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TECHNICAL NOTE WCRD 54-2

FIRESTARTER E7R1 WET-COLD TEST.

Norman Bright

Aero Medical Laboratory

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33p.

RDO No. 690-448

WADC-TN-WCRD-54-2

Wright Air Development Center
Air Research and Development Command
United States Air Force
Wright-Patterson Air Force Base, Ohio

AF-WP-(B)-O-29 MAY 54 100

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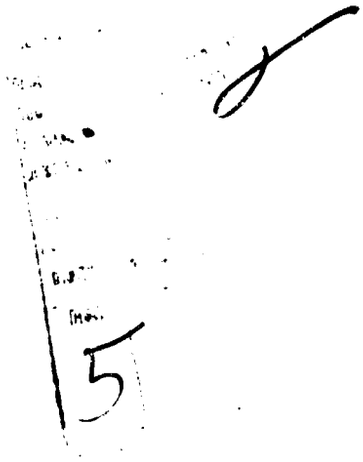

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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AERONAUTICAL SYSTEMS DIVISION (AFSC)
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

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2 JUNE 69

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Wright Air Development Center
Air Research and Development Command
United States Air Force
Wright-Patterson Air Force Base, Ohio

Technical Note WCRD 54-2
25 February 1954

Aero Medical Laboratory
Directorate of Research
RDO No. 670-44E

FIRESTARTER E7R1 WET-COLD TEST

I. SUMMARY

A wet-cold test of the experimental Fire Starter, E7R1, was conducted at Camp Ellis, Illinois from 2 to 9 December 1952. The results indicate that under wet-cold conditions a fire starter is needed. With a few minor exceptions concerning inadequate instructions, fuse wire and difficulty in firing, the E7R1 fire starter appears to be satisfactory.

II. PURPOSE

To present a review of background data of the fire starter E7R1, and to report on a wet-cold test of the item.

III. INTRODUCTION

1. The report of the AAF Board, Subject: "Fire Starter, Emergency (CWS Model)" dated 13 July 1944 recommended "development of a smaller fire starter for inclusion in emergency kits such as the C-1 and B-4". While the C-1 and B-4 sustenance kits are no longer standard, there is still a requirement for a small fire starter in present standard kits. If one can be developed which is operationally suitable, it would be reasonable to use it in all kits (individual and aircrew) in preference to a larger type.

2. WADC 1951 Test of E7 Fire Starter - This Center received twenty (20) each Fire Starters, Type E7R1 in the winter of 1950-51. These items were tested during Exercise Mukluk (dry-cold conditions) in February 1951. The results were encouraging although some of the fuse wire pulls broke; and the smooth plastic case was difficult to hold while operating fuse wire pull with heavy mittens. This Center recommended that the fire starter be standardized.

3. Test of Fire Starter E7R1 by Army Chemical Center, 1951 - In a report of the Army Chemical Center, Maryland, Subject: "Test of Small Emergency Fire Starter, E7R1, Test 15 (808)", restricted classification, dated 21 May 1952, it was recommended that:

"the E7R1 fire starter not be considered for arctic use". Pull wires broke, starter mix ejected and items did not burn completely in 10 mph winds.

4. WADC Plan of Field Tests of Fire Starter E7R1 - The Army Chemical Corps requested WADC to withdraw their recommendation to standardize the E7R1 fire starter. This Center initiated a plan to conduct wet-cold tests before deciding whether to uphold or to refute the former recommendation to standardize the fire starter, E7R1. To simulate actual survival, it was decided to choose subjects on a basis of fifty per cent of the subjects to have outdoor experience and fifty per cent to have little or none. Since the fire starter is needed as a component of survival kits, it was planned to test it as such. In order to obtain comparative information, the plan first called for the subjects to attempt to build fires using fire starting components of the standard Type B-1 sustenance kits, and then, secondly, similar tests were to be made after adding the fire starter E7R1 to the fire starting components already issued in the B-1 kits. In order to check the adequacy of the instructions, the subjects were not instructed in the use of the equipment. Test objectives planned were: (a) ease of firing, (b) safety of firing, (c) ability of fuse wire to withstand pull, (d) functional characteristics in various temperatures, winds and precipitation and (e) adequacy of instructions. Results of tests were recorded by observers on data forms each day and by observer and subject critiques following termination of field test. Complete photographic coverage included both still and motion pictures. Basic questions answered by the tests were: (1) is the item needed, and (2) is the item suitable for the conditions?

