

# SURVIVAL UNDER ATOMIC ATTACK

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CITY OF BOSTON  
MASSACHUSETTS



DEPARTMENT OF CIVIL DEFENSE

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THE OFFICIAL U. S. GOVERNMENT BOOKLET

**CITY OF BOSTON**  
**DEPARTMENT OF CIVIL DEFENSE**

February 21, 1951.

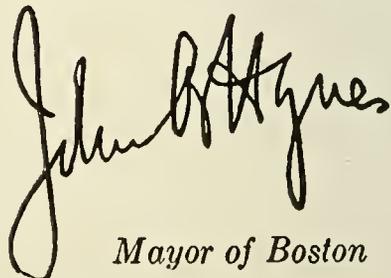
**A MESSAGE TO THE CITIZENS OF BOSTON**

The following quotations from UNITED STATES CIVIL DEFENSE indicate the need for serious consideration by all of our citizens of the pamphlet entitled "Survival Under Atomic Attack."

"The civil defense program for this country must be in constant readiness because for the first time in 136 years an enemy has the power to attack our cities in strong force, and for the first time in our history that attack may come suddenly, with little or no warning.

"Granted a few minutes warning, casualties could be reduced by over 50 per cent through proper organization and training in civil defense. More important, civil defense could spell the difference between defeat with slavery for our people and victory in a war thrust upon us."

I am therefore requesting that the official United States government booklet "Survival Under Atomic Attack" be published by the City of Boston Department of Civil Defense to the end that the citizens of Boston may be better informed on protective measures to be taken by individuals and families to meet the threat of atomic bombing.

A handwritten signature in black ink, reading "John B. Hynes". The signature is written in a cursive style with a large, looping initial "J".

*Mayor of Boston*

# **You Can SURVIVE**

Executive Office of the President  
National Security Resources Board  
Civil Defense Office  
NSRB Doc. 130

**You can live through an atom bomb raid  
and you won't have to have a Geiger counter  
protective clothing, or special training  
in order to do it.**

**The secrets of survival are:**

**KNOW THE BOMB'S TRUE DANGERS.**

**KNOW THE STEPS YOU CAN TAKE**

**TO ESCAPE THEM.**

ATOM-SPLITTING  
IS JUST ANOTHER  
WAY OF CAUSING  
AN EXPLOSION.

To begin with, you must realize that atom-splitting is just another way of causing an explosion. While an atom bomb holds more death and destruction than man has ever before wrapped in a single package, its total power is definitely limited. Not even hydrogen bombs could blow the earth apart or kill us all by mysterious radiation.

YOUR CHANCES  
OF SURVIVING  
AN ATOMIC ATTACK  
ARE BETTER THAN  
YOU MAY HAVE  
THOUGHT.

Because the power of all bombs is limited, your chances of living through an atomic attack are much better than you may have thought. In the city of Hiroshima, slightly over half the people who were a mile from the atomic explosion are still alive. At Nagasaki, almost 70 percent of the people a mile from the bomb lived to tell their experiences. Today thousands of survivors of these two atomic attacks live in new houses built right where their old ones once stood. The war may have changed their way of life, but they are not riddled with cancer. Their children are normal. Those who were temporarily unable to have children because of the radiation now are having children again.

## WHAT ARE YOUR CHANCES?

CLOSE TO THE  
EXPLOSION, YOUR  
CHANCES ARE ONLY  
ONE OUT OF TEN.

If a modern A-bomb exploded without warning in the air over your home town tonight, your calculated chances of living through the raid would run something like this:

Should you happen to be one of the unlucky people right under the bomb, there is practically

4 "Modern" atomic bomb, as used in this booklet, refers to the "nominal" bomb described in the "Effects of Atomic Weapons," published in June 1950 by the Atomic Energy Commission.

no hope of living through it. In fact, anywhere within one-half mile of the center of explosion, your chances of escaping are about 1 out of 10.

On the other hand, and this is the important point, from one-half to 1 mile away, you have a 50-50 chance.

From 1 to 1½ miles out, the odds that you will be killed are only 15 in 100.

And at points from 1½ to 2 miles away, deaths drop all the way down to only 2 or 3 out of each 100.

Beyond 2 miles, the explosion will cause practically no deaths at all.

Naturally, your chances of being injured are far greater than your chances of being killed. But even injury by radioactivity does not mean that you will be left a cripple, or doomed to die an early death. Your chances of making a complete recovery are much the same as for everyday accidents. These estimates hold good for modern atomic bombs exploded without warning.

## WHAT ABOUT SUPER BOMBS?

Do not be misled by loose talk of imaginary weapons a hundred or a thousand times as powerful. All cause destruction by exactly the same means, yet one 20,000-ton bomb would not create nearly as much damage as 10,000 two-ton bombs dropped a little distance apart. This is because the larger bombs "waste" too much power near the center of the explosion. From the practical point of view, it doesn't matter whether a build-

BEYOND A HALF  
MILE, YOUR CHANCES  
OF SURVIVING  
INCREASE RAPIDLY.

INJURY BY  
RADIOACTIVITY  
DOES NOT  
NECESSARILY MEAN  
YOU ARE DOOMED  
TO DIE OR BE  
CRIPPLED.

