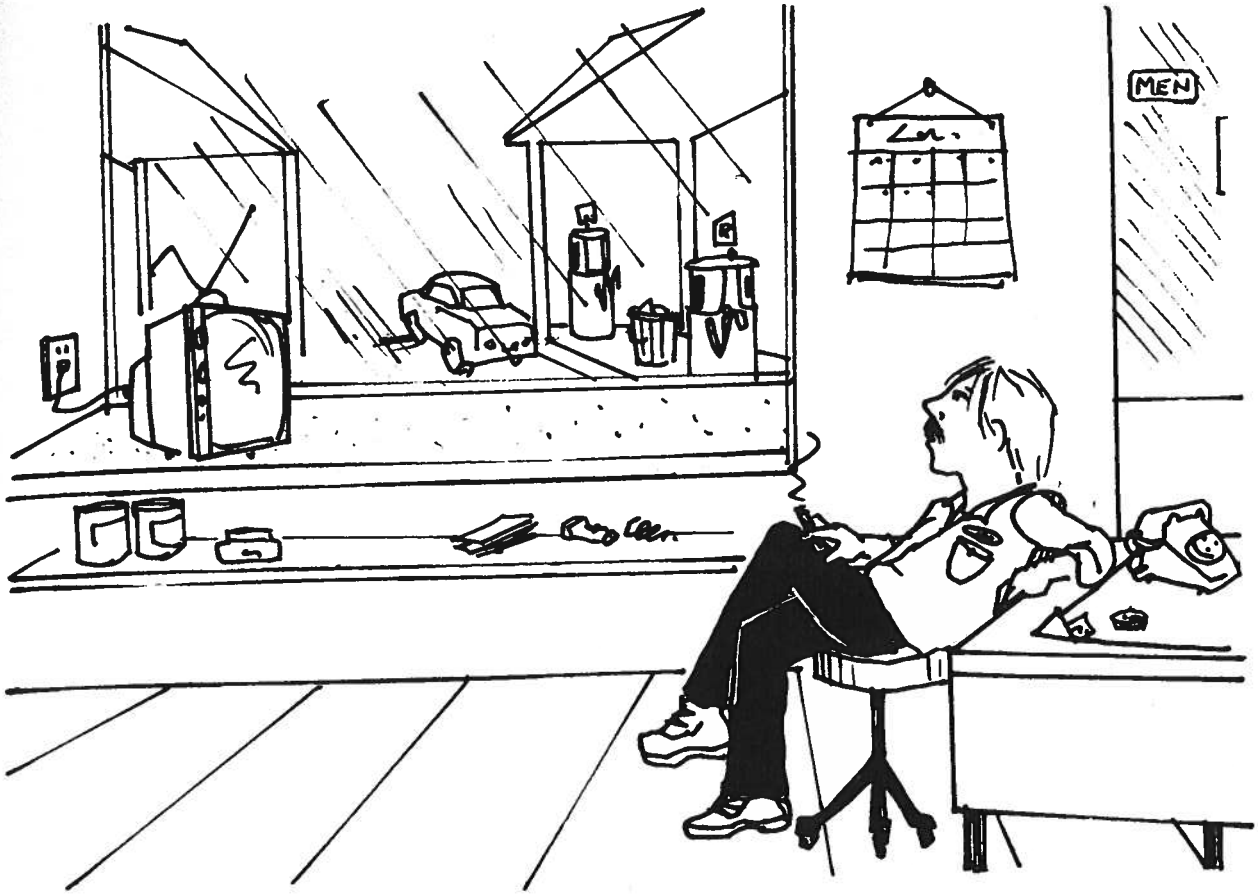
Age: 18

Location of Accident: GAS STATION INDOORS

Description of Accident:

Dan was working as a gas station attendant when he spilled gasoline on his pants. Without taking it too seriously, he wiped his pant leg with a rag; his trousers seemed to absorb the rest of the spill, and within a short time his pants felt dry. Thirty minutes later, he was sitting with his legs crossed watching TV. He lit up a cigarette and held it in his hand, which was resting on his leg. He got a little excited about the game and slapped his leg with the hand that was holding the cigarette. His pants burst into flames. He says that the cigarette did not actually touch his pants, and that no spark or ash fell onto his pants.

Dan was afraid to drop and roll to smother the flames because there was gasoline all over the gas station floor. He had no extinguisher, and the best he could do was splash water from the men's room onto his leg.



Investigator's Analysis

Ignition Source: CIGARETTE

Material: GASOLINE

Local Conditions: GASOLINE ABSORBED BY CLOTHING; PANTS APPARENTLY DRY

Comments:

Most of the highly volatile part of the gasoline had evaporated during the thirty minutes after the spill. But the less volatile residue of gasoline on the victim's pants was also evaporating relatively quickly because of the victim's body heat.

So even though his pants felt dry, the gasoline was still evaporating from the pants. The heat from the cigarette was sufficient to ignite these vapors.

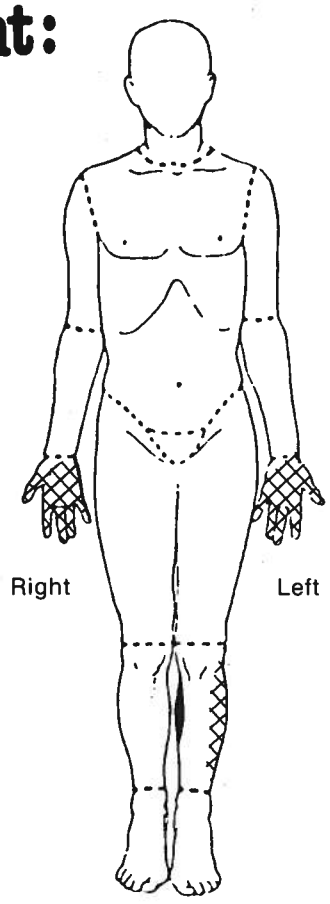
Medical Record

Victim's Name: DAN PRINDALL

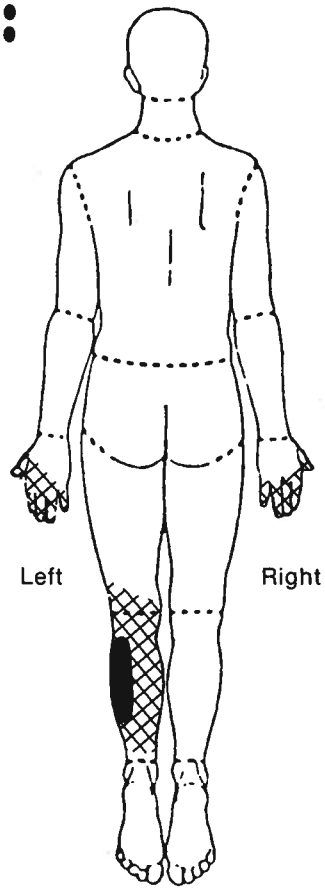
Dates of Hospitalization: ADMITTED: 12/31/73
DISCHARGED: 01/7/74

Total Length of Hospitalization: ONE WEEK WITH PERIOD CLINIC VISITS FOR 11

Front:



Back:



Key: 1st degree
2nd degree
3rd degree

Description of Injury:

Second- and third-degree burns on lower left leg; second-degree injuries to both hands.

Treatment Summary:

Patient was seen in local emergency ward, where his wound was cleaned and bandaged. He was sent home to bed rest, and to return daily to clinic for bandage changes. Two weeks later, he was admitted to the hospital for a week for skin grafting of the small areas of third-degree burn.

It was two months before he could lower his leg, and a year before he resumed active sports.

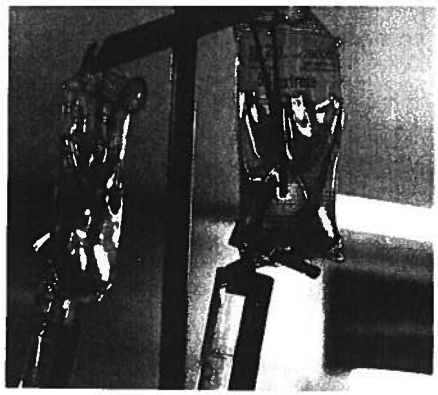
Flammable Liquid Accidents Are Serious

Burn injuries of this kind are often fatal. For victims who survive, there is long and painful hospitalization.

Jamie Cope

Jamie Cope

Like the boy in the filmstrip, Dan had a successful operation. With physical therapy, he was able to regain full movement of his legs. A year and a half after the accident, he was able to participate again in sports.



"All the skin on my leg just started to fall off. I had to keep my leg elevated for two and a half months, because if I let it down all the blood would rush to it. There was just no skin to hold the blood in, so it would start bleeding by itself.

"Every day I had to go to physical therapy to lift my leg. I couldn't bend my knee all the way because as soon as I bent it, the skin would tighten up."

Dan suffered second- and third-degree burns.

Heat destroys skin. The degree of a burn refers to how many layers of skin have been destroyed. In a second-degree burn, only the upper layer of skin has been destroyed. With proper treatment, it can heal. A third-degree burn destroys all the layers of the skin, and cannot heal itself. The dead skin has to be removed and replaced with living skin from some other part of the body so that infection does not set in. This process of replacing dead skin with living skin is called skin grafting.

"They told me I would have to have skin grafts. They took the skin from the upper calf of my right leg and put it on the lower part of my left leg, which had been burned."

The filmstrip that accompanies this unit explains grafting. The pictures are actual hospital photographs taken by a medical photographer in the operating room. The photographer followed the grafting operation from start to finish.

The procedure shown in the filmstrip is similar to the operation Dan underwent for his leg. (Both Dan and the patient in the filmstrip suffered third-degree burns of the leg, which required extensive grafting.)

View the filmstrip.

Two Things Surprised Dan About His Accident

Dan didn't realize that his pants, which felt dry, would still be giving off vapors that could ignite. He said:

"My pants weren't and actually didn't feel wet."

All flammable liquids, such as gasoline, give off vapors that can ignite. Vapors are collections of molecules that escape from the surface of the liquid. These vapors are invisible and can travel far distances. If they reach a heat source, ignition will occur.

Dan was also surprised that the vapors could ignite without a spark or open flame:

"I figured you would have to have a spark or at least some type of fire to make it. And the head of a cigarette really is no spark. Just the temperature of it—I guess was just too intense—the vapors, they just burst into flames."

The investigator's analysis in Dan's report, repeated here, explains why this happened.

Investigator's Analysis

Ignition Source: CIGARETTE

Material: GASOLINE

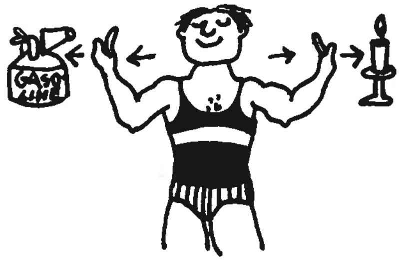
Local Conditions: GASOLINE ABSORBED BY CLOTHING; PANTS APPARENTLY DRY

Comments:

Most of the highly volatile part of the gasoline had evaporated during the thirty minutes after the spill. But the less volatile residue of gasoline on the victim's pants was also evaporating relatively quickly because of the victim's body heat.

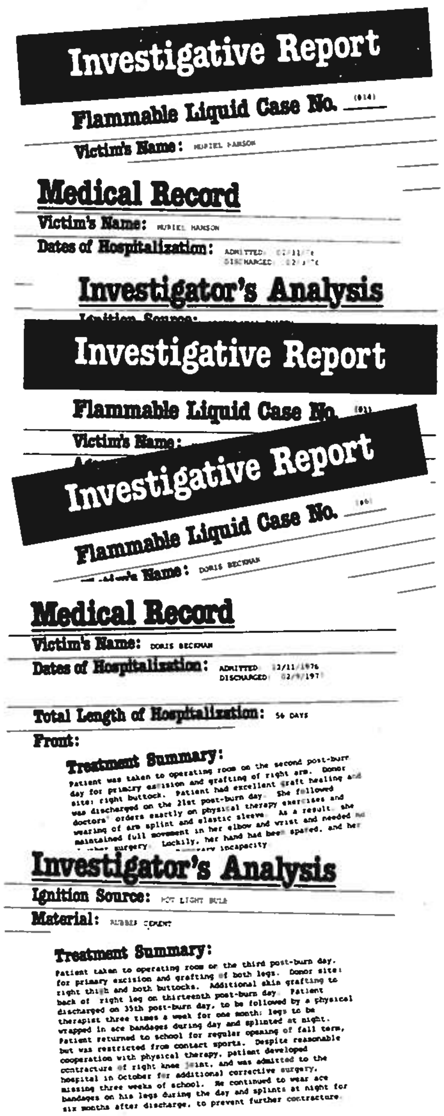
So even though his pants felt dry, the gasoline was still evaporating from the pants. The heat from the cigarette was sufficient to ignite these vapors.

& Ignition Sources: Keep Them Apart



To prevent flammable liquid accidents, it is necessary to identify flammable liquids and the ignition sources that could set them off. In Dan's accident, the flammable liquid was gasoline. The ignition source was the heat from his cigarette.

But there are many different flammable liquids and many possible ignition sources. In fact, one reason flammable liquid accidents happen so frequently is that people don't realize how many combinations of flammable liquids and ignition sources might be around them at any given time.



This unit includes 15 other investigative reports, which represent the most typical flammable liquid accidents.

Each report has four sections. One section explains how the accident happened (narrative) and includes an illustration of the scene prior to the accident. Another section is an investigator's analysis of why it happened; the last two sections are the medical record, which includes a chart of the body injuries, and a treatment summary.

Begin by picking a partner. Pass out the reports. Look through them quickly, noticing the kind of information each section provides. Glance at the illustrations. Choose one report for you and your partner to work on together.

Each report describes an accident in which a particular flammable liquid combined with a particular ignition source. In the report you are examining:

- What was the flammable liquid?
- What was the ignition source?
- Were there any outstanding conditions or circumstances that contributed to the accident? If so, what?

This information appears in the analysis on page 2 of the Investigative Report.

With the rest of the class, make a chart like the following one, listing flammable liquid, ignition source, and other conditions for each accident. When completed, the chart will show 16 combinations of flammable liquids and ignition sources that can create fire.

Case No.	*Victim*	*Flammable Liquid*	*Ignition Source*	*Other Conditions*
	DAN	Gasoline	Tip of cigarette	Thought dry pants were safe; didn't know heat of cigarette could ignite gas fumes.
1	WALTER			
2	GORDON			
3	FRANK			
4	JEAN			
5	ALAN			
6	DORIS			
7	ALICE			
8	TRAVIS			
9	DONALD			
10	TIM			
11	MARSHA			
12	GILBERT			
13	JUDY			
14	MURIEL			
15	GENE			

These Accidents Could Have Been Prevented

If the people who were injured in these accidents had had a better understanding of fire in general, and of flammable liquids, they might have been spared the suffering they went through.

This section provides basic information on fire and flammable liquids. After examining it you will have a chance to recommend how each of the accidents in the investigative reports could have been prevented.

What Is Fire?

Three things are needed to make fire:

- Oxygen (in the air around us)
- Anything that will burn (also called a combustible material or a fuel)
- Heat (from many possible sources)

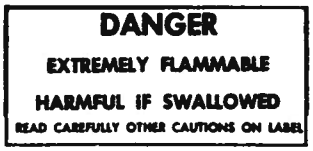
All three ingredients must be present for a fire to ignite. Take away the combustible material—no fire. Remove the heat source—no fire. Take away the oxygen—this is, of course, the hardest way to prevent a fire because the air is around us all the time. But if a fire is already burning in an enclosed space, a good way to put it out is to cut off the oxygen supply.*

*For more information on fire see Appendix A, "What Is Fire?"

What Causes Flammable Liquid Fires?

In a flammable liquid fire, the combustible material is the vapor given off by the flammable liquid. At ordinary temperatures, all flammable liquids give off molecules in the form of invisible vapor that can ignite. When vapor escapes from a flammable liquid, it mixes with air. This vapor-air mixture provides two of the three necessary ingredients for fire: fuel and oxygen. All that is necessary for combustion to occur is the right amount of heat, from any ignition source.*

It is very difficult to account for all the possible ignition sources that might be around. Whenever you use a flammable liquid, you are in a potentially dangerous situation.



Using a flammable liquid indoors is especially dangerous. It's easy to forget about the pilot light in the hot water heater or the stove. Someone may walk into the room and light a cigarette while you are using a contact adhesive. Someone may turn on a light that creates an imperceptible spark inside the wall, but one that is sufficient to ignite the highly flammable vapor.