5. Implementation of Test Plan - (a) A letter from the Directorate of Training, Department of the Air Force, Hq USAF dated 3 November 1952, Subject: "Functional Development Test of Fire Starter E7R1" requested that the test be conducted at The Survival Training School, 3345th Technical Training Wing, Chanute AFB, with a WADC Climatic Test Specialist acting as test director, and (b) test subjects to be furnished by Chanute AFB. This letter was delivered to Scott AFB, Illinois, where action was taken by a member of the Executive Offices DCSO. (c) The Executive Office DSCO contacted Hq Technical Training Air Force, Gulfport, Mississippi, where verbal agreement was

made allowing Hq Air Training Command (Scott AFB) to contact Chanute AFB directly on the fire starter test request. From this point the WADC representative worked directly with representatives of 3345th Technical Training Wing, Chanute AFB, Illinois on implementation.

IV. FACTUAL DATA

1. Events

a. On 7 October 1952, a quantity of Fire Starters, E7R1, was received from Army Chemical Center, Maryland.

b. On 2 December 1952, the WADC five-man party (Reference IV, 2a below) traveled to Chanute AFB, Illinois, to contact Chanute AFB personnel.

c. On 2 December 1952, the briefing of test subjects was held. The test was announced as one of a cold climate sustenance kit, so as not to unduly influence the fire starter test results. A Sustenance Kit, Individual, Seat Style, Cold Climate, Type B-1, was issued to each test subject. In order to conform with the space available for kits in aircraft cockpits, a miximum limitation of five inches was set on the depth of the kits. Present production kits are approximately seven inches in depth. The other dimensions of the kit are fourteen by fifteen inches. The subjects were given complete freedom of choice in eliminating those items considered least necessary for a five day survival period in order to reduce the kit depth from seven to five inches.

d. Fire Building Tests using Components of Sustenance Kits - B-1. During the period 3-4 December 1952 at Camp Ellis, Illinois, test subjects set up individual test camps. From 3 to 5 December 1952, data were collected on fire starting, using fire starting components of the sustenance kits, cold climate, individual, seat style, Type B-1.

e. Tests of Fire Starter, E7R1 - From 6 to 8 December 1952, the fire starters, E7R1 were issued and tested with the Sustenance Kits, B-1. On 8 December 1952, the test party returned to Chanute AFB for briefing and repacking equipment. On 9 December 1952, WADC personnel returned to Wright-Patterson AFB, Ohio.

2. Personnel

a. WADC Personnel - WADC personnel included a climatic test specialist as test director, an airman test assistant and still and motion picture cameramen.

b. Chanute AFB Personnel - Chanute AFB personnel included five airmen test assistants and ten airmen as test subjects. The test subjects were weather trainees with an average age of 18.8 years.

Reference Photo No. 6851, Page 13, shows the ten test subjects at Camp Ellis on the first day of the test, each equipped with a parachute and a seat kit ready to begin the test. Note the rolling farm land and wooded terrain.

3. Test Item and Associated Equipment

a. Test Item - The E7R1 Fire Starter was designed for use in survival kits. It consists of an extruded pyroxylin case, 1/2 X 1/2 X 3 inches, containing 5 grams of napalm-thickened kerosene. It is lighted by means of a scratcher coated wire which is imbedded in the ignition cap and a match head pellet which is sealed in the ignition chamber at one end of the fire starter.

Photo No. 513632, Page 14, shows (from left to right) (1) the type of container in which five E7R1 containers are packaged, (2) a single E7R1 Fire Starter and (3) an M-1 Fire Starter. Note the dark colored top section of the E7R1 Fire Starter. This is the ignition chamber which contains the match head pellet. The fuse pull wire may be seen at the left. The fuse pull handle may be seen at the bottom of the case, attached to the fuse pull wire.

In addition to the directions as may be seen in Photo No. 513632, Page 14, the opposite side of the case bears the following instruction label:

Starter, Fire E-7
To ignite, point red end down and pull wire out of side of case
Keep fingers clear of red area

In addition to the information visible on the box (reference Photo No. 513632) the opposite side includes a sketch showing the method of pulling the fuse pull wire. The sketch is further clarified by a short explanatory paragraph.

b. Associated Test Equipment

(1) Sustenance Kit - Each subject received a Sustenance Kit, Cold Climate, Individual, Seat Style, Type B-1. These kits contain certain items of aid to fire starting such as: candle, jack-knife, saw-knife-shovel assembly, tissues and waterproof matches. Book matches are also included with the ration packets. The survival manual contains five pages of instructions on fire building.