DON'T BE MISLED  
BY WILD TALK OF  
"SUPER-SUPER  
BOMBS."

DOUBLING A BOMB'S POWER DOESN'T MEAN DOUBLING THE DAMAGE IT WILL DO.

ing near the center of the explosion is completely vaporized or whether it is simply knocked into a pile of rubble.

To be more specific, a modern atomic bomb can do heavy damage to houses and buildings roughly 2 miles away. But doubling its power will extend the range of damage to only about  $2\frac{1}{2}$  miles. In the same way, if there were a bomb 100 times as powerful, it would reach out only a little more than  $4\frac{1}{2}$ , not 100 times as far.

And remember: All these calculations of your chances of survival assume that you have absolutely no advance warning of the attack.

BLAST AND HEAT ARE THE BIGGEST DANGERS.

Just like fire bombs and ordinary high explosives, atomic weapons cause most of their death and damage by blast and heat. So first let's look at a few things you can do to escape these two dangers.

## WHAT ABOUT BLAST?

Even if you have only a second's warning, there is one important thing you can do to lessen your chances of injury by blast: Fall flat on your face.

TO PROTECT YOURSELF FROM BLAST, LIE DOWN IN A SHIELDED SPOT.

More than half of all wounds are the result of being bodily tossed about or being struck by falling and flying objects. If you lie down flat, you are least likely to be thrown about. If you have time to pick a good spot, there is less chance of your being struck by flying glass and other things.

If you are inside a building, the best place to flatten out is close against the cellar wall. If you

haven't time to get down there, lie down along an inside wall, or duck under a bed or table. But don't pick a spot right opposite the windows or you are almost sure to be pelted with shattered glass.

If caught out-of-doors, either drop down alongside the base of a good substantial building—avoid flimsy, wooden ones likely to be blown over on top of you—or else jump in any handy ditch or gutter.

When you fall flat to protect yourself from a bombing, don't look up to see what is coming. Even during the daylight hours, the flash from a bursting A-bomb can cause several moments of blindness, if you're facing that way. To prevent it, bury your face in your arms and hold it there for 10 or 12 seconds after the explosion. That will also help to keep flying glass and other things out of your eyes.

## WHAT ABOUT BURNS?

Flash burns from the A-bomb's light and heat caused about 30 percent of the injuries at Hiroshima and Nagasaki. Near the center of the burst the burns are often fatal. People may be seriously burned more than a mile away, while the heat can be felt on the bare face and hands at 4 or 5 miles.

To prevent flash burns, try to find a shelter where there is a wall, a high bank or some other object between you and the bursting bomb. You can expect that the bomber will aim for the city's biggest collection of industrial buildings.

A little bit of solid material will provide flash

**IN YOUR HOUSE:  
LIE DOWN AGAINST  
A WALL.**

**OUTDOORS: GET  
NEXT TO A SOLID  
BUILDING.**

**TO ESCAPE  
TEMPORARY BLIND-  
NESS, BURY YOUR  
FACE IN YOUR  
ARMS.**

**FLASH BURNS  
ARE A SERIOUS  
CAUSE OF INJURY.  
SHIELD YOURSELF  
FROM THE FLASH.**

EVEN A LITTLE MATERIAL GIVES PROTECTION FROM FLASH BURNS, SO BE SURE TO DRESS PROPERLY.

protection even close to the explosion. Farther out, the thinnest sort of thing—even cotton cloth—will often do the trick.

If you work in the open, always wear full-length, loose-fitting, light-colored clothes in time of emergency. Never go around with your sleeves rolled up. Always wear a hat—the brim may save you a serious face burn.

## WHAT ABOUT RADIOACTIVITY?

In all stories about atomic weapons, there is a great deal about radioactivity.

Radioactivity is the only way—besides size—in which the effects of A or H bombs are different from ordinary bombs. But, with the exception of underwater or ground explosions, the radioactivity from atomic bursts is much less to be feared than blast and heat.

Radioactivity is not new or mysterious. In the form of cosmic rays from the sky, all of us have been continually bombarded by radiation every hour and day of our lives. We all have also breathed and eaten very small amounts of radioactive materials without even knowing it. For over half a century, doctors and scientists have experimented and worked with X-rays and other penetrating forms of energy. Because of all this experience, we actually know much more about radioactivity and what it does to people than we know about infantile paralysis, colds, or some other common diseases.

RADIOACTIVITY IS THE ONLY WAY BESIDES SIZE IN WHICH ATOMIC BOMBS DIFFER FROM ORDINARY ONES.

WE KNOW MORE ABOUT RADIOACTIVITY THAN WE DO ABOUT COLDS.

It is easy to understand how radioactivity works if we think of how sunlight behaves.

In the northern part of the world, winter's slanting sun rays seldom cause sunburn, but the hotter rays of the summer sun often do. Still, just a few moments in the midsummer sun will not give you a tan or sunburn. You have to stay in its hot rays for some time before you get a burn. What's more, bad sunburn on just the face and hands may hurt, but it won't seriously harm you. On the other hand, if it covers your whole body, it can make you very sick, or sometimes even cause death.

In the same way, the harm that can come to you from radioactivity will depend on the power of the rays and particles that strike you, upon the length of time you are exposed to them, and on how much of your body is exposed.

