

Best Protection Is . . .

. . . Get Behind Something

Nuclear War Poses Most Urgent Problem Today

Editor's note: This is the first in series of depth reports concerning civil defense by Daily Nebraskan staff writer, Karen Gunlicks.

By KAREN GUNLICKS

One of the most urgent problems facing our world today is the possibility of a nuclear war. Many people discuss and debate this situation, but few realize or know the facts.

What is a nuclear explosion? A nuclear explosion is divided into two phases — the blast and the fallout.

Nuclear Explosion

The blast of a nuclear explosion, includes a brilliant flash that lasts about a minute. A quick burst of nuclear and heat radiation emerges from ground zero, the point of the explosion. The spurt of nuclear radiation (wavy lines extending from the fireball) is called initial radiation or prompt radiation and kills within a mile or two.

The heat rays (straight lines) can kill unprotected people up to 10 miles away and may start fires beyond that. The heat rays and initial radiation are followed by a blast wave which starts at more than 2,000 miles an hour, but loses much of its damaging force by about 10 miles out.

When nuclear or incendi-

ary bombs strike a highly combustible city area, they can create a "fire storm". The rising column of hot gases draws in surrounding cool air, producing inward blowing winds that confine the fire storm to the blast damage area.

Violent Wind

As the violent wind, which comes with the blast, and the brilliant fireball rise in the sky, thousands of tons of earth, building materials, rocks and other forms of matter are pulverized, melted or vaporized and contaminated by the radioactive residue of the explosion. A mushroom cloud is formed. A little later the material, condensing in the cold upper air like rain or snow, starts falling back to earth since it is heavier than air.

It is carried wherever the winds may blow it. About five miles from the explosion, the heavier particles—early fallout—will reach the ground in half an hour.

Twenty miles away, people may have nearly an hour to get ready. One hundred miles away, the fallout may not start for four to six hours. All this early fallout, which carries the bulk of the radiation danger, descends in less than 24 hours. The less dangerous lighter particles—delayed fallout—might stay

aloft for months. The particles continue to give off radioactivity until they decay.

The three main destructive effects of a nuclear explosion are heat, blast and fallout.

The heat that a bomb produces is several million degrees—much hotter than the temperature on the surface of the sun. This heat travels at the speed of light. A megaton explosion could kill an unshielded man eight miles from ground zero. A 20-megaton explosion could kill an unshielded man 20 miles away. It could blister and cripple the bodies of unshielded people well beyond that.

Shock Waves

The shock waves of a blast travel about 900 miles an hour. Blast could destroy a brick building 9½ miles from ground zero.

The fallout fills the atmosphere, the air one breathes and attacks the vital organs of one's body with invisible radiation. However, since the air would be contaminated by radioactive fallout only to the extent that it CONTAINED FALLOUT PARTICLES, mere passage through the air of fallout particles would not contaminate the air or any other material they happen to touch.

"Nothing New"

Radioactivity is nothing new. Sun rays, soil and x-rays expose one to radiation every day. But normal amounts of radiation are not dangerous. Only when radioactivity is present in large amounts does it become dangerous. It accumulates in the body.

Fallout consists mainly of gamma RAYS and alpha and beta PARTICLES. Gamma rays, like X-rays, penetrate a person or other object. Those rays which go completely through one's body do not effect it.

However, occasionally, a ray will stop inside one's body and not go completely through. This is when it does its harm. Alpha and beta

particles must be taken into the body by breathing or swallowing to cause any harm since an Alpha particle can penetrate only .004 inches of tissue and a beta particle only .2 inches of tissue.

Once inside the body, these rays and particles cause a neutral atom or molecule to pick up an electrical charge. Then the damage occurs. This could cause the loss of hair, a cancer development, a mutation, a premature aging and shortening of life, mental effects, cataract induction, slow healing of cuts and scratches, brittleness of

the things he touches become radioactive. He cannot effect another person—unless he has radioactive fallout on his skin or clothing. This can be removed by washing the skin and discarding the clothing.

Certain precautions can be taken to prevent a high rate of mortality, especially in the delayed fallout areas. However, planning and knowledge of what to do are necessary to make these precautions effective.

Beyond the 5-mile radius of total destruction, but still within range of the immediate killing power of the bomb, one would have split seconds to save his life from the blast and heat. He would have to act with instinctive speed to take cover behind whatever was at hand. In the country it might be a ditch or culvert. One should lie face down and stay there until the heat and blast waves have passed.

In the city it might be a wall, a building, or even a truck. Indoors it would be the floor (behind furniture or as close to an inside wall as possible.) The main idea is to GET BEHIND SOMETHING.

Distance is a natural protection against fallout radiation from external sources. As would be expected, the radiation exposure is less the farther away one is from the source of radiation.

Thus, fallout on a roof 20 feet over one's head will have less radiation exposure than the same amount of fallout on the same roof five feet over one's head. This is true because he radiation is reduced in intensity as it moves away from the point of origin.

Time is also an important element in protection from excessive exposure to radiation. Although the intensity of radiation following nuclear

detonations is very high, the result of the natural process of radioactive decay causes this intensity to begin to decrease immediately.

Intensities Decline

Nevertheless, there can be rather large areas of high intensity on the ground. The intensities decline at such a rapid rate that at the end of a seven hour period the intensity level is reduced to about 10 percent of the initial value. After a 48-hour period it is down to one percent. In two weeks the level would be about 0.1 percent of its original value.