Reference Photo No. 6843, Page 16. Photo shows B-1 kit items chosen by test subject. See also Photo No. 6851, Page 13, which shows details of outer kit container.

(2) Parachute - Each subject was issued a personnel type parachute.

(3) Pocket Items - Only personal items as are generally carried were allowed to be included during the test. These consisted of cigarettes, lighters, combs, handkerchiefs and wallets.

4. Test Conditions - Ten airmen, simulating individual bailout survivors, tested sixty five fire starters, E7R1. Wood used in the fires was 90 per cent hardwood, 10 per cent soft wood. On December 2 and 3, the ground was covered with approximately four inches of snow and there was a trace of precipitation. The temperature ranged between 10°F and 60°F with the minimum the night of December 5 and maximum on 8 December. The temperature was below 32°F on three nights. In 41 of the 65 tests, wet wood was used. Winds ranged from calm to 10 MPH.

5. Test Results:

a. Difficulty of Firing Fire Starter E7R1 - 12 fire starters were hard to fire. This may have been due to inadequate or faulty instructions causing force to be applied awkwardly.

b. Failure of Fuse Wire - Fuse wires failed in 4 tests. Reference Photo No. 6391, Page 14.

c. Safety of Fire Starter E7R1 - There were two instances of cut fingers due to sharpness of wire or metal pull.

d. Inadequacy of Instructions - There were 4 reports that directions were inadequate. The following points are mentioned:

(1) Instructions included on each individual fire starter are incomplete. Additional instructions for firing are carried on the paper box container which holds five fire starters. Some trouble was experienced when instructions on box were not available. For instance, one subject following instruction on fire starter case "Pull wire out of side of case" grasped the wire in the center rather than by means of the metal clip.

(2) The diagram of the fire and directions for fire building on one side of the pyroxylyn case are incomplete and misleading, since subjects followed the instructions literally arranging the "pieces of wood arranged as shown", and failed to provide shavings or other types of tinder first.

(3) The instructions do not include information telling the user that if the wire pull fails, to light the red end with a match.

e. Burning Time - 17 of the fire starters burned from 2 to 3 minutes; 33 burned from 3 to 4 minutes; 8 burned 4 to 5 minutes and 1 from 5 to 6 minutes.

f. Fire starting with and without Fire Starter E7R1:

(1) Two of the 10 subjects failed to build a fire during the first two days during which the subjects utilized the sustenance kit, individual, seat style, cold climate, Type B-1 (no fire starter). There were 7 cases of failure to build a fire during this time. Photo No. 6868, Page 15, shows unsuccessful attempt to build fire without a fire starter. Note wet clothing of the subject and wet snow. The subject is using his cigarette lighter to ignite scrap paper.

Reference also Photo No. 6871, Page 15, which shows one subject "flooded" out of shelter, getting ready to build another. The wetness of ground as seen in this photo contributed to fire building difficulties.

(2) There were no cases of failure to build a fire when a fire starter E7R1 was available. However, in 4 tests in which the fuse wire broke, the fire starter was ignited with a match.

(3) Average time required to build a fire when using the fire starter was 7 minutes, as compared to 45 minutes when using components from the sustenance kit, individual, seat style, cold climate, Type B-1.

g. Experiences of Test Subjects:

(1) Pictorial Record of Test Experiences of one subject - Twelve photographs are referenced at this point to present a pictorial story of the experience of one subject, A/3C Johnny Carley, during the fire building and survival test. Photo No. 6843, Page 16, shows Airman Carley prior to test with items which he selected from the Sustenance Kit, Cold Climate, Individual, Seat Style, Type B-1 for use in the 5 day survival test. Photo No. 6854, Page 17, shows the subject at the site he himself selected, reading his survival manual. In Photo No. 6855, Page 17, the subject uses the shovel blade of the saw-knife-shovel assembly to clear the snow preparatory to starting a fire. In Photo No. 6857, Page 18, he is arranging kindling. The following illustration (6938, Page 18) shows the dry grass which was available for kindling and mattress material. In Photo No. 6882, Page 19, Carley inspects the fire starter. Photo No. 6965, Page 19, shows him at the moment of igniting the fire starter. Photo No. 6936, Page 19, shows the lighted fire starter being placed at the base of the pyramid of wood. In Photo No. 6879, Page 20, Airman Carley uses the saw-knife blade of the saw-knife-shovel assembly to cut fire wood. Photo No. 6963, Page 20, shows the airman beside his fireplace and log reflector filling a plastic canteen with coffee from a metal (sleeping bag) container used as a coffee pot. Photo No. 6875, Page 21, shows the subject beside his shelter and rustic bunk bed while the next photo (No. 6877, Page 21) shows details of his bed construction. Note the use of

parachute shroud line to anchor the crosspieces; the seat cushion used for a pillow and the inner waterproof kit container in which the subject stored items which he wished to keep dry - such as socks, rations and corn foraged from the fields. Photo No. 6980, Page 22, taken as the field test ended may be compared with No. 6843, Page 16, showing Airman Carley before beginning the 5 day field test. Motion Picture No. 6696 identifies motion picture record. This motion picture is on file in Technical Photo Services, Wright Air Development Center.