## WHAT IS "INITIAL" RADIOACTIVITY?

Broadly speaking, atomic explosions produce two different kinds of radioactivity. First—and most important in an air burst—is an extremely powerful invisible burst of rays and particles thrown off at the time of explosion. This kind is called "initial" or explosive radioactivity. Its rays and particles fly out quickly, then promptly die. There is danger from them only for little more than a minute. The second type of radioactivity—lingering radioactivity—will be described later.

INJURY FROM RADIOACTIVITY DEPENDS ON THE POWER OF THE RAYS AND PARTICLES, HOW LONG YOU WERE EXPOSED AND HOW MUCH OF YOUR BODY WAS HIT.

EXPLOSIVE RADIOACTIVITY IS THE MOST IMPORTANT KIND, BUT IT LASTS ONLY A MOMENT.

THE BIGGEST  
DANGER FROM  
EXPLOSIVE RADIO-  
ACTIVITY LIES  
WITHIN A MILE  
OF THE EXPLOSION.

The injury range of the explosive radioactivity from a modern A-bomb is a little over 1 mile, if the bomb is exploded about 2,000 feet in the air. If it is exploded much higher, some of the radiation may not reach the ground, so the range may be less. If it is exploded much lower, the radiation also may not reach out as far, because it would be blocked by the ground or by buildings.

A little more than a mile away, the principal effects of the few dying rays that struck you could be seen only as temporary blood changes in a doctor's examination. You probably wouldn't even realize you had been exposed.

A little less than a mile from the explosion center, if you are unprotected, you are almost sure to suffer illness. Less than two-thirds of a mile away, those caught in the open are pretty sure to soak up a fatal dose of radioactivity.

BUILDINGS WILL  
PARTIALLY OR  
COMPLETELY  
SHIELD YOU.

Still, the possibility of your being caught without some protection is not very great. Even if you are on the street, there is a good chance that a building, or many buildings, will be between you and the burst, and they will partially or completely shield you.

YOU ARE MORE  
LIKELY TO BE  
HURT BY BLAST  
AND HEAT THAN  
BY RADIATION.

Atomic explosions high above ground cause the most widespread damage. And, as happened in Japan, when an A-bomb goes off in the air you are far more likely to be hurt by the bomb's blast and heat waves than by its radioactivity. At Hiroshima and Nagasaki slightly over one-half of all deaths and injuries were caused by blast. Nearly one-third of the casualties were from the heat flash.

*Radioactivity alone caused only about 15 percent of all deaths and injuries*

If the bomb were to go off close to the ground, or slightly below its surface, the range of the explosive radiation, as well as the range of the blast and heat, would be reduced. This is due to the fact that all three would be partially blocked by the earth, by nearby buildings and by other obstacles.

In an underwater burst, there would be much less to fear from blast and nothing to fear from heat. Practically all the explosive radioactivity would be absorbed by the water. However, there would be the second type of radioactivity to be described later on.

## **WHAT ABOUT "INDUCED" RADIOACTIVITY?**

If an atomic bomb goes off in the air within two-thirds of a mile or slightly more of your home, there is no practical way of keeping explosive radioactivity out of the above-ground part of your house. It is possible that, at very short range, artificial, or induced radioactivity could be set up in gold, silver, and many other objects. However, this kind of radioactivity will never offer great danger, so don't throw away bandages and other first aid materials in the medicine cabinet. They will be perfectly safe to use.

EXPLOSIVE  
RADIOACTIVITY IS  
LESS OF A  
DANGER IN  
GROUND-LEVEL  
OR UNDERWATER  
BURSTS.

EXPLOSIVE  
RADIOACTIVITY  
CAN'T BE KEPT  
OUT OF THE UPPER  
FLOORS OF YOUR  
HOUSE, SO LEARN  
WHAT TO EXPECT  
FROM IT.

EVEN CANNED  
AND BOTTLED  
FOODS MAY BE  
IRRADIATED, BUT  
IT WILL STILL BE  
SAFE TO USE THEM.

Naturally, the radioactivity that passes through the walls of your house won't be stopped by tin or glass. It can go right through canned and bottled foods. However, this will not make them dangerous, and it will not cause them to spoil. Go ahead and use them, provided the containers are not broken open.

## WHAT ABOUT "RADIATION SICKNESS"?

VOMITING AND  
DIARRHEA ARE  
THE FIRST SIGNS  
OF RADIATION  
SICKNESS.

Should you be caught upstairs or in the open at the time of a bombing, you might soak up a serious dose of explosive radioactivity. Even so, the first indication that you had been pierced by the rays probably wouldn't show up for a couple of hours. Then you most likely would get sick at your stomach and begin to vomit. However, you might be sick at your stomach for other reasons, too, so vomiting won't always mean you have radiation sickness. The time it would take you to get sick would depend on how strong a dose you got. The stronger the dose, the quicker you would get sick. For a few days you might continue to feel below par and about 2 weeks later most of your hair might fall out. By the time you lost your hair you would be good and sick. But in spite of it all, you would still stand better than an even chance of making a complete recovery, including having your hair grow in again.

