

Bureau of Mines  
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## NATIONAL FIRST-AID AND MINE RESCUE CONTEST LOUISVILLE, KY., OCTOBER 2-4, 1957

By H. F. Weaver and D. M. Alden

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UNITED STATES DEPARTMENT OF THE INTERIOR  
Fred A. Seaton, Secretary  
BUREAU OF MINES  
Marling J. Ankeny, Director



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NATIONAL FIRST-AID AND MINE RESCUE CONTEST  
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by

H. F. Weaver<sup>2/</sup> and D. M. Alden<sup>3/</sup>

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SUMMARY AND INTRODUCTION

The 17th National First-Aid and Mine Rescue Contest was held in the Kentucky Fair and Exposition Center, Louisville, Ky., October 2, 3, and 4, 1957. The meet was under the auspices of the Federal Bureau of Mines and the Joseph A. Holmes Safety Association, in cooperation with the National Coal Association, United Mine Workers of America, State mining departments, local mining institutes, and coal operators' associations.

The Arrangements Committee, as authorized by the General Committee, made all the necessary arrangements for conducting the 1957 contest. Members of the Arrangements Committee were: Harry Gandy, Jr. (chairman), National Coal Association; James B. Benson, Southern Coal Producers' Association; Charles Ferguson, United Mine Workers of America; George C. Trevorrow, Bituminous Coal Operators' Association; and James Westfield, Federal Bureau of Mines.

Eight teams from 3 States participated in the 1957 mine rescue contest, and 49 teams from 7 States competed in the first-aid contest. Two teams, one each from Pennsylvania and West Virginia, entered the combination event and thus participated in both the mine rescue and first-aid events. The States represented and number of teams from each State are listed in table 1.

TABLE 1. - States represented at contest

State	Number of teams		
	Mine rescue	First aid	Combination
Indiana .....		1	
Kentucky .....	5	8	
New York .....		1	
Ohio .....		2	
Pennsylvania .....	1	8	1
Virginia .....		2	
West Virginia .....	2	27	1
Total .....	8	49	2 <sup>1/</sup>

1/ Also included under teams in mine rescue and first aid.

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1/ Work on manuscript completed January 1958.

2/ Chief, Division of Coal Mine Inspection, Bureau of Mines, Washington, D. C.

3/ Secretary, Division of Coal Mine Inspection, Bureau of Mines, Washington, D. C.

As in the past, there were no limitations on the number of teams entering the contest from any State, district, company, or organization, provided the members were bona fide employees of the mineral or allied industries.

Although the 1957 national competition was open to teams from any mineral or allied industry, only one of the competing teams represented a noncoal operation.

As in previous national meets, this contest was conducted under general and special rules prepared by the Rules Committee and approved by the General Committee of the 1957 National First-Aid and Mine Rescue Contest. Direction of the mine rescue and first-aid contests was supervised by the chief judges; but, in case of any disagreement between the chief judges and any member of a team, judge, or other official of the contest, the Final Appeals Committee was responsible for adjudicating the matter. A copy of the General Rules and Rules of Procedure of the Final Appeals Committee are included in appendix A.

#### NATIONAL FIRST-AID AND MINE RESCUE CONTESTS

The first National First-Aid and Mine Rescue Contest sponsored by the Bureau of Mines was held in 1911, soon after the Bureau was organized (1910). Twelve other national contests were held between 1911 and 1930, but none was held between 1930 and 1951. They were reactivated in 1951 and now are being held biennially. Table 2 lists all national contests that have been held.