(2) Excerpts from Log concerning test experience of all subjects - Reference Appendix C "Excerpts from Log", Page 23, for narrative including general survival and fire building experiences of all test subjects.

h. Packaging - No packaging tests were run on subject item. However, it is pointed out that probable use of one or two fire starters in individual type kits will set up an additional requirement for packaging. Any fire starters included in individual type sustenance kits must be packaged to withstand the normal usage of being carried in a seat type kit container with 30 to 40 other items. Normal use will consist of being carried in various types of aircraft seat positions. These kits are sat upon during flight and may be dropped accidentally in handling.

i. Number of Fire Starters desired by subjects - The test subjects desired that an average number of six fire starters be added to survival kits. However, space available for individual survival kits prevents the inclusion of more than one or two fire starters per kit.

V. CONCLUSIONS

1. With exceptions noted in IV 5, a, b, c and d above, the fire starter, M7R1 is satisfactory for use under wet-cold conditions as tested.

VI. SUGGESTIONS

1. With regard to Fire Starter, Type M7R1, it is suggested that:

a. The Army Chemical Corps reduce the difficulty of firing. This may entail revision of instructions or changing the directions of pull of fuse wire.

b. The Army Chemical Corps replace the wire with a wire which will operate the fire starter without breaking.

c. The Army Chemical Corps investigate the problem of preventing cut fingers by contact with the wire and/or metal clip when firing the fire starter.

d. The Army Chemical Corps revise the instructional marking with reference to the following:

(1) Instructions shall be complete on each item, concise and free from ambiguity.

(2) Shall include directions for fire building and/or refer to the applicable section on fuel making in survival manual. (AFM 64-5, published 1 June 1945, Pages 15 to 20.)

(3) Instructions shall include directions for firing the fire starter with regard to safety of personnel and equipment.

(4) Instructions shall include marking to indicate incendiary nature.

(5) Instructions shall include marking that if fuse wire fails that fire starter may be fired by lighting red end with a match.

(6) Instructional diagram should include the following:

Gloved hands

Fire starter pictured should be identifiable as the present standard item.

Survivor should be able to determine the operation from the diagram.

Final selection of diagram should be based on the most efficient application of force to ignite the item.

PREPARED BY:

E L Musgrove for

Norman Bright, WCRDE-4
Climatic Test Specialist

PUBLICATION REVIEW

This report has been reviewed and is approved.

A M Buchanan, Col USAF (MC)

JACK BOLLERUD, Colonel, USAF (MC)
Chief, Aero Medical Laboratory
Directorate of Research

