

25

INFORMATION REPORT INFORMATION REPORT
CENTRAL INTELLIGENCE AGENCY

This material contains information affecting the National Defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C. Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law

~~S-E-C-R-E-T~~

COUNTRY	USSR	REPORT NO.	
SUBJECT	Atomic Weapons and Actions under Conditions of their Employment	DATE DISTR.	3 November 1955
DATE OF INFO.	1954	NO. OF PAGES	1
PLACE ACQUIRED	USSR	REQUIREMENT NO.	RD
		REFERENCES	

SOURCE EVALUATIONS ARE DEFINITIVE. APPRAISAL OF CONTENT IS TENTATIVE.

SOURCE: A usually reliable source . Appraisal of Content: Documentary.

- The attached document, containing photographs and diagrams from the Soviet Army manual, Atomic Weapons and Actions under Conditions of their Employment, is being disseminated for ultimate attachment to, or use with, CSDB-35586, which transmitted a translation of the text of this manual.

LIBRARY SUBJECT AND AREA CODES (17)

R78-02-0403	10/55
972.1	H
972.49	N
972.32	H
972.52	N
972.51	N
972.53	N
972.54	H

APPROVED FOR
RELEASE
HISTORICAL
COLLECTIONS
DIVISION
HR-70-14
4-18-2012

1955

~~S-E-C-R-E-T~~

STATE	X	ARMY	40	NAVY	20	AIR	30	101	AEC	X	JCS	2
-------	---	------	----	------	----	-----	----	-----	-----	---	-----	---

(Note: Washington distribution indicated by "X"; field distribution by "#")

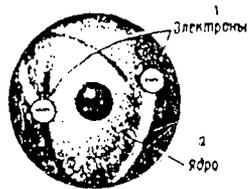


Figure 1

Structure of the helium atom.

- 1. Electrons
- 2. Nucleus

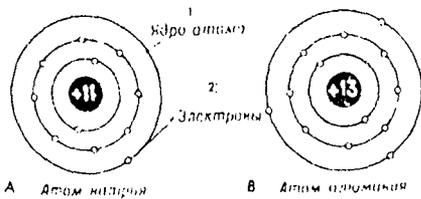


Figure 2

Structure of the atoms of sodium and aluminum.

- A. Sodium Atom
- B. Aluminum Atom

- 1. Nucleus
- 2. Electron

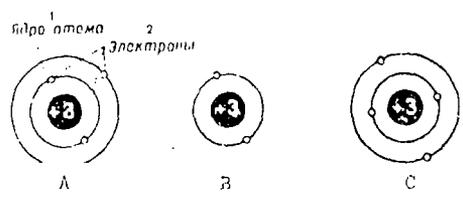


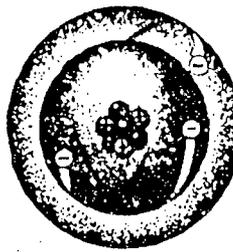
Figure 3

Normal and ionized atoms of the element lithium.

- A) A lithium atom in its normal state (the number of positive charges is equal to the number of negative charges).
- B) A positive lithium ion; it has one positive charge more than it has negative charges (one of the electrons has been expelled from the shell).
- C) A negative lithium ion; there is one negative charge more than there are positive charges (acquisition of one extra electron).

- 1. Nucleus
- 2. Electrons

COPY



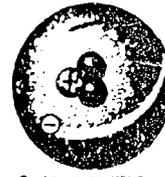
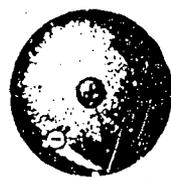
Условные обозначения:

- A ⊕ Протон
- B ● Нейтрон
- C ⊖ Электрон

Figure 4

Lithium Atom.

- A. ⊕ Proton
- B. ● Neutron
- C. ⊖ Electron



А Атом обычного водорода

В Атом дейтерия

С Атом трития

Figure 5

Atoms of hydrogen isotopes

- A. Atom of ordinary hydrogen
- B. Deuterium atom
- C. Tritium atom

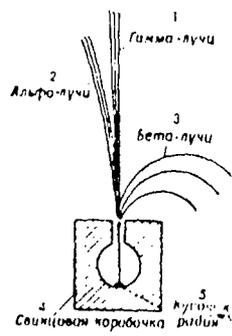


Figure 6

The division of the radiation from radium into alpha, beta, and gamma rays.

- 1. Gamma rays
- 2. Alpha rays
- 3. Beta rays
- 4. Lead box
- 5. Small piece of radium

COPY

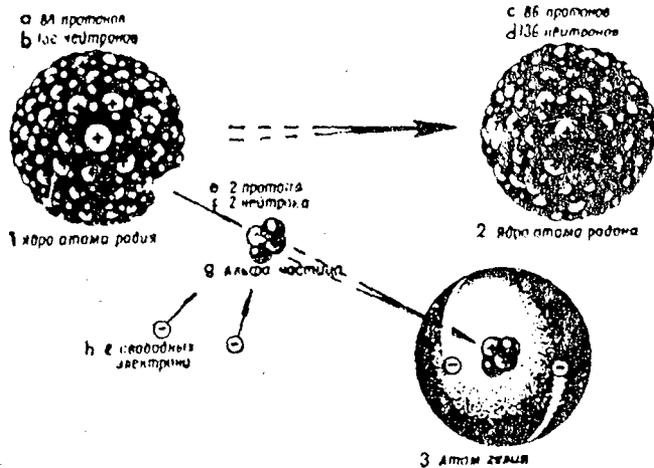


Figure 7

Disintegration of the nucleus of a radium atom as a result of the release of an alpha particle (alpha disintegration).

1. Radium atom
2. Radon atom
3. Helium atom

- a. 88 protons
- b. 138 neutrons
- c. 86 protons
- d. 136 neutrons

- e. 2 protons
- f. 2 neutrons
- g. alpha particle
- h. 2 free electrons

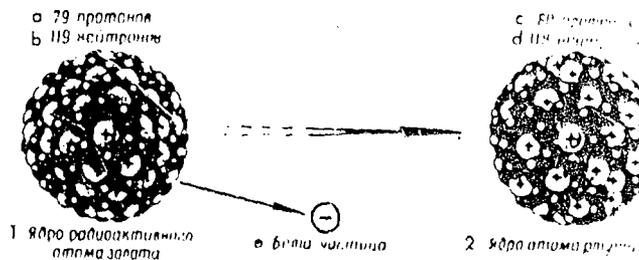


Figure 8

Disintegration of the nucleus of a radioactive gold atom with the release of a beta particle (beta disintegration).

1. Nucleus of radioactive gold atom
2. Atomic nucleus of mercury

- a. 79 protons
- b. 119 neutrons
- c. 80 protons
- d. 118 neutrons
- e. beta particle

COPY

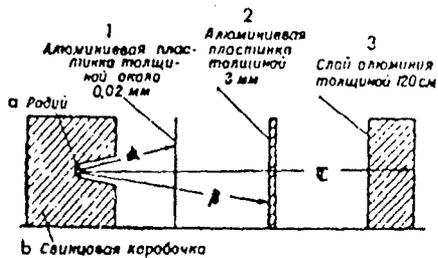


Figure 9

Absorption of alpha, beta, and gamma rays by aluminum.

- A. Alpha rays
- B. Beta rays
- C. Gamma rays

- 1. Aluminum sheet about .02 mm. thick
- 2. Aluminum sheet 3 mm. thick
- 3. Aluminum plate 120 cm. thick

- a. Radium
- b. Lead box



Figure 10

Fission of a heavy nucleus, resulting in two smaller nuclei (fragments).

- 1. Neutron
- 2. The nucleus before fission
- 3. Nucleus at the instant of fission
- 4. New nucleus (fragment)
- 5. New neutrons

COPY

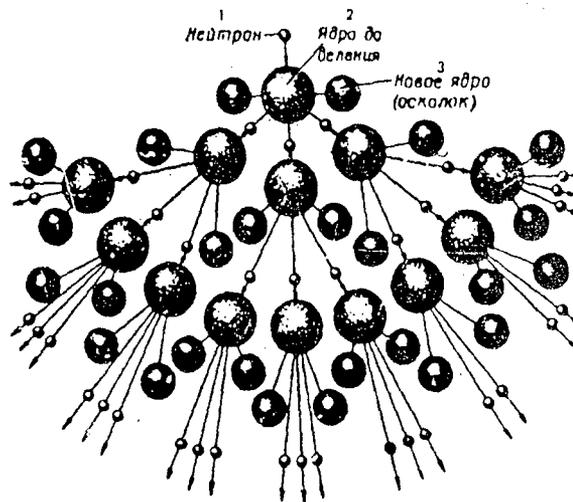


Figure 11

The development of a nuclear chain reaction, with two or three neutrons effecting the fission of succeeding nuclei.

1. Neutron
2. Nucleus before fission
3. New nucleus

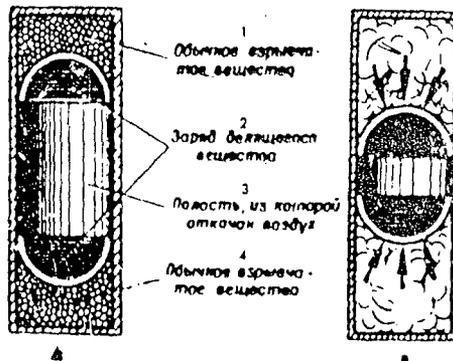


Figure 12

Diagram of atomic bomb with its charge divided into two parts. A shows the bomb before the explosion. B shows the two atomic charges drawing together.

1. Conventional explosive substance
2. Fissionable material
3. Vacuum chamber
4. Conventional explosive

COPY

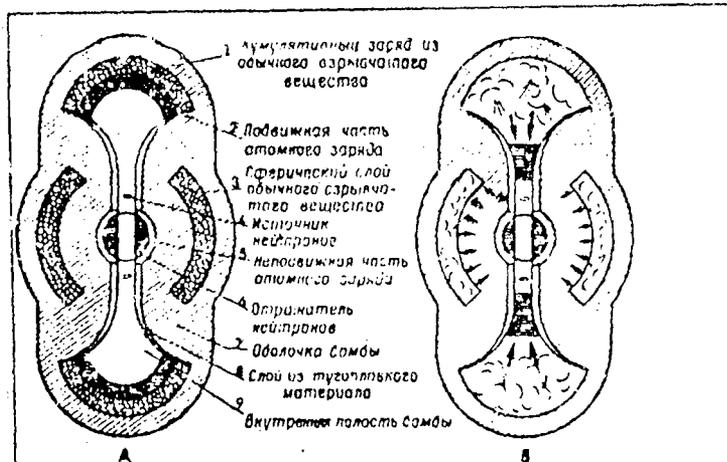


Figure 13

Diagram of an atom bomb with its charge divided into three sections. A shows the bomb before the explosion. B shows the bomb as the sections of atomic charge approach each other.

1. Cumulative charge of conventional explosive substance.
2. Movable section of atomic charge.
3. Spherical layer of conventional explosive substance.
4. Source of neutrons.
5. Immovable section of atomic charge.
6. Neutron deflector.
7. Bomb casing.
8. Layer of refractory material.
9. Inner chamber.

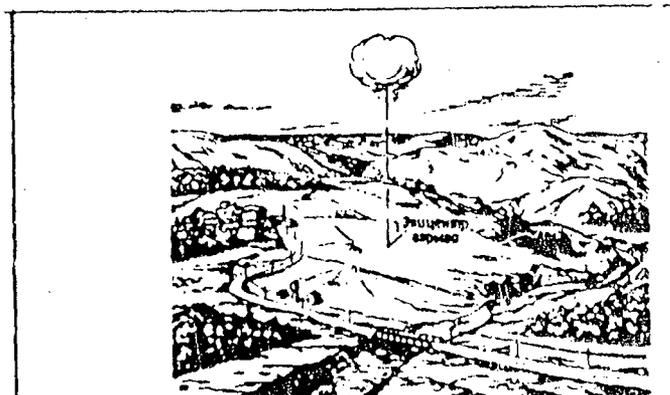
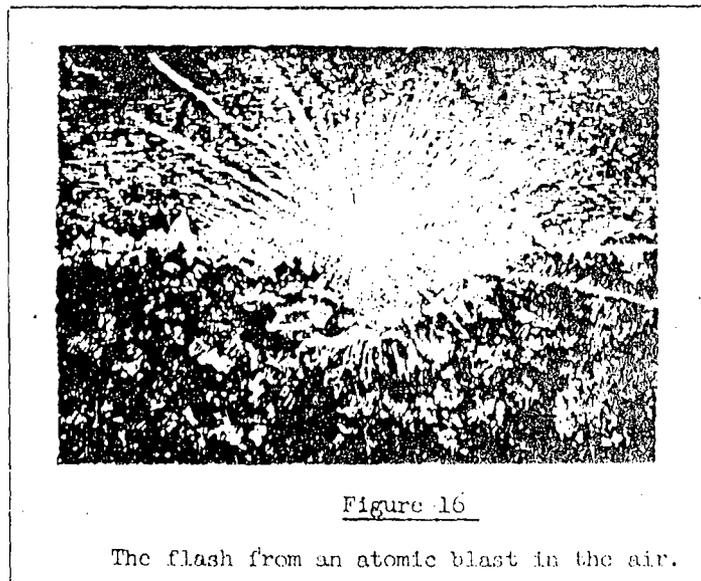
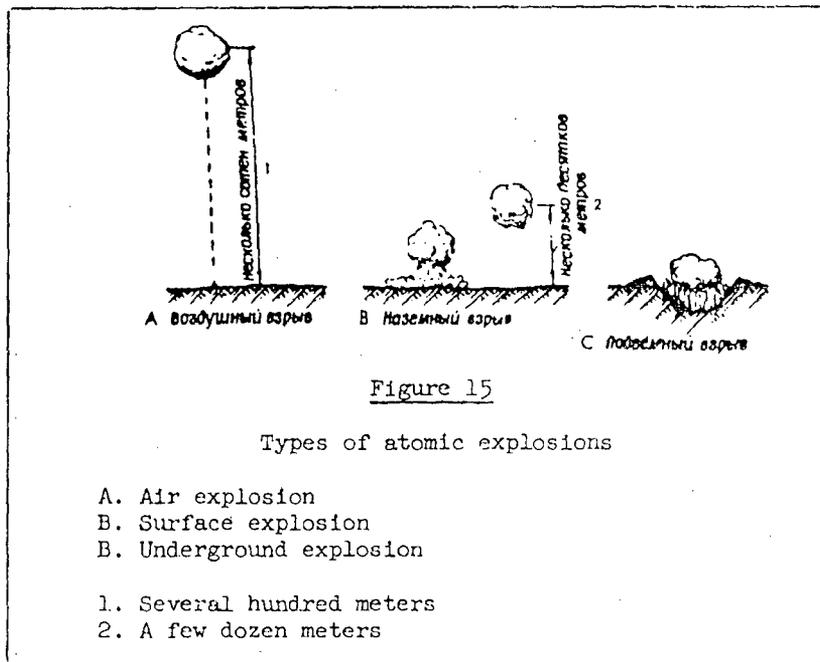


Figure 14

Epicenter of atomic explosion

1. Epicenter of the explosion.

COPY



COPY

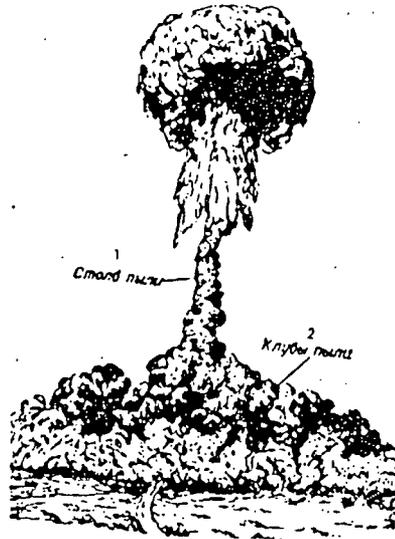


Figure 17

The mushroom-shaped cloud of an atomic blast.