TABLE 2. - National First-Aid and Mine Rescue Contests

Place held	Date	First-aid teams	Mine rescue teams	Combination teams <sup>1/</sup>	States represented
Pittsburgh, Pa. ....	October 1911	41	4		10
Terre Haute, Ind. ....	September 1914	29	8		3
San Francisco, Calif..	do. 1915	26	11		12
Pittsburgh, Pa. ....	do. 1919	83	24		16
Denver, Colo. ....	do. 1920	73	20		20
St. Louis, Mo. ....	do. 1921	63	16		2/17
Salt Lake City, Utah .	August 1923	55	21		3/13
Springfield, Ill. ....	September 1925	55	10		15
San Francisco, Calif..	do. 1926	44	14		13
Pittsburgh, Pa. ....	August 1927	47	17		12
Butte, Mont. ....	do. 1928	45	12		11
Kansas City, Mo. ....	September 1929	40	9		18
Louisville, Ky. ....	do. 1930	48	6		12
Pittsburgh, Pa. <sup>4/</sup> ..	October 1950	16	0		4
Columbus, Ohio ....	do. 1951	55	14	1	10
Fort Wayne, Ind. ....	Sept.-Oct. 1953	47	14	3	9
Knoxville, Tenn. ....	October 1955	54	9	2	9
Louisville, Ky. ....	do. 1957	49	8	2	7

<sup>1/</sup> Combination teams not listed before 1951.

<sup>2/</sup> Includes Canada.

<sup>3/</sup> Includes Mexico.

<sup>4/</sup> This might be described as a 4-State contest, held to stimulate interest in reviving national meets, and is not counted in the total number of contests held.

## REGISTRATION

The Sheraton-Seelbach Hotel at Louisville was contest headquarters. Rescue teams were required to register at the hotel between 1:00 p.m. and 10:00 p.m., October 1, 1957. They were also permitted to register from 7:00 a.m. to 8:00 a.m. the following morning at the Kentucky Fair and Exposition Center. First-aid teams were required to register at the hotel between 10:00 a.m. and 10:00 p.m., October 2, and from 7:00 a.m. to 8:00 a.m., October 3, at the center.

## MINE RESCUE CONTEST

The Mine Rescue Contest was held October 2 in the south wing of the Exposition Center, which easily accommodated the two separate but identical simulated mines - permitting two teams to work a problem at the same time.

At the time of registering the teams drew numbers to determine the order in which the teams entered the mine to work the problem.

### Mine Rescue Problem

Working time, 30 minutes

There has been an explosion in the No. 1 mine, Fictitious Coal Co., near Louisville, Ky. The mine has been explored, and ventilation has been restored to the mouth of the first right entry off 4 west.

Four (4) men are known to be in this unexplored section. The team will explore the entire section, rescue any live men located; account for the bodies of the dead; and report other conditions found.

The details of the mine and problem are shown on the key map in figure 1.

The method of judging or rating the teams was similar to that used in previous national contests, in accordance with the following:

- a. Preliminary examination.
- b. Checking apparatus and other procedure before entering mine.
- c. Procedure after entering mine and beyond fresh-air base.
- d. Procedure after working problem and leaving mine.

The judges were selected on the basis of their familiarity with mine rescue procedures. In this instance, all were representatives of the Bureau of Mines and the various State mining departments. A predetermined number of points was discounted for wrong answers to preliminary questions, for improper checking of apparatus, for each failure to perform standard procedures during rescue and recovery work, and for improper marking of the mine map. The judges used standard discount sheets or scorecards in making these ratings. The team having the smallest number of discounts was declared the winner of the mine rescue contest. The team having the next smallest number of discounts was given second place, and so forth. The preliminary examination question form is also the "A" judges' discount card.

To enable all teams to be trained alike as far as possible and to assist the judges in rating the performance of the teams, a list of specific rules governing the mine rescue contest was made available to all teams and other interested persons or groups before the contest. A copy of these rules is shown in appendix B and a copy of the judges' discount sheets is included in appendix C.

FIGURE 1. - Key Map of Mine Used in Mine Rescue Problem.