APPENDIX A

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APPENDIX B

Figure No. 1 Test Subjects

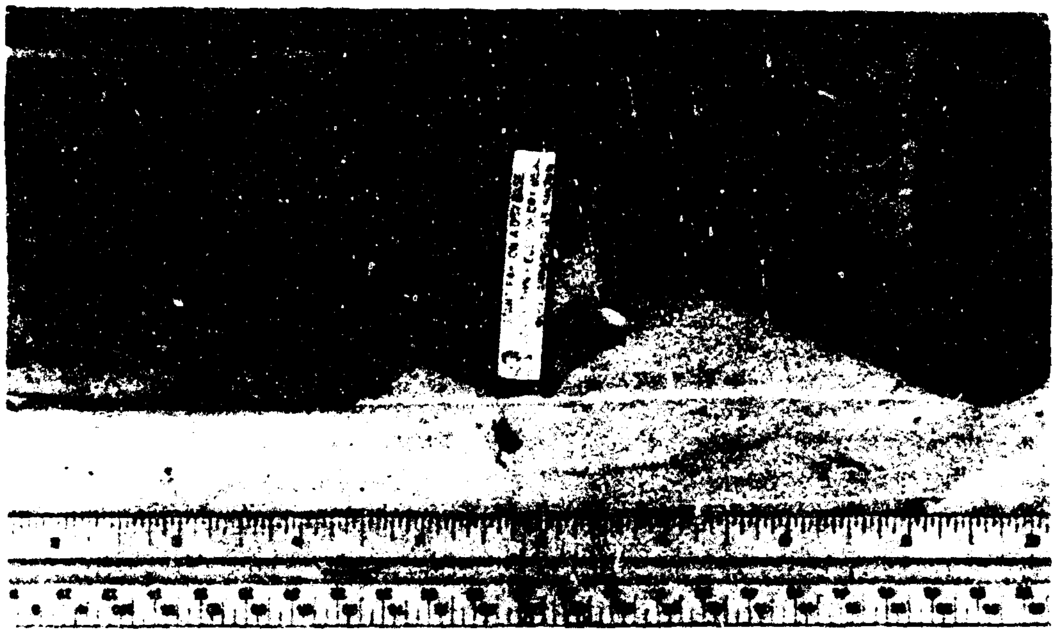

Figure No. 2   Comparison of Fire Starters E-7 and M-1

Figure No. 3   Failure of Fuse Wires, Firestarter E7R1

Figure No. 4 Subject Flooded Out of Shelter

Figure No. 5 Subject Fails To Build Fire, Using Components From Sustenance Kit B-1

Figure No. 6 Sustenance Kit B-1
Components Chosen For Field Test

Figure No. 7 Reading Survival Manual

Figure No. 8 Using Shovel Blade

Figure No. 9 Arranging Kindling

Figure No. 10 Cutting Grass With Saw-Knife
Grass Used As Tinder

Figure No. 11 Inspecting Fire Starter

Figure No. 12 Igniting Fire Starter

Figure No. 13 Placing Fire Starter Under Fuel

Figure No. 14 Cutting Wood With Saw-Knife

Figure No. 15 Filling Plastic Bag With Hot Water

Figure No. 16 Beside Completed Parachute Lean-To

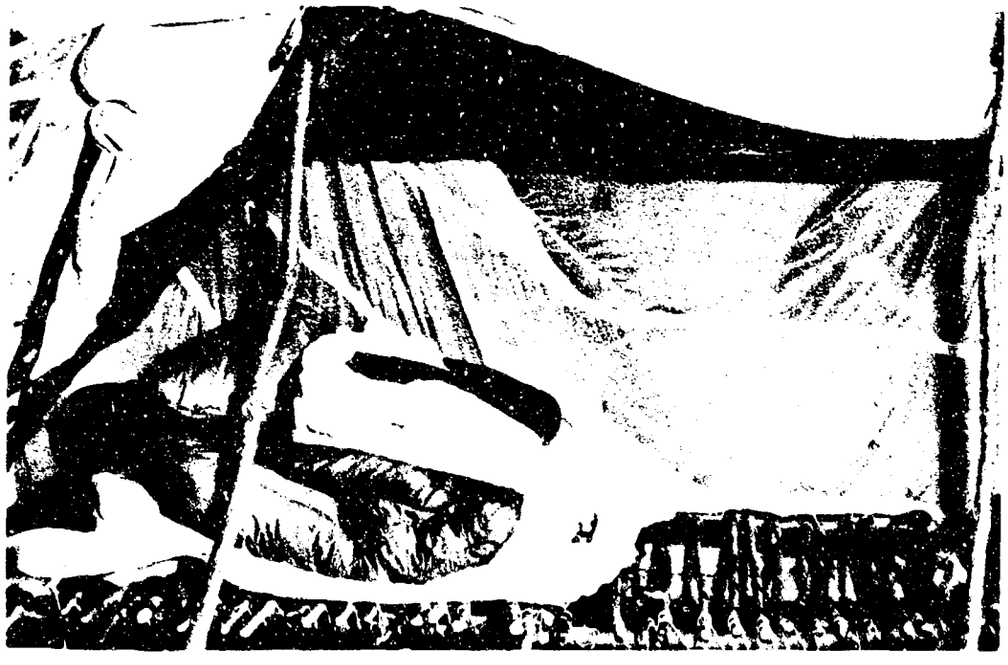

Figure No. 17 Note Details of Bed Frame Construction

Figure No. 18 After Five-Day Field Test

APPENDIX C

EXCERPTS FROM LOG OF THE TEST

FIRST DAY

Two subjects were assigned to each observer. Subjects were advised to call for the medical technician if any symptoms of illness developed, but that they would not be taken off the test unless something serious developed. We noted condition of each subject and his camp, how he had utilized his camp. Some had done very well and were taking it all in stride, while some were plainly uneasy. To some, it was old stuff they had practiced in scouting, on hunting trips, while for some, fresh from the pavements of Boston, it was probably a most unpleasant, if not terrifying experience. Some had chosen rather poor locations - several right in stream beds. Some had little protection under foot, nothing for mattress material. Some shelters (parachute) were poorly erected. One man had a pretty good paratent but was sleeping with his head downhill. Several had not gotten a fire built, one said there was no dry wood. Several had not had a drink of water while some had had supper and a hot drink and were sitting around enjoying a good fire and a smoke before retiring.