1. Dust column
2. Dust clouds

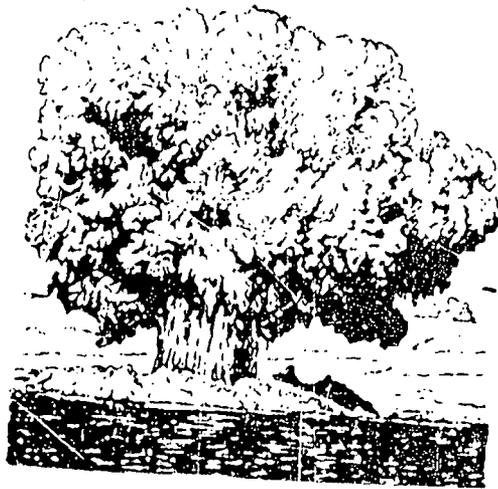


Figure 18

Outward appearance of an underwater atomic explosion.

COPY

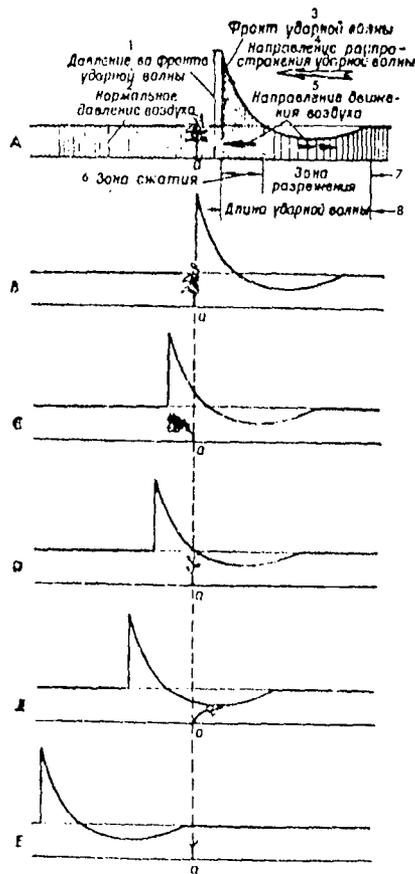


Figure 19

Diagram showing the action of the shock wave of an atomic blast.

A - The front of the shock wave has not reached Point a; the pressure at this point is normal. B - The front of the shock wave has reached Point a; the pressure has risen sharply. C - the front of the shock wave has passed Point a; a tree standing at this point bends in the direction in which the shock wave is spreading; the pressure at Point a has dropped somewhat. D - The pressure at Point a is normal; the tree has straightened up. E - Point a is within the zone of rarefaction, where air pressure is below that of the atmosphere; the air has started to move in the opposite direction, and the tree bends with it. F - The shock wave has passed Point a; air pressure is normal.

1. Pressure at the front of the shock wave.
2. Normal air pressure
3. The front of the shock wave
4. Direction of diffusion of the shock wave
5. Direction of air
6. Pressure zone
7. Zone of rarefaction
8. Length of shock wave

COPY

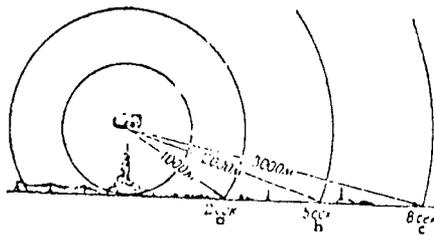


Figure 20

Speed of spread of the shock wave.

- a. 2 seconds
- b. 5 seconds
- c. 8 seconds

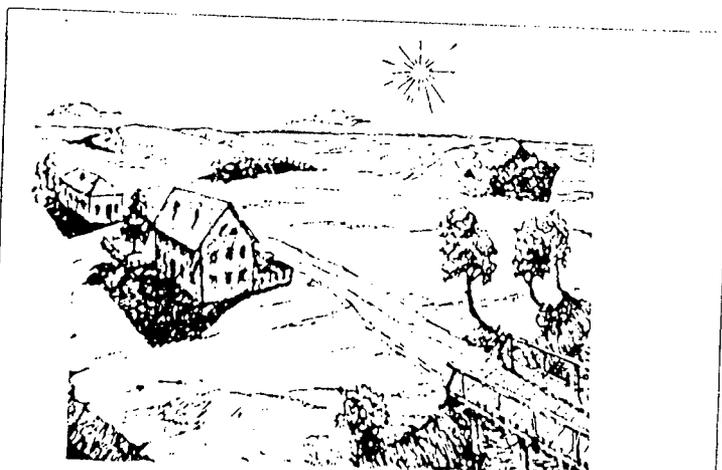


Figure 21

The shade thrown by the hill, the ravine, the house, or the tree serves as protection from being burned by the flash of light.

COPY

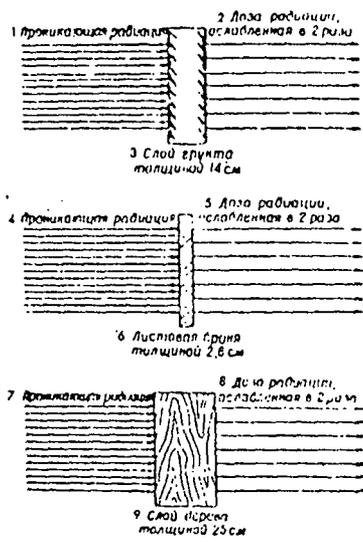


Figure 22

Reduction of the dose of penetrative radiation by protective layers.

1. Penetrative radiation
2. Dose of radiation reduced by half
3. Layer of earth 14 cm. thick
4. Penetrative radiation
5. Dose of radiation reduced by half
6. Armor plate 2.8 cm. thick
7. Penetrative radiation
8. Dose of radiation reduced by half
9. Layer of wood 25 cm. thick

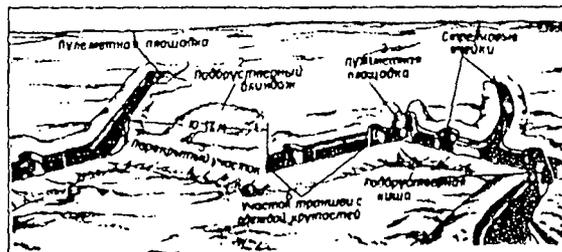


Figure 23

Section of trench equipped for antiatomic defense.

1. Machine gun platform
2. Dugout shelter
3. Machine gun platform
4. Rifle pits
5. Covered section
6. Revetted section
7. Recess

COPY

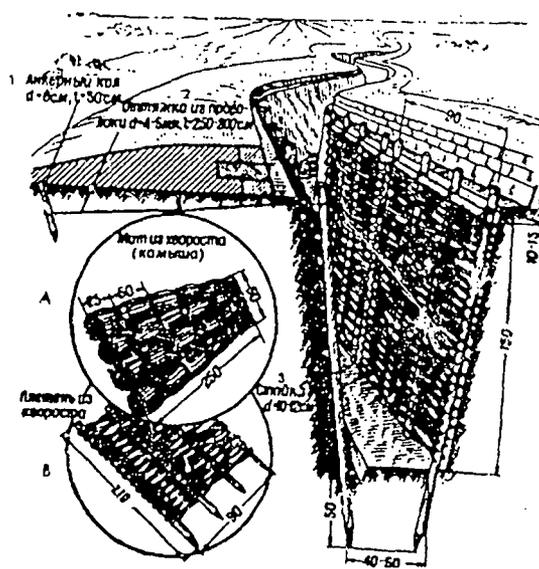


Figure 24

The construction of revetments from brushwood or cane.

Insert A - Brushwood or cane mat
 Insert B - Brushwood wattle

1. Anchor picket
2. Guy wire
3. Upright

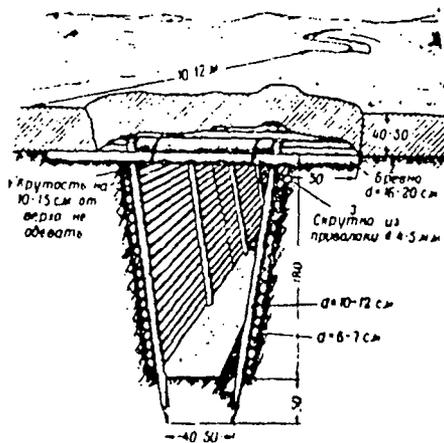


Figure 25

Covered section of trench with covering and revetment.

1. Slope in free of facing for 10-15 cm. from top.
2. Log.
3. Wire blinding.

COPY

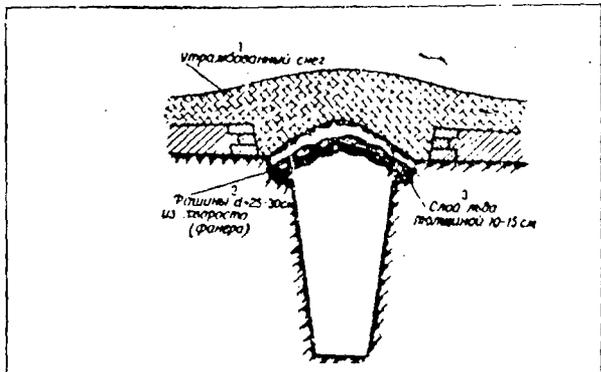


Figure 26

Arched trench cover made of fascines and snow.

1. Packed snow
2. Brushwood fascines, d: 25-30 cm.
3. Layer of ice, 10-15 cm. thick.

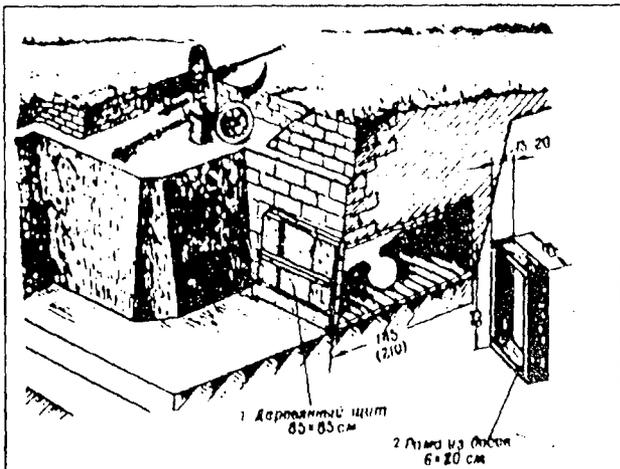


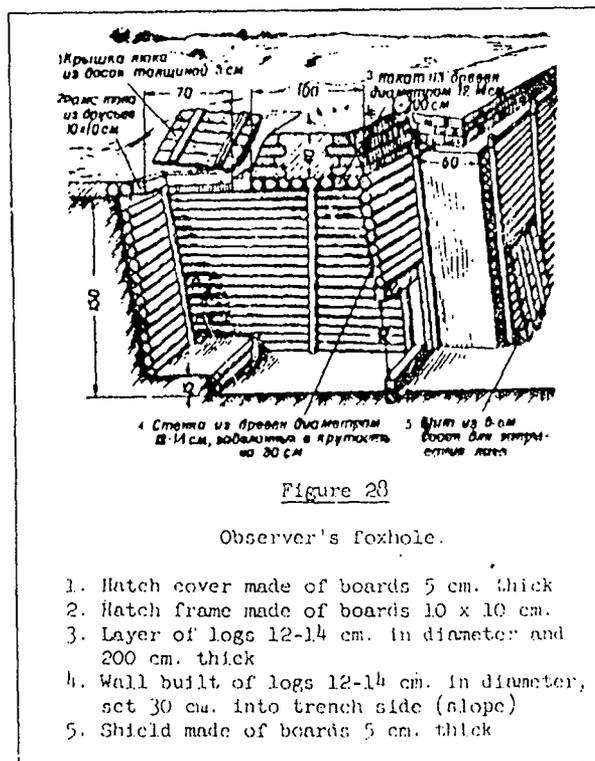
Figure 27

Platform for machine gun or grenade thrower with a niche.

1. Wooden door
2. Frame made of boards

Note: The figure in parentheses (210) shows the size that the recess would have to be to accommodate a grenade launcher.

COPY



СССР

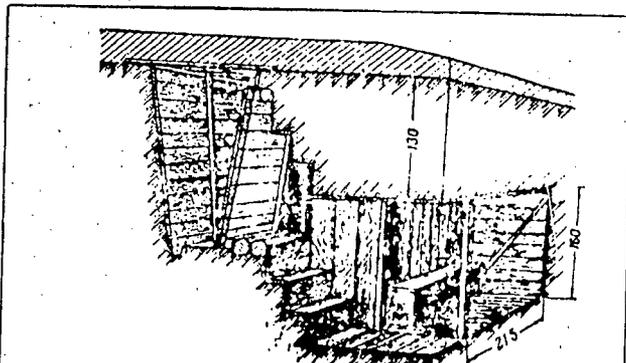


Figure 29

Sub-breastwork dugout shelter.

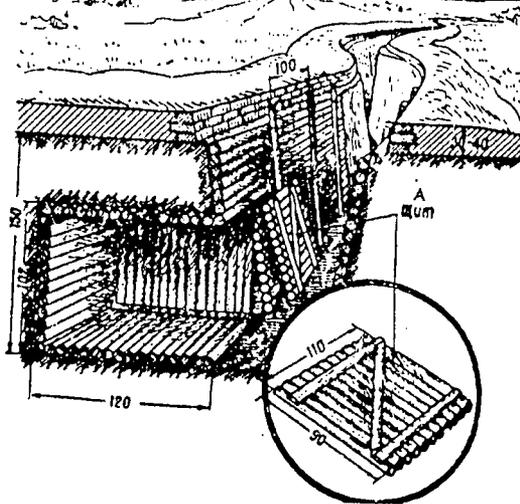


Figure 30

Sub-breastwork recess.

A. Shield

COPY

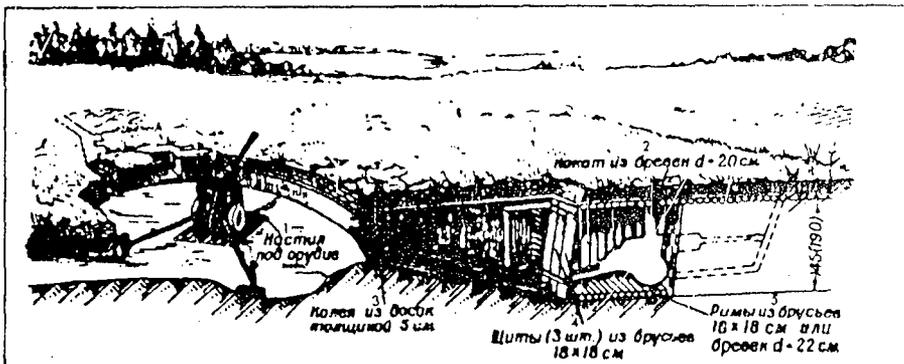


Figure 31

Pit for 57 mm. or 85 mm. gun with emplacement and shelter.

1. Planking beneath gun
2. Layer of logs 20 cm. in diameter
3. Tracks made of boards 5 cm. thick
4. 3 Shields of boards 18 x 18 cm.
5. Frames made of timbers 18 x 18 cm. or logs 22 cm. in diameter

Note: The dimensions given in parentheses are for an 85 mm. gun.