Furthermore, without proper ventilation vapor concentrations can build up to dangerous levels. Vapor is invisible. It can travel far distances, even changing levels within the house and traveling to an ignition source that is thought to be a safe distance away. A dangerous concentration of vapor may be present without your knowledge.

*For more information on vapors, see Appendix B, "What Are Vapors?"

Sometimes it is necessary to use certain flammable liquids indoors. However, one flammable liquid that should never be used indoors is gasoline. Gasoline vapor ignites more easily than any other flammable liquid vapor. It should be used only as a fuel for engines, never as a household cleaner or anything else.

Whatever job you are doing, it is safer to use a nonflammable substitute if you can. If no nonflammable substitute is available you will have to decide whether to do the job at all; sometimes the risks are too great. If you decide to use a flammable liquid, you will have to decide under which conditions you can do it safely.

How Can You Prevent Flammable Liquid Fires?

If you must use flammable liquids, there are several things you can do to make the situation safer. Read the list of precautions below. For a fuller explanation of each precaution, see Appendix C, "How to Prevent Flammable Liquid Accidents."

- **Keep the vapor concentration low.**

  The greater the ratio of vapor to air, the greater is the likelihood of combustion. Open the flammable liquid container only long enough to get out the amount you need, then close the cover tight.

CAUTION: COMBUSTIBLE. Keep away from heat and open flame. Avoid breathing of vapor or spray mist and prolonged contact with skin. Keep container closed when not in use. Do not take internally. Use with adequate ventilation. KEEP OUT OF REACH OF CHILDREN.

CAUTION - COMBUSTIBLE MIXTURE
N.Y.F.D. C. of A. No. 3788

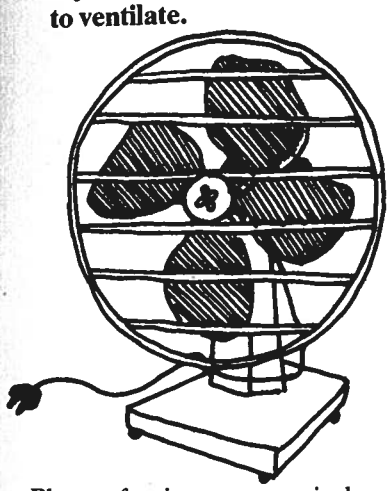
CAUTION: FLAMMABLE MIXTURE DO NOT USE NEAR FIRE OR FLAME
N.Y.F.D. C of A. 686

CONTAINS AROMATIC HYDROCARBONS
DO NOT PUNCTURE, INCINERATE OR STORE ABOVE 120°F.
Keep at room temperature as exposure to direct sunlight, radiators, stoves, hot water and other heat may cause bursting.
Avoid breathing of vapor or repeated contact with skin.
Use with adequate ventilation.
KEEP OUT OF THE REACH OF CHILDREN
Scz (2-65)

WARNING
DANGER: EXTREMELY FLAMMABLE
Keep away from HEAT, SPARKS or OPEN FLAME
DANGER: CONTAINS PETROLEUM DISTILLATES
• Use with adequate ventilation. • Avoid contact with skin.
• HARMFUL OR FATAL IF SWALLOWED.
• If swallowed do not induce vomiting. • Call a physician.
• Close container when not in use.
KEEP OUT OF REACH OF CHILDREN

In general, prevent evaporation indoors.

- **If you must work indoors, be sure to ventilate.**



Place a fan in an open window on one side of the room and open a door or window on the opposite side, so that air will circulate through the room. The increase in oxygen will dilute the vapor concentration and help to keep it below a dangerous level. However, since you can never know when the danger level has been reached, be sure to keep iginition sources away, even though you have good air circulation.

- **Clean up spills.**

If you spill a flammable liquid indoors, ventilate the room and wipe up the spill. Remove any clothes that have absorbed a flammable liquid immediately, and wash any skin that has been touched. Hang any clothes or rags that have absorbed a flammable liquid out in the air to dry, so that a breeze can blow through

- **Avoid spontaneous combustion. Store oily rags in an airtight container or hang them on a line outside.**

- **Store gasoline in a tightly sealed metal container with a pressure release valve. Store on a high cool shelf away from a heat source.**

- **Keep flammable liquids, including aerosol cans, away from heat.**

- **Revive a charcoal fire by fanning the coals. Never add more starter fluid to a fire that has already been lit.**

- **Never carry or throw a container with flaming contents.**

Extinguish the fire by covering the container with a lid, which will cut off the fire's oxygen supply.

- **Smother a flammable liquid fire. Do not use water to put it out.**

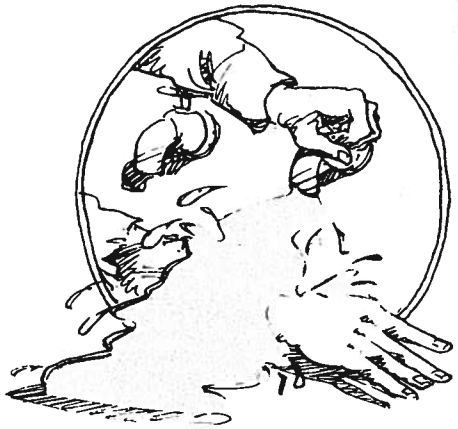
Most flammable liquids do not mix with water. All that is accomplished by throwing water on them is that the flaming liquid may spatter and the fire may spread.

If clothes catch fire, three words could save your life.

Drop. *Drop* to the floor.

Roll. *Roll* to put out flames.

Cool. *Cool* the burn with water.



If clothing catches fire, there are three things you can do to reduce the severity of your burns.

Drop and Roll

Drop immediately to the ground, arms at your side or crossed over your chest, and roll on top of the flames. Roll back and forth until the fire is completely smothered. Rolling cuts off the supply of oxygen and puts out the fire. Never run. Running provides more oxygen for the fire; the flames will grow bigger and travel upward toward the face.

Apply Cool Water Immediately

Cooling a burn within the first ten seconds can significantly reduce the severity of the burn injury. Never apply butter or oil. Only cooling stops the skin from burning.

Remove Nonsticking, Hot Clothing

Clothing keeps heat in. Even if the flames are out, the heat trapped in by your clothes can continue to burn your skin and increase the severity of your injury.

What Would You Recommend?

1. To Prevent the Accident?

Using the information in the previous section, figure out what caused the fire in the investigative report you read.

Look again at how the accident happened and at the explanation for it in the investigator's analysis.

How could the people in that situation have acted differently to prevent the accident?

2. To React to the Emergency?

Each of the people in the reports responded to the emergency differently. Some of the things they did made the situation better; some made it worse.

How did the people in your report react to the emergency?

Did it help? Did it make things worse? What could they have done to improve the situation?

Share Your Recommendations

Gather in small groups of three or four pairs and share your reports and recommendations, or report your recommendations to the whole class.

- Begin by telling briefly how the accident happened, since others in the class do not know your report as well as you do.
- Give your recommendations...
  for preventing the accident.
  for reacting to the emergency.
- You may recommend any of the suggestions presented in the previous sections, or offer your own ideas based on your understanding of fire and flammable liquids. Often there is more than one way to prevent an accident.
- Be prepared to back up your recommendations with reasons, in case any classmates aren't clear about why your recommendations would work.
- If you want to know more about why you should take the precautions you recommend, refer to Appendix C.

Years Old

Teddy's accident.* As you read it, ask yourself:

What caused the accident?

How could it have been prevented?

*Facts that could be used to identify the victim have been changed.

Investigative Report

The victim was a previously healthy three-year-old male. He was described as being a "Dennis the Menace" type, curious, playful, and fun-loving.

On the day of the accident, it had been raining and the children had been kept inside to play. Late in the afternoon the victim and one companion (three-year-old female cousin) were playing in the cellar. The victim's fifteen-year-old sister had earlier been playing with the younger children, but had left them in the cellar and gone upstairs a short time before the accident.

The victim and the young girl had just received new bicycles and were very preoccupied with these treasured acquisitions. Disappointed at not being able to take the bicycles outdoors due to the bad weather, the children apparently decided to clean their bikes. For use as a cleaning substance, the victim obtained and used some gasoline, which was stored in a red plastic one-gallon jug in which a popular brand of auto antifreeze is distributed. It is estimated that there was approximately one quart of gasoline in the gallon jug, and it is not known whether there was a cap on the jug. The victim's father had obtained the gasoline from the car by siphoning, and had used it for cleaning a carburetor just two days before the accident. The victim had watched his father using the gasoline, and apparently concluded that if gasoline was good for cleaning auto parts, it would also be good for cleaning bicycles.

It is believed that the victim used the gasoline by pouring some on a rag, and then wiping parts of the bicycles with the gasoline-soaked rag. It is clear that he paid particular attention to the seats, pedals, chain guards, rear wheels, and training wheels. In the course of applying gasoline to the rag and then wiping various parts of the bicycles, a liberal amount of gasoline was spilled on the floor and on the victim's hands and clothing. While the exact duration of this activity is not known, it is important to note that when a highly volatile liquid is spread in a thin layer over a wide area (as when spilled on the floor), it vaporizes rapidly.

The gasoline vapors apparently accumulated in the cellar, and eventually reached the gas-fired hot water heater, a distance of six to eight feet from where the gasoline had been spilled. It is not known whether the vapors were ignited by the pilot light, or if the water heater's main burner fired at that time. A vapor flash resulted and, in turn, ignited the surfaces that were wet with gasoline, including the floor in the area of the spill, various surfaces of the bicycles, and the victim's clothing. The other child was positioned beyond the perimeter of the gasoline spill and escaped with minimal consequence.

The victim's mother, who was in the kitchen at the time, stated that she heard no explosion and that the victim did not cry or scream even when engulfed in flames. The first indication of trouble was the appearance of smoke coming under the door leading to the cellar. The fifteen-year-old girl went to investigate and found the cellar filled with smoke. She knocked out a window to relieve the smoke and then went to fight some minor flames burning in the area where the gasoline had spilled on the floor. As she moved toward the fire area, she discovered the victim walking toward the bottom of the stairs leading to the kitchen. She states that the victim's clothing was on fire and that the boy was engulfed in flames like a "torch." The older girl grabbed the victim under the arms from behind and carried him upstairs to the kitchen where the victim's mother used the spray hose of the kitchen sink to extinguish the flames. Even after the active flames had been controlled, she states that all of the boy's clothing was smoldering except for his sneakers.

The victim was taken by police vehicle to the emergency room of a local hospital. Following evaluation and initial care, he was transferred for admission to the Shriners Burns Institute in Boston, where he remained until he expired on the 54th post-burn day.

*There were no fabric samples available, since most of the victim's clothing was destroyed by flames. At the time of the accident, he was wearing a cotton flannel long-sleeved shirt, a cotton undershirt, dungaree-type pants, and socks and sneakers.**

---

*If you wish to know more about flammable liquids or burn injuries, turn to the chapter, "Liquids That Burn," and Appendix C, "How to Prevent Flammable Liquid Accidents."

• What caused the accident?

As a class, list everything that you think may have contributed to the accident.

• How could it have been prevented?

List your ideas for preventing the accident. Save these lists to refer to later.

Causes	Prevention

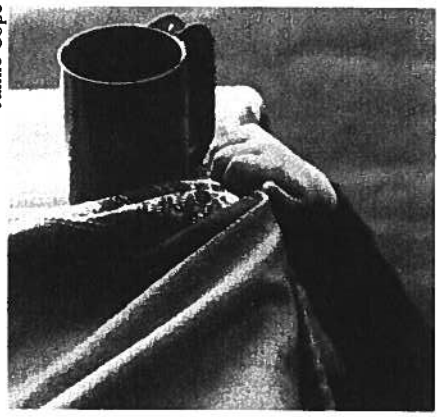
Children Are The Most Frequent Victims Of Burn Accidents

This is a chapter about protecting children from burns. Here are some reasons why anyone who spends time with children should know how to avoid burn injuries and what to do in a burn emergency.

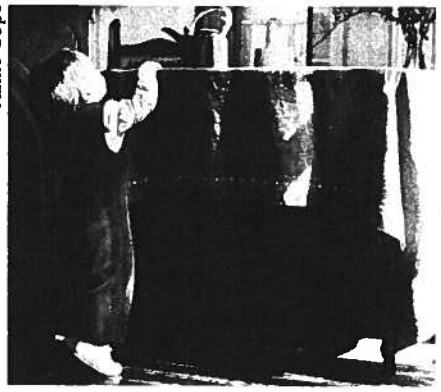
- Children are the most frequent victims of burn injuries. Children under three suffer burn injuries at three times the national rate for people of any other age.
- Not only are children involved in more burn accidents than older people, but because their skin is thinner and more tender, their injuries tend to be more severe. For example, the slide tape described a bathtub scalding accident to a young child who died. An adult might not have been injured as severely or as quickly by hot tap water, because the adult has tougher skin and faster reflexes.
- Many burn injuries are fatal. Those that are not often require long hospitalization and result in terrible disfigurement that cannot be corrected by plastic surgery.*
- Most burn accidents happen to children at home under ordinary circumstances.
- Accidents to young children are more likely to occur when the caregiver is tired, angry, worried, tense, or preoccupied. The feelings and behaviors of people who take care of children play an important role in keeping children safe.

*For more information on burns, what they are and how they are treated, see the filmstrip "Grafting" that accompanies the chapter "Liquids That Burn."

Jamie Cope



Jamie Cope



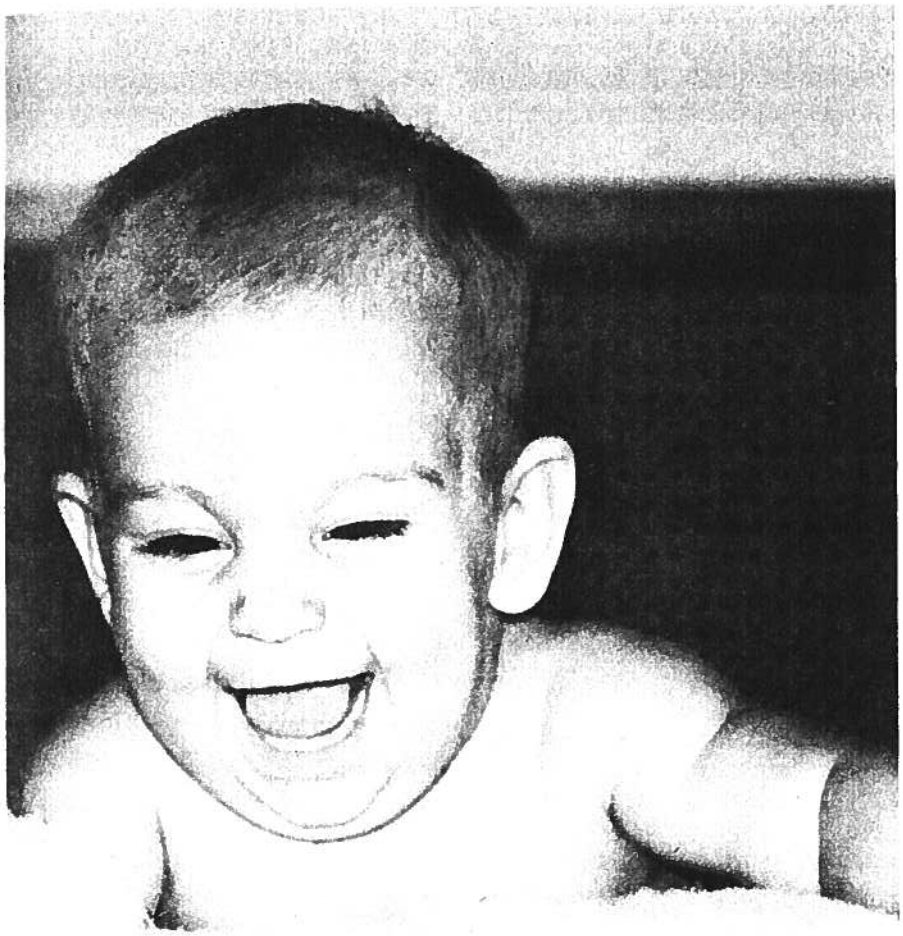
Jamie Cope

Jamie Cope


Eileen Fried

Why are children so susceptible to burn injuries? Part of the answer has to do with what children are like.

Each Child Is Unique, But For All Children Abilities Unfold In Similar Ways



"I thought my little boy would be a baby for a long time, but they're not. It seems like a very long time when you're getting up with them in the middle of the night, but it's not really a long time. When you have this cuddly baby, it's easy, because they just have to be fed and changed and they sleep a lot. But then they don't sleep so much any more, and they want to play, and you have something to do. Then they can move by themselves, and they learn to crawl and walk, and as soon as they learn to walk, they learn how to run. It's terrible—he is still a baby, but he isn't. He isn't solely dependent on me. I get mad and then I realize that what is happening is that he is growing up."