There is plenty of material in the woods for fire starting and evergreen boughs for mattresses.

SECOND DAY

Some of the men had gotten some good ideas from their survival manuals which they planned to try out. However, not enough of the subjects are foraging for food. The men are learning from mistakes and finding ways to keep warm.

By the way, since some of the subjects are taking it easy, just waiting for the five days to end, we are telling the men that the end of the test is indefinite. We saw huge flights of waterfowl going over about sunset.

FIFTH DAY

We picked up the subjects along the road. The photographer got a close of each man getting on the bus with his equipment. We got movie shots of some. I told each man that we'd have a critique and then load up and go into town to eat.

SURVIVOR A

FIRST DAY

We stopped over an hour with Survivor "A" watching his attempts to get a fire and so only got into three camps before lunch. Survivor "A" has the "pavilion" canopy. He looked cold and rather miserable, as he hadn't had a hot drink yet. He had located dry leaves (the thaw last night wet almost everything) in a cave under an oak tree about 1/4 mile away, but his efforts with matches, cigarette lighter, paper only resulted in a little flame. The wet wood he collected wouldn't have burned anyway. Even if he had had a fire starter, he might not have gotten a fire built since he just didn't know how to go about it. His shelter was dripping wherever the roof sagged. He was trying for game but had had no luck. He shot at a crow, but missed. Later, when we came back in late afternoon, he had a good fire with coffee boiling. He had read his survival manual and found some dry wood.

SECOND DAY

Survivor "A" had his camp looking like a pavilion. He was doing all right on the fires today but he likes the fire starters much better than other fire starter aids. Officers from Chanute Field enjoyed watching the fire starter test here. Survivor "A" had killed a couple of small birds and ate one, but missed a rabbit. He had made some steps leading down to his shelter.

FIFTH DAY

Survivor "A" was a shining example. His "I can stay out here as long as the rest" showed his Irish spirit. He had real spirit and accomplished results by getting game. His personal pride was exemplified in a neat looking camp. He had cleared a good area, built a mud walled fire place which turned to "brick" from the heat of the fire. He cut steps down to his pavilion type para-shelter located at the head of a ravine. While this shelter would have proved unsatisfactory under rainy conditions, it proved adequate under the test conditions, since it was in a protected location with regard to the wind and precipitation was light. He had a good bed of hemlock and fir boughs on the last day. He objected to leaving as he still hadn't got "that rabbit". He felt he was just getting well started.

SURVIVOR B

FIRST DAY

Survivor "B" was standing in his flooded camp site trying to get another camp set up. He thought he would make a hammock but failed at that and ended digging a hole to sleep in. He intended to fill it with grass. Survivor "B" learned scouting from his dad. Today he was feeling low. He said that when he went out with his dad, they had plenty of equipment to work with.

SECOND DAY

Survivor "B" was out hunting too. I was interested in seeing what sort of arrangement he had since he changed locations. Actually he had moved his tent less than 10 feet, but to slightly higher ground. He has a sort of one-man tent, double walled, using two layers of parachute cloth.

FIFTH DAY

Survivor "B" appeared to be doing all right although he was discouraged with the hunting, especially since local hunters stopped right by his camp and killed several ducks. He got two small birds and ate them. His camp showed considerable enterprise and some ingenuity although it was badly placed with relation to drainage and wood, etc.

SURVIVOR C

FIRST DAY

Survivor "C" pitched his flat-roofed shelter in a dry stream-bed. He didn't do much on his roof to improve it although it leaked badly. He had collected a few boughs but not enough.

SECOND DAY

Survivor "C" doesn't seem to be moving around much. He has not found anything to supplement his ration. He found a vein of coal down the creek and picked some up to use in his fires.

FIFTH DAY

He was no worse for the wear. He didn't make too much use out of natural resources, but just settled down in a sort of hovel existence which reflected poor use of equipment. He was careless and untidy and got a bit dejected before it was all over. His camp was all right for a cold camp. He later could build a fire all right and got good use of it for heating his shelter. Survivor "C" seemed to be glad when the test was over.