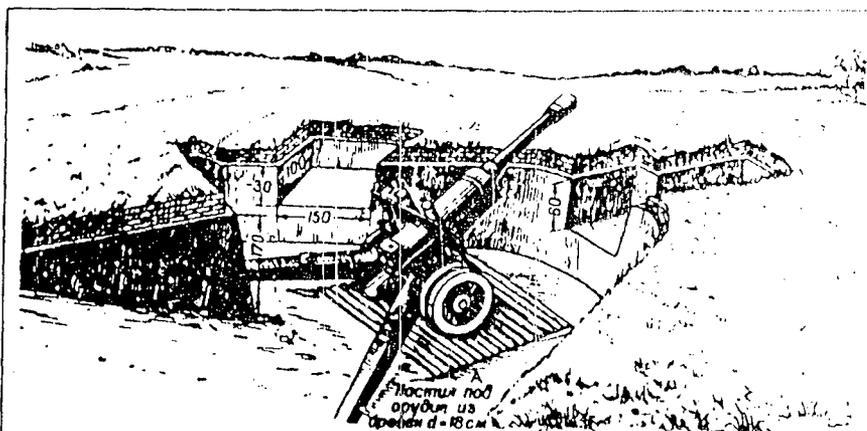


Figure 32

Pit for 122 mm and 152 mm howitzers for firing from position of cover.

- A. Planking beneath gun, made of logs 18 cm. in diameter

COPY

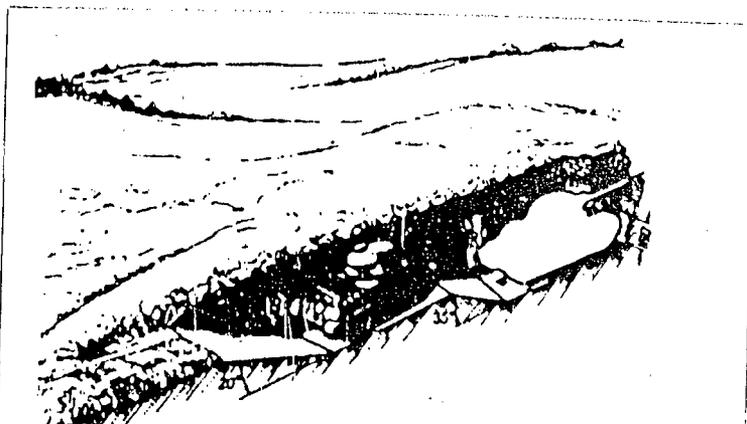


Figure 33

Pit with shelter for medium tanks and self-propelled artillery mounts [SAU], with shelter for the crew.

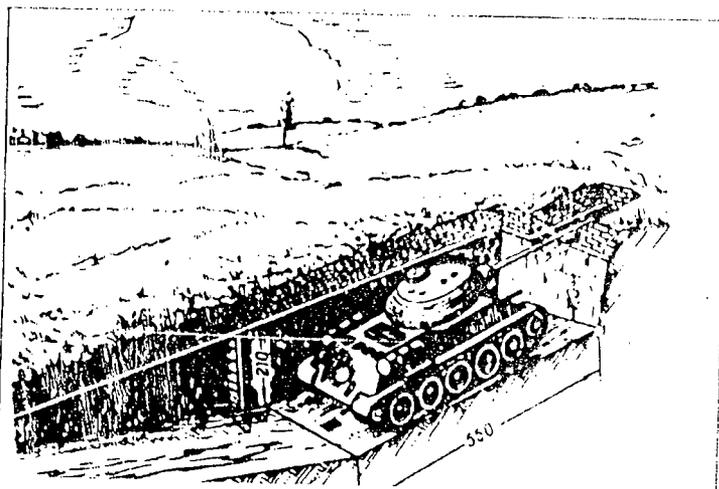


Figure 34

Shelter for tank or self-propelled artillery mount [SAU], with shelter for the crew.

COPY

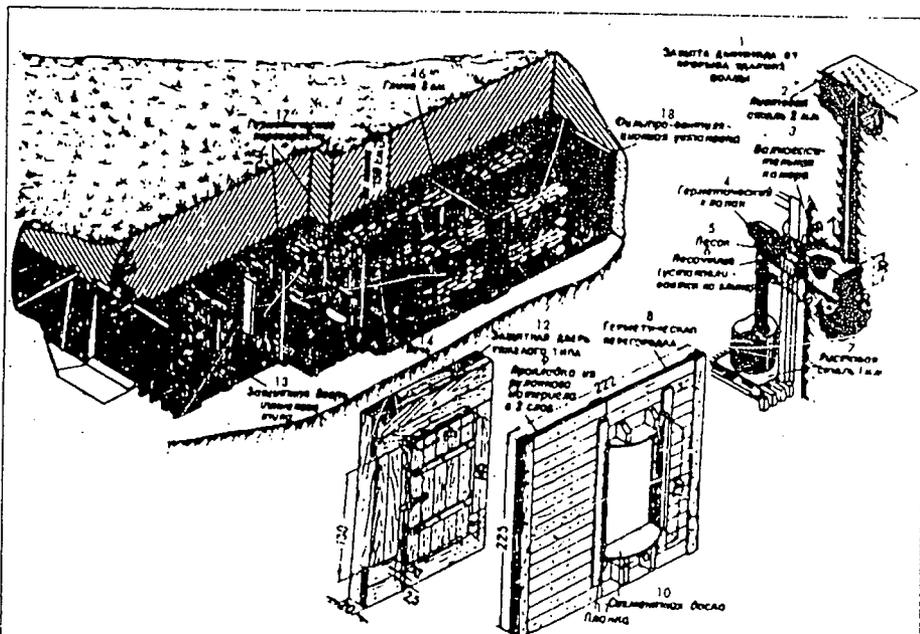


Figure 35

Dugout of light construction; accommodates ten persons.

1. Apparatus to protect flue from shock wave.
2. Sheet steel, 2 mm. thick.
3. Shock absorption chamber [vibrogasitel'naya kamera].
4. Hermetic valve.
5. Sand.
6. Sand box (this is installed in clay).
7. Sheet steel, 1 mm. thick.
8. Hermetic partition.
9. Lining, two layers of heavy paper.
10. Segmented board.
11. Plank.
12. Heavy protective door.
13. Heavy protective door.
14. Stove.
15. Not less than 150 cm.
16. Clay, 5 cm.
17. Hermetic partitions.
18. Air filter and ventilation apparatus.

COPY

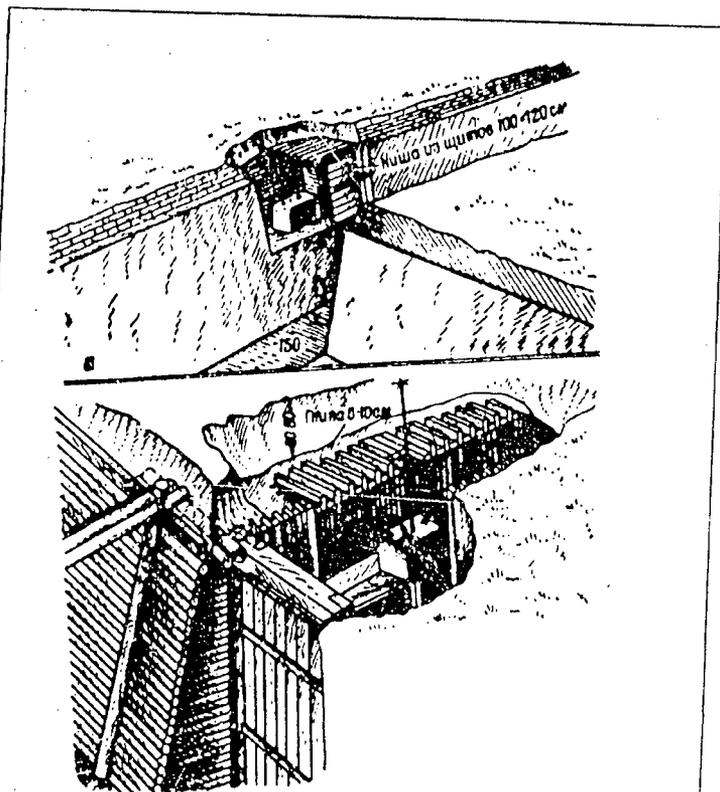


Figure 36

Shelter for portable communications apparatus.

- A. Recess.
- B. Sub-breastwork shelter.

1. Recess built of shields 100 x 120 cm.
2. Clay 8-10 cm.

COPY

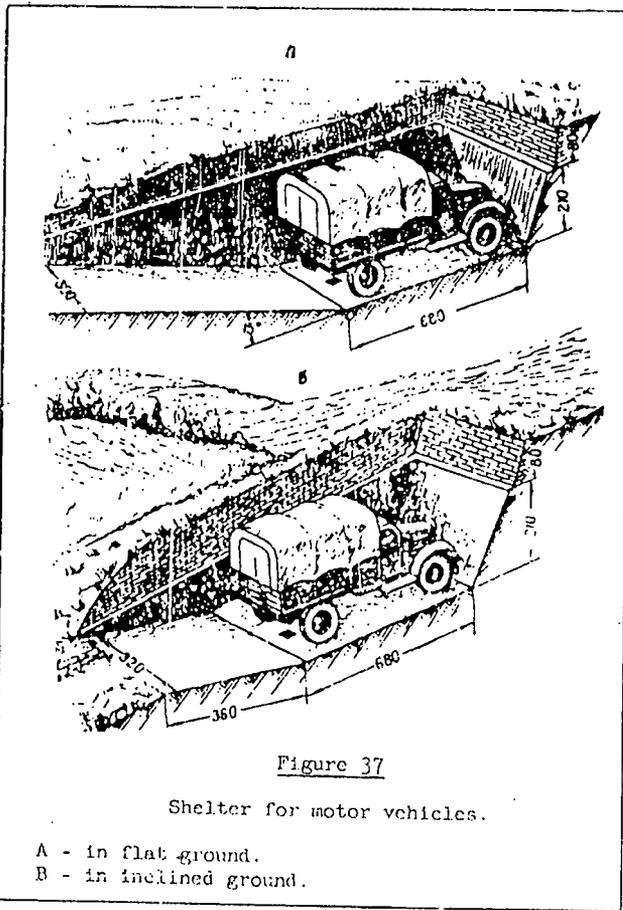


Figure 37

Shelter for motor vehicles.

- A - in flat ground.
- B - in inclined ground.

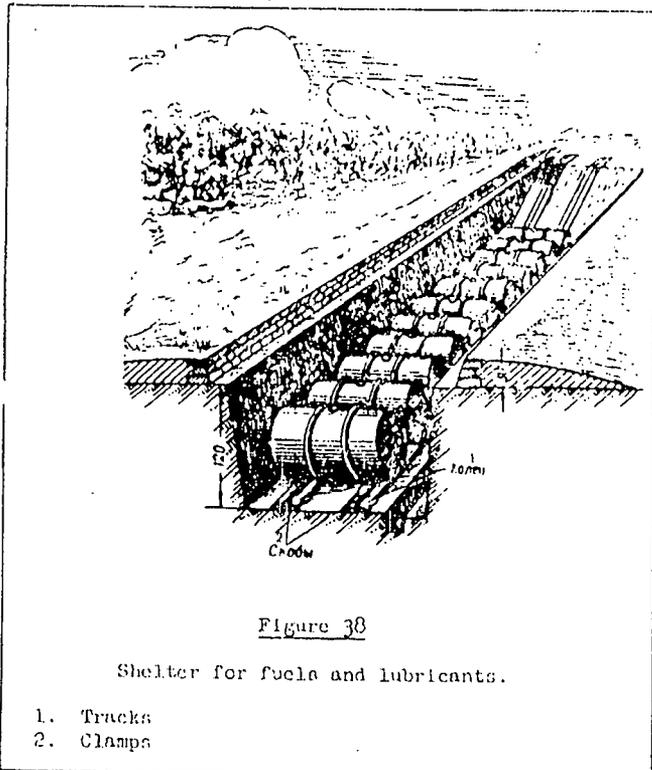
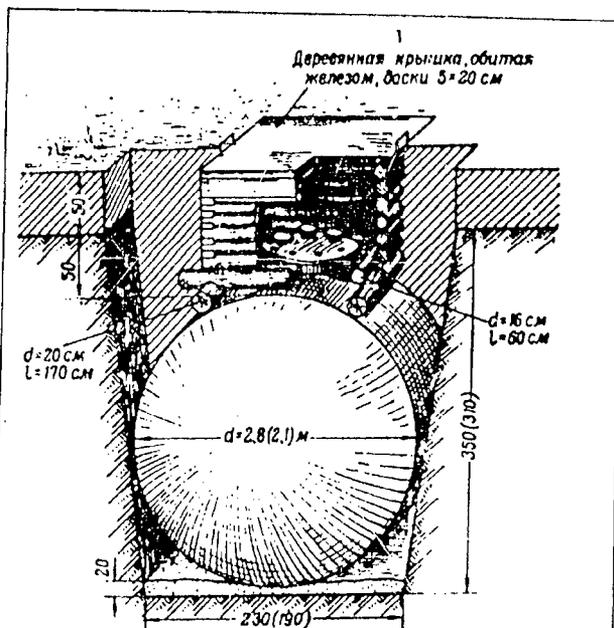


Figure 38

Shelter for fuels and lubricants.

- 1. Tanks
- 2. Clamps

COPY



3 скобка указаны размеры котлована под резервуар РГ-10

Figure 39

Storage of large fuel tank.

1. Wooden lid, covered with iron; the boards are 5 x 20 cm

The dimensions given in parentheses are for a pit big enough to hold an RG-10 fuel tank.

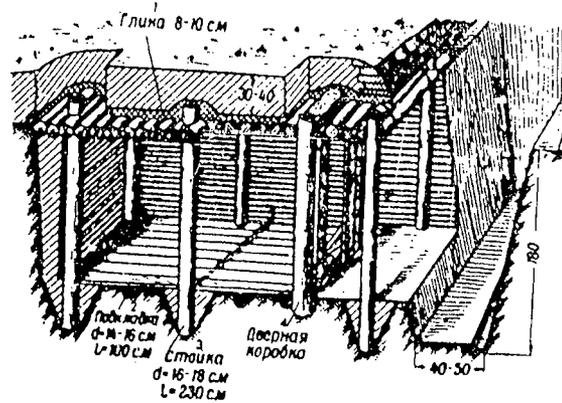


Figure 40

Storage dugout for rations and clothing.

1. Clay - 8 to 10 cm
2. Support
3. Upright
4. Door frame

COPY

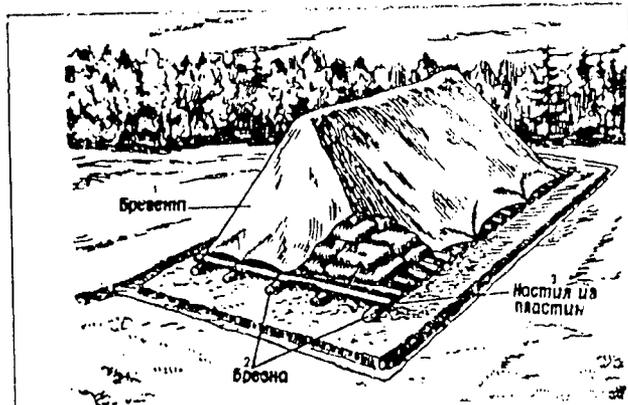


Figure 41

Rations stored in bundles.