EVEN IF YOU  
SHOULD GET  
SEVERE RADIA-  
TION SICKNESS,  
YOU WOULD HAVE  
BETTER THAN AN  
EVEN CHANCE OF  
RECOVERY.

# WHERE IS THE BEST PLACE TO GO?

If your house is close to the explosion, there is little you can do to protect it from the bomb's blast, or pressure wave. Within one-half mile of the surface point directly beneath the explosion, the shock wave from an atomic bomb is sure to flatten most houses. Out to a distance of about 1 mile, steel, brick, and wooden structures are likely to be damaged beyond repair. Farther out, there is less destruction, but serious damage may be expected to extend as far as 2 miles.

It is only wise to figure that the upper floors of most buildings near the explosion will be pushed in. This means the basement is probably the safest place to be. If you have a basement and time to get down to it, lie flat along the outer wall or near the base of some heavy supporting column. You would be even safer under a cellar work bench or heavy table. Stay away from the middle of the floor where falling beams and other objects are most likely to strike you.

Naturally, you run a risk of being trapped in the wreckage, but your *over-all* chances of escape from the bomb in most cases are many times greater than they would be upstairs. If your basement has two exits, you will be in less danger of being trapped.

Besides protecting you from blast and heat, basements also provide shielding from explosive radia-

THERE IS LITTLE YOU CAN DO TO PROTECT YOUR HOUSE FROM BLAST.

IT IS BEST TO FIGURE ON COLLAPSE OF THE UPPER FLOORS AND TO TAKE COVER IN THE CELLAR.

**BASEMENTS  
GIVE SHELTER  
AGAINST BLAST  
AND HEAT, AND  
RADIOACTIVITY.**

tion. Because, the lower you get, the more barriers against radiation there are likely to be between you and the bursting bomb. Down in the cellar you'll probably be shielded not only by other buildings, but also by earth and the cement foundations of your own house. Earth, concrete and steel are good radiation barriers.

**IF YOU HAVE NO  
BASEMENT,  
LOCATE A SHELTER  
YOU CAN REACH  
QUICKLY.**

If you have no basement, look around your immediate neighborhood for a nearby shelter you can get to quickly in an emergency. Such a shelter might be a culvert, a deep gully, or another building within easy reach. If you live in rolling country, there is probably a hill close to you. Even a high bank will offer some protection from most bursts if it is between you and the explosion. In choosing your shelter, assume that the enemy will aim for the industrial buildings.

**CYCLONE CELLARS  
ARE EXCELLENT.**

If you live in a State where there is danger from sudden storms like cyclones or hurricanes, you may have a "cyclone cellar" or something similar. If so, you have a shelter that will give excellent protection against atomic bombs.

## **HOW SHOULD A HOUSE BE PREPARED?**

**"FIREPROOF  
HOUSEKEEPING"  
IS IMPORTANT.**

Starting right now you should go in for "fireproof housekeeping." Don't let trash pile up around your house and always keep it in covered containers.

*Continued on page 19.*

## **KILL THE MYTHS**

### **ATOMIC WEAPONS WILL NOT DESTROY THE EARTH**

Atomic bombs hold more death and destruction than man ever before has wrapped up in a single package, but their over-all power still has very definite limits. Not even hydrogen bombs will blow the earth apart or kill us all by radioactivity.

### **DOUBLING BOMB POWER DOES NOT DOUBLE DESTRUCTION**

Modern A-bombs can cause heavy damage 2 miles away, but doubling their power would extend that range only to 2½ miles. To stretch the damage range from 2 to 4 miles would require a weapon more than 8 *times* the rated power of present models.

### **RADIOACTIVITY IS NOT THE BOMB'S GREATEST THREAT**

In most atom raids, blast and heat are by far the greatest dangers that people must face. Radioactivity alone would account for only a small percentage of all human deaths and injuries, except in underground or underwater explosions.

### **RADIATION SICKNESS IS NOT ALWAYS FATAL**

In small amounts, radioactivity seldom is harmful. Even when serious radiation sickness follows a heavy dosage, there is still a good chance for recovery.

### ALWAYS PUT FIRST THINGS FIRST AND

#### 1. TRY TO GET SHIELDED

If you have time, get down in a basement or subway. Should you unexpectedly be caught out-of-doors, seek shelter alongside a building, or jump in any handy ditch or gutter.

#### 2. DROP FLAT ON GROUND OR FLOOR

To keep from being tossed about and to lessen the chances of being struck by falling and flying objects, flatten out at the base of a wall, or at the bottom of a bank.

#### 3. BURY YOUR FACE IN YOUR ARMS

When you drop flat, hide your eyes in the crook of your elbow. That will protect your face from flash burns, prevent temporary blindness and keep flying objects out of your eyes.

*Remove this sheet and keep it w...*

## FOR ATOMIC ATTACKS

### NEVER LOSE YOUR HEAD AND

#### 4. DON'T RUSH OUTSIDE RIGHT AFTER A BOMBING

After an air burst, wait a few minutes then go help to fight fires. After other kinds of bursts wait at least 1 hour to give lingering radiation some chance to die down.

#### 5. DON'T TAKE CHANCES WITH FOOD OR WATER IN OPEN CONTAINERS

To prevent radioactive poisoning or disease, select your food and water with care. When there is reason to believe they may be contaminated, stick to canned and bottled things if possible.