—A young mother describing her first child

Children are always growing and changing. Beginning at birth children pass through distinct stages. We call them developmental stages, because they occur in sequence, each stage building on earlier ones. At each stage, the child develops certain abilities that allow new skills to emerge.

At birth an infant can see only gray shadows; in a few weeks he or she begins to see color; soon the baby can smile and respond to another person's smiles and expressions; a few weeks later the baby can roll over onto his or her belly.

A big milestone is reached when the child begins to crawl. Now the baby's world expands, because he or she can reach and touch and explore many more parts of it. This world expands even more dramatically the day the child totters to his or her feet and walks for the first time. With walking comes the ability to run, to climb, to jump. The child grows more and more active, increasingly an initiator of activity that engages other people and other objects.

All of these developments, and many more, characterize the first three years of life for most children. They begin life completely helpless.

Children are propelled by enormous curiosity, the desire to learn and explore and master. If an object looks attractive—a coffee cup, a shiny appliance, soap bubbles in a steaming bathtub, or the flame of a candle—their impulse is to touch. They do not stop to ask if it is dangerous? They need others to protect them as they explore and learn about their world.

Children Become Susceptible To Different Kinds Of Burn Accidents

On the following pages, you will find ten case studies of accidents in which children of different ages were seriously burned. These cases were chosen because they represent the most typical accidents to children of various ages.

Make a chart like the following.

Victim's Name	*Age*	*Hazardous Objects*	*Kind of Burn*
TEDDY	3 YRS.	GASOLINE; OPEN FLAME IN WATER HEATER	FLAME
JILL	4 MOS.		
STEVE	9 MOS.		
JUDY	11 MOS.		
AMY	14 MOS.		
JOEY	15 MOS.		
KATHY	18 MOS.		
TOMMY	2 YRS.		
PAUL	2½ YRS.		
GENE	5 YRS.		
BARBARA	9 YRS.		

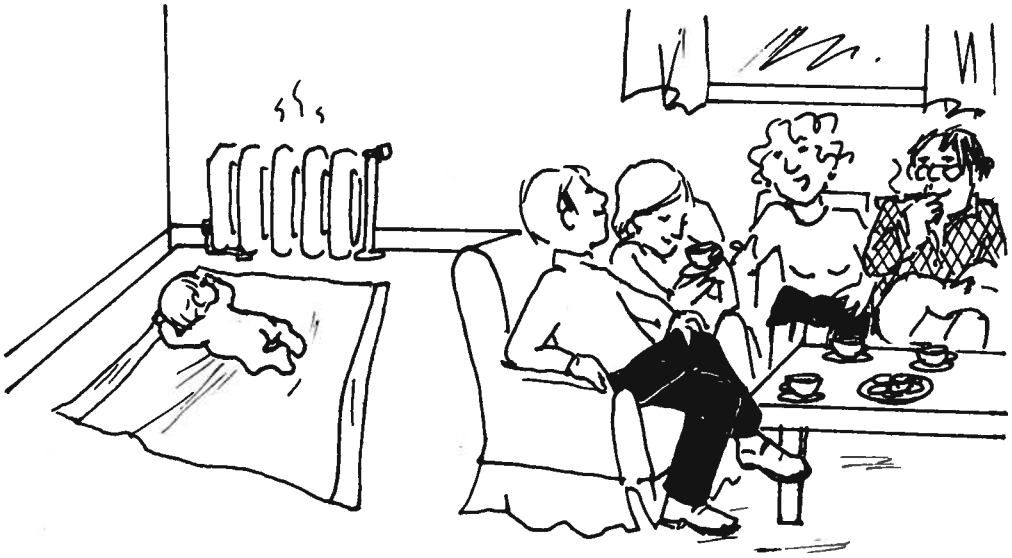
Skim the ten case studies.

Look for the physical hazards in the environment that contributed to the accident. Put this information in the appropriate place on the chart.

Under "Kind of Burn," indicate whether it was a scald, electrical, contact, or flame injury.

When the chart is completed, it will tell you what kinds of accidents are most typical for children at different ages.

New Baby (Jill, 4 months)



How It Happened

Margie and Dan were so proud of their new baby. Only a few months old, Jill could do so many things—hold her head up, laugh out loud, hang on to things, laugh back at you when you giggled and tickled her tummy.

Over Christmas they went to spend the holidays with Dan's parents. One afternoon they were visiting some old friends and showing off the baby. "Why don't you stay for dinner?" the friends said. "Jill is sleepy and needs a nap," Margie said. "We'd better not." "She can sleep right here," one of the friends said. "We'll put a blanket on the rug and she can sleep over in that corner." Dan and Margie decided to stay. They fed Jill and put her down on the blanket. She went right to sleep.

About two hours later, Jill woke up. She seemed happy lying on the blanket, studying her feet, so they left her there. All of a sudden Jill let out a cry. Dan and Margie jumped up and ran over to the corner. Jill had turned over on her back and struck her arm against the hot radiator. They put cool water on the burn and rushed Jill to the hospital.

After they were sure she was going to be all right, Margie said "You know, she never rolled over before. We're going to have to watch her carefully so that we always know what she can really do!"

Questions

What hot surfaces are in your home?

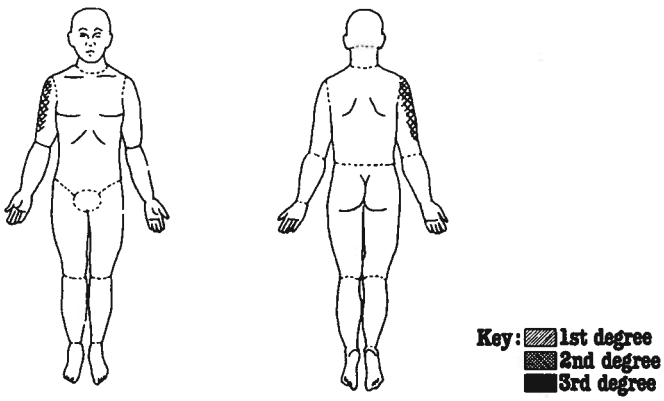
Medical Record

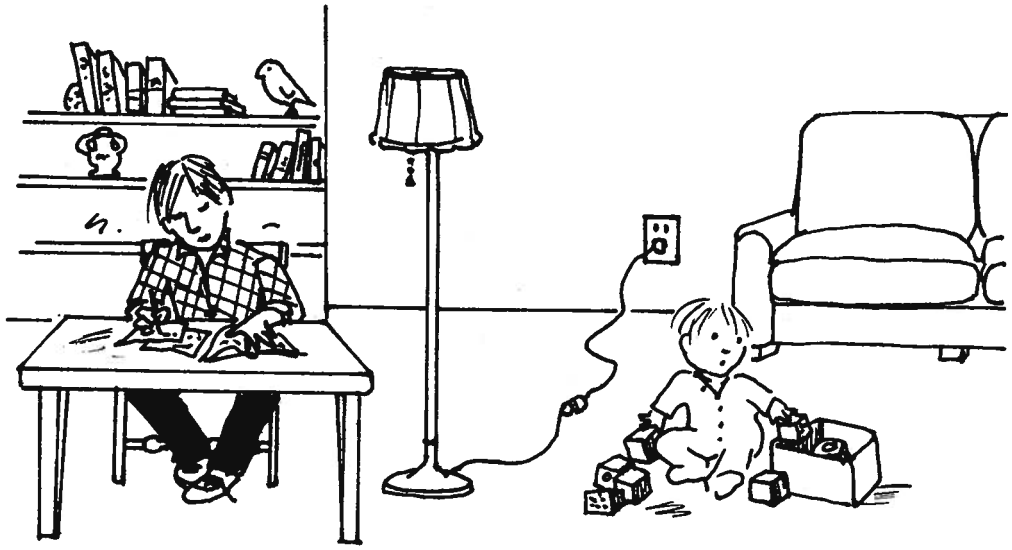
2° burn to right shoulder/upper arm.

Hospitalization

2 days.

Child developed large full blister at shoulder. She was taken to the emergency room and admitted to the pediatric ward, where her wound was cleaned and bandaged. After two days of care, the wound continued to be clean; she was discharged and returned daily to the clinic for dressing changes. Her burn healed in two weeks, leaving slight scarring.





How It Happened

Steve had just learned to crawl. Now if he saw something interesting a few feet away he didn't have to cry or point, he could take himself to it.

One night Steve had a new babysitter, his Uncle Mark. While Mark did his homework, Steve sat on the floor busily putting blocks into a box and dumping them out again. Mark was pleased that Steve was so easy to care for, because he had never taken care of a small child before. All at once Steve noticed something lying on the floor a few feet away. He crawled over to investigate. It was a long, black cord. At one end there was a big square bump. Steve picked it up. It felt soft, warm. He put the bump in his mouth and started to suck on it.

Mark looked up and saw Steve sucking on the joint of an extension cord. The cord was plugged into a wall outlet. "Don't!" he said. "No!" But it was too late. Steve's mouth was severely burned.

Questions

What caused Steve's burn?

A child's sounds and silences are important signals to caregivers. What signals might Steve have been giving that could have warned Mark?

What was the parents' responsibility? How can babysitters compensate for or change the hazards in someone else's home?
How do you think Mark feels?

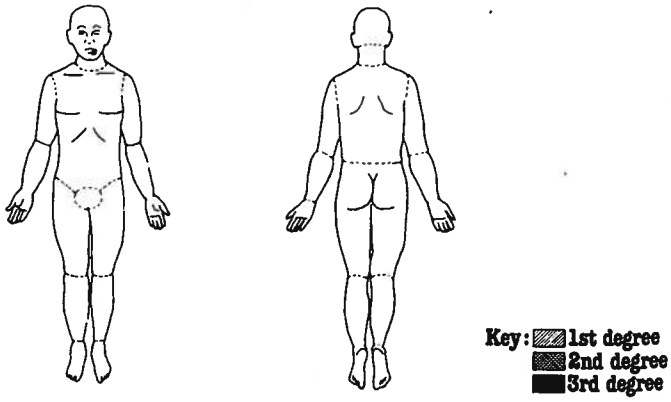
Medical Record

3° electrical burn to left side of mouth.

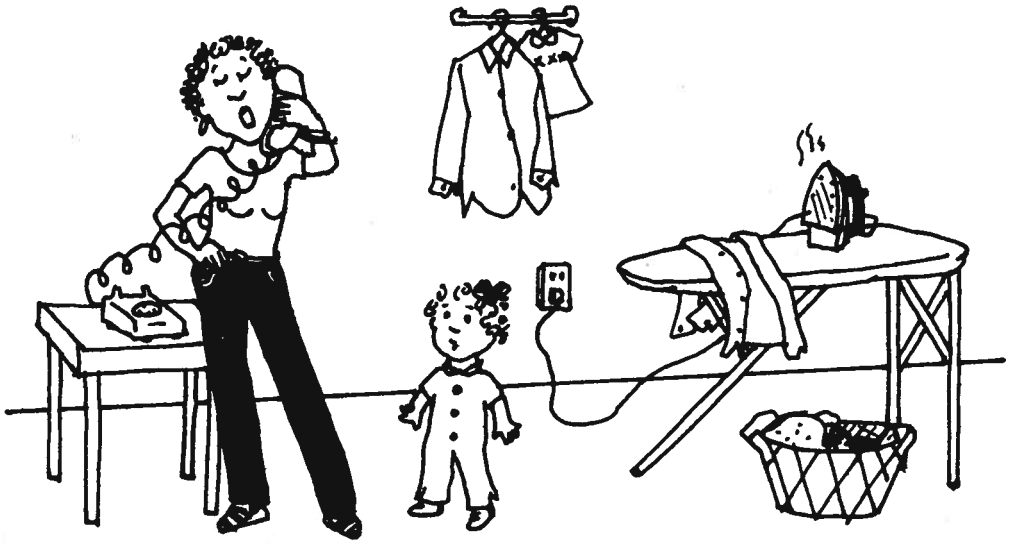
Hospitalization

6 days.

Child was admitted to burn unit for close observation of deep electrical burn to corner of mouth. Child was discharged six days later, to be followed at the clinic and scheduled for corrective plastic surgery when the scar had matured. Over the next eight years, the boy was readmitted seven times for sequential surgery to his mouth, to reshape the lip and permit full opening of the mouth. Surgery has restored the mouth to full function; however, the lip is still scarred and somewhat distorted.



Learning To Walk (Judy, 11 months)



How It Happened

Judy had taken her first steps by herself just two weeks ago. Already she was toddling through the house, following her older brother, grabbing the dog's tail and hanging on while he tried gently to pull away. She was constantly in motion when awake, and no one could predict where she would go next. The rest of the family seemed to spend all of their time pulling things out of the way, grabbing her before she fell, saying "No, No" (which had little influence on Judy), and remembering how much calmer life was two weeks ago.

One day Judy was home alone with her sister Sally, who was doing some ironing. The phone rang. Sally turned off the iron and ran to answer the phone. It was her boyfriend Stan.

Judy watched Sally talking on the phone for a minute, then suddenly she turned. She lost her balance, and reached behind her. She caught hold of the long black cord. The hot flat surface of the iron brushed against her bare shoulder before it hit the floor.

Questions

In addtion to turning off the iron, what else should Sally have checked?

What electrical appliances have long cords in your home? How can they be used safely?

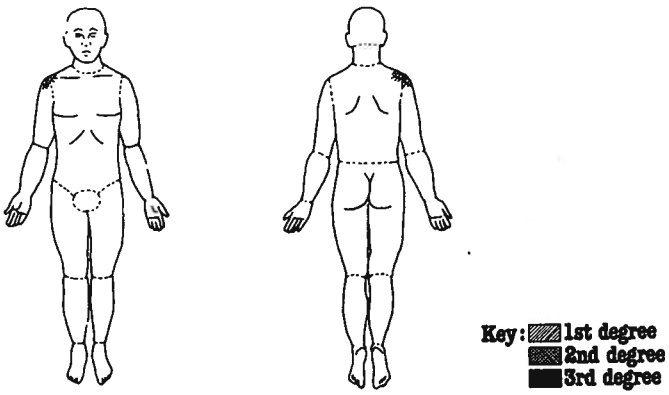
Medical Record

2° burn to right shoulder.

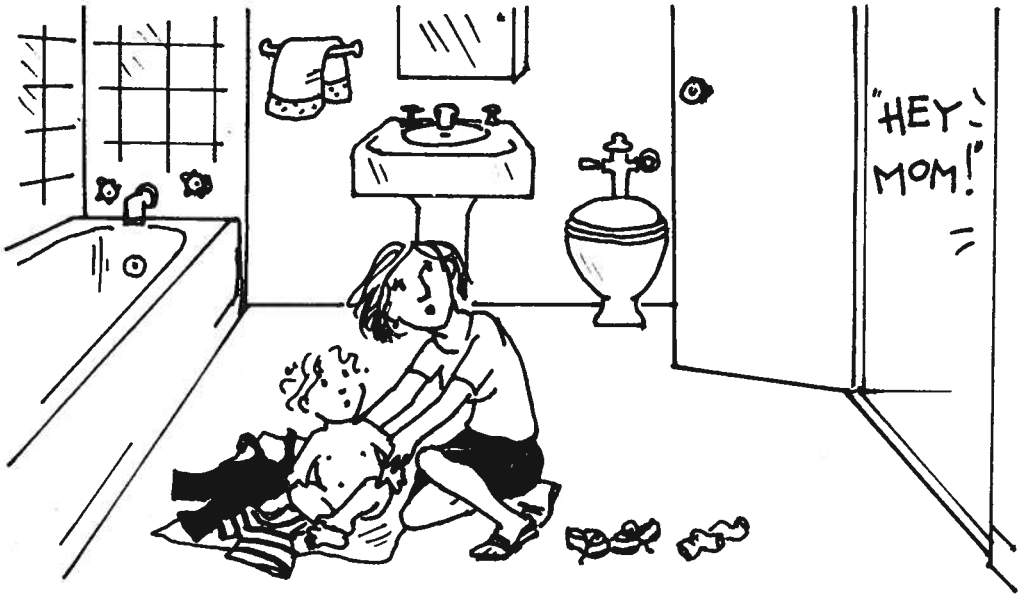
Hospitalization

Outpatient 10 days.