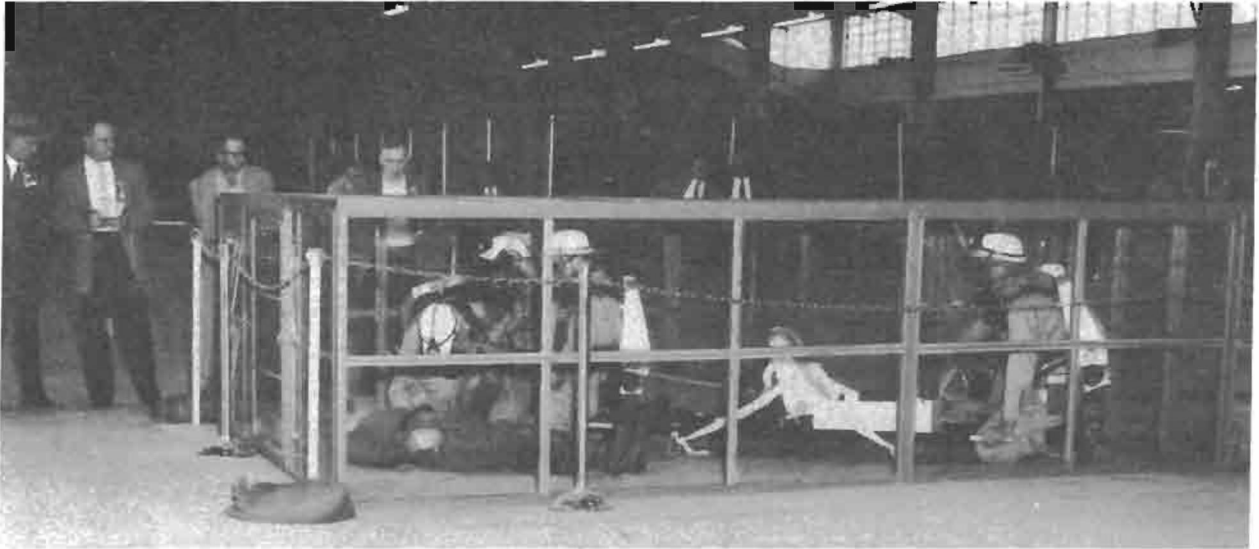


FIGURE 2. - Mine Rescue Team Examining Man Inside Airlock  
(Eastern Coal Corporation, Stone, Ky.)



FIGURE 3. - First-Aid Team Lifting Man With Broken Back and Placing on Stretcher  
(Island Creek Coal Company, Holden, W. Va.).



FIGURE 4. - Group Picture of 18th National First-Aid and Mine Rescue Contest.



A list of the participating teams, their sponsors, and the final standing of the teams is shown in the following table.

TABLE 3. - Final standing of teams in mine rescue contest

Place	Team No.	Mine or team	Captain	Company	Address	Total dis- counts
1	4	Lynch District	Ted Hollin	United States Steel Corp.	Lynch, Ky.	22
2	7	Mine No. 22	Wilmar Donahue	Bethlehem Mines Corporation	Deane, Ky.	37
3	3	Price No. 1	J. P. Gibson	Inland Steel Co.	Wheelwright, Ky.	42
4	6	Eastern Coal	Harold Brogan	Eastern Coal Corporation	Stone, Ky.	82
5	2	Holden Division	James E. Robertson	Island Creek Coal Company	Holden, W. Va.	84
6	8	Pleasant View	James Patterson	West Kentucky Coal Company, Inc.	Madisonville, Ky.	92
7	1	Frick District	Pete Yadamec	United States Steel Corp.	Uniontown, Pa.	101
8	5	McComas	H. J. DeHaven	Pocahontas Fuel Company, Inc.	McComas, W. Va.	132

#### FIRST-AID CONTEST

The First-Aid Contest, with Harry Gandy, Jr., as master of ceremonies, was officially opened October 3 with an invocation by James Phalan of Lexington, Ky., and the singing of the National Anthem by Miss Audrey Nossaman of Louisville, Ky. The address of welcome by Mayor Andrew Broaddus of Louisville and the response by General Chairman Marling J. Ankeny follow:

##### Welcoming Remarks

(By Andrew Broaddus - Mayor of Louisville, Ky.)