#### 6. DON'T START RUMORS

In the confusion that follows a bombing, a single rumor might touch off a panic that could cost your life.

*you until you've memorized it.*

# **FIVE KEYS TO HOUSEHOLD SAFETY**

## **1. STRIVE FOR "FIREPROOF HOUSEKEEPING"**

Don't let trash pile up, and keep waste paper in covered containers. When an alert sounds, do all you can to eliminate sparks by shutting off the oil burner and covering all open flames.

## **2. KNOW YOUR OWN HOME**

Know which is the safest part of your cellar, learn how to turn off your oil burner and what to do about utilities.

## **3. HAVE EMERGENCY EQUIPMENT AND SUPPLIES HANDY**

Always have a good flashlight, a radio, first-aid equipment and a supply of canned goods in the house.

## **4. CLOSE ALL WINDOWS AND DOORS AND DRAW THE BLINDS**

If you have time when an alert sounds, close the house up tight in order to keep out fire sparks and radioactive dusts and to lessen the chances of being cut by flying glass. Keep the house closed until all danger is past.

## **5. USE THE TELEPHONE ONLY FOR TRUE EMERGENCIES**

Do not use the phone unless absolutely necessary. Leave the lines open for real emergency traffic.

If you know you have time when an alert sounds, be sure to shut the doors and windows and pull down the shades. This will help keep out fire sparks.

If you have shutters or venetian blinds, or heavy drapes, they will also provide some protection against harm from flying glass.

Several other household precautions should be taken promptly. Atomic bombs set off high above ground seldom cause breaks in underground gas or water mains. However, shaking and twisting of the buildings by the blast wave sometimes snaps off household inlets at the point where they enter the basement. This may allow gas or oil to flow into your cellar.

To lessen the danger of fires and explosions that could result from this leakage, you should throw the electric switch that shuts off your oil burner.

Your local utility companies can give you detailed instructions about your gas, pilot lights, and so on.

If you have a coal-burning furnace or wood stove, be sure to close all its fuel and draft doors. In other words, do all you can to prevent sparks and to put out or cover open flames.

Should attack come without warning, take these same precautions right after the raid. Keep at least one flashlight handy and don't strike a match to light your way down into a darkened basement. Gas or oil fumes may be present and an explosion could result.

WHEN ALERTED,  
CLOSE ALL WIN-  
DOWS AND DOORS  
AND GUARD  
AGAINST INJURY  
BY FLYING  
GLASS.

TO PREVENT  
HOUSEHOLD  
EXPLOSIONS,  
SHUT OFF OIL  
BURNERS.

LOCAL UTILITY  
COMPANIES WILL  
GIVE YOU DETAILED  
INSTRUCTIONS ABOUT  
GAS, ELECTRICITY  
AND SO ON.

KEEP A FLASH-  
LIGHT HANDY.

# WHAT ABOUT LINGERING RADIOACTIVITY?

AIR BURSTS  
LEAVE NO  
DANGEROUS LINGER-  
ING RADIO-  
ACTIVITY.

Knowing how to protect yourself from blast, heat, and explosive radioactivity, only one major problem remains: That is how to avoid harm from lingering radioactivity.

*Explosive* radioactivity bursts from the bomb at the time of explosion and lasts for only little more than a minute.

*Lingering* radioactivity remains for a longer time, from a few minutes to weeks or months, depending on the kind of radioactive material.

LINGERING  
RADIOACTIVITY  
COMES FROM  
BOMB "ASHES"  
OR UNEXPLODED  
ATOMIC FUEL.

Lingering radioactivity may become a danger when atomic bombs are exploded on the ground, underground, or in the water. Air bursts leave no dangerous lingering radioactivity.

Most lingering radioactivity comes from left-over bomb wastes, or "ashes," technically called fission products. They consist of countless billions of fragments, or pieces, of atoms split up in the explosion. Smaller, and usually less dangerous, amounts of lingering radioactivity may be thrown off by scattered atoms of uranium or plutonium that fail to split up when the bomb goes off.

LINGERING  
RADIOACTIVITY  
ACTS LIKE  
DUST AND IS  
HARD TO GET  
RID OF. AVOID  
IT WHENEVER  
YOU CAN.

These totally invisible radioactive particles act much the same as ordinary, everyday dust. When present in any real quantity, they are scattered about in patches and contaminate, or pollute, everything they fall on, including people. While

they can be removed easily from some surfaces, they stick very tightly to others. It is practically impossible to get absolutely all of them out of household corners and cracks. Most of the time, it is far easier to prevent pollution than it is to remove it.

## WHAT ABOUT RADIOACTIVE CLOUDS?

In spite of the huge quantities of lingering radioactivity loosed by atomic explosions, people fortunately are not very likely to be exposed to dangerous amounts of it in most atomic raids.

Since high-level bursts do the greatest damage, that is the kind we can expect most often. When atomic weapons are exploded in mid-air, the violent, upward surge of super-hot gases and air quickly sweeps practically all the radioactive ashes and unexploded bits of bomb fuel high into the sky. Most of them are carried harmlessly off in the drifting bomb clouds. High-level explosions definitely will not create "areas of doom", where no man dares enter and no plant can grow. In fact, they will leave very little radioactivity on the ground, even near the point of explosion. Firefighters and rescue teams can move promptly toward the center of destruction with little danger of facing harmful radiation.