Cold compresses were applied to injured shoulder and child was taken to local emergency ward. Doctors cleaned and bandaged the wound, and instructed the mother to bring the child to the clinic for daily dressing changes. Her wound healed quickly. The doctors told her family how lucky they were that the iron did not land on the baby with its full weight, which could



Amy's Bath (Amy, 14 months)



How It Happened

It was time for Amy's bath. Mother carried her into the bathroom and sat down on the floor with her. She took off Amy's clothes. "Bath! Bath!" Amy said. "Yes," Mother said, "you're going to have a bath right now." Just then Amy's brother Tim, who was sick in bed, called. "Hey Mom!" he said, "Come here. I need you." "Uh, oh," Mother said, "I better see what Tim needs. Stay here, Amy, I'll be right back."

Amy was all alone now. She decided to give herself a bath. She climbed up on the toilet, which was next to the sink. Then she climbed onto the edge of the sink and sat down. She put her feet in the basin and pulled the faucet handle towards her. Water came gushing out and she squealed with pleasure. The water got warmer and warmer, then all of a sudden it was boiling hot. Amy screamed. Mother ran to the bathroom and pulled her out of the sink.

Questions

How would you describe Amy's behavior?

Was Amy's mother aware of possible hazards in the bathroom?

What did she expect Amy to do?

What else could Amy's mother have done to respond to Tim?

How hot is the water which comes out of your tap? A temperature of 125° is considered safe. Do you have control over the temperature setting?

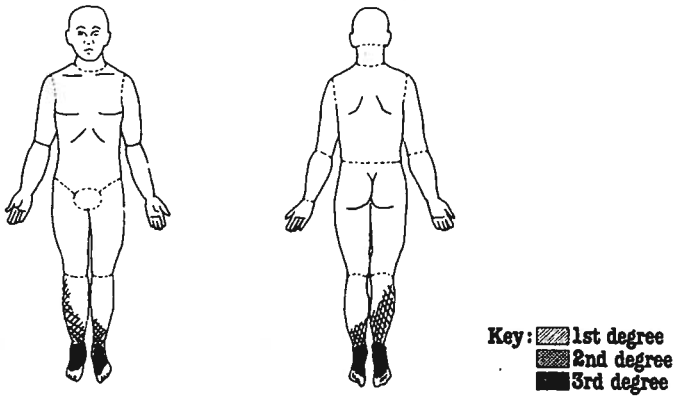
Medical Record

2° and 3° burns of both lower legs and feet.

Hospitalization

37 days.

Child was taken twice to the operating room for grafting of her feet. She was discharged one month later, with instructions to apply ace bandage wraps and to encourage child to walk. Six months after discharge her wounds were fully healed, and her parents were told to encourage her to run and play to the full.



Don't Touch (Joey, 15 months)

How It Happened

Janet, age 15, was having lunch with her neighbor, Nancy. Janet loved to visit Nancy, because she had a baby and Janet had no brothers or sisters. Nancy fixed soup and sandwiches for lunch. "Janet, would you take the bowls of soup to the table?" Nancy asked. "Sure," Janet said. She got up from the floor where she had been playing with Nancy's baby Joey. She took a bowl of soup and carried it to the table. Joey followed her. As Janet was going back to the stove to get another bowl of soup she said, "Don't touch, Joey, it's hot."

Joey saw that Janet had put something on the table. He decided to investigate. He reached up and grabbed the bowl, spilling soup down his arm and chest.

Questions

How realistic are Janet's expectations of Joey?

How much can one count on words to make toddlers understand?

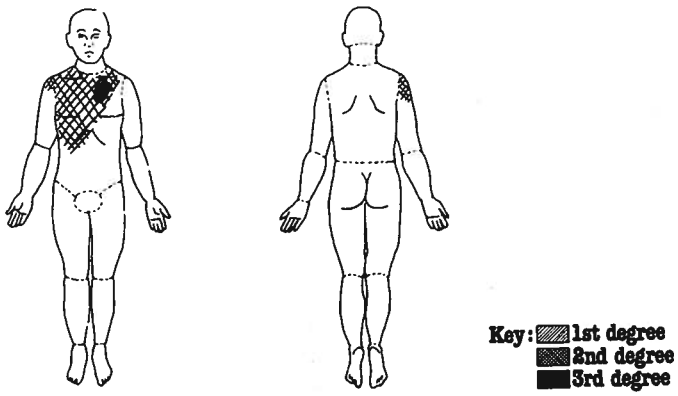
Medical Record

2° and 3° burns to arm and chest.

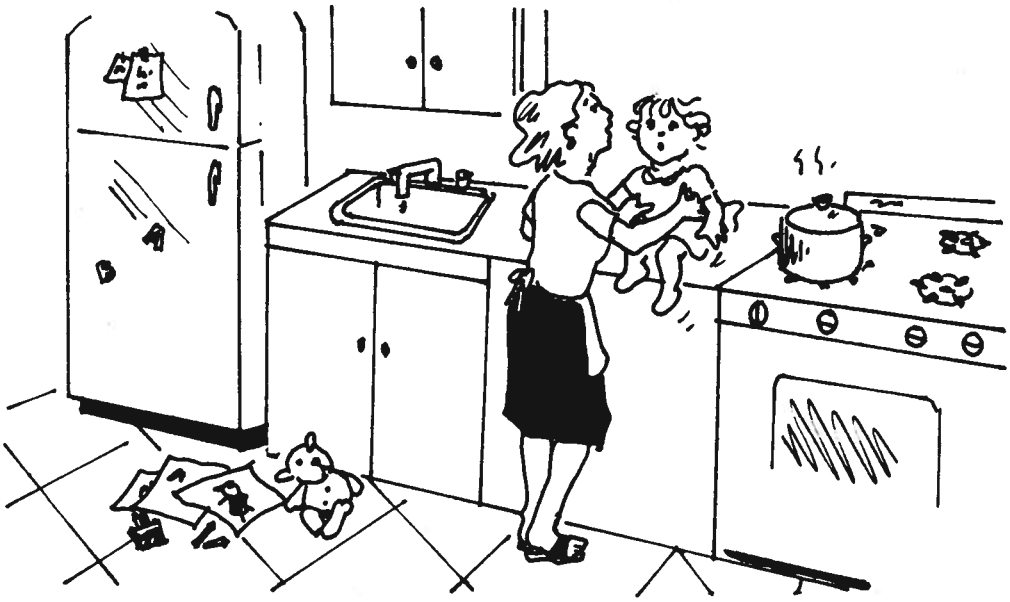
Hospitalization

14 days.

Child's small areas of third-degree burns were grafted; his healing progressed without complication; he was discharged two weeks after the accident. His chest healed with minimal scarring.



Dinner Was Late (Kathy, 18 months)



How It Happened

Friends were coming in half an hour, and Margaret was late in starting dinner. She had prepared a beef stew the night before. She took it out of the refrigerator and put it on the stove to warm. Then she started cleaning carrots at the sink.

Kathy was drawing pictures on the floor. After a while she got bored. She wanted to see what her mother was doing. She got up, went over to her mother and pulled on her skirt. Margaret looked down. "Not now, Sweetie, I have to fix dinner." Kathy cried a little and reached out her arms to be picked up. "Not now, Kathy, you'll have to wait," Margaret said. "Here, play with your bear," she added, handing Kathy her teddy bear. Kathy was quiet for a few seconds, but then she started to howl. She wanted to be where Mommy was. "All right!" Margaret said, picking Kathy up and setting her on the counter between the sink and the stove. "But sit there quietly." Margaret turned her back slightly to reach up and get salt from the cupboard.

Suddenly Kathy began to yell. The edge of her cotton dress had caught fire on the burner. Within seconds the back of her dress was engulfed in flames. Margaret pushed her down on the counter and rolled her to smother the flames. As soon as the flames were out, she removed Kathy's smoldering dress and applied cool water to her burns.

Questions

How do you think Margaret was feeling just before the accident?

What else could Margaret have done to keep Kathy happy?

It is a common situation for parents and children to have conflicting needs at times. Do you have any advice to caregivers on how they might cope with situations like these?

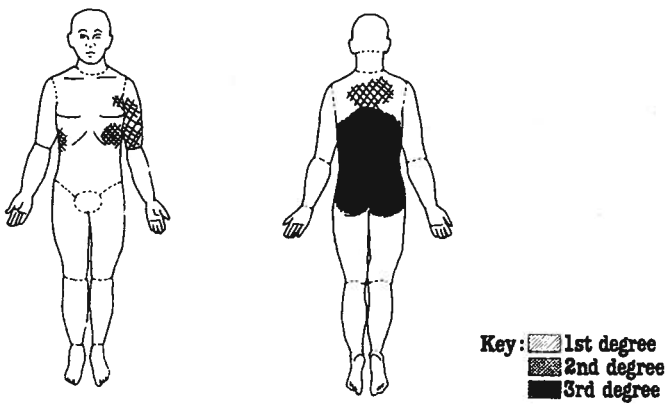
Medical Record

Deep 3° burns over entire back, including buttocks; 2° burns on left arm and abdomen.

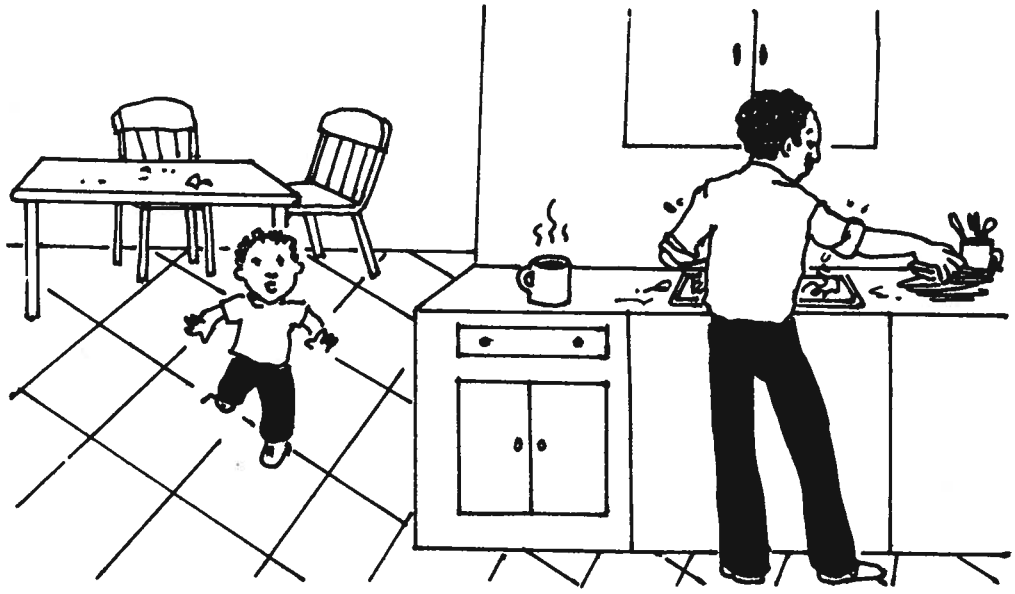
Hospitalization:

39 days.

During hospitalization, child was operated on three times for grafting of her back and arm. During healing, she was tormented by itching, which was relieved somewhat by medication. Her back is quite scarred, but the scars do not seem to hinder her movement.



Tommy's Orange Juice (Tommy, 2 years old)



How It Happened

It was Sunday morning. Mrs. Davis had left to take Debbie to Sunday School, leaving Mr. Davis at home with Tommy. He loved having some time alone with Tommy on the weekends, because Tommy was always asleep when he came home from work. Mr. Davis decided to have another cup of coffee while he cleared the table and washed the dishes. He poured the coffee and set it on the counter next to the sink.

Tommy was running around the kitchen, following his father from table to sink and back again. He noticed a bright red cup sitting on the counter. It looked just like his own juice cup. "Juice," Tommy said, running over to the counter. He stretched his arm and got his hand on the cup handle. "Tommy, watch out! That's hot!" Mr. Davis said, but it was too late. The coffee spilled down Tommy's cheek, arm, and chest.

Questions

Mr. Davis does not take care of Tommy on a regular, daily basis. Does this have any bearing on the accident in your opinion? Explain your reasons.

What does Mr. Davis know that Tommy doesn't know?

Why was Tommy attracted to the cup?

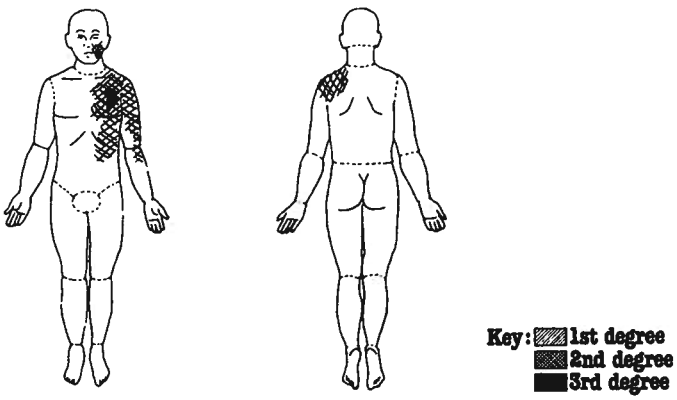
Medical Record

2° and 3° of left cheek, chest, arm.

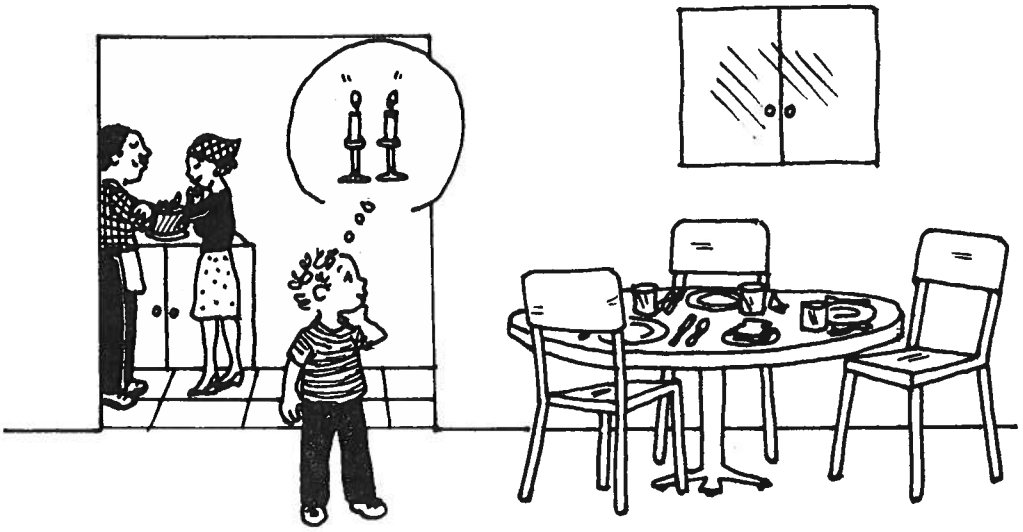
Hospitalization

23 days.

Child was admitted to burn unit; his chest and arm were grafted five days later; his wounds healed nicely. He was fitted with a face mask and vest to flatten the scars, which did this quite effectively in about nine months. The scar on his face is barely noticeable now.



Mommy's Birthday (Gene, 5 years)



How It Happened

On Tuesday, Sam decided to surprise his wife Sally by making dinner for her birthday.

Sam washed the lettuce, and five-year-old Gene tore it into bite-sized pieces and put it in the salad bowl. While Sam chopped onions and peppers and tomatoes and chicken, Gene washed the strawberries.

When mother got home, Sam and Gene yelled "Surprise!" "You fixed dinner!" she said. "That's fantastic." Mother followed Sam into the kitchen, but Gene ran to the dining room. They had forgotten something. They had forgotten to put candles on the table. He got the candles out of the cupboard and put them on the floor to light them. He got matches out of the drawer. He had never lit a match before, but he'd seen his parents do it plenty of times.

Gene pulled a match out of the matchbox and struck it. It didn't light, so he tried another one. The fourth match lit. Trembling a little, he held the match to the wick of one candle and lit it. Then he lit the other candle. He picked up one candle and carried it to the table. He went back and picked up the other. But just as he was placing it on the table, the candle fell out of its holder. When it hit the floor Gene stepped on it to put out the flame. Then he saw that his shirt was on fire. "Mom!" he screamed. "Dad!" Mother ran into the room, and when she saw what had happened she immediately threw Gene on the floor and rolled him over to smother the flames. Then she took off his shirt and put cool water on the burned skin, while Sam called the hospital.

Questions

What "right" things did Sam do to let Gene share in party preparations?

When do you think a parent should teach a child the correct way to light matches?