1. Canvas
2. Logs
3. Planking made of flat boards

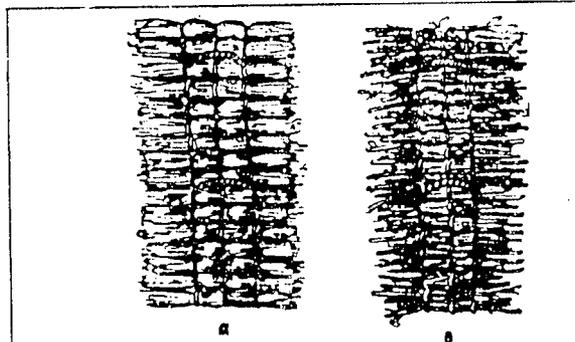


Figure 42

Matting made from materials at hand:
A - from straw B - from brushwood

COPY

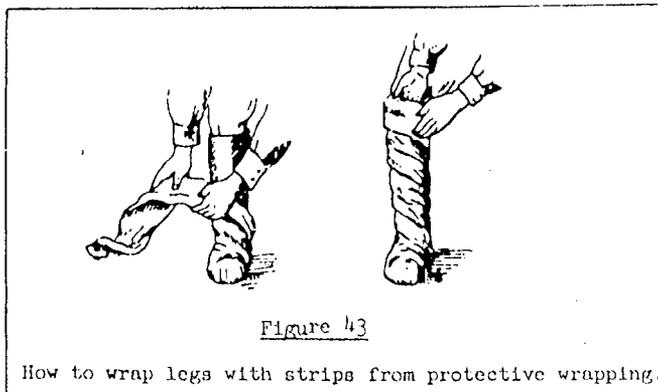


Figure 43

How to wrap legs with strips from protective wrapping.

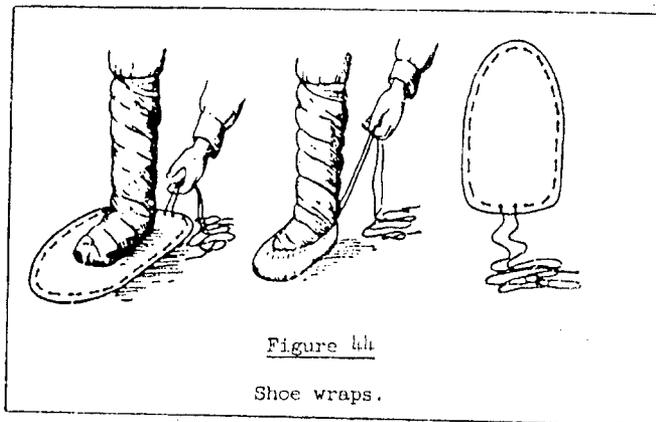


Figure 44
Shoe wraps.

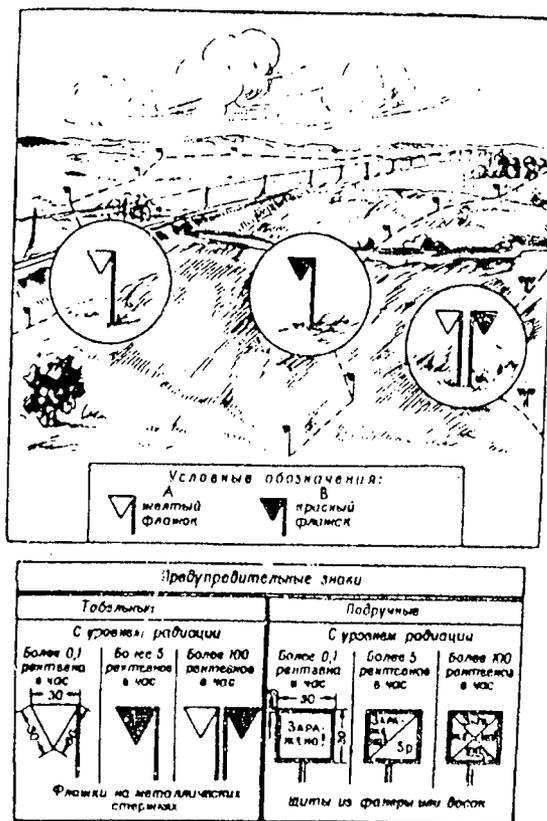


Figure 45

Meaning of warning signs placed in areas contaminated by radioactive substances.

A - yellow flag

B - red flag

COPY

WARNING SIGNS					
Authorized standard equipment			Improvised signs		
Intensity of radiation			Intensity of radiation		
More than 0.1 roentgen per hour	More than 5 roentgen per hour	More than 100 roentgen per hour	More than 0.1 roentgen per hour	More than 5 roentgen per hour	More than 100 roentgen per hour
Flags on metal poles			Signs made of plywood or boards		

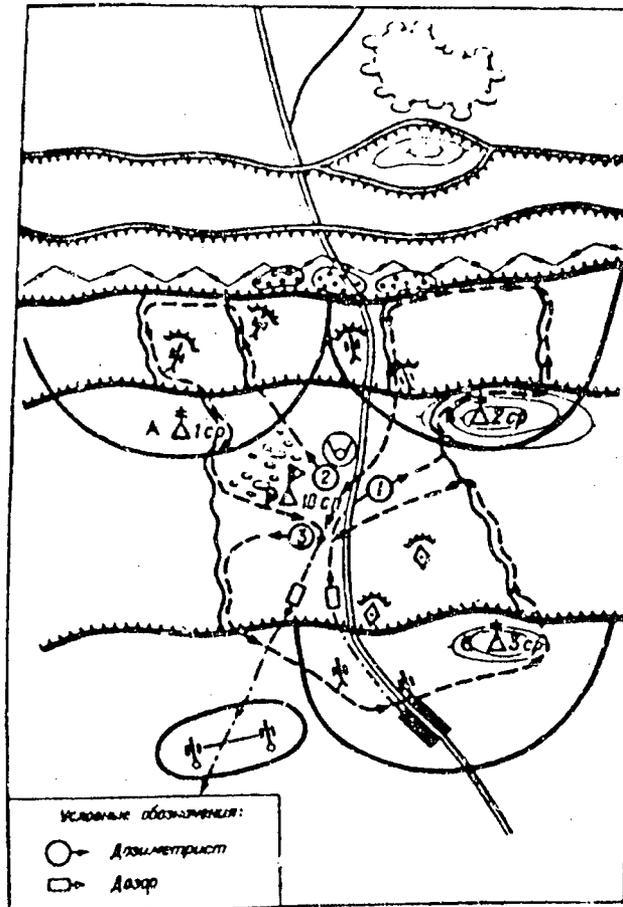


Figure 46

Routes taken by dosimeter patrol in surveying an area occupied by troops.

- A. 1st Rifle Company
- B. 2nd Rifle Company
- C. 3rd Rifle Company
- D. 10th Rifle Regiment

- ⊙ dozimetrist (dosimeter operator)
- ⊠ patrol

COPY

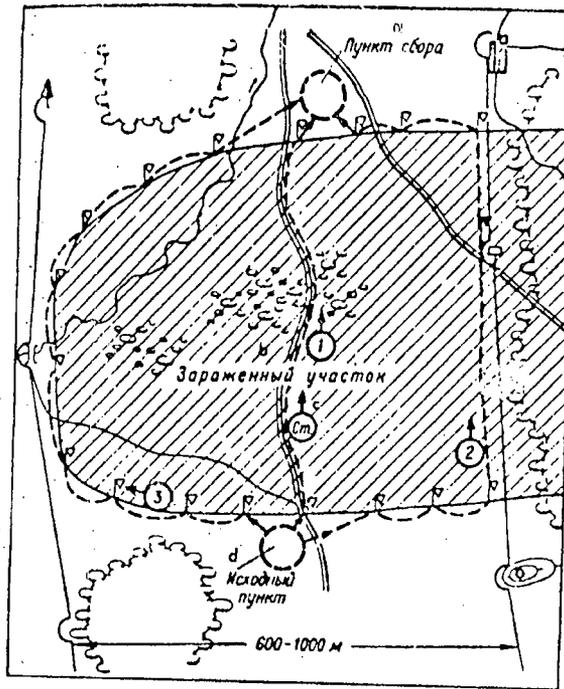


Figure 47

Diagram of operations of a dosimeter patrol when surveying a contaminated area not occupied by troops.

- a. Assembly point
- b. Contaminated area
- c. Patrol commander
- d. Starting point

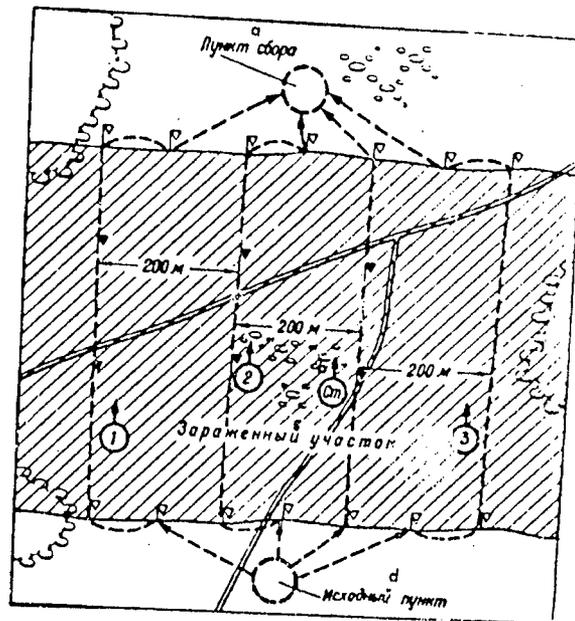
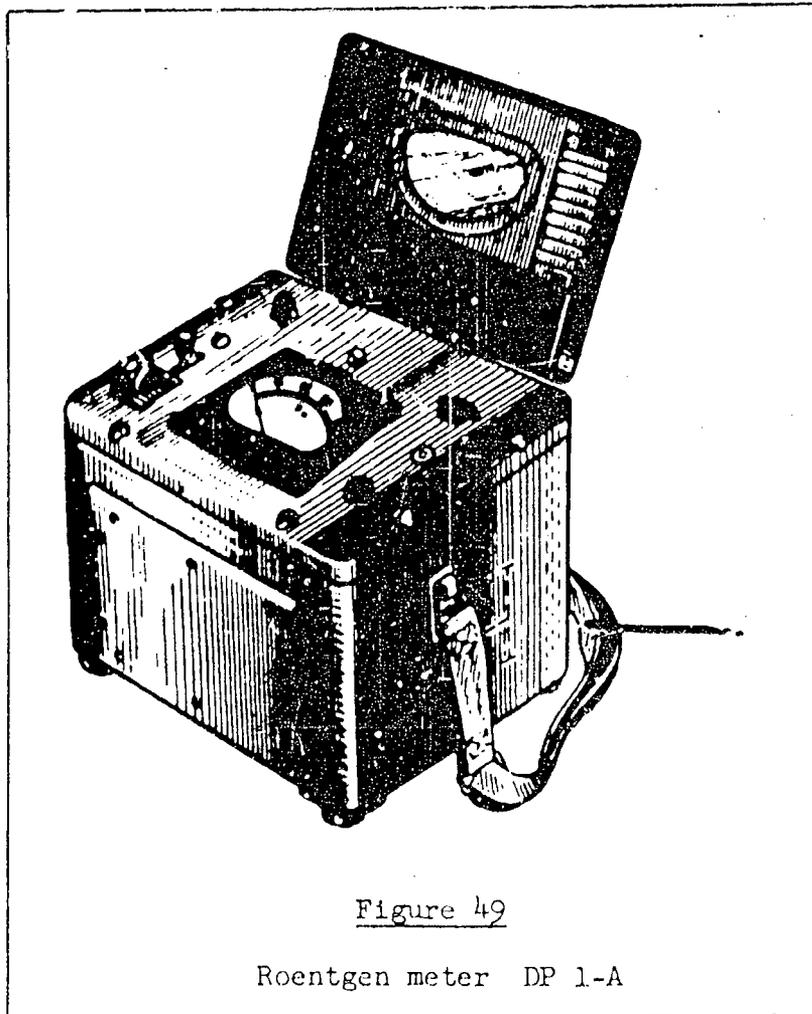


Figure 48

Diagram of operations of dosimeter patrol in search of safe route through contaminated area.

- a. Assembly point
- b. Patrol commander
- c. Contaminated area
- d. Starting point

COPY



COPY

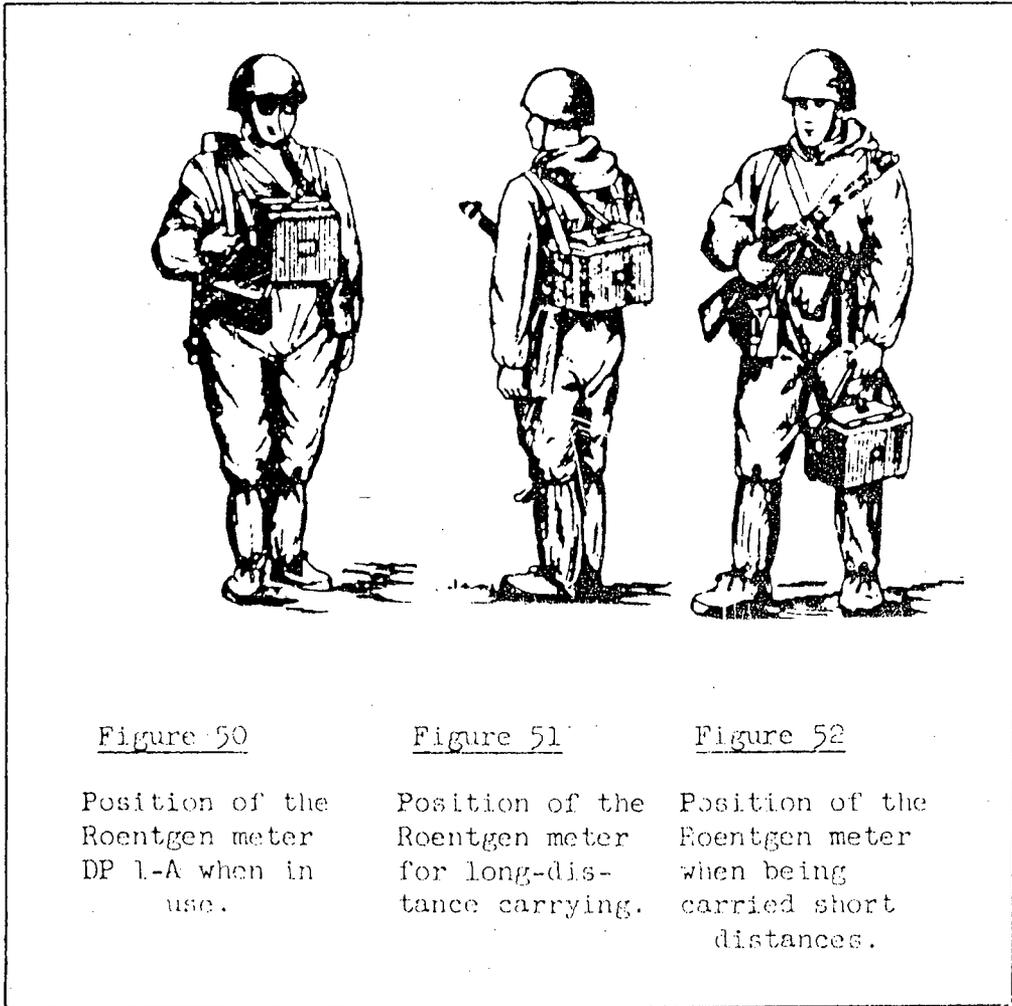


Figure 50

Position of the
Roentgen meter
DP 1-A when in
use.