And regardless of all you may have heard or read concerning the dangers of radioactive clouds,

IN AIR BURSTS  
RADIOACTIVE  
DUSTS ARE  
SPREAD SO  
WIDELY THAT  
THEY ARE UN-  
LIKELY TO HARM  
PEOPLE.

AIR BURSTS  
WILL NOT  
CREATE "AREAS  
OF DOOM."

DON'T WORRY  
ABOUT HIGH-  
LEVEL RADIOACTIVE  
CLOUDS.

IT WOULD TAKE  
MANY THOUSANDS  
OF A-BOMBS TO  
PRODUCE  
DANGEROUS  
GROUND  
CONTAMINATION.

after the first minute and a half there is actually little or nothing to fear from those produced by high-level bursts. While most of the radioactive materials swept up into the sky eventually fall back to earth, they are so widely and so thinly spread that they are very unlikely to offer any real dangers to humans. Thousands of bombs would have to be set off in the air before serious ground contamination would be found over really large areas. There was no ground-level pollution of any importance following either of the two Japanese atomic bombings.

It was said earlier that 15 percent of the Japanese A-bomb deaths or injuries were caused by radioactivity. But not one of them was caused by the lingering kind. Explosive radioactivity caused them all.

## WHAT ABOUT GROUND AND WATER BURSTS?

SURFACE BURSTS  
USUALLY LEAVE  
A LIMITED AREA  
RADIOACTIVE.

Bursts on or near the ground usually will leave a limited area of rather heavy and often dangerous pollution near the explosion point. In such cases, the possibility of harm from radioactivity falling out of the clouds is greater than in high-level explosions. But even so, a person could escape contamination by simply taking refuge inside a house or even by getting inside a car and rolling up the windows. And even if some of the wastes fell on him, he would lessen his chances of injury if he promptly shed his clothes and took a bath or shower.

In underwater explosions, large portions of the bomb's radioactive wastes will be "trapped" by the water and then spread over the immediate area. Under these conditions, serious ground pollution is to be expected.

After a water or underground burst a cloud of very radioactive mist or dust might form and spread, particularly downwind, injuring people who weren't well sheltered.

If the explosion has been underground, at ground level, or in the water, stay in your shelter. If caught in the open, get indoors right away. Then stay indoors for at least an hour or until you get instructions. It may be necessary to stay inside for three or four hours. The reason for this is that most lingering radioactivity loses its power very fast. So staying undercover for a while will greatly reduce the danger.

Any rain or mist that comes right after an atomic explosion should be considered dangerous, even though it may not always be radioactive. Keep from getting wet if you possibly can.

And remember that an *air burst* will leave *no* lingering radioactivity of importance, so after a few minutes it will be safe to get out and help fight fires or to help people who may need it.

## HOW IS RADIOACTIVITY DETECTED?

While we cannot see, hear, feel, smell, or taste radioactivity, its presence readily can be detected

UNDERWATER  
A-BOMBS  
PRODUCE  
SERIOUS LINGER-  
ING RADIATION.

STAY UNDER  
COVER FOR AT  
LEAST AN HOUR  
AFTER GROUND  
OR UNDERWATER  
BURSTS

AVOID GETTING  
WET AFTER  
UNDERWATER  
BURSTS.

YOU WON'T  
NEED AN  
INSTRUMENT  
TO DETECT  
RADIOACTIVITY.  
SPECIALISTS  
WILL DO IT  
FOR YOU.

with Geiger counters and other instruments. However, you won't have to know how to use one of these. Instead, you can rely on your local radiological defense teams—a small, specially trained corps of “meter readers”—to warn you of the presence of lingering radioactivity. You also can count on them to see to it that firefighters, rescue workers, and other people who may have to enter contaminated places do not remain there long enough to be injured.

THE RADIO-  
ACTIVITY FROM  
YOUR LUMINOUS  
WRIST WATCH  
DIAL CAN BE  
DETECTED EASILY.

But always remember our sunlight comparison. There is usually a whale of a difference between *detectable* and *dangerous* amounts of radioactivity. The rays and particles from an ordinary, luminous-dial wrist watch will cause a roar in the earphones of a Geiger counter, as just one example. We must not lose our heads just because radioactivity is reported as present.

## WHAT ABOUT PROTECTING YOURSELF FROM LINGERING RADIOACTIVITY?

COVER YOUR  
SELF TO AVOID  
CONTAMINATION  
WITH RADIO-  
ACTIVE  
MATERIALS.

While attempting to avoid exposure to the bomb's blast, heat, and explosive radioactivity, also do what you can to keep from being showered by radioactive waste materials. Inside a shelter or building there is little or nothing to fear from this source. But if caught out-of-doors, try to grab hold of something to cover yourself with when you fall to the ground. A board or some

sheets of newspaper might help, but a raincoat would be better. The object is, of course, to keep radioactive dust and raindrops off your body and clothing. When it's safe to get up, throw away your covering.