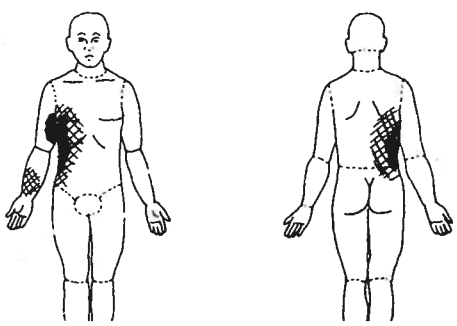
Medical Record

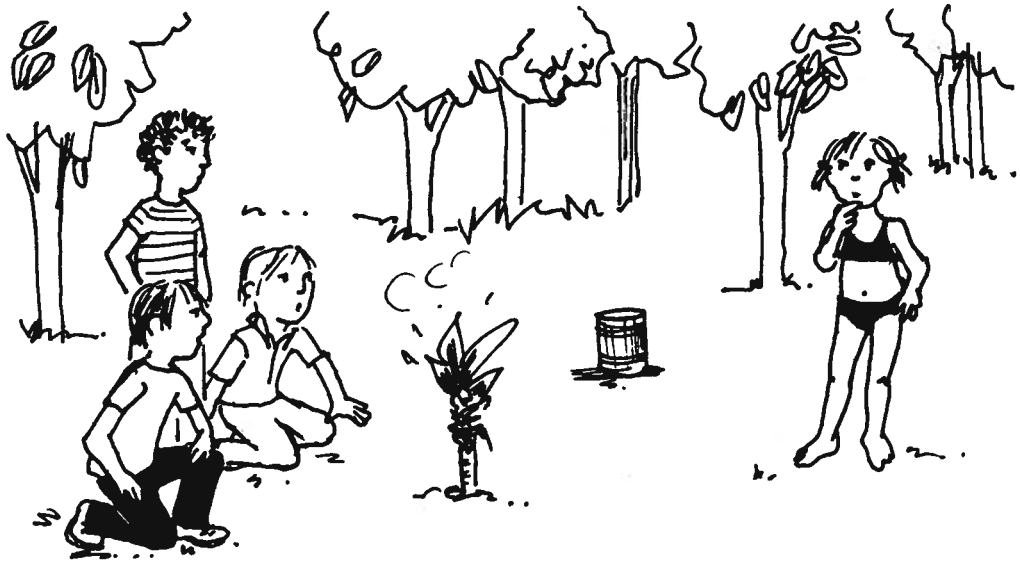
2° and 3° burns of right chest, back, and arm.

Hospitalization

28 days.

Victim's back, chest, and arm were grafted with skin taken from his legs. Upon discharge he was instructed





How It Happened

It was a hot summer afternoon. Barbara was lying in the backyard, sunning herself. She looked up when her brother Jeff and two friends came out of the garage. They were carrying a tin can and a big box of matches. They found a patch of dirt and began digging a hole. Then Jeff went and got the hose and dragged it over to the hole. Barbara, curious, got up and went over to see what they were doing. One of the boys had a small plastic soldier. He wrapped it in cloth, and soaked it in gasoline from the tin can. He tied the toy soldier to a stick and stuck it in the ground. Barbara was scared. She knew what the boys were doing was dangerous, but she was fascinated as well. She stood back a little from the group and watched as one of the boys lit a match and set the soldier on fire. There was a big flame, then the soldier began to melt. "That was neat," one of the boys said. "Let's do it again."

When the third plastic soldier was ignited, suddenly the can of gasoline, about two feet from the fire, burst into flames. "Watch out," Jeff said. Everyone moved away. Afraid the can would explode, he kicked it into the air. It flew off at an angle, right at Barbara. Suddenly she was covered with flames. She screamed and rolled on the ground. Jeff turned on the hose and doused her with cold water. She ran to a neighbor, who took her to the hospital.

Questions

As a child, did you find fire fascinating? What do you think makes it fascinating to children?

Jeff had some idea that what they were doing was dangerous, as did Barbara, yet both were intrigued.

How can children get the same "thrill" with less dangerous results?

Do you think children of this age should be told about the dangers of something like gasoline? Or are they safer if they don't know?

Why did the tin can catch fire?

Once the can caught fire, what was the safest thing for the children to do?

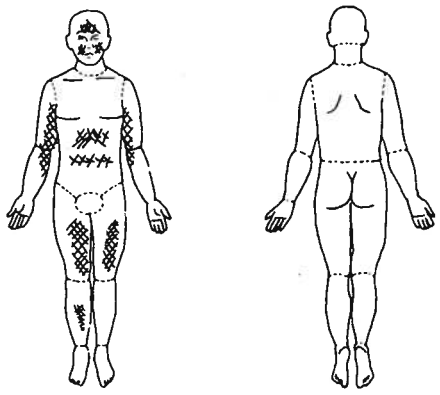
Medical Record

2° flash burns covering 30% body surface area.

Hospitalization

51 days.

Child was admitted to burn unit; her dressings were changed four times daily to keep her wounds free of infection. She did not need grafting, as her burns were all deep 2°. Her wounds gradually healed. After being discharged she continued to return to the clinic for four years, as doctors monitored her scar formation. Further surgery was declined, as the scars flattened and became less obvious.



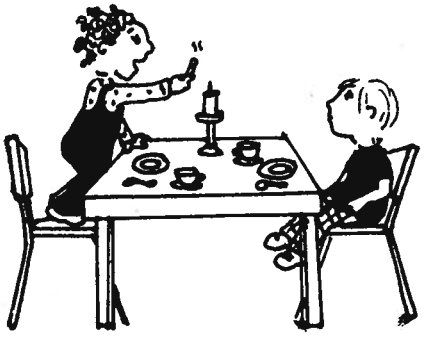
Why are children so susceptible to burn injuries?

Young children's physical abilities change quickly.

Parents are often surprised how quickly their child learns to roll over, to crawl, or to walk. Baby-sitters and people who do not see the child every day are even more likely to be unprepared for the child's new abilities. A child who is learning to walk may also be learning to reach and grab. As the reaching ability develops, things that were out of reach only a day before become available to the child. Also, as the child learns to walk, he or she may grab hold of anything for support—a wobbly table leg or a hot radiator.

Young children are curious. They learn by experimentation and exploration.

It is normal and healthy for children to be active explorers. In this way they learn about the world and develop their own skills and abilities. An extension cord lying on the floor may look like an interesting toy to a two-year-old, but it can cause permanent damage. If adults leave dangerous things like matches lying around, exploration can be fatal.



"And you be the Daddy..."

Children learn by imitation.

They like to do things "like Mommy and Daddy, or big brother and sister do." Imitating older children or adults is a useful way for children to learn responsibility and to develop important skills. But if a child imitates dangerous behaviors the results can be fatal. An example is Teddy, who imitated his father's use of gasoline and died.

"I can do it, Mommy!"

Children like to feel grown-up and competent.

As they develop, children are eager to help. They like to help cook or clean house or rake the lawn. Sometimes children are so eager to be competent that they overestimate their abilities, and volunteer to do things they simply don't have the skill or coordination to do. Caregivers can respond to children's desire to be responsible by giving them safe tasks to do.

Children need consistency, structure, and simplicity.

Many accidents occur because children are confused about what they should be doing. This can happen for many reasons:

- The adult expects the child to behave in ways that are beyond the child's ability.
- The adult gives inconsistent messages, and has no clear pattern of simple rules for the child to follow.
- Two or more caregivers give conflicting messages and rules.

identified hazardous objects in the environment that are involved in different accidents; some of these objects are greater hazards for infants and toddlers than for older children. At different stages of development, children are more likely to have some types of accident than others. Obviously, both factors in the life of the child and factors in the child's environment contribute to accidents.

But another important factor is how the adult in charge, the caregiver, relates to the child and to the environment. How the babysitter or parent behaves in any given situation can affect whether an accident will occur.

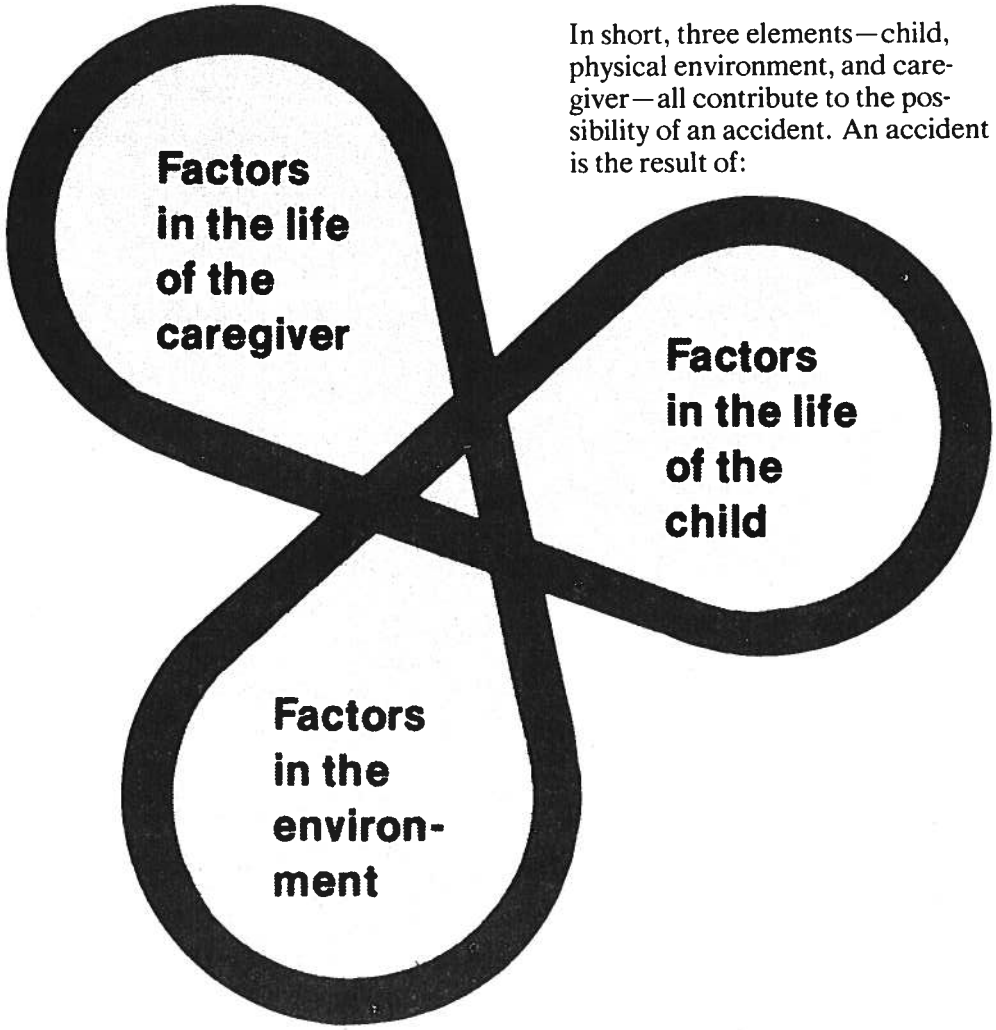
The caregiver's job is not easy. He or she must understand the child's interests and capabilities. In addition, the caregiver must pay attention to the physical environment and be aware of potential hazards. It's the adult's responsibility to create a safe environment where children are free to play and explore without

Caregiver, Child, & Environment

finding themselves in dangerous situations.

For very young children, this means keeping a nearly constant watch on them and providing a space that is essentially hazard-free. With older children, other issues become important. How do you respond to a child's interest in things you know are dangerous? If a five-year-old is fascinated with matches, what can you do? How can you prevent a nine-year-old from playing with gasoline, or someone your own age from climbing a utility pole?

Dealing with these questions is not easy. The caregivers' ability to protect another is also complicated by their feelings, which can affect their ability to respond to a situation. For example, when people are tense or overtired, angry or worried, hungry or late, they may not think about the consequences of their behavior. If the doorbell rings, Johnny's father might hastily set him down someplace where he can get into trouble. A babysitter may fail to come up with a skillful way to distract Johnny's attention away from something dangerous. When the caregiver is tired, it may be easier to *tell* Johnny not to touch than to remove the hot pot from his reach. Young children have little understanding of other people's feelings, and can be relentlessly demanding at a time when the caregiver is under stress. The caregiver's attitude toward the child, feelings, and awareness of the child's environment can all affect whether an accident will occur.



In short, three elements—child, physical environment, and caregiver—all contribute to the possibility of an accident. An accident is the result of:

Most Burn Accidents Can Be Prevented

Working in pairs, choose three stories to study in depth, but work on only one story at a time. Your analysis will identify factors that led to the accident, and allow you to decide how the accident could have been prevented.

Fill out a clover like the one shown.

In the leaf labelled "Factors in the Life of the Caregiver," list what the caregiver did or failed to do that contributed to the accident.

In the leaf labelled, "Factors in the Life of the Child," list the developmental characteristics of the child that you believe contributed to the accident.

In the third leaf, list the hazardous object(s), and any other environmental conditions that contributed to the accident.

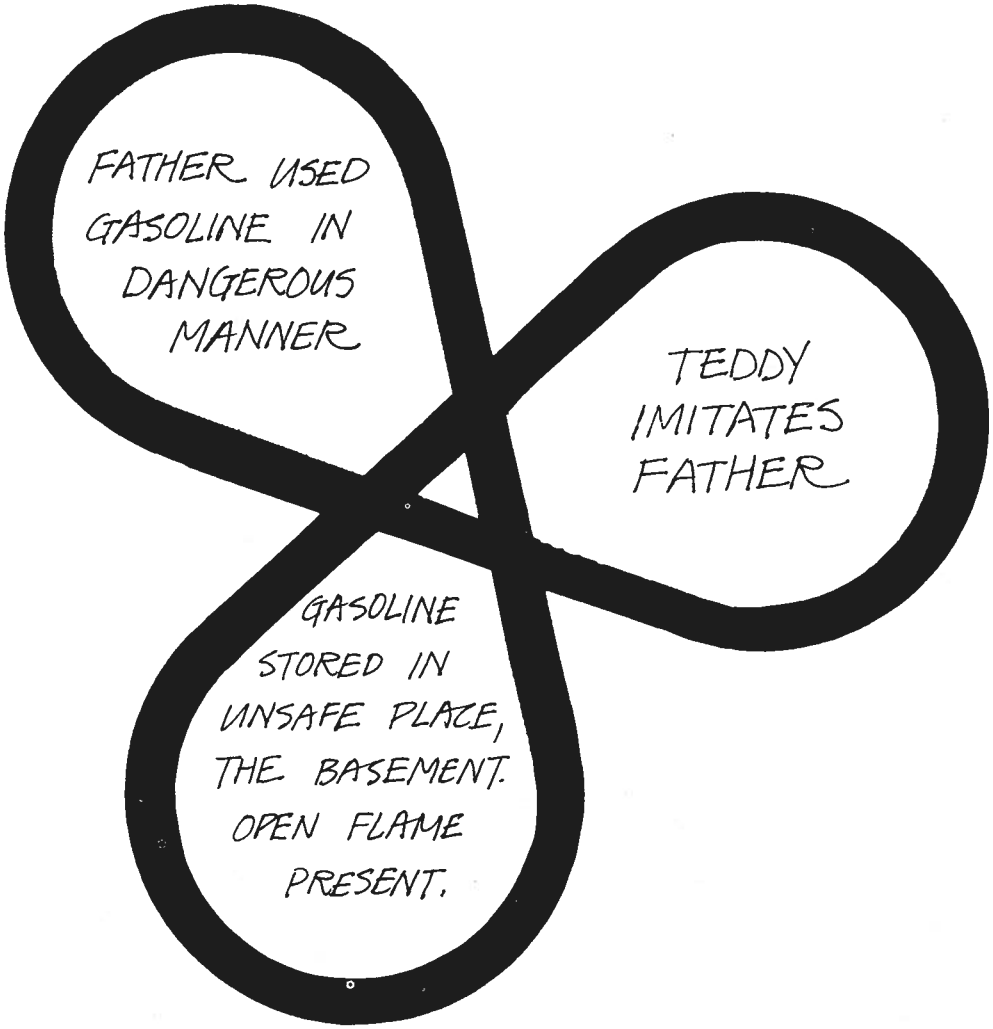
Here is an example of one clover that has been filled out for Teddy's story.

Questions For Discussion

Each accident raises a number of important issues caregivers need to consider. In the section labelled, "Questions," in the middle of each case study, we have raised issues that seem pertinent to the particular accident described in that case. With your partner, read and discuss the questions listed there.

Make Some Recommendations

- How could the physical environment be changed to reduce the likelihood of the accident?
- How could the caregiver have behaved differently to reduce the likelihood of the accident?




I saw the flames at the bottom of the stairs and thought we'd have to go out Corin's window.
"Stay here and take deep breaths, Corin. I'll get Mom and Adam."
Laura yelled that we could get down the front stairs. I picked up Corin, ran to the stairs, and threw her down to her mother. I followed.