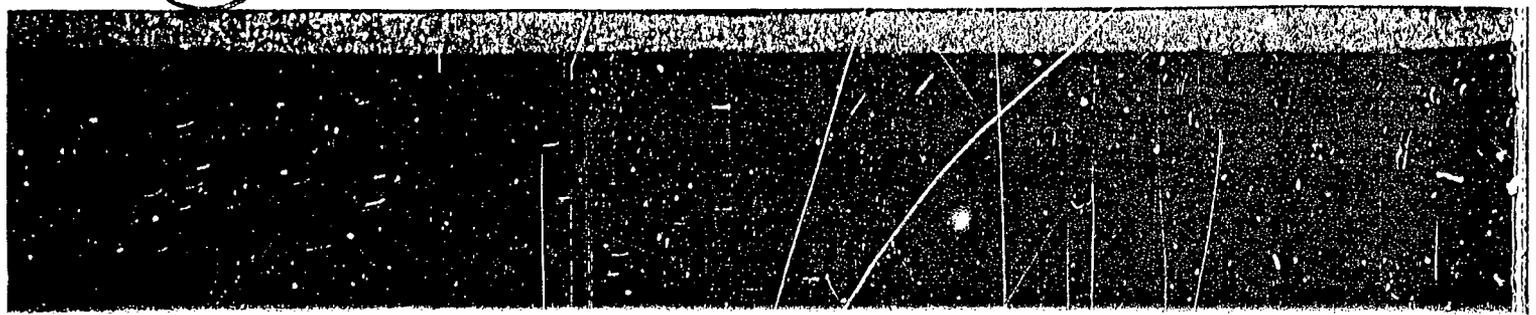
Figure 51

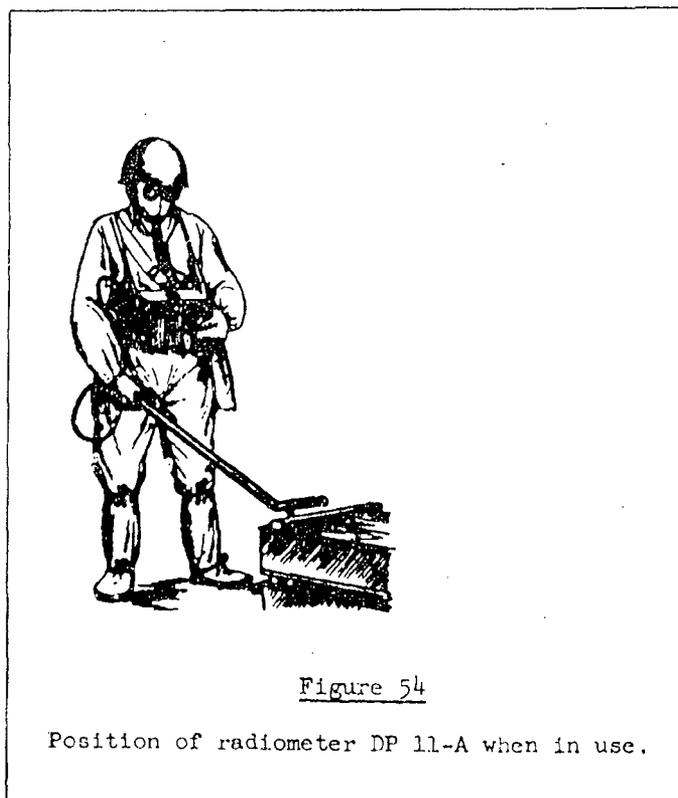
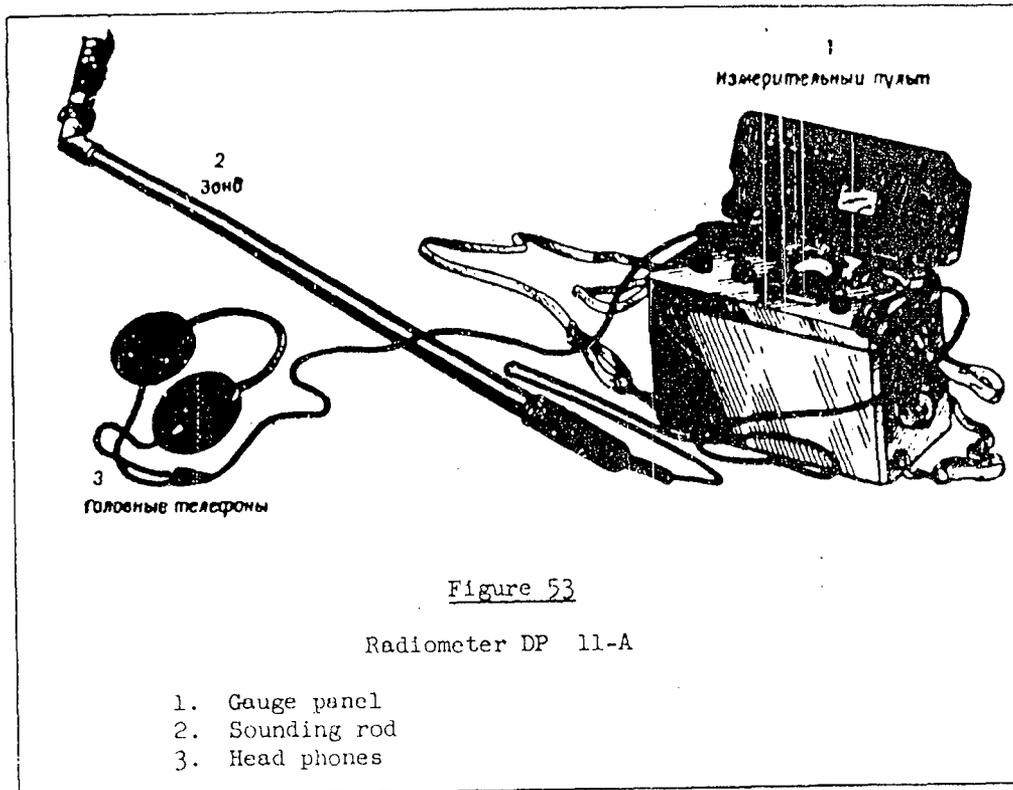
Position of the
Roentgen meter
for long-dis-
tance carrying.

Figure 52

Position of the
Roentgen meter
when being
carried short
distances.

COPY





COPY

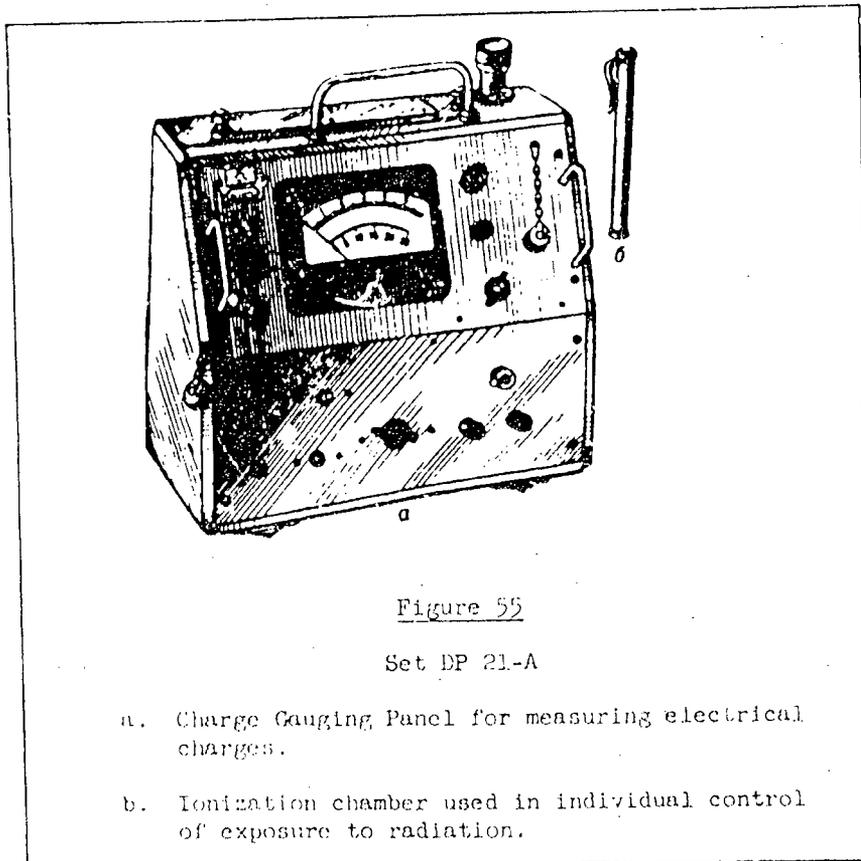


Figure 55

Set DP 21-A

- a. Charge Gauging Panel for measuring electrical charges.
- b. Ionization chamber used in individual control of exposure to radiation.

COPY

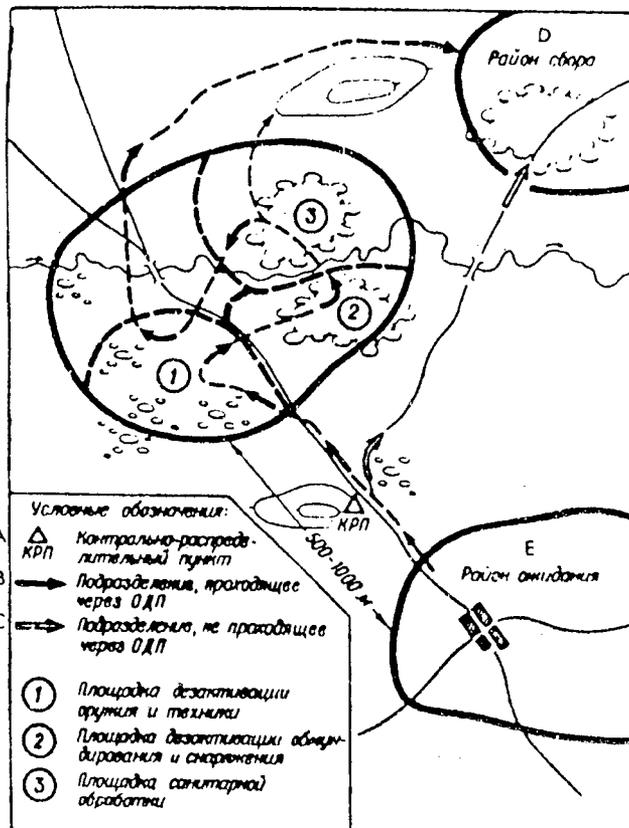


Figure 56

Diagram showing units processing through the decontamination station.

- A. КРП \triangle - Kontrol no-raspredelitelnyy punkt - Inspection and clearing station.
- B. \rightarrow - Unit, which processes through the ODP (decontamination station)
- C. \rightarrow - Unit, which does not process through the ODP
- D. - Assembly area
- E. - Waiting area
- ① Section for decontamination of weapons and technical equipment.
- ② Section for decontamination of clothing and equipment.
- ③ Section for sanitary processing.

COPY

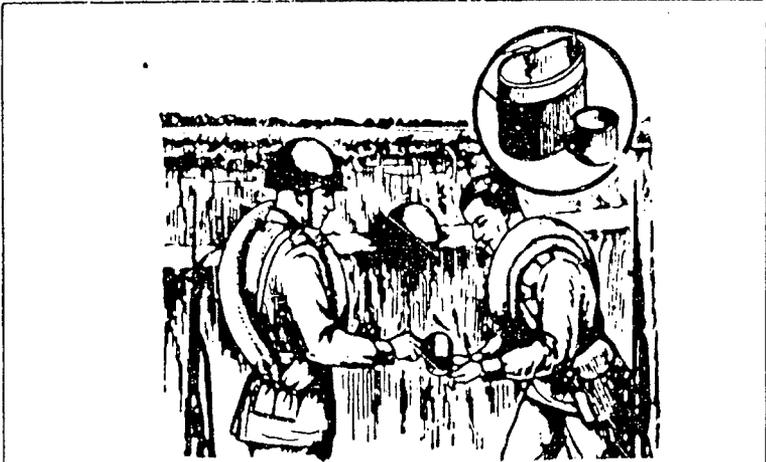


Figure 57

Washing the exposed parts of the body with uncontaminated water.

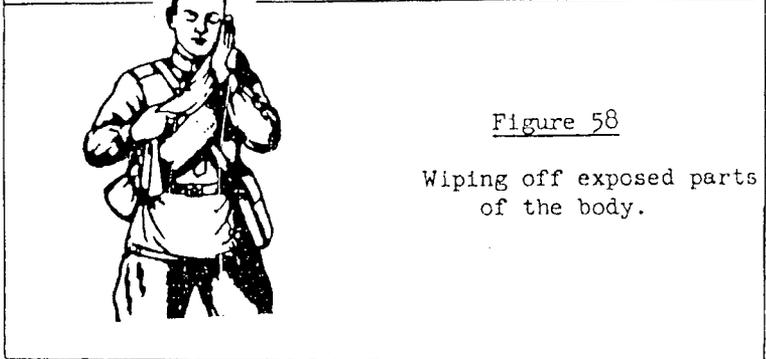


Figure 58

Wiping off exposed parts of the body.

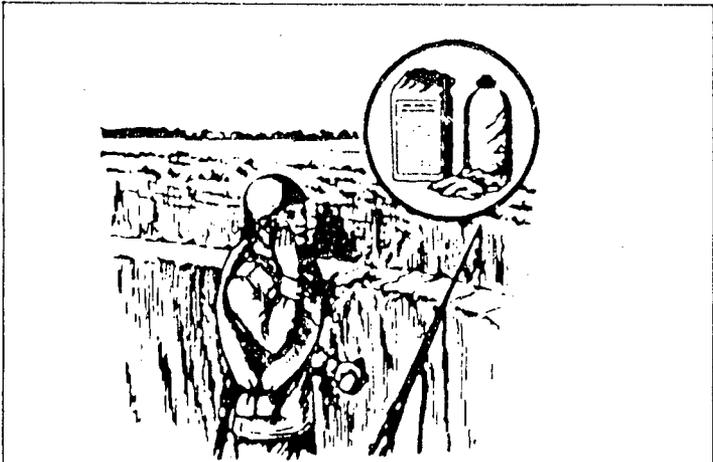
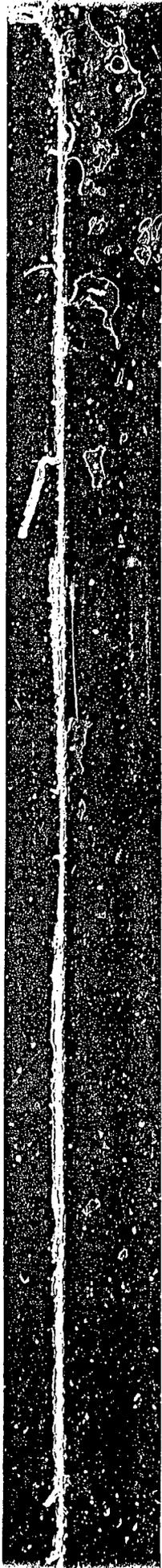


Figure 59

Precedure for partial sanitary processing, with the use of liquid in the gas-casualty first-aid kit.

COPY



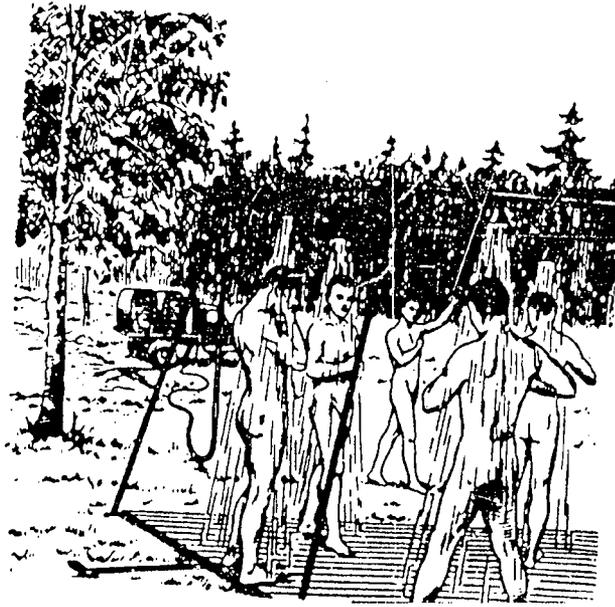


Figure 60

Washing under a shower during complete sanitary processing procedure.