SURVIVOR D

FIRST DAY

Survivor "D" was sleeping so soundly last night when we visited his camp; we had trouble finding him. This morning I saw him hiking across the field carrying two chairs. He'd raided a dump and had all the comforts of home. Although the only tool he had selected was a jackknife, deciding he could get along without the snow-knife-shovel assembly, he had the best fire in camp. He had very good methods of firebuilding. He was giving the game a good try, too. We took his chairs away from him and told him to get rid of the other civilized comforts, too, and practice living off the country. We told most of the subjects to read their manuals, look for plants.

SECOND DAY

Survivor "D" wasn't in when we called, but he had gotten rid of some of his comforts, such as the linoleum, replacing it with hay. He chose an odd place on a hillside. It was very muddy around his camp.

FIFTH DAY

Survivor "D" got downhearted a bit from poor luck hunting. He used tips on plants (sassafrass, soy beans and corn) and on improving his camp (hay for bed and for thatch to his long low-pitched paratent). He had slept cold the night it went down to +16°F or below and had gotten up early to hunt, as had Survivor "E". We gave him a bit of help but since he was willing to continue, we did not take him off the test.

SURVIVOR E

FIRST DAY

Survivor "E" put up his parachute over a shed. When visited, he had a fire built inside the shed. There was nothing much under his bed. He appeared to be frightened and very unhappy and disgusted. This noon (1130), we moved him to another spot since using man-made shelters was contrary to the plan of the test. On checking him about 4:30 P.M., we found he had put up a pretty steep-walled tent about ten feet from where we dropped him off. Today was dull— varied from 37 to 40 to 35 and damp and foggy. Survivor "E" moped around. He made futile attempts at getting a fire started, burning up his survival manual. A few pencil sized twigs were barely smoking on some parachute cloth. We tried to talk him into keeping up his courage, told him to keep trying for a fire so as to get a hot drink.

THIRD DAY

Survivor "E" was delighted with the fire starter as he hadn't gotten a fire without it. He had not improved his camp, but said he slept dry. He looks pretty sad. We tried to encourage him to keep trying. While he follows orders, as when we told him to use the shovel to scrape the leaves away from his fire, he does practically nothing to help himself.

FIFTH DAY

Survivor "E" was a new man the last few days when we took him in tow and gave him instructions. He took an interest in things. I believe the "before and after" pictures we got of him should tell the story dramatically.

SURVIVOR F

FIRST DAY

Survivor "F" has a steep sided pyramid shaped paratent. He had a good fire each time we visited him. He doesn't have much under his bed. Survivor "F" says he is going to try for some minnows tomorrow. While he had no luck hunting, he seems to be in a good humor. He dug a hole for a fireplace and put a shovel blade at bottom of it. He figures it helps his fire by holding the heat. His saw-knife was laying outside on the ground. He used the wire stiffener from his parachute pack for a fire grill, but since it was about 15" above the ground, he had a hard time heating a drink.

SECOND DAY

Survivor "F" was boiling up some clover for tea tonight. We observers all agreed that it was drinkable. Although we've encouraged the men to look for plant food and to use corn and beans from the fields, this is the first vegetation we've seen any of the survivors use. In spite of this, the fields have much dried corn left in the rows and soy beans litter the ground. Survivor "F" made a dip net, but no luck yet with the fishing. He hasn't made use of any native materials for his bed.

FIFTH DAY

There is nothing to add on Survivor "F" since I did not go down to his camp, but I am sure he could have continued to survive without too much trouble. His camp site was a poor choice.

SURVIVOR G.

FIRST DAY

Survivor "G" seemed to be doing well. He was down in between two logs. His pararoof was too flat and was leaking. But he had tried to raise one part of the shelter with a stick to improve the drainage. He had a good bough bed and his equipment was well stowed. He had not yet had a hot drink as he had only just gotten a fire. However, he had killed an opossum.

SECOND DAY

Survivor "G" - Two observers visited him just about dark. He was putting some more pine boughs under his "sack". He still had a flat roofed shelter with the 'chute stretched over two logs. He had been hunting but did not have much luck. He seemed to be in a good humor. We again reminded him of the corn and beans in the fields. He feels the ration lacks something.

NOTE: We feel that the men should make better use of the countryside.

FIFTH DAY

Survivor "G" was getting along all right. He reported that the flying squirrels were a bit gamy. He was very happy and talkative on the way back. Like the others, he was interested in getting time to rest up from this test.