As Mayor of the City of Louisville, it pleases me very much to welcome back to our city the National First-Aid and Mine Rescue Contest, now being held here at the Fairgrounds. As I recall, it was in 1930 that Louisville was last selected as the site for what has come to be known as the "World Series of Safety." As you know, these contests are held every 2 years, this being the 17th one to be staged. We appreciate the honor of again being selected.

Safety is of paramount consideration to the men working in the mines of our State and in other States throughout the Nation. Also I might add that safety has become of great importance in practically all of the activities of national interest. For that reason, I am particularly happy that this contest is being held here, as it will aid us in our own safety programs.

The men who make up the more than 60 teams competing here are trained experts in safety and in handling accident victims. Their training not only makes them experts in mine rescue operations, but in all types of accidents and disasters, where they also get on the job quickly and are of great help.

The 1957 contest here in Louisville is under the general chairmanship of Mr. Marling J. Ankeny, Director of the Bureau of Mines, Department of the Interior. The Bureau is one of the sponsors of this event, together with the United Mine Workers of America, the National Coal Association, and the Department of Mines in the various coal mining states.

To all of you, a warm welcome to Louisville.

Greetings to Contestants, Officials, and Guests

By Marling J. Ankeny, General Chairman of the Contest and Director,  
Federal Bureau of Mines

It is a pleasure to welcome all of you to the 17th National First-Aid and Mine Rescue Contest in this magnificent coliseum at Louisville. This is the second time in the history of these national contests that Louisville has been our host city. The last time was 27 years ago in September 1930.

The first of these national contests was held in Pittsburgh, Pennsylvania, in October 1911. They were held more or less regularly until the 1930 contest in Louisville and then they were discontinued for 20 years. The contests were reactivated in 1950 and the 14th contest was held at Columbus, Ohio, in 1951. It was then decided to hold them every two years. The 15th contest was held in 1953 at Fort Wayne, Ind., and the 16th at Knoxville, Tenn., in October 1955.

These events have become known as the "World Series of Safety," which is an appropriate title. The contesting teams usually represent the cream of the crop of first-aid or mine rescue teams from their respective areas. In fact, most of the contesting teams won the privilege to compete here through capturing top honors in their respective State or district contests. The competition, therefore, will be keen, and I would not be surprised if some of the final scores will have to be figured to the third decimal place to determine the ultimate standings.

The main purpose of these events is to stimulate interest in first-aid and mine rescue procedures and to encourage industrial workmen, particularly those associated with the mineral industries, to participate in the training.

First-aid and mine rescue training is fundamental safety education. I believe that such training provides one of the best means of arousing safety consciousness in workmen. A man well grounded in these fundamentals is bound to be a safer workman. In fact Bureau of Mines records show that men so trained are much less likely to be injured than ones not so trained. In learning and practicing first-aid and mine rescue procedures, the trainees necessarily study the various hazards of their occupational environments and how they can be minimized or eliminated.

We, in the Bureau of Mines, are firmly convinced that basic training in first-aid and mine rescue will promote accident prevention. This thinking has been manifested by the widespread training that the Bureau has conducted or sponsored over the years, beginning shortly after it was established 47 years ago. Almost 2 million persons have been awarded Bureau of Mines certificates for completing the Bureau's first-aid course and more than 100 thousand have earned Bureau mine-rescue certificates. To further this kind of work, Bureau representatives, in addition to training or examining candidates to qualify for certificates, cooperate in local, district, State and National contests.

We, in the Bureau, do not claim sole credit for the success of these undertakings. On the contrary, equal credit is due the companies, mining associations, the United Mine Workers of America, the state mining departments and last, but not least, the participants.