Always do what you can to help other people. There is no chance of your being harmed by radioactivity from the bodies of others, even if they have radiation injuries. Don't leave injured people where they may be burned. Direct rescue workers to persons trapped in the wreckage. If necessary to bandage open cuts and wounds and no standard first aid equipment is available, use parts of your own or the victim's clothing. But tear them from the under, not the outer garments. Underclothes are far less likely to be contaminated by radioactivity.

If you have walked through rubble from a ground burst or water from an underwater burst, be sure to change at least your outer garments and shoes. Outer clothes will automatically serve as a "trap" for most of the radioactivity you may accidentally pick up. By taking them off you will remove most of the contamination. If the clothing is heavily contaminated, it is best to bury it.

You also should manage to take a bath or shower, if you have been in an area of lingering radioactivity. It is important that all radioactive materials be removed as soon as possible from your body, and bathing is the only practical means of getting rid of them. You won't need special cleaning compounds. Warm water and soap are ideal.

In washing, pay particular attention to your

DO ALL YOU  
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OTHER  
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CHANGE ALL  
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MENTS AFTER  
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TO REMOVE  
RADIOACTIVE  
WASTES, SCRUB  
YOUR BODY  
THOROUGHLY.

YOU CAN  
GET RID OF  
ALL THE  
RADIOACTIVE  
DIRT YOU'VE  
PICKED UP  
IF YOU KEEP  
SCRUBBING.

hair, for that is one place where the wastes are sure to pile up. Also give your hands a good scrubbing and get all dirt out from under your fingernails. If there is a radiological defense man handy, have him check you with his meter after you've finished your clean-up. Should he find your body still radioactive, again scrub yourself from head to foot. Then do it a third time if necessary. You can remove practically all of the radioactivity if you keep at it.

Remember all this is necessary only for persons who have come in contact with radioactive materials in heavily contaminated areas.

## WHAT ABOUT RADIOACTIVITY IN THE HOUSE?

A few simple steps will go a long way toward keeping your house from being contaminated by lingering radioactive wastes scattered about in some bombings. As a rule, it is far easier to prevent radioactive pollution of a household than it is to remove it.

Keep all windows and doors closed for at least several hours after an atomic bombing. In fact, better leave them shut until civil defense authorities pass the word that there is no lingering radioactivity in your neighborhood. Should you get an official report that there is serious contamination in the vicinity, better cover all broken windows with blankets or cardboard.

KEEP ALL  
WINDOWS AND  
DOORS CLOSED  
UNTIL IT IS  
OFFICIALLY  
REPORTED  
THAT THERE  
IS NO POL-  
LUTION IN THE  
NEIGHBORHOOD.

Whenever there is widespread neighborhood pollution, it will be impossible to keep your house absolutely free of it. A little is bound to seep in through cracks or else down the chimney. (By all means close the dampers in fireplace flues and shut off air conditioners and ventilating fans not equipped with special filters). Unless you are careful, some radioactivity is likely to be tracked in by people or pets. Keep your cat or dog indoors. And when you come in from outside, leave your shoes at the door, for their soles are likely to be covered with radioactive dusts. Better still, wear rubbers, galoshes or other disposable foot coverings over your shoes. Take these precautions, but don't worry. There isn't much chance really dangerous amounts will pile up in the house.

Should you help to clean up a contaminated area, you might get some radioactive materials on both your body and clothing. So don't go home and sit around in your work clothes. Take off your outer garments outdoors or in the basement. Then wash, if you can, using warm water and plenty of soap. Never fail to launder your working clothes, but don't use the family washing machine. Scrub all contaminated objects in buckets or tubs used for that purpose only.

## WHAT ABOUT FOOD AND WATER?

To prevent harm from accidentally eating or drinking radioactivity, throw out all unpackaged foods that were lying around where dust from

**CLOSE FIREPLACE  
DAMPERS AND SHUT  
OFF VENTILATING  
FANS AND AIR  
CONDITIONERS.**

**BE CAREFUL  
NOT TO TRACK  
RADIOACTIVE  
MATERIALS  
INTO THE  
HOUSE.**

**LAUNDRY  
CONTAMINATED  
OBJECTS IN  
SPECIAL  
BUCKETS  
OR TUBS.**

WATCH OUT  
FOR FOOD  
CONTAMINATION  
AFTER GROUND  
OR WATER  
BURSTS.

ground bursts or mist from underwater bursts might have settled on them. And before opening canned or bottled goods, wash the outside of the containers thoroughly. That will remove most of the pollution that may have gotten on them. Also be sure that all cooking utensils and tableware are scrubbed clean in order to remove any invisible, radioactive dusts. Food and utensils that were in closed drawers or tight cupboards will be all right.

If it was an air burst, don't worry about the food in the house. It will be safe to use.

WATER IN THE  
PIPES OF YOUR  
HOUSE AT THE  
TIME OF EXPLO-  
SION WILL NOT  
BE RADIOACTIVE.

Be careful of drinking water after atomic explosions. There is little or no chance that water actually inside household pipes at the time of attack will be made radioactive. If a little is drawn off right after the burst and placed in clean containers with covers, it should tide you over the immediate post-raid period.

BOIL WATER  
BEFORE  
DRINKING  
UNLESS YOU'VE  
BEEN OFFICIALLY  
TOLD IT IS SAFE.