SURVIVOR H

FIRST DAY

Survivor "H", a star scout, appeared well able to take care of himself from the start. He has had a great deal of scout training, camping and hunting. He had made a para-lean-to and had a good fire both nights. Tonight he had a rabbit stewing away and said he intended to "fry" it tomorrow, although he has no fat in his ration. He explained that he'd put a little water in the pan. He said that the other night he'd kicked up the rabbit but did not have his gun with him. Said he went back today with the gun and shot the rabbit at the same place. He had spotted other game, for instance, "the biggest red squirrel I ever saw in my life", and he said he was looking for a 'coon as he'd seen signs of one eating the osage orange fruits.

SECOND DAY

Survivor "H" seemed to be doing all right, though he might care for his equipment a little better. He ate two pieces of the rabbit this morning. We got a shot of his shelter and a close-up and decided to go back when the light was better.

FIFTH DAY

At Camp 1 Survivor "H" was not feeling well. He had dragged heavy stones across the ravine to build a stone fire place. Survivors H and I carried their kits over to the schoolhouse, a distance of perhaps 1/4 mile.

SURVIVOR I

FIRST DAY

Survivor "I" is doing marvelously for someone with no outdoor experience. He has made good use of his manual. He has had a good fire going both nights (pyramid style). He has his 'chute over a couple of dead trees. He uses his kit container (as does Survivor "H") to store his belongings and is taking good care of his equipment. He has built a reflector and is making a nice looking camp.

SECOND DAY

Survivor "I" seemed to be in a good mood. He had put in some camp improvements such as a mat of limbs to stand on to keep out of the mud, a parachute A-tent over his wood pile, a pole bed tied with para-shroud lines. He has a neat looking camp with his things hung up. Some are put away in the inner kit container, such as food, box, matches, ammunition, etc. He is making good use of his survival manual and is doing well for one who has had no previous experience in camping.

Shots taken at his camp include details of his camp, use of the fire starter, futile attempts to light a fire without fire starter. He has not moved around much and is sleeping cold although it was clear and sunny today and the grass was sufficiently dry to make good mattress material.

FIFTH DAY

Survivor "I" was doing fine. We were glad we concentrated on getting photos of him because he turned out to be about the best survivor. With no previous outdoor experience, he seemed to have the right instinct. His camp was neat. Every day some new improvement. He brought in a flat slab of rock which he tilted at an angle for use as a mortor in grinding corn. He used a round spherical shaped rock as a pestle to crush the corn seeds. A tin set at the foot of the flat rock slab caught the seeds that dropped. He had made a club with a lanyard to hang it by. He used this to drive tent stakes. He had made a stone fire place to set his big tin container on. He also had a log fire reflector. He had improved his bed by the addition of reeds. He said he figured he could "make out" for all winter if necessary. His observer counted his matches and then threw them into the fire. Survivor "I"'s face dropped at this, but he said he could probably "make out" by keeping his fire going. He had collected a dozen ears of corn and had several pounds of corn seeds in a sack made of parachute cloth.

We were shooting a close-up of Johnny when I told him that he could break camp and return to the base. The camera caught his smile of relief. It was interesting to observe his reaction. The first thing he did before breaking camp was to take his supply of corn and place the foot-long ears of yellow corn at right angles across the game trails and scatter his store of corn kernels on the ground where the birds and animals would be most likely to find them. The sportsman's instinct was deeply rooted in this survivor.

SURVIVOR J

Survivor "J" was lonesome and homesick. Only a little over seventeen, with no experience in the woods, he is doing as well as might be expected. He built a para-leanto and has gathered some browse to put under his "sack." He has been hunting (got lost once) but not much luck. We encouraged him to keep trying for more food and suggested he try the fields for corn left by the farmers. He had a good fire, four feet from his bed. It provided good radiation heat.

FIFTH DAY

Survivor "J" looked unhappy. His observer was still interviewing him at 1000 , so three of us observers helped him to pack. He had shown little ingenuity. He slept on sticks and leaves on the ground, when he might have had a much more comfortable bed by making a bunk bed off the ground, and using hay or fir boughs for a mattress. He tore his plastic canteen on a thorn and from then on, he walked to the brook (1/4 mile away) each time he wanted a drink. He had several other large containers he might have used for water. He was disgusted because of his poor luck hunting, although he spent plenty of time and effort trying. Though he had hunted considerably in Texas, he just did not seem to have the savvy for getting game here. He said he used to think he'd like to go deer hunting with his dad, but not now. He'd had enough. Although cautioned not to overeat, he had eaten so much by the time we got back to Chanute that he was uncomfortably sick and couldn't eat supper.