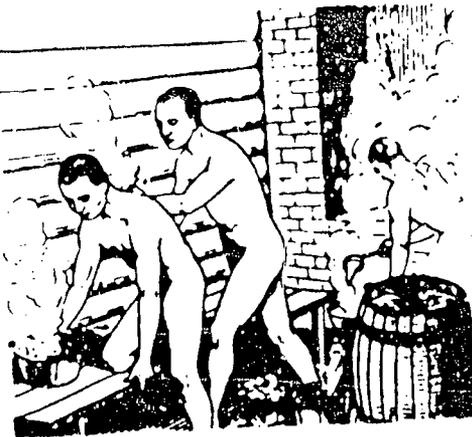


Figure 61

Washing with water from pans.

COPY



Figure 62

Procedure for sanitary processing in the summer.

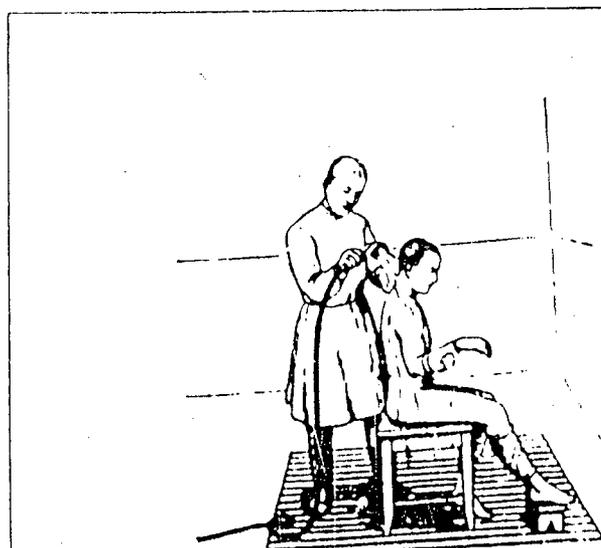


Figure 63

Sanitary processing of a wounded man.

COPY

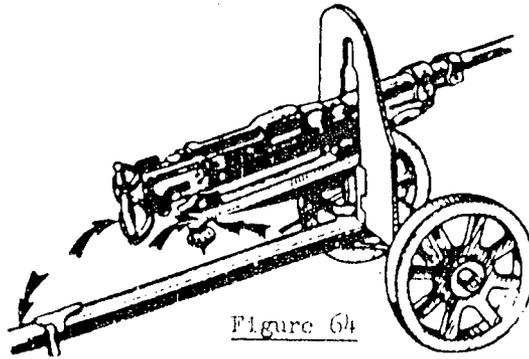


Figure 64

The parts of a machine gun which must be decontaminated first.

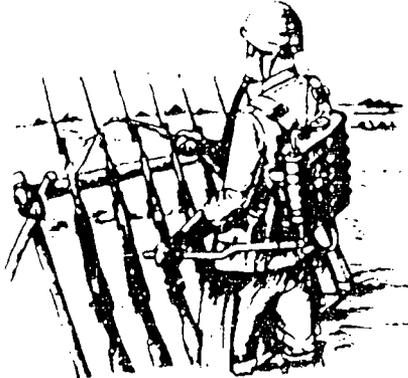


Figure 65

Complete decontamination of arms.

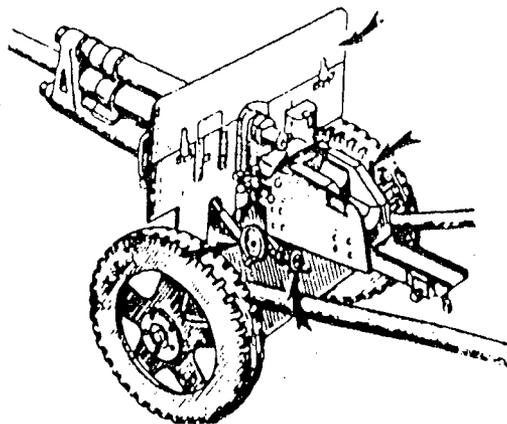


Figure 66

Parts of gun which must be decontaminated first.

COPY

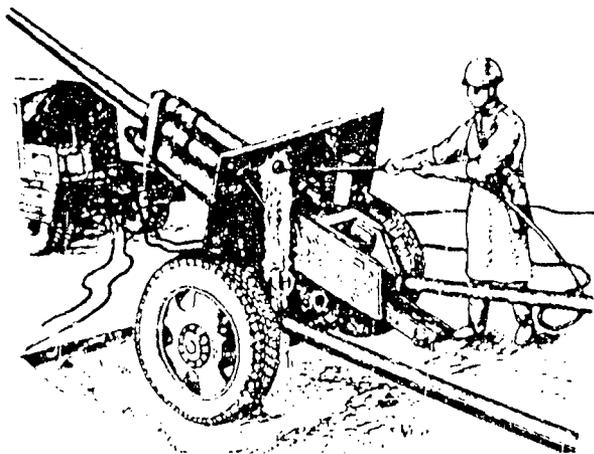


Figure 67

Full decontamination of gun, using power-driven
decontamination apparatus (AJM) at decontamination
center.

COPY

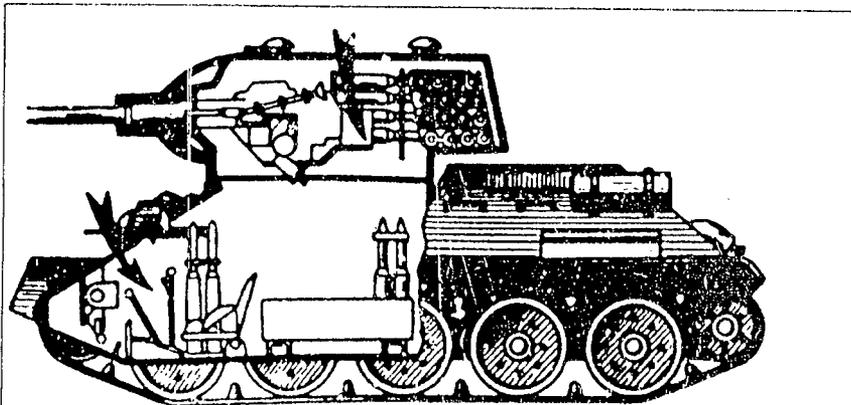


Figure 68

The parts of a tank which are subject to decontamination first.

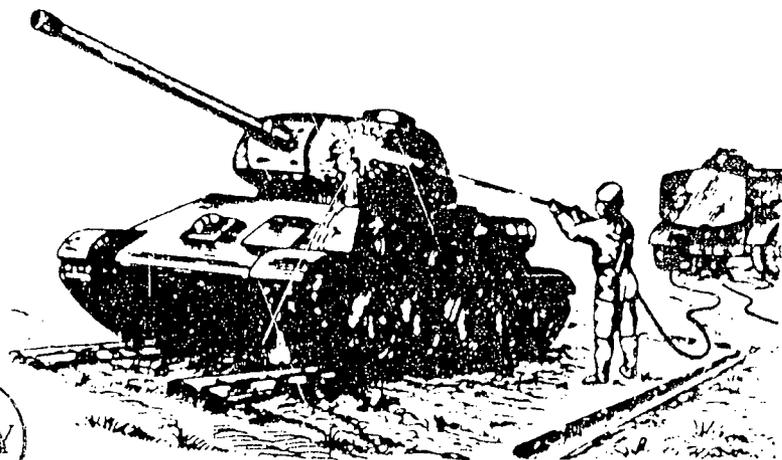
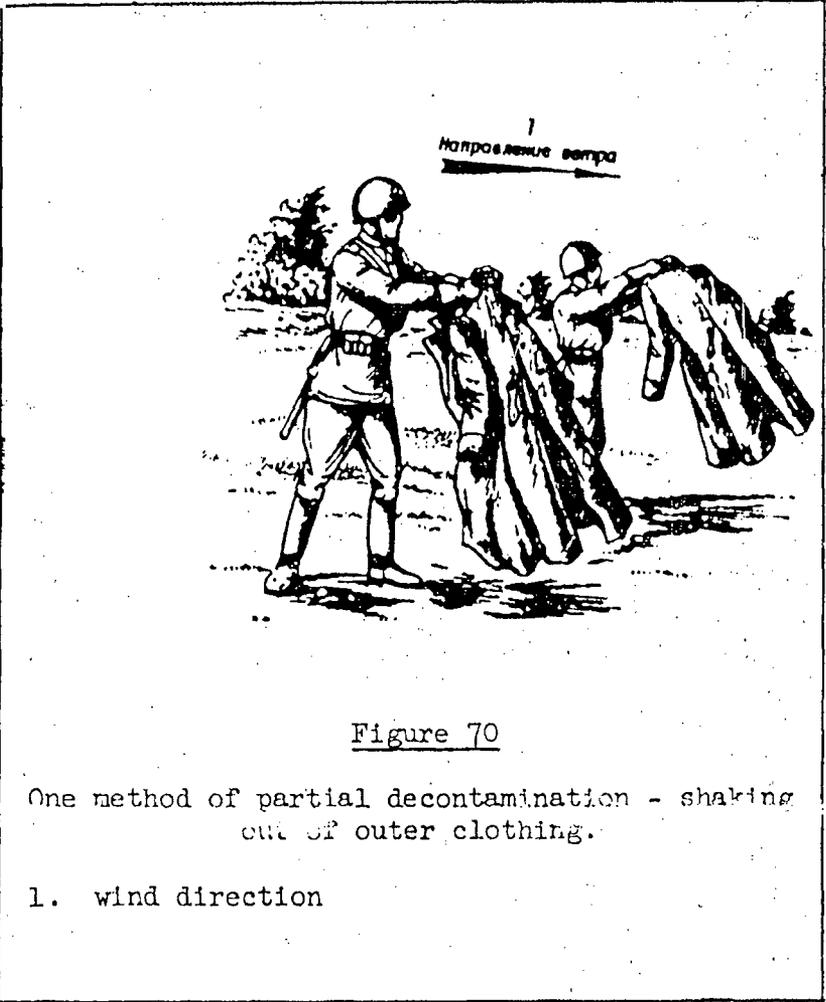


Figure 69

Complete decontamination of tank at decontamination center, using power-driven decontamination apparatus.



COPY



Figure 71

One method of partial decontamination - brushing off equipment and clothing with tufts of hay or grass.



Figure 72

Decontamination of clothing in body of water outside the contaminated area.

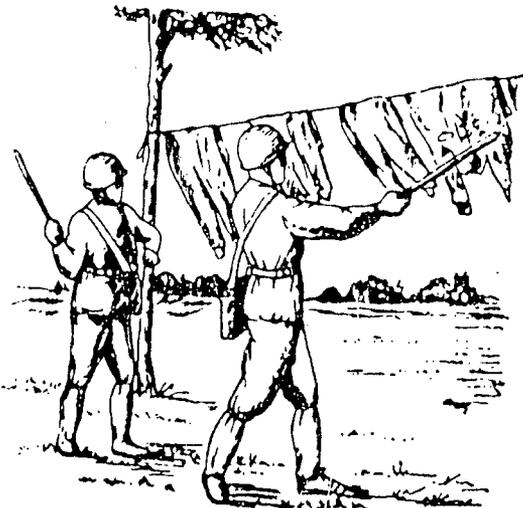


Figure 73

Beating articles of clothing in the process of full decontamination.

COPY



Figure 74

Complete decontamination of footgear and equipment.



Figure 75

Spraying sacks of loose foodstuffs with the aid of a portable decontamination apparatus.

COPY



Figure 76

Turning down the upper edge of the sack.

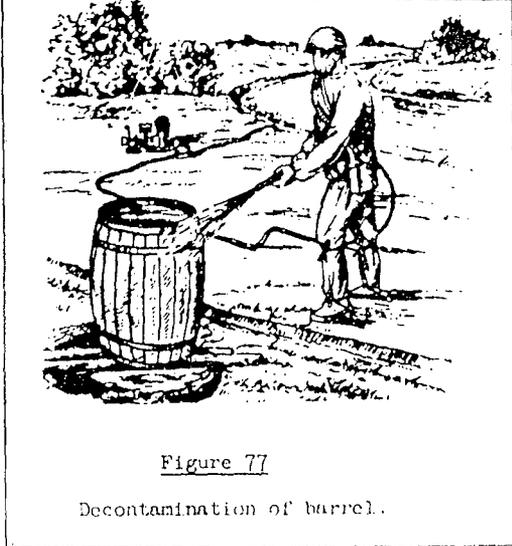


Figure 77

Decontamination of barrel.

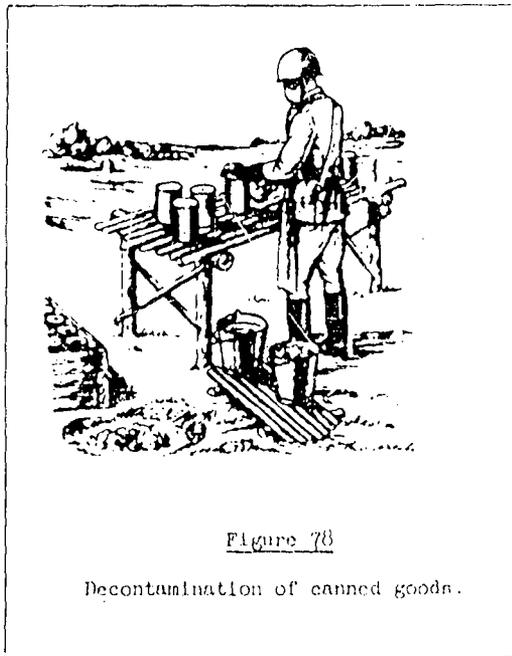


Figure 78

Decontamination of canned goods.

COPY

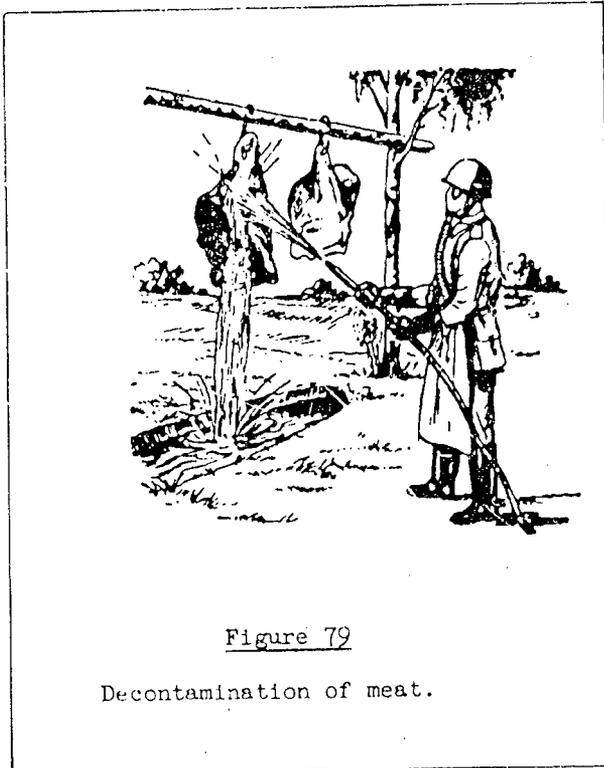


Figure 79

Decontamination of meat.