Jamie Cope

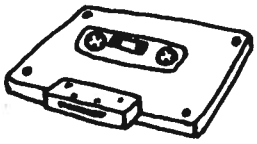
The Kniffins lived in an old farmhouse in Rowley, Massachusetts. In 1973, fire struck their home.

Ross and Laura Kniffin knew how to respond appropriately to this emergency. Their actions saved their lives and the lives of their two children.

Laura Kniffin's father was a fire chief. He advised his daughter and son-in-law to discuss an exit plan so they would be able to leave their house quickly if fire broke out. One night, while watching television, they discussed a plan. They determined what exit routes were available in their home and who would take responsibility for each child. It took them about a minute. Then they went back to watching television, figuring they would never need the plan. One week later, fire broke out. Although their house was destroyed, the entire family was saved because they knew how to act quickly.

In the cassette tape, "One Family's Story," Ross Kniffin tells about the house fire and describes the emergency procedures he and his wife took.

The Kniffin's story is illustrated and summarized on pages two through four in the booklet, *Protect Some-One You Love.* Refer to the booklet, and then listen to the tape.



After you listen to the tape, take some time to respond to what you have heard.

—What impressed you most about their story?

—What are the key things that saved their lives?

(For more information on house fires, see pages five and six in *Protect Someone You Love.*)

Having An Exit Plan Saved The Kniffin Family

Here is a sample floor plan of the Kniffin's home. Next to it is a sketch indicating the relation of the bedroom floor to the rest of the house.

Working in pairs, think about your own homes.

For each house, make a sketch of the floor plan for the bedrooms. Imagine you are on the ceiling, looking down on the floor below. Sketch the layout of the rooms, indicating where there are doors, windows, walls, and stairs. If there is an outside porch with a roof beneath any of the windows, a fire escape, or any other structure offering escape to the ground, mark it on the plan.

Make a plan for each floor on which there are bedrooms. You may also want to sketch the outside of the house, as we have done for the Kniffins' home.

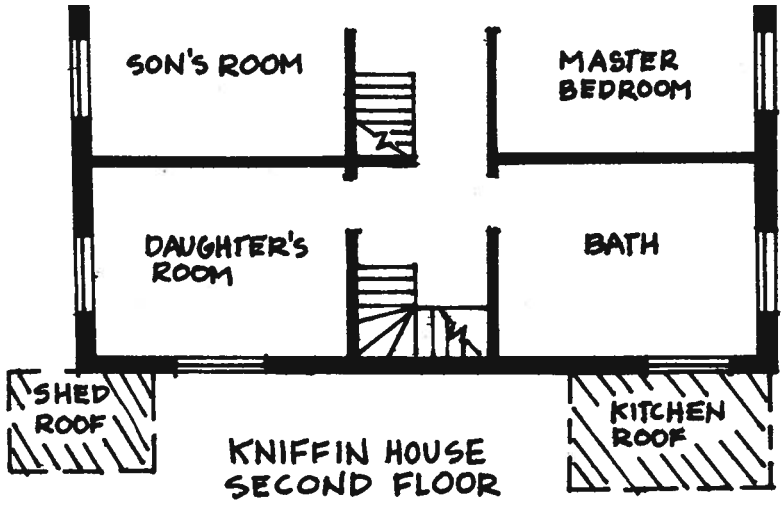
Label each bedroom.

Draw arrows to indicate the different routes available from each bedroom.

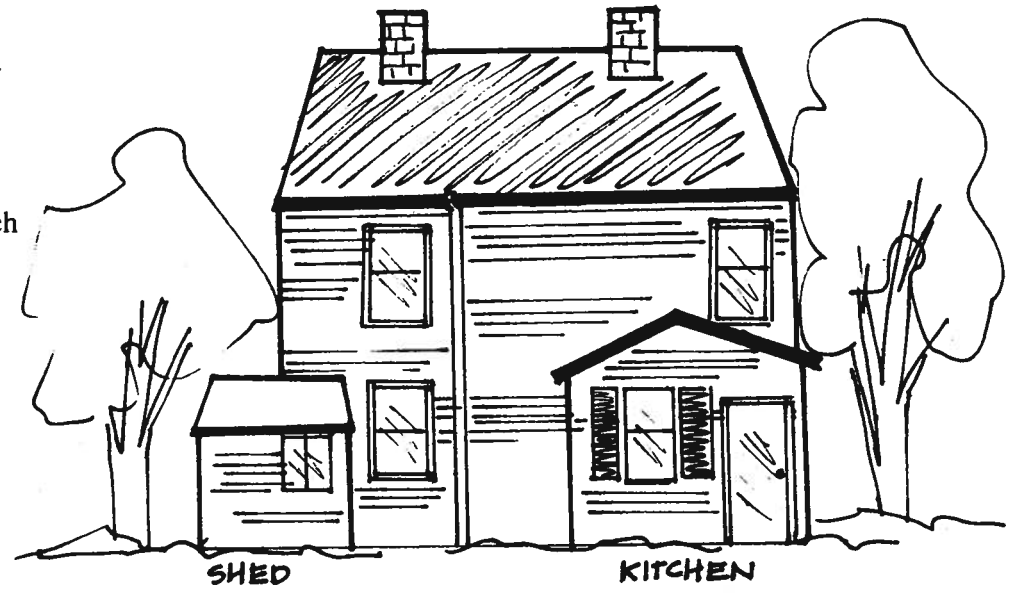
With your partner, discuss how you would get out of the house. Are there any special problems you might have?

Are there any children in your family? Any invalids? Who would take responsibility for each of them? Have you discussed this with other family members?

Does your family have a meeting place?



BACK OF KNIFFIN HOUSE



Once You're Out, Stay Out!!

Often, people manage to escape a burning building, but others do not know that they are safely out. That's why it's so important to have a meeting place.

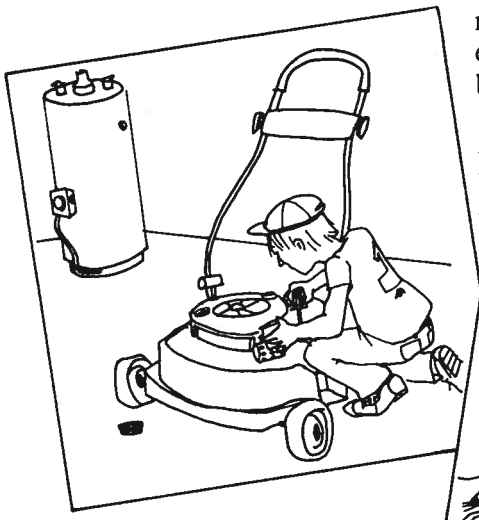
In June 1977, there was a terrible fire in a Kentucky nightclub, and nearly two hundred people died. The drummer in the band had brought his wife to the club so she could see the show. When fire broke out, they both managed to escape, but in the confusion, they were separated. Neither knew that the other was out. They reentered to look for one another. This time, they were not lucky. Neither was able to exit the building in time, and they both died.

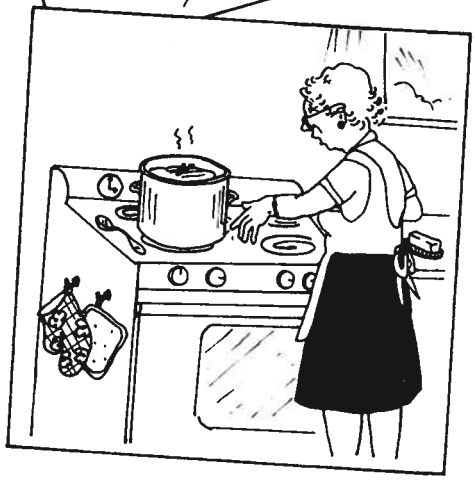
If they had agreed previously upon a place to meet in the event of any emergency, this tragedy could have been avoided.

Away from home, arrange to go to the car. At home, designate a meeting place.

The final activity in this unit is the game, "Don't Make An Ash of Yourself." It consists of 24 8½" × 11" cards with pictures of people in emergencies and hazardous situations. Cards H1-H13 deal with house fires, and cards B1-B11 deal with other general burn problems. Within a time limit, players must identify the hazards and explain the appropriate emergency behaviors for each situation.

Allow yourselves 15-30 minutes to play. Directions for the game appear on the following page.



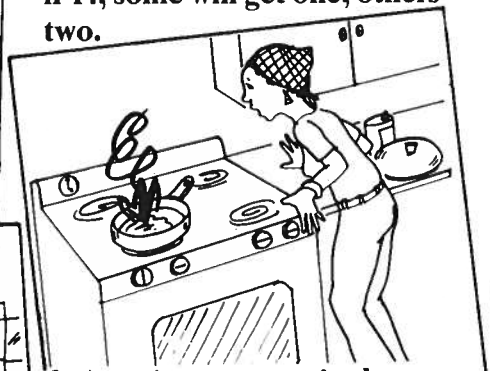


Don't Make An Ash Of Yourself

a game in which you test yourself on your knowledge of emergency behaviors and your ability to identify hazards.

1. Take out the cards. It will be hard to play the game with more than 20 people. If your group is larger than 20, split into two groups and use an extra set of cards.

2. Give out the cards FACE DOWN (no peeking). The cards will be shared later. Use all the cards. It doesn't matter how many each person gets. For example, if 20 people are there, each will get one; if 10, each two; if 14, some will get one, others two.



3. Appoint someone in the group to be the timekeeper. Supply him or her with the card containing the right answers.

4. Play the game.

Start with the person who has card #1. When the timekeeper says "Go," that person turns over the card and looks at the picture. The person reads the question out loud to the group, and gives an answer as quickly as possible. After the question has been read, the timekeeper should allow only five seconds for the response. Then stop the person. Show the card to the group and talk about what they think is the right thing to do. Refer to the answer key after showing each picture. One by one, each person in the group reads and answers his or her card(s).

In this chapter, we have focused on things that adults should know to protect children from burn injuries. The purpose of this section is to invite you to reach out to others with this important information.

The following pages describe materials that are available for you to use with other people. Suggestions for the ways in which you can use these materials, and ideas about what groups you might approach, appear on the final page of the chapter.

This information could save a life. Pass it on.

The following materials have been developed for use with teenagers and adults. In certain cases, we have indicated when they could be adapted suitably for younger people.

Protect Someone You Love

Protect Burn Prevention

U.S. Consumer Product Safety Commission

Booklet, *Protect Someone You Love*

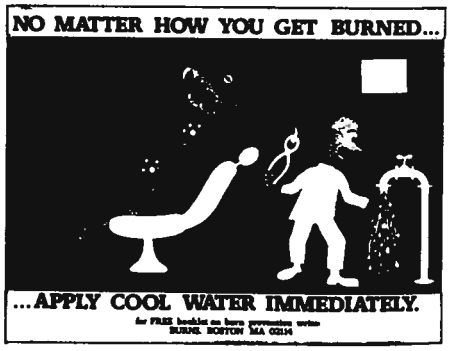
Each of you has received a copy of this 16-page, color-illustrated booklet. It is easy to distribute, and filled with useful information on a broad range of burn topics. Pages 8-11 contain activities for identifying common scald and flame hazards in the home. These pages could be copied for use with other groups or as a take-home activity for school children. Enlarged poster-size versions of these illustrations are also available, if you choose to use them in a demonstration with adults or children.

Posters

Each poster is printed in two colors and in large format—17″ × 22″. The posters can be used at presentations or posted in strategic places in the community to reinforce messages. The posters can be used with all ages. The topics they cover are:

—"Matches Are Tools, Not Toys." This is intended to increase people's awareness of children's curiosity about matches, and the often accompanying result of fabric ignition, which can be devastating. The preventive message to parents is to teach their children the proper use of matches.

—"Hot Liquids Burn Like Fire." The title speaks for itself. The goal of this poster is to make people aware of the severe injury that can result from burns by hot liquids. The preventive message is to keep them out of reach of young children.

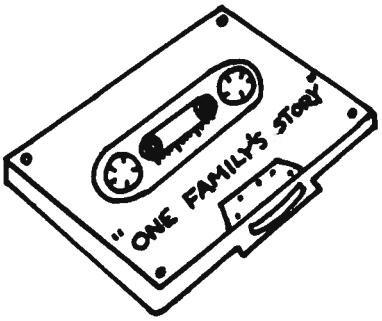


—"Best Emergency Treatment." This poster is intended to eliminate the common misconception that ointment, butter, or creams should be put on burn injuries. For any burn, the best emergency treatment is to apply cool water immediately.

Game:
Don't Make an Ash of Yourself

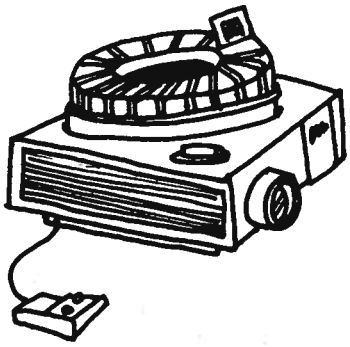
Game, "Don't Make An Ash of Yourself"

Now that you have played this game yourselves, brainstorm about other groups who could benefit from playing it. For example, is there a junior high or middle school class with whom you could play it?



One Family's Story

In this cassette, you heard Ross Kniffin relate how his family was saved when their house caught fire, because he and his wife knew how to respond to the emergency. The tape is best used with teenagers and adults. It would be a good way to introduce the topic of house fires to a new group of people. Think about civic organizations, PTO, day care centers, or church groups you might visit with this tape.



Slide tape presentation, "A Question of Burning"

This is the slide show that was used to introduce you to the burn problem at the beginning of this course. It is a dramatic presentation of four major kinds of burn accidents. It covers household hazards, children playing with matches, electrical injuries, and gasoline-related accidents. You may wish to arrange to use your school's copy of the slide presentation with other groups.

A QUESTION OF BURNING

Adaptations of this booklet

Feel free to use any of the information contained in this booklet. Pages can be copied; information and activities can be adapted for whatever use you believe would be helpful in informing other teenagers or adults of the burn-injury problem. Be sensitive, however, to matching the activities and the material to the needs and interests of the groups you approach. Also,

The following materials have been developed for use with elementary school children. You may wish to use them with other groups of children, or as part of a presentation to adults about hazards to young children.

Filmstrip and cassette tape, "It Doesn't Show Much Brains" (Grade 2 and up). Barbara and her brother Jeff tell the true story of how Barbara was injured when Jeff and his friends were playing with gasoline and matches. (The story "Just Playing" in this chapter tells briefly about this accident.)

Scald picture cards and cassette tape (Grade 2 and up). This is the story of Tip, who was injured in a scald accident. Nineteen pictures illustrate the story, and Tip tells how it happened in the accompanying cassette. Children put the pictures in sequence to reconstruct the story, and then are asked to change the story to explain how the accident could have been prevented.

Two filmstrips for young children (K-1)

Both of these filmstrips have been developed for use with kindergarteners and first graders, although they would also be appropriate to use with nursery school children.

These materials are available for you to use with other groups:

Booklet, *Protect Someone You Love*

Posters, "Matches are Tools, Not Toys"
"Hot Liquids Burn Like Fire"
"Best Emergency Treatment"

Game, "Don't Make An Ash of Yourself"

Cassette tape, "One Family's Story"

Slide tape presentation, "A Question of Burning"

Filmstrip and cassette tape,
"It Doesn't Show Much Brains"

Scald, story picture cards and cassette tape

Two filmstrips for young children
—on the danger of playing with matches
—on how to exit a burning building

All of these presentations will require a lot of organization and planning. They will give you a chance to meet a lot of people and give them life-saving information. As well as a lot of hard work, making these presentations will be a lot of fun.

Here are some ideas about the kinds of presentations you can make.

For Children

For Adults

ntact a local junior high or middle
ool. Arrange to lead one or two
ss sessions on burn prevention.
u could:

—play the game, "Don't Make An Ash of Yourself"

—present the filmstrip and cassette tape, "It Doesn't Show Much Brains"

range to visit a nursery school.
u could:

—show the filmstrips on match play and house exits

—present the scald story picture cards and cassette tape

n a field trip to an elementary
hool that does not have a burn
evention program. You could:

—present the filmstrip and cassette tape, "It Doesn't Show Much Brains"

—try the game, "Don't Make An Ash of Yourself," with the older children in the school

esignate a Saturday afternoon as
Burn Prevention Day." Get per-
ission from a local shopping
nter to set up a display booth.
ou could:

—distribute posters throughout the center

—give out the booklet, *Protect Someone You Love*

ontact local civic organizations,
he PTO, church groups, or day
are centers. Ask to be put on their
genda. Depending on the number
f people, length of meeting time,
nd special interests of the group,
here are many different kinds of
resentations you could give. You
ould:

—present the slide tape, "A Question of Burning"

—distribute the booklet, *Protect Someone You Love*

—play the cassette tape, "One Family's Story"

—play the game, "Don't Make An Ash of Yourself"

Appendix A

What Is Fire?