It gives me a great deal of pleasure to acknowledge the fine cooperation of all who contributed to this 17th National First-Aid and Mine Rescue Contest. Without the financial support of the cooperating agencies and the unselfish time devoted by officers of the contest and members of the various committees in charge of the arrangements, this contest would not have been possible. As Director of the contest I wish to thank each and everyone for his contribution.

The contesting teams are awaiting the "go" signal with much pent-up energy and determination. It is, obviously, a great satisfaction to come out on top in the contest. As I mentioned heretofore, the competition will be keen, and the difference between teams will be small. Regardless of the final outcome, each team member is a winner because of his increased proficiency to render service in time of dire need. Moreover, each should be a safer workman and through the avoidance of accident and injury add to his longevity, prevent much suffering to himself, and enhance the economic welfare of his loved ones. Good luck and best wishes to all of you.

This contest was held in the Coliseum - the main building of the Center - on October 3 and 4. The position of each team on the field was determined by drawing of numbers at the time of registration.

Twelve problems were worked - 10 for the contest and 2 extra for use in case of ties. (See appendix D.)

Rules governing the contest were made available to all interested persons and groups before the contest and are included in appendix E.

Participating teams, their sponsors, and the final standing of the teams are shown in table 4.

Two judges, Federal and State, were assigned to each team. To make the judging as fair as possible, the judges were rotated after each problem. The number of spaces each set of two judges moved was determined by drawing of numbers, and the number differed after each problem. Supervising judges representing both the Bureau of Mines and the States were assigned to a group of several teams. Like the individual team judges, they also moved to the next group after each problem. A sample of the first-aid judges' discount sheet is included as appendix F.