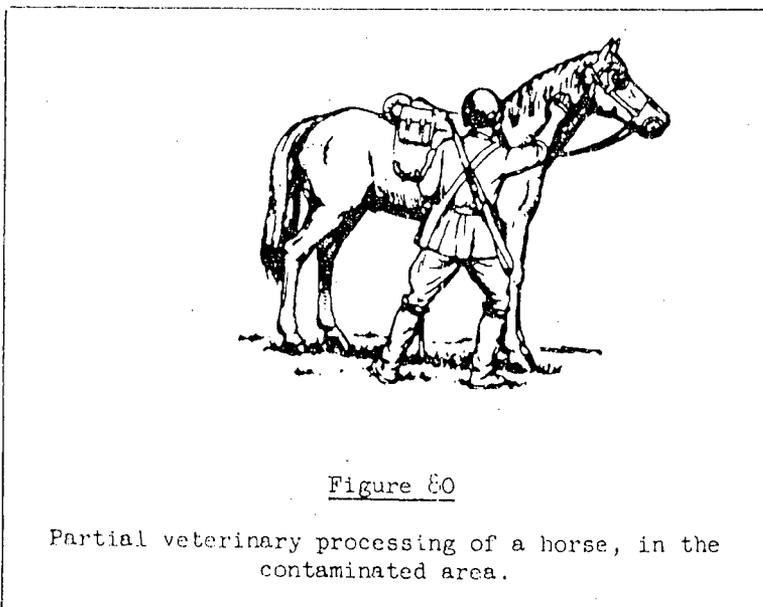


Figure 80

Partial veterinary processing of a horse, in the contaminated area.

COPY

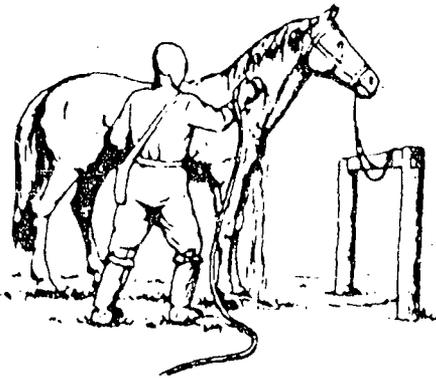


Figure 81

Full veterinary processing of a horse at the veterinary section of a decontamination center.

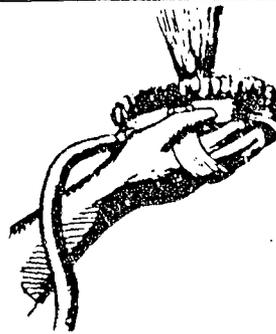


Figure 82

Shower brush



Figure 83

Putting gas mask on a wounded man in a contaminated area.

COPY

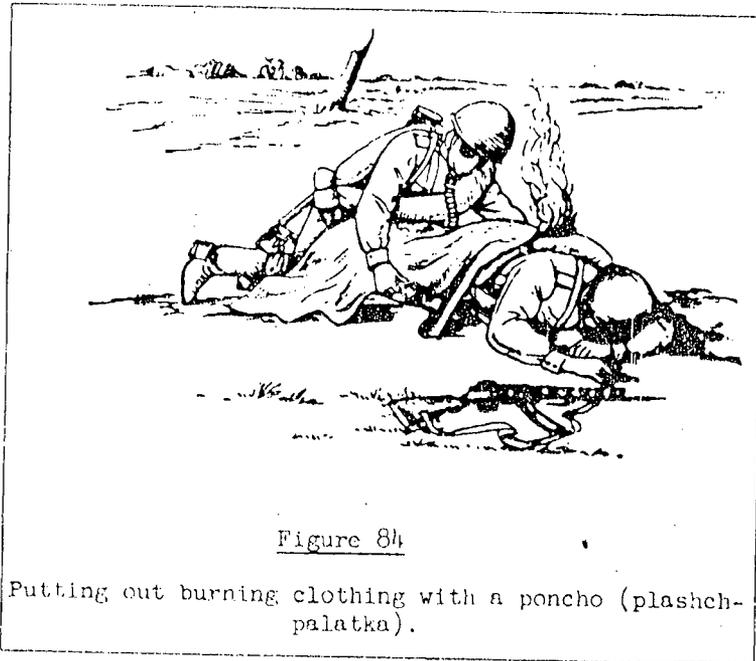


Figure 84

Putting out burning clothing with a poncho (plashch-palatka).

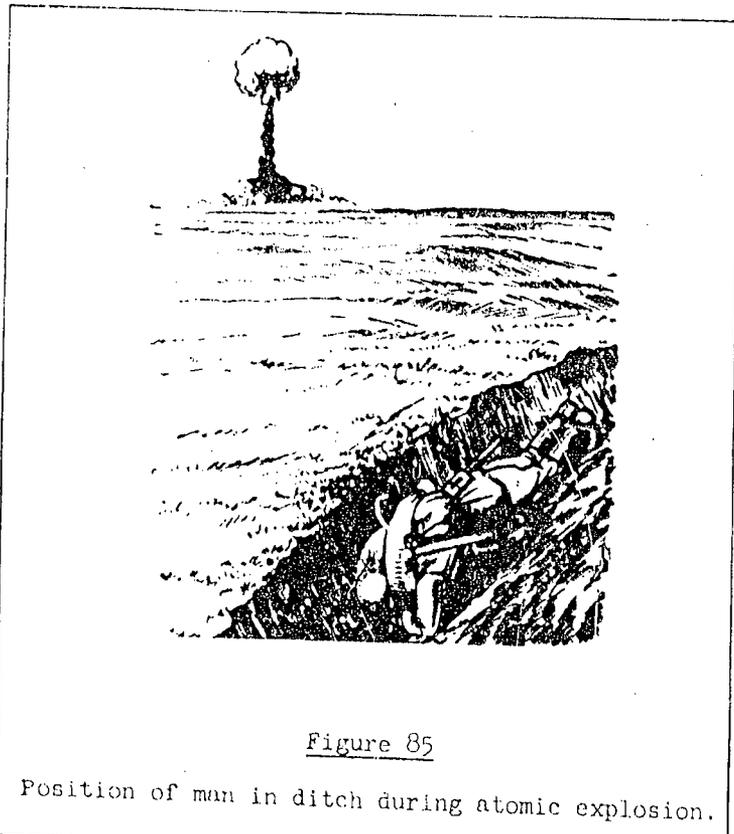


Figure 85

Position of man in ditch during atomic explosion.

COPY

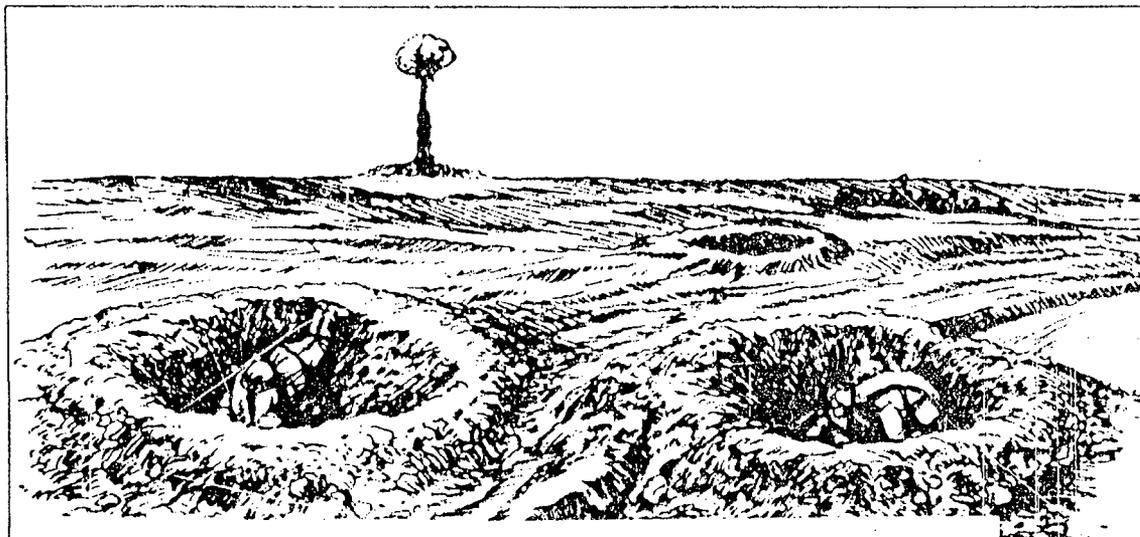


Figure 86

Position of person in a shell hole during at atomic explosion.



Figure 87

Position of a person behind a hill during an atomic explosion.

COPY

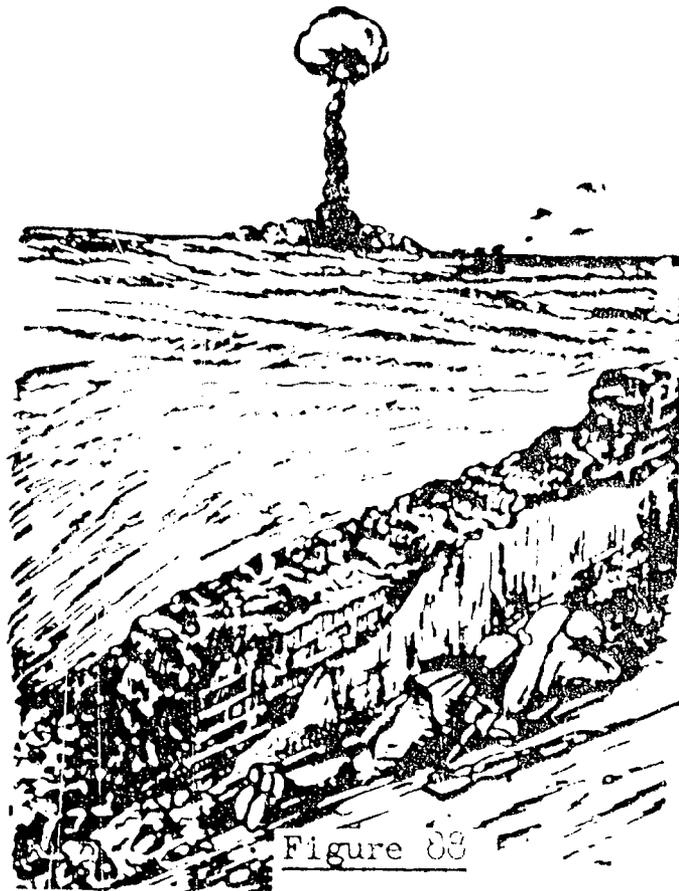
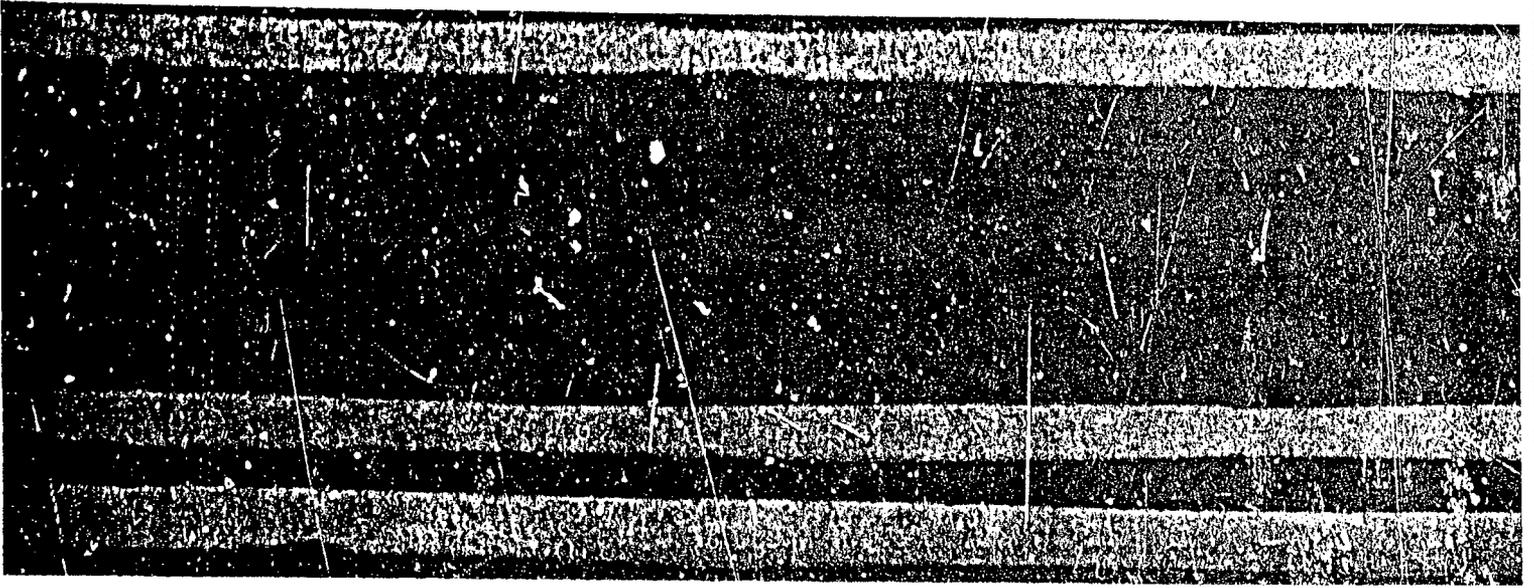


Figure 88

COPY

Position of person behind stone wall during atomic explosion.



Figure 89

Most advantageous position in open terrain during an atomic explosion.

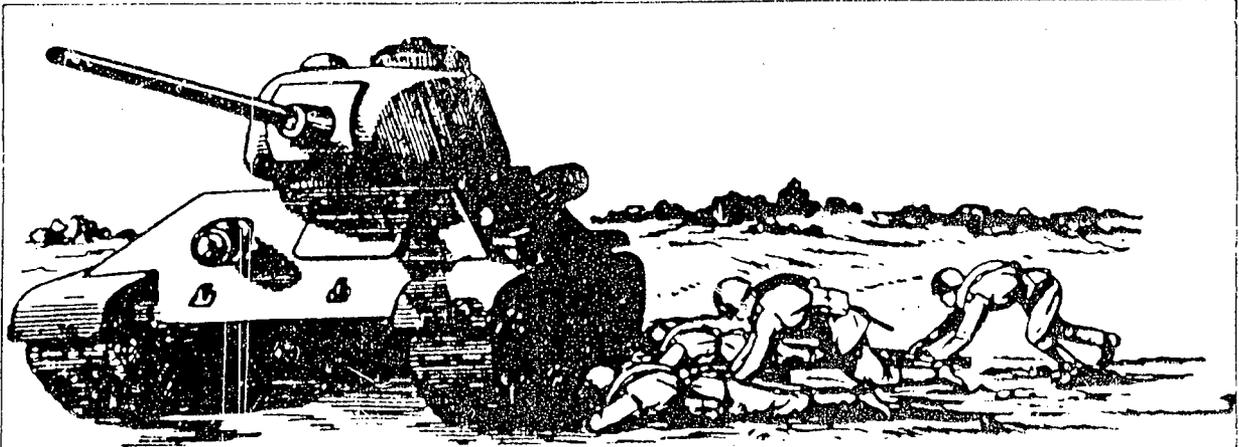
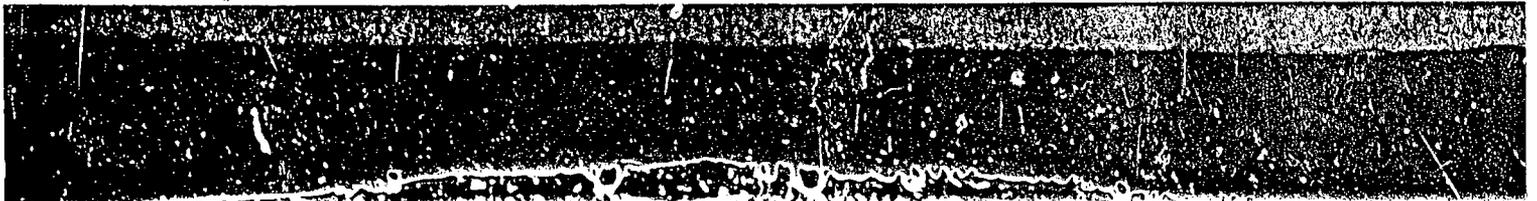


Figure 90

Taking cover behind a tank during an atomic explosion.