The most important protection against fallout is shelter. Fallout radiation can pass through any material, but some of it is "absorbed" on the way through. Thus, if sufficient shielding is put between the individual and the fallout, the radiation which comes through will not be harmful.

Karen Gunlicks is a freshman in Arts and Science from Kearney, Nebr. She is a member of Kappa Alpha Theta, an AWS and Student Union Worker, and a Student Council Associate. Miss Gunlicks had a 6.9 average last semester and is beginning her first semester as a Nebraskan junior staff writer.



Campus Calendar

DR. LARRY LUSK, pianist, will appear in a faculty recital Tuesday at 7:30 p.m. in the Union ballroom. His program will include compositions by Schubert.

MATHEMATICS, 3 P.M., Tuesday 209 Burnett. Professor H. O. Hartley of the Iowa State University statistics department, director of the Iowa State University statistics department, and director of the Iowa State Computing Center, will speak on "Problems in linear and nonlinear regression analysis." At 7:30 p.m. Tuesday, room 114 Burnett, Professor Hartley will give a more elementary lecture, "An introduction to linear programming." Interested students and faculty are invited to attend. The evening session is a meeting of the Nebraska Chapter of the American Statistical Association.

Biology, 4 p.m., Tuesday, 201 Bessey Hall. Dr. George W. Kelley (veterinary science) will discuss "Cysticercosis, A World Health Problem."

Spanish Club is sponsoring NEBRASKAN WANT ADS POLICY Classified ads for the Daily Nebraskan must be entered two days in advance and must be paid for in advance. Corrections will be made if errors are brought to our attention within 48 hours.

LOST In Union, pair of sunglasses. \$3 reward. GR 7-7084, Bob Peterson.

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a discussion by Dr. Bernard Rosen of the sociology department. The topic will be "Personality and Economic Growth in Brazil." Tuesday at 7 p.m., room 345, Union.

STUDENT COUNCIL ASSOCIATES will meet at 7:00 Tuesday in the Small Auditorium in the Union. The official list of associates will be announced. Attendance is required.

THETA SIGMA PHI will meet 6:30 p.m. tomorrow in Rag office. Speaker will be Miss Helen Green of the Fairbury Journal. She will show slides.

As I See It . . .

(Continued from Page 2)

atives will defeat the resolution on the same grounds of "no support" and rightly so. If, on the other hand, students will even do no more than applaud those with whom they agree and hiss their opponents, the Council will be less likely to reject the responsibility of NSA affiliation.

It was significant that John Nolan said, "Debate over the NSA affiliation will set up a precedent in action and purpose for the Public Relations Committee."

The Council must decide whether to involve itself and the student body in national and international issues, or to confine its interests to campus problems—like parking, and where the band sits. It will only reflect the attitude you and I, as the students it represents, express.

Meat-Producing Center Foreseen in Nebraska

Imagine, Nebraska as the leading livestock center. The idea is not too far from reality.

"As the nation's population center moves westward Nebraska should continue to have a great future as one of the most important, if not the most important livestock producing states in the nation," said Dr. E. F. Frolik, dean of the College of Agriculture.

Dr. Frolik, speaking to members of the Omaha Rotary Club, continued: "Nebraska has all the essentials for a successful and integrated meat producing industry."

"We have abundant grassland to the west coupled with feed grain production and a large concentration of the meat-packing industry."

"Livestock already is Nebraska's biggest industry," added Dr. Frolik. "On Jan. 1, 1961, the state had approximately 4.6 million head of beef cattle and calves. This total was exceeded only by Texas and Iowa."

Although Nebraska ranks high, Dr. Frolik feels that Nebraska's livestock industry can be much bigger. "Livestock, with all its

nails, wasting away of the skin and sometimes death. The effects to future generations is yet to be discovered.

Radiation Sickness

Radiation sickness is neither contagious nor infectious. Fallout radiation cannot make anything radioactive. Food and water that have been exposed to fallout radiation are contaminated only to the extent that they contain fallout particles. Exposed food that may have particles on it can be made safe by washing, brushing or peeling. Fallout particles can be removed from water supplies by sedimentation or filtering. An exposed person is not himself radioactive, nor do

satellite business, offers a tremendous potential. We don't have to go outside the state to seek this industry. It is here waiting to be developed," he emphasized.

He added that the Ag College is doing extensive research in breeding, nutrition and health of both cattle and hogs, to help develop this home industry.

Career Cues:

"The broader your knowledge, the greater your chance of success!" Edwin J. Ducayet, President Bell Helicopter Company

"As I look back, graduating from college in the depth of the depression was a blessing in disguise. It was difficult to get a job, and even more difficult to hold it. It proved to me early in life that to succeed in business requires constant struggle."

"I found that the truly successful individual never stops learning, that a formal college education is the foundation on which we continue to build the knowledge and experience required to get ahead."

"Even in today's age of specialization, a man eventually reaches a point where breadth of knowledge is necessary. The engineer must understand accounting and marketing. The marketing man must know his product. The financial man must be sympathetic to engineering development and sales programs. Management must have a working knowledge of all phases of the complex and highly competitive business world."

"Therefore, even though specializing, a student should make his college curriculum as broad as possible, and diversify his outside activities. Authoritative surveys have shown that only a small percentage of individuals end up in the field in which they specialized in college."

"Widen your world. Broaden your interests right now. Since graduation from college I've discovered that those who are really succeeding today are the ones who do more and keep on learning from what they do. The broader your college interests are now—the steadier your ladder of success tomorrow!"



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