Nearly all materials can combine with oxygen, if they are exposed to air. This process is called oxidation.

Sometimes the oxidation process is slow and cool, like iron turning to rust. Sometimes it is fast and hot, like the burning of rocket fuel.

All oxidation processes produce heat. But you can feel the heat only if it is produced faster than it is dispersed. If you can feel heat from oxidation, the process is moving fairly rapidly.

Oxidation can be speeded up by adding heat to the process from outside. If the temperature gets high enough for that material, it will ignite.

The heat of oxidation releases vapors from the material. Some of these vapors are combustible. So much heat is produced that the combustible vapors will glow brightly as they oxidize in the air. That visible heat is flame.

Paper is a good example. As it lies there getting yellow and brittle with age, it is going through slow oxidation. If you add heat by putting a match to it, you speed up the oxidation process and produce a visible flame.

FIRE!!
or,

Where There's Smoke, There's Ignition, Fuel, and Air

1. To make fire you need plenty of oxygen, like air; something that will burn (also called a fuel or combustible material), like gasoline; and an ignition source, like a match.

2. The combustible material must be heated to its ignition temperature before it will burn.

3. Combustion will continue until:
a) the material is burned up, or
b) the amount of oxygen is reduced below what is necessary for combustion, or
c) the material is cooled below its ignition temperature.

[1] *Fire Protection Handbook,* 13th ed. (Boston, National Fire Protection Association, 1969), p. 4/12

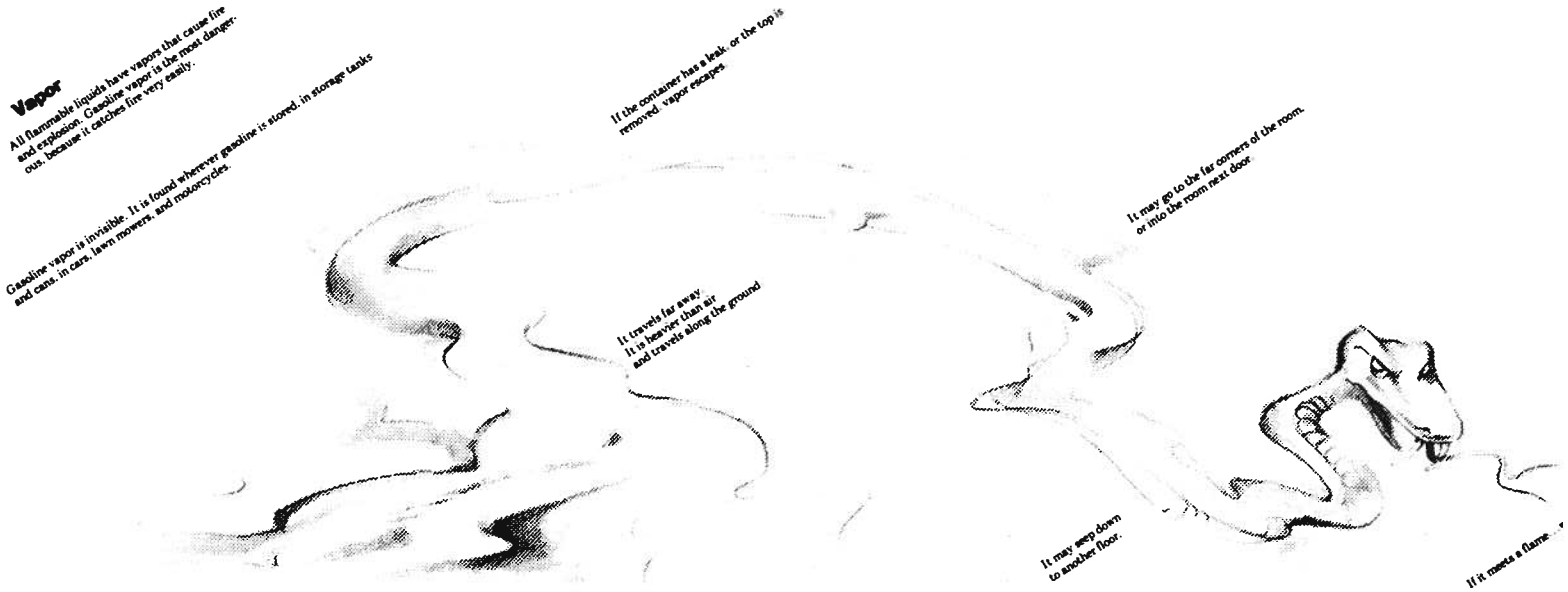
What Are Vapors?

All substances are made up of molecules that are always in motion. They move in random directions, at various speeds. At higher temperatures, they move with more energy and more speed. If the molecules of a substance reach a high enough speed, they escape from the surface into the air. The molecules that remain in the air are, collectively, called vapor.

All substances are evaporating all the time. But two things, heat and the amount of surface area exposed to the air, affect the rate of evaporation.

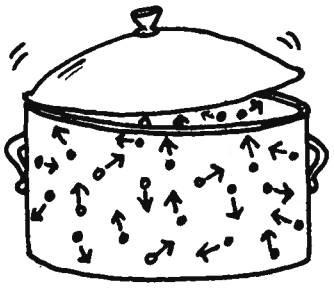
Take a glass of water, for example. Its rate of evaporation is affected by the temperature of the surrounding air, the temperature of the water itself, and the amount of surface area that is exposed to the air. If the surrounding air is cool and damp, the water molecules near the surface will travel so slowly through the water surface and into the air that most of them will fall back into the glass. On a hot dry day, or if the glass is standing on something hot, the speed at which the molecules travel increases, causing most of the molecules that pass through the surface into the air to travel farther. Probably, these molecules will not fall back into the water, but will form a vapor instead.

In addition to heat, the amount of surface area exposed to the air affects the rate of evaporation. Water in a wide bowl evaporates more quickly than water in a narrow glass. Water in a water-soaked rag that is laid out flat to dry will evaporate more quickly than the same amount of water in a glass or bowl, because the rag exposes more of the water to air.



Pressure

What happens to the vapor if the glass of water has a cover on it? You have seen a covered pan of hot water on a stove: the steam escapes wherever there is an opening. If there is no opening, the lid is forced upward by the vapor pressure, which creates a way for the vapor (steam) to escape. The boiling of water causes fast evaporation. The heat of the boiling creates such high speeds in the molecules that enough energy to lift the lid is produced.



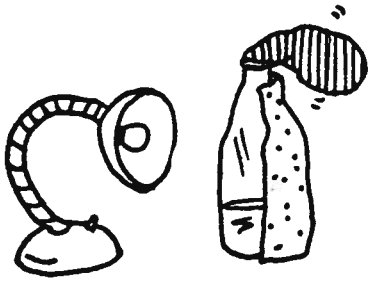
Heated molecules move at tremendous speed in all directions. They bounce against the sides and bottom of the pot as well as against the lid. But even the few that are moving upward have enough energy to lift the lid.

If this water were being boiled in an ordinary tin can that was completely sealed, the air space inside, above the water, would be so full of high energy movement that the shape of the can would change as though it were being inflated. Actually, it is being inflated. The water molecules are hammering at the walls of the enclosure in such numbers and with such energy that their collective force bends the metal and the can puffs up. The mounting pressure could strain the seams of the can until they split, releasing the mixture of water vapor and air in a sudden violent burst.

Demonstration: Pressure and Evaporation

Equipment:

Small-necked soda bottle, one-third full of water, with water level marked
One small balloon
One strong light bulb, approximately 100 watts
An incandescent desk lamp
Some aluminum foil



Procedure:

Turn the balloon inside out to demonstrate that it is dry. Turn it right side out again and fit the balloon to the mouth of the bottle. Be sure it is quite limp.

Move the lamp as close to the bottle as possible, but not touching it, and no more than two inches away.

Arrange the foil around the half of the bottle opposite the light bulb. This will reflect and intensify the heat from the bulb.

Turn on light bulb.

When the balloon becomes somewhat inflated (about 30 minutes), gently twist the neck of the balloon to prevent the vapors from escaping.

Pinch the neck of the balloon tight as you take it off the bottle. Put a paper clip on the end of the balloon to keep it closed.

Allow the balloon to cool (a few minutes).

Once it's cool, turn the balloon inside out. Notice the moisture on the inside lining of the balloon.

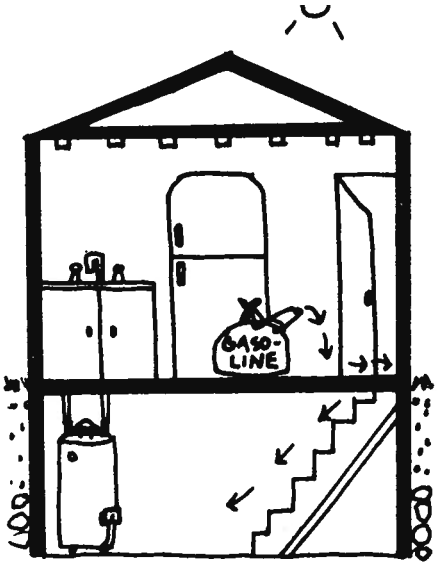
Questions:

What caused the balloon to expand?
What caused the balloon to deflate?
Why is there moisture inside the balloon?

Flammable liquids are different from other liquids in that less heat is required in order for them to vaporize. These vapors are combustible under ordinary temperatures. So, whenever a container of flammable liquid is open, dangerous vapors are escaping.

Like all liquids, the evaporation rate of flammable liquids is affected by heat and by the amount of surface area exposed to air. If a container of flammable liquid (an aerosol can or container of gasoline, for example) is placed near heat, pressure builds up inside. If the container does not have a pressure release valve it will explode. If a flammable liquid is spilled, the surface exposed to air increases. Evaporation occurs more quickly, and a greater amount of vapor is released into the air. Vapors can be escaping even when clothes or rags on which the liquid has spilled feel dry. (Remember Dan's surprise that his pants felt dry but were still releasing vapors that could ignite.) Spilling flammable liquid on clothing is particularly dangerous, because the body temperature heats the material and increases the rate of evaporation.

Nearly all flammable liquid vapors, including gasoline, are heavier than air. If the flammable liquid evaporates in air, the vapor will not spread evenly throughout the room, it will drop to the lowest place. If the lowest place is the floor, the vapor will spread out from wall to wall. As it spreads, more liquid evaporates because more surface is exposed to air. The amount of vapor in the air increases and becomes more dangerous.



Because most flammable liquid vapors are heavier than air and drop to the lowest part of the room, they tend to become concentrated-unlike nonflammable, lighter vapors that distribute themselves more evenly throughout the volume of a room. An unfortunate coincidence is that flammable liquid vapors tend to collect where household heat sources are—near the floor: furnaces, water heaters, dryers, ovens, and space heaters; electric plug outlets and electric heaters (both of which can create sparks inside the wall when they are turned on). When all these elements are present —a concentrated amount of flammable vapor, oxygen, and a heat source—an explosion and fire are likely to occur.

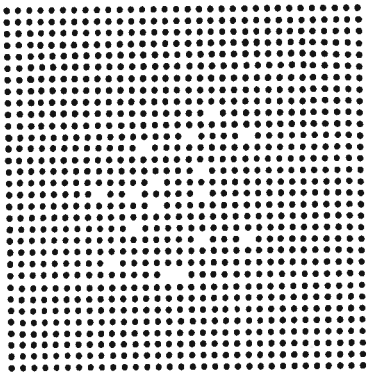
Although flammable vapors tend to collect in low places, they do move around if the air moves around. This means that they may travel farther than expected, and may reach ignition sources that appear to be a safe distance away. They may travel, for example, from the first-floor den to the basement. On the other hand, air provides the best way to prevent a concentration of flammable vapors from forming. Whenever flammable vapors are present indoors, they can be dispersed by causing the air to circulate, by opening doors and windows and turning on fans.

Appendix C

How To Prevent Flammable Liquid Accidents

Keep the Vapor Concentration Low.

As vapors escape from the flammable liquid and mix with air, they create a combustible vapor-air mixture. It takes only a small amount of vapor to create a combustible concentration. This illustration will give you an idea of how little vapor is required:



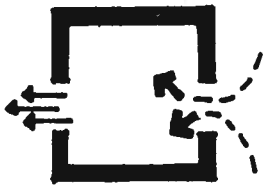
There are 1,000 dots here (32 x 32) and about 16 empty spaces. If the dots represent air molecules in a room, and if each empty space is filled with a gasoline molecule, the vapor-air mixture diagrammed here is combustible.

Whenever you open a container of gasoline, or a bottle of rubber cement, highly flammable vapors are escaping into the air. There is no practical way to determine if a vapor concentration is dangerous. There are many variable factors. You cannot tell by smell or by "feel," nor can you see molecules to count. It takes only a small amount to reach the combustible level, and you won't know if that level has been reached until it is too late. Whenever you work with a flammable liquid, assume the situation is dangerous. In addition to working far away from any ignition source, it is important to control

The most obvious way to keep vapor from building up is to keep the covers of flammable liquid containers tightly sealed. Open the cover only long enough to get out the amount that you need, then close the cover tightly. In general, avoid evaporation indoors. If you're soaking paintbrushes in turpentine, for example, put them outdoors.

If You Must Work Indoors, Be Sure to Ventilate.

When you ventilate, you are mixing flammable vapors with larger amounts of air than it takes to get a combustible concentration.



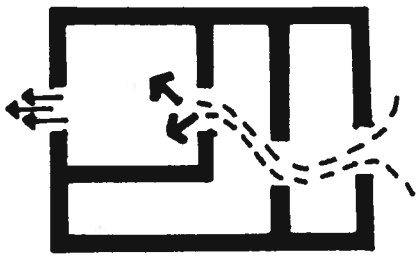
RIGHT

Place a fan in an open window on one side of the room and open a door or window on the opposite side, so that air circulates across the room. Because vapor travels with air, ventilation removes the vapor as it accumulates. At the same time, fresh air enters the room to keep the concentration of vapor from increasing.

WRONG

But here's a warning. If you use two openings on the same side of the room, very little fresh air will reach the opposite side; you risk circulating the same air out one opening

two windows or doors leading outdoors on opposite sides of the room, use the door to another room as part of your ventilation system.



ALTERNATIVE

If you can't find a way to ventilate the room properly, move the work. If the work can't be moved, don't do it, or choose a way of doing it with a safe nonflammable substitute.

Clean Up Spills.

If you spill a flammable liquid indoors:

1. Ventilate.
2. Wipe it up.
3. Wash up the spill with detergent and water. Dispose of the rag you used to wipe it up (either by airing it outside on the line, so that the vapors will evaporate thoroughly, or by putting it in an airtight container).

If the flammable liquid spilled on an absorbent material, put the material outside where the air can get at it.

If you spill a flammable liquid outdoors, flood the area with water mixed with detergent.

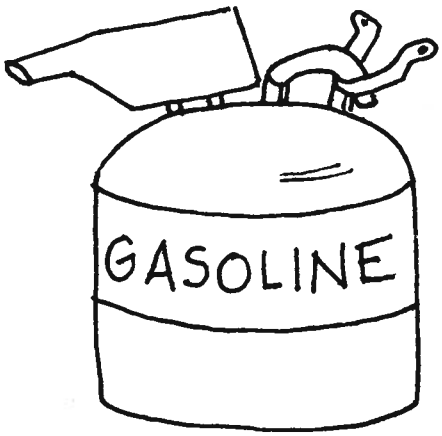
Combustion.

Spontaneous combustion is fire that starts without outside help. An oily rag bunched up and lying in the bottom of a wastebasket can burst into flames without receiving any heat from outside. The flammable liquid oxidizes more rapidly on a cloth than it would in a container, because the rag exposes more surface to the air. The rag will heat up to the point of ignition and burst into flame.

You can prevent spontaneous combustion in two ways:

1. Cut off the air supply by storing the rag in an airtight container.
2. Spread out the rag or hang it up where fresh air will flow across it, to prevent heat from building up.

Store Gasoline in a Tightly Sealed Metal Container with a Pressure Release Valve. Store on a High Cool Shelf Away from a Heat Source.



Other flammable liquids should be stored in their original containers or in containers of similar design and material that have tightly fitting covers. Read the warning labels and follow their instructions.