But even if the water continues running, don't keep on using tap water for drinking purposes unless you have received official information that the city system is safe. This is not only because of radioactivity, but because of other dangers like typhoid that can come from damaged water systems. If you have to use city water before you get official information, boil it. Boiling won't remove radioactivity, but the chances that your water supply will be radioactive are pretty slim. Boiling will kill most germs that may get into damaged water mains.

## WHAT ABOUT RADIOS AND TELEPHONES?

Neither explosive nor lingering radioactivity has any effect on the operation of most mechanical or electrical devices. Unless the wires are down or there is a power failure, both your lights and telephone should continue to work. But don't rush to the phone just to find out how Aunt Susie may have weathered the attack. Leave the lines open for real emergency traffic.

The bomb's radioactivity will *not* interfere with the operation of your radio. In the event of attack, be sure to turn it on. It may be your main source of emergency instructions. And don't forget: Battery-operated portable sets, including those installed in automobiles, will continue to work even if the city power goes off. Television reception, like radio, won't be jammed by radioactivity.

## WHAT ABOUT AUTOMOBILES?

One more household suggestion: In times of emergency don't park the family automobile on the street. Leave the way clear for emergency traffic. Keep the windows rolled up to prevent possible contamination of the interior by under-water or ground bursts and don't worry whether or not it will run. Radioactivity won't interfere with operation of its fuel or ignition system.

EVEN THOUGH  
YOUR TELE-  
PHONE MAY  
CONTINUE TO  
WORK, USE IT  
ONLY FOR TRUE  
EMERGENCIES.

KEEP THE  
FAMILY CAR  
OFF THE STREET.  
RADIOACTIVITY  
WILL NOT INTER-  
FERE WITH ITS  
OPERATION.

## WHAT ABOUT CHILDREN?

EVERYTHING IN  
THIS BOOKLET  
APPLIES TO ALL  
MEMBERS OF THE  
FAMILY.

Everything in this booklet holds true for all members of the family, including children, old people, or shut-ins. It would be a good idea to talk over the facts with all members of the family to be sure each understands. People with school children should discuss the booklet with teachers and other parents at PTA meetings and similar gatherings.

You may be sure that, in times of emergency, all schools will be well organized for the protection of children.

Children old enough to understand can be taught to do the right things. Younger children simply will have to depend on their parents.

## TO SUM UP

BLAST AND HEAT  
ARE THE GREATEST  
DANGERS YOU  
FACE.

To sum up, always remember that blast and heat are the two greatest dangers you face. The things that you do to protect yourself from these dangers usually will go a long way toward providing protection from the explosive radioactivity loosed by atomic explosions.

While the lingering radioactivity that occasionally follows some types of atomic bursts may be dangerous, still it is no more to be feared than typhoid fever or other diseases that sometimes follow major disasters. The only difference is that we can't now ward it off with a shot in the arm; you must simply take the known steps to avoid it.

-If you follow the pointers in this little booklet, you stand far better than an even chance of surviving the bomb's blast, heat, and radioactivity. What's more, you will make a definite contribution to civil defense in your community, because civil defense must start with you. But if you lose your head and blindly attempt to run from the dangers, you may touch off a panic that will cost your life and put tremendous obstacles in the way of your Civil Defense Corps.

KEEP YOUR  
HEAD. DON'T  
TOUCH OFF A  
PANIC THAT  
MAY COST  
YOUR LIFE.

## **CIVIL DEFENSE IS EVERYBODY'S BUSINESS**

### **JOIN YOUR CIVIL DEFENSE ORGANIZATION TODAY**

---

Enroll as Wardens and Auxiliary Police at  
Your Police Station

Enroll as Auxiliary Firemen and Fire Watchers at  
Your Fire Station

Enroll for Red Cross Services at  
Red Cross Headquarters  
17 Gloucester Street

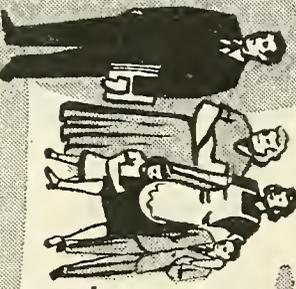
Enroll for These and Other Important Civil Defense  
Services at  
The Civil Defense Volunteer Office  
14 Somerset Street

**JOHN B. HYNES**  
*Mayor*

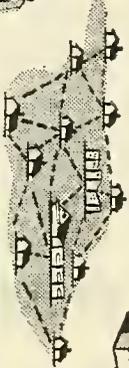
**JOSEPH L. MALONE**  
*Director*

# THE NATIONAL CIVIL DEFENSE PATTERN

**THE INDIVIDUAL**  
Calm and well-trained



**THE FAMILY**  
The base of organized self-protection



**NEIGHBORHOOD**

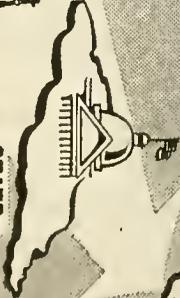
**COMMUNITY**  
Puts civil defense into action immediately



**NEARBY CITIES**  
Move in mutual aid as needed



**STATE**  
Will furnish aid in the form of mobile support and supplies as needed



**FEDERAL GOVERNMENT**  
Furnishes aid and supplies if needed