COPY



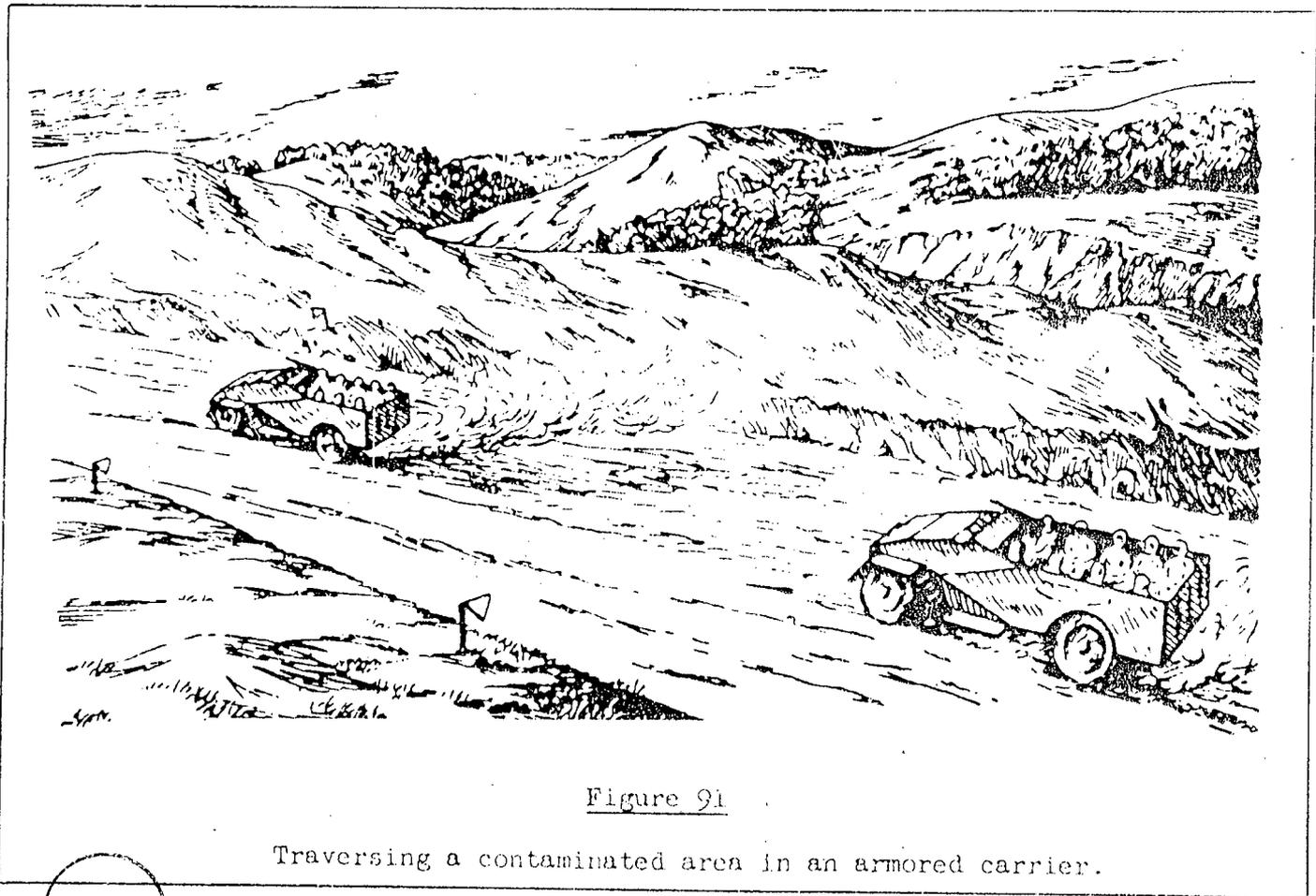


Figure 91

Traversing a contaminated area in an armored carrier.

COPY

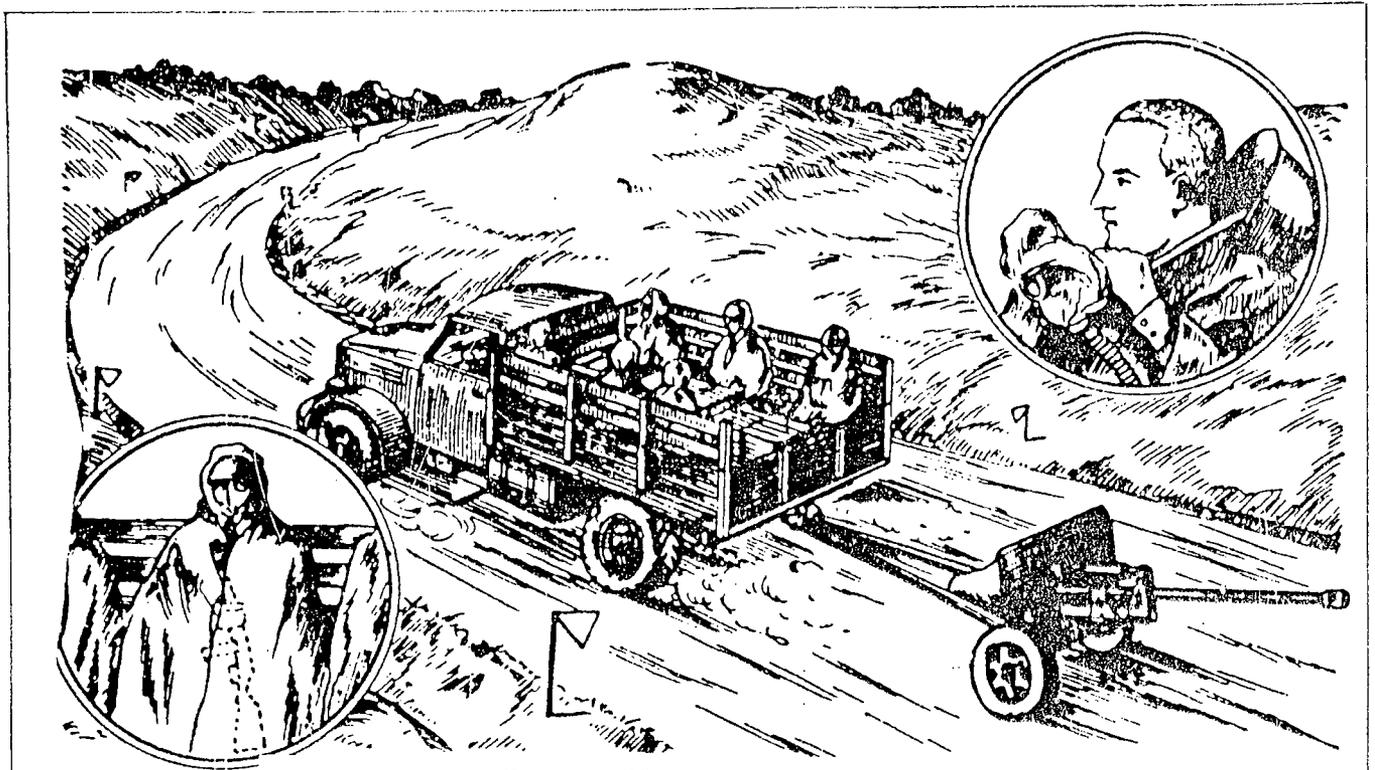


Figure 92

Traversing a contaminated area in a truck.

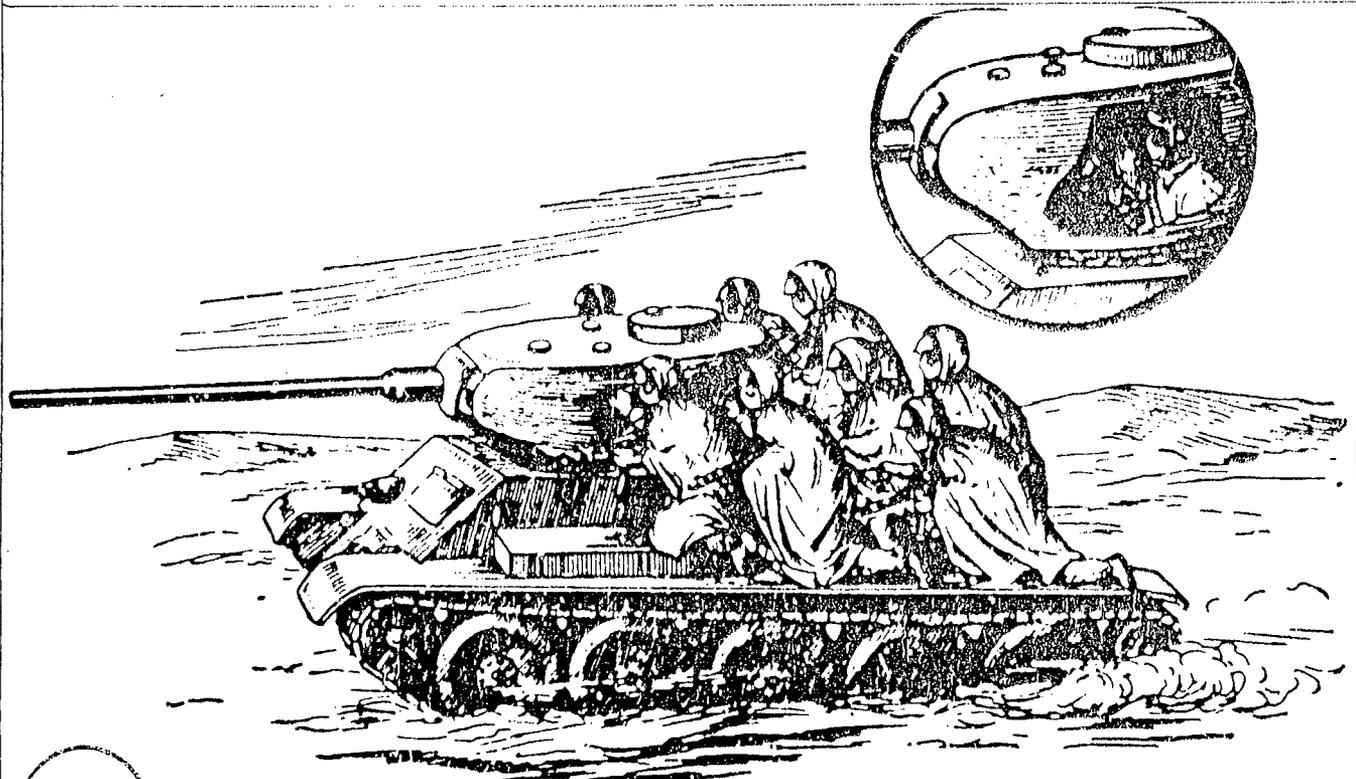


Figure 93

Traversing contaminated area on a tank.

COPY



Figure 94

Traversing contaminated area on foot.

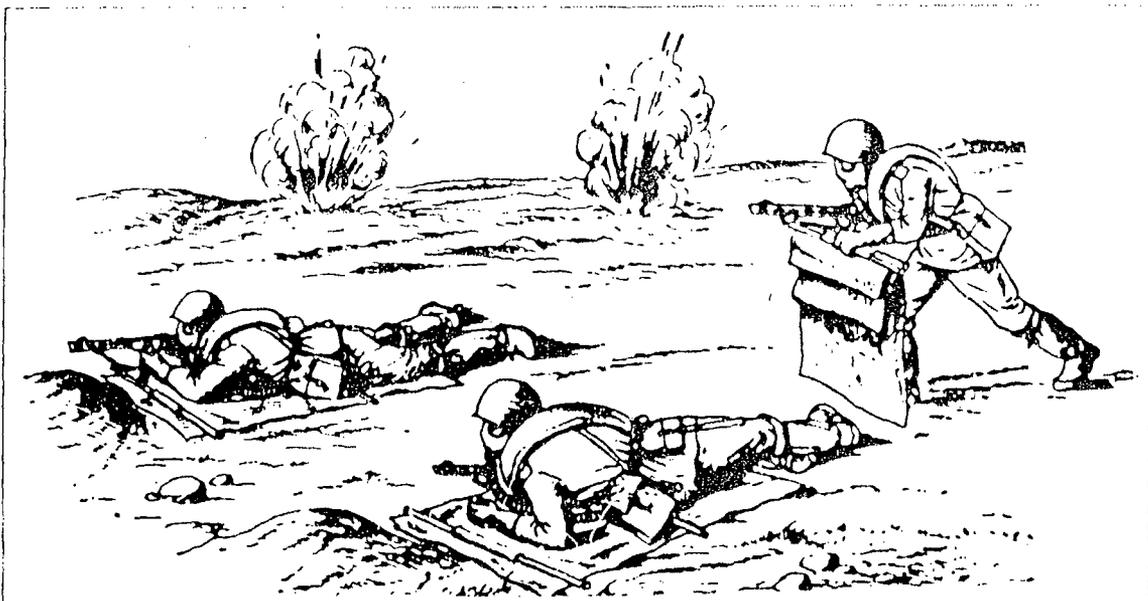
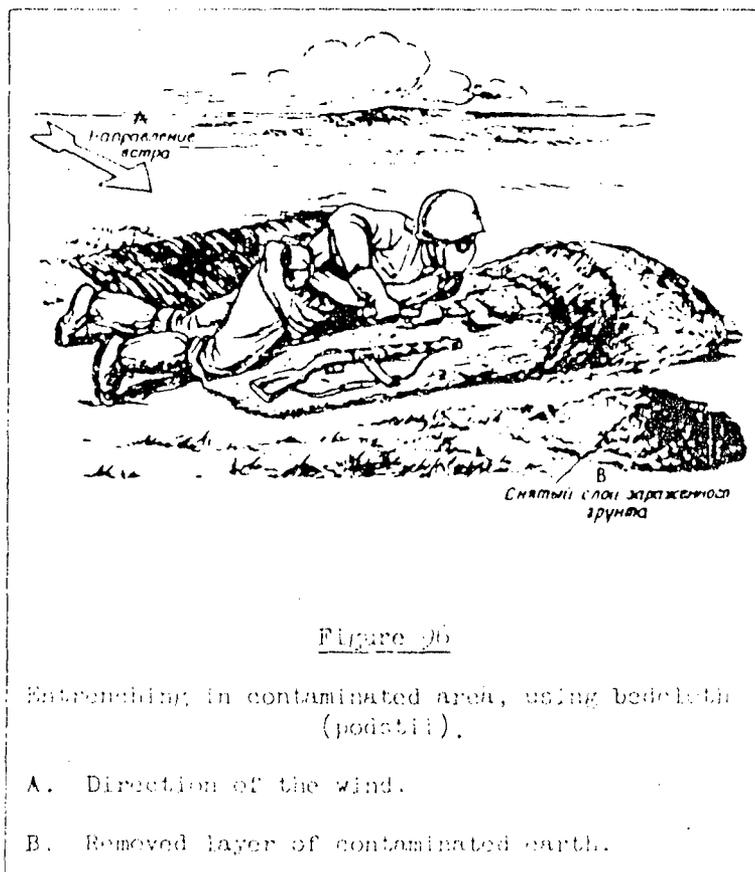


Figure 95

Traversing contaminated area under enemy fire.

COPY



COPY