Liquids, Including Aerosol Cans, Away from Heat.

Most flammable liquid storage problems occur because heat causes the liquid to vaporize inside the container, which builds up pressure. The pressure causes the container to burst. If the contents of the container spill near the heat source, they can ignite.

Aerosol cans are doubly dangerous because they are pressurized—they are under pressure regardless of how much heat is present. If the can bursts, it will travel like a rocket. If the contents of the can are sprayed near an open flame or any heat source, the vapor spray will ignite.

Revive a Charcoal Fire by Fanning the Coals. Never Add More Starter Fluid to a Fire That Has Already Been Lit.

Adding more starter fluid is dangerous because a flashback can occur: the vapors from the starter fluid can be ignited by the heat of the smoldering coals; the flames travel back along the vapor trail to the can itself, which then catches fire. The only safe way to revive a charcoal fire is to add air. Fan the coals with a newspaper, for example, to get new air into the pile. If other people urge you to add flammable liquid to a heap of charcoal that is already hot, resist their efforts and explain why it is dangerous.

Throw a Container with Flaming Contents.

When people find themselves holding an open container with flaming contents, it is a natural reaction to panic and throw it. However, this is very dangerous, frequently causing injuries to innocent bystanders. Carrying a flaming container increases the oxygen supply and fans the flames. There is no reason to throw or carry the container; it will not explode, and the fire can be put out quickly by putting a lid on it. Covering the top of the container smothers the fire (cuts off its air supply). However, do not slam the cover straight down, as the flames may blow out sideways and curl back over the cover where your hand is. Simply take the cover, or any flat object, even a piece of wood, and set it on one edge of the container. Slide it smoothly over the opening. The fire may come alive again if there is still enough heat present when you remove the cover to check. (When you lift up the cover, do not put your face directly over the container.) If the fire lights again, just put the cover back.

Smother a Flammable Liquid Fire. Do Not Use Water.

Water and most flammable liquids don't mix. If you pour water on a flammable liquid fire, the water will sink to the bottom, and the oil, floating on top, will continue to burn and may spatter. If oil is burning on the ground and you pour or spray water on it, the fire is apt to spread.

Appendix D

Transcripts

Willie & Kevin: Victims of High Tension Wire Accidents

Dan's Story

One Family's Story

Willie & Kevin: Victims Of High Tension Wire Accidents

Part One

Kevin:

Well, it was in the summer time, it was at night around midnight and it was kind of hot out. It was humid and we were just sitting around a skating rink, like in a secluded part of town and there was just a lot of kids sitting around outside in their cars listening to music, shooting the breeze, and like the tower was off in the distance.

The tower is about 40 feet high, so you can get a pretty good view off it, and I never thought about the wires being there. It was just a boring night. It was really lousy, and I just had the idea that I would take a run over and climb up, so I did.

I can remember standing up on the top of the tower and looking around at the view and then I just got this thought in my head, 'Boy, this is pretty stupid, I better get down.' And I was just ready to go down, and it just arced out at my foot. I never even touched any of the wires. It just arced out at me and I was lucky because I fell off, because otherwise I would have been fried.

I couldn't really see that good because it was like so bright 'cause all my clothes were on fire, and when around me. One kid was so close to the tower that he was blinded by the flash for a half-hour.

Willie:

It was right down the street from my house, during the day. You know how the poles go up and down the street? There was a bunch of kids out there. I was dying for a cigarette that morning, I didn't feel too good, I was kind of in a bitchy mood, so somebody said, 'Climb up the top of that pole and I'll give you a cigarette.' Right? Well, he was just fooling around, like he just said it, he didn't think I was going to do it.

You know how they got a first set of wires and the second and third? I can remember being up near the first one and then they were throwing rocks at me to get me down, but I wouldn't come down. The next thing I knew, it's like coming out of the operating room. You know, you come out and you don't even know where you were, you can't remember anything.

There was this kid down the street from the pole I climbed. He used to climb that same pole about every day, up to the top and down, you know, never get hurt, nothing at all ever happened to him. I tried it once and what happens?

Part Two

Willie:

When you first go in they have to scrape all the charcoal stuff out, up. You don't have any skin there, all these germs can come in, so they have to keep the germs from getting in. When I was getting mine changed on my arm, it felt like a scab that wasn't ripe. They were just tearing it off.

Kevin:

The first night I was in there, I think I knocked over every piece of equipment they had. It was unbelievable. I never thought pain was so painful. The worst thing for me, I had my arm grafted. It healed all by itself, so the grafts lifted up and they had to sand it down and then I didn't have any skin left again. That was something.

Willie:

When I first went in, right here on my leg they had, you've seen stitches before, right, but they had metal ones, really thick, and they'd stick them in the skin and then brought them up. And up at the top they twisted them and I remember one time the doctor came in. 'We're going to have to take those out.' I go, 'Sure, I don't care.' So I remember he came in, and he had this cutter. He stuck it into my skin and cut them, right? Then he took these pliers and yanked them out the side, like he yanked the wires out of my leg. That was the first time I ever screamed in that place. The whole ward could hear me. They were wondering, they thought the guy was killing me.

Really, I shouldn't even have this arm. When I first got in, they said I wouldn't, but I still do. Like in the nerves, I used to have pain shooting down my arm, right? My whole body would just jump out of the bed. I used to clock them and wait for the next one.

Part Three

Kevin:

I climbed the tower because for one,

me because they were boring. And so I felt like getting off on my own, and it just looked like, it seemed, it was the most obvious thing to do cause it was just sitting there in the distance.

Whatever seems like it's going to be different from just hanging around, you just do it. You don't even try really to think of the consequences 'cause that'll just sort of make it boring.

Willie:

You know those mornings you get out? You know it's a nice morning, everybody should be happy, but you just get up, 'Ugh, what am I doing?' You know, just go home and go to sleep, something like that.

But you know, it wasn't really a bad mood. I guess I was just getting bored. Nothing to do, so I might as well climb the pole.

Kevin:

It's not a dare kids that do things like. I think it's just they don't care about life or death, you know? What does it matter? And like some kids like keeping an image, 'Hey, I'm cool, I'll do anything, I'm crazy.'

Willie:

Brains. Some people have no brains, some people do.

Kevin:

Some people just aren't happy with their lives, might be just out of frustration, might be out of a lot of things. Maybe some kids do it just for attention, just so everybody can say, 'Wow, look at him! He's running across 495, you know, in rush hour!' There's a lot of reasons.

Sometimes when you're mad, you just do something crazy, take out your aggressions.

In a good mood you feel like you can do anything. 'I might as well do this, sounds good, it popped into your head and so you decided to do it. That's the way I do most of the time, nothing to do and I'll think of something. 'Oh yeah, it sounds good, might as well do it.'

Part Four

Willie:

If somebody said to me, 'Climb that pole, I dare you to,' I wouldn't have done it.

Kevin:

I don't think I would have either, just so the kid doesn't think he has a handle on you. You just say, 'Yeah, sure, buddy, why don't you do it?" If you feel like doing it yourself, you just do it. Somebody can't make you do a thing like that, I don't think, at least they can't with me. I know when kids like say, 'I dare you to do something,' they're usually only kidding anyway because it's really like a joke 'cause they know you're only going to do it if you feel like doing it.

Willie:

'Cause they know they wouldn't do it themselves. They just want to see if someone else is stupid enough to do it.

Kevin:

Must be just like an expression, 'I dare you to do it.' It's almost like saying, 'Do you want to do it, is that in your mind right now?' Instead of, 'I dare you to do it.' It's just an expression.

Willie:

Sometimes dares can be funny, you know? Sometimes somebody will come up and say, 'I dare you to throw this egg at his head.' It's just funny.

Something that really doesn't hurt anybody. But when it comes to some things, people just don't dare you to do it. Like say, if you're driving a car and you're driving fast, somebody doesn't say, 'I dare you to go off the ramp or roll over.' You know, that doesn't enter their minds.

Dan's Story

Dan:

Well, I was 18 years old—just out of high school, working on a full-time job. I needed a second job for a little more money because I got a new car and needed to register it and take care of insurance problems. The only thing I could find was a little job working at a station just pumping gas and selling oil.

I never thought about what I would actually do if an accident like this happened.

It was a little bit after supper time—I'd say about 6:30 or 7:00. And I had gone out to pump this car.

I was standing there trying to get the car done as fast as I could. The gas had backed up out of the nozzle and spilled up all over my left leg... and just saturated into my pants.

I didn't think too much of it. I just started taking care of the other customers. And as soon as I had a break I went inside and got a couple of rags and took most of the gasoline off my pants that hadn't evaporated. Not thinking anything of it, I went back to work.

It got a little slower later on and I had this portable TV sitting there, watching the football game—getting a little excited. I lit up a cigarette, not even realizing that half an hour ago I had spilled gas on my leg.

I forget what happened in the football game, but I got a little excited, and I hit my knee with my hand that

had the cigarette in it and just from the vapors—because I know I didn't come too close or touch my pants with the cigarette—it just burst into flames.

One Family's Story

It was a pretty freaky experience actually. It was about ten minutes past four in the morning. It was 27 degrees outside. The entire family was asleep, of course, being ten minutes past four in the morning. When I woke up—this is the freaky part—I was sitting bolt upright in bed. I was already in a sitting position, and I heard my mother calling my name, which is freaky because she had been dead for three years. I opened my eyes. I could smell heavy smoke. I couldn't breathe very well. I could see flames in the bedroom closet, which was off to my right. My first reaction naturally was to scream. I just screamed to my wife, 'Get the kids!' which instantly woke her up.

We had sat down and planned an escape route about a week prior to the fire, at the request of my father-in-law who is a fire chief in one of the local towns. He was quite nervous about it and asked us to come up with some sort of an exit plan. I think he mentioned it to her twice—once right after we moved in and we didn't act on it. She never mentioned it to me or whatever. And then, as I say, a week before the fire, she came home or I came home from work one night about 9:30, 9:45 and we were sitting there watching television and she said, 'Dad wanted me to sit down with you and come up with an exit plan.' I said 'Yea, okay.' She said, 'No, let's do it now.' I said, 'All right, we'll do it now.'

As I say, we spent probably two minutes discussing it and we went back to watching television, and figured that was it. Nothing will ever happen and we'll never use it. You just quite never get around

I said, it took maybe a minute and a half to two minutes of our time to shoot the breeze back and forth and say, 'Okay, you take this one, I'll take that one. We can go out here, we can go out there.' And just plan it. But just the idea that we knew who was doing what and who was going where is probably what saved us. The night that the house burned, or the morning that the house burned, there was no remembrance of the conversation. It was just totally automatic. My wife took my son and I automatically went down for my daughter, without, I would probably say, no thought really entered into it—into what we were doing. It was just automatic.

We jumped out of the bed, ran to the bedroom door, which was closed, felt the door. It is amazing what you remember in a time of panic, or a time of emergency. My son's bedroom was directly across the hall. So as we came out of our door realizing that there was no heat on the other side. My son had heard my scream and was opening his door. He was probably about nine at the time—nine or ten. My wife escorted him down the hallway behind me. It was pitch black and there was nothing but smoke. The smoke is not the pleasant smell of wood smoke that you attribute to an oak and apple wood fire in the fireplace. It is a very, very thick overpowering, dense, grotesque smoke. It's rubber, it's leather, it's vinyl—very little wood—it's nylon. Just a very dense chemical smoke—nauseating. Just totally unable to breathe.

My wife had my son. I proceeded down the hall to my daughter's door. And I looked, the bathroom was off to my left. And I could see flames coming up through the bathroom floor. I could see flame and smoke pouring out of the two rooms at the foot of the front staircase. So I figured that that way out was zip. No possible way could we get out of the front door.

My daughter's bedroom door was

I looked down the back stairway and I could see flame again. Just billows of black smoke coming up the staircase. The amazing part before you enter your daughter's bedroom is to put your hand on the door to feel how much heat was inside. But there wasn't any heat in there, so I opened the door. She was just waking up from the noise and the confusion because my wife was still yelling to me to keep verbal contact with me. She had enough common sense to get down on the floor and crawl with my son. She just took him and threw him down to the floor and crawled down the front staircase which proved to be passable. You could go right down the front stairs and out the front door, even though there were flames on the righthand side

I grabbed my daughter. I still wasn't aware that I could make it down the front stairs and her room was very, very filled with smoke. So I opened her window and stuck her head out and told her to breathe, which she did. Both kids were excellent—superfantastic. Just remained totally calm, did exactly what we said. I went back to the bedroom door. By this time you couldn't see your hand in front of your face and I could hear my wife yelling at the bottom of the stairs that the way was clear and that we could make it down the front stairs. I had planned on going out the bedroom window and was actually going back for my wife and my son to take them and lower them out the bedroom window onto the shed roof and then down to the ground. But once my wife yelled to me that the area was clear, I went back, got my daughter and just physically threw her down the stairs to my wife and she caught her, my daughter being about five or six. And they went out the front door and joined my son on the lawn and then I proceeded down the stairs after them.

Once we got outside I was, needless to say, a little bit chilly. There was no access to a phone. There was no way to get to a phone in the

about. We didn't care about it. There was no access to the phone in the kitchen so the obvious thing was to go to a neighbor's. It is a pretty wild experience when you see a house just going up in flames and nothing but sheets of yellow inside the house. All I could see was a glow of flames through the windows. Then I watched it jump up through the attic floor, telegraphing along the chimney. And then eventually, in fact, before we left the house, I could see the flames coming through the roof. I heard this deafening roar and all of a sudden the whole side of the kitchen just went puff and burst into flames.

I had pretty heavy smoke inhalation because I didn't have the sense to get down on the floor and crawl. I don't recall coughing in the house. In fact, I don't recall coughing outside the house. But when I was aware what I was doing when I got to my neighbor's house, I coughed considerably there and was violently sick. I vomited probably five or six times, to the point that I was actually just wretching. I had the dry heaves, just from the smoke inhalation. And, by the way, when you went into the house the following day and all the days thereafter till they demolished it, you could actually see a smoke line on the wall. Probably six to eight inches above the floor, where it was still relatively clean in comparison to the wall above it. But it hovered right about six or eight inches. If I did get on the floor, there is definitely a lot more air to breathe.

When we woke up we had probably, according to the fire marshal, he gave us a minute to a minute and a half. If I had awakened a minute and a half later I wouldn't have awakened. We didn't stop to think about telephones. We didn't care that the house was on fire. All we cared about was getting out. We didn't care about clothes. We didn't care about anything. There was only one thought and that was to get out of the house and get the kids out of

I would say probably took—you just realized how long 30 seconds was—I would say between 30 and 45 seconds from the time I was aware that I was awake to the time I was on the front lawn.

But as far as going back into a house, if there was a human being on the second floor and the first floor was engulfed in flames, you would be committing suicide to go back in. You would really have to give it some heavy thought. Never go back in the house. Call it panic. Call it insanity. Just a whim. It is amazing what you think of. No, I wouldn't have gone back in. If there had been a human being in the house, I would have considered it. My wife was afraid I would go back in after the—we had two Siamese cats and the toy poddle inside and she was concerned that I would go back after them, which I didn't.

I think what people could probably learn from my experience would be just to have a plan of exit from the building. Or several exits from the building actually, because I had one exit blocked and I thought I had the possibility of two exits blocked and yet we still had a third exit.

I think the only thing is it's a wise—certainly a wise investment would be installation of smoke detectors. At least one in the sleeping quarters and the hallway outside of the bedrooms. And probably another one at the head of the basement stairs, and possibly in the kitchen. I don't feel now that it will happen to me; I've already had mine. Someone else is going to have one. We have escape plans from this house. I have a fire alarm on the second floor. Just one of those battery-operated ionization smoke detectors, with plans to put one in the basement probably within the next two or three months. We are prepared. If it happens again, we'll be ready.

I can sum it up almost by saying we stood in front of the house the looked at the house and felt no remorse for the animals inside. Felt no remorse for the house. Felt no remorse for our personal possessions. We were happy that we were alive and that was it.

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Illustrations:
Alice Webber
Jon McIntosh: page 36; page 60; page 66 bottom left, top right;
George Price: page 67 right;

Acknowledgments (Continue)

Photography:
James Byler: page 6 left; page 7; page 30 middle; page 34; page 73
Clear Light Productions Inc.: page 12, bottom right
Jamie Cope: page 12 top right; page 40
Honda, Inc.: page 12 left; page 14
Derrick Te Paske: page 66 middle
Frank Williams: page 45

Sound Production for Cassette Tapes:
Richard Peace

Game, "Don't Make An Ash of Yourself":
Cheryl V. Healer

We wish to extend special thanks to the people whose stories have appeared here.