TABLE 4. - Final standing of teams in first-aid contest

Place	Team No.	Mine or Team	Captain	Company	Address	Score, percent	
1	36	Wyoming	Willard Graham	Island Creek Coal Co.	Wyoming, W. Va.	99.54	
2	2	Robena No. 2	John Chambers	U. S. Steel Corp., Frick Dist.	Uniontown, Pa.	99.52	
3	23	Georgetown No. 12	Bob Secrest	Hanna Coal Co.	Cadiz, Ohio	99.44	
4	24	Glen Castle No. 3	Andrew Janoski	do.	do.	99.40	
5	11	Imperial Smokeless No. 3	Burton Phillips	Imperial Smokeless Coal Co.	Quinwood, W. Va.	99.32	
6	6	Jamison No. 11	John McCulloch	South Union Coal Co.	Edna, W. Va.	99.30	
7	38	Price preparation plant	Hillard Slone	Inland Steel Co.	Wheelwright, Ky.	99.26+	
8	44	Drift	Edw. F. Robinson	Turner Elkhorn Mining Co.	Drift, Ky.	99.26-	
9	12	Renton	George Truax	National Mines Corp.	Renton, Pa.	99.24	
10	32	Day shift, Wharton No. 2	Dan Shelton	Eastern Gas & Fuel Associates	Barrett, W. Va.	99.22++	
11	4	Compass No. 1	Dale George See	Clinchfield Coal Co.	Clarksburg, W. Va.	99.22+	
12	5	Enoco Collieries	Ray Woods	Enoco Collieries	Vincennes, Ind.	99.22-	
13	20	Leatherwood No. 2	Kenneth Williamson	Blue Diamond Coal Co.	Tilford, Ky.	99.22--	
14	22	Westland mine	Edward Rettinger	Pittsburgh Coal Co.	Library, Pa.	99.20	
15	18	Mine 21	Wamie Flint, Jr.	Bethlehem Mines Corp.	McRoberts, Ky.	99.16++	
16	40	Harwick	Joseph Wilkosz	Duquesne Light Co., Coal Dept.	Pittsburgh, Pa.	99.16+	
17	29	Bartley No. 1	James Cardwell, Jr.	Island Creek Coal Co.	Holden, W. Va.	99.16-	
18	19	Team No. 3	Albert Wagers	U. S. Steel Corp., Coal Div.	Gary, W. Va.	99.16--	
19	9	Cardiff mine	Herbert Strum	Imperial Coal Corp.	Nettleton, Pa.	99.14	
20	45	Arkwright No. 1 tippie	Donald Tennant	Christopher Coal Co.	Osage, W. Va.	99.12	
21	27	Derby first-aid team	Frank E. Turner, Jr.	Stonega Coke & Coal Co.	Big Stone Gap, Va.	99.06	
22	50	Frick district	Pete Yadamec	U. S. Steel Corp., Frick Dist.	Uniontown, Pa.	99.04	
23	13	Team 2	Robert Long	U. S. Steel Corp., Coal Div.	Gary, W. Va.	98.98+	
24	15	Team 1	Howard Hamilton	Princess Elkhorn Coal Co.	David, Ky.	98.98-	
25	30	Itmann	Carl Parks	Pocahontas Fuel Co.	Itmann, W. Va.	98.96++	
26	34	No. 1	Artist Henderson	Armco Steel Corp.	Montcoal, W. Va.	98.96+	
27	10	Night shift, Wharton No. 2	J. C. Clark	Eastern Gas & Fuel Associates	Barrett, W. Va.	98.96-	
28	51	Idamay No. 44	R. J. Barber	Bethlehem Mines Corp.	Idamay, W. Va.	98.96--	
29	26	Mathies mine	Joseph Hebda	Mathies Coal Co.	Finleyville, Pa.	98.94	
30	17	Price mine No. 1	Elmer Caudill	Inland Steel Co.	Wheelwright, Ky.	98.92	
31	1	Compass No. 2	Frank Cunningham	Clinchfield Coal Co.	Dola, W. Va.	98.88	
32	48	Uniontown mine	James Thorpe	Nashville Coal Co., Inc.	Madisonville, Ky.	98.86	
33	47	Harewood No. 1	Beecher Denny	Allied Chemical & Dye Corp.	Longacre, W. Va.	98.84	
34	21	No. 1	Herman Mayfield	Semet-Solvay Division	Alva, Ky.	98.76	
35	37	Minden mine	James Walker	Black Star Coal Corp.	Minden, W. Va.	98.70	
36	39	Maust Coal & Coke Co.	Wm. J. Taylor	New River & Pocahontas	Consolidated Coal Co.	Marlinton, W. Va.	98.68+
37	49	No. 28	Burl Skeens	Maust Coal & Coke Co.	Island Creek Coal Co.	Holden, W. Va.	98.68-
38	14	No. 1, shaft 1, east heading	Elmer Schofield	Drake-Grafe-Winston-Tecon-Conduit	East Branch, N. Y.	98.64	
39	33	No. 3 mine	Ray Harding	Consolidation Coal Co. (W. Va.)	Jordan, W. Va.	98.60	
40	41	Arkwright No. 1	C. J. Mulligan	Christopher Coal Co.	Osage, W. Va.	98.58+	
41	35	No. 1	Rupert Kearns	Red Parrot Coal Co.	Prenter, W. Va.	98.58-	
42	28	Roda first-aid team	Gilmer Pippin	Stonega Coke & Coal Co.	Big Stone Gap, Va.	98.34	
43	43	Harewood	Floyd Booker	Allied Chemical & Dye Corp.	Longacre, W. Va.	98.28	
44	7	Imperial No. 2	Opie Carroll	Semet-Solvay Division	Quinwood, W. Va.	98.26	
45	25	Bridgeport mine	James A. Panzone	Imperial Smokeless Coal Co.	Uniontown, Pa.	98.18	
46	31	Tralee	John Brooks	U. S. Steel Corp., Frick Dist.	Tralee, W. Va.	98.04	
47	3	Eccles mine	W. S. Stump	Allied Chemical & Dye Corp.	Semet-Solvay Division	Eccles, W. Va.	97.48
48	16	Havaco	Earl Daugherty	Eastern Gas & Fuel Associates	New River & Pocahontas	Havaco, W. Va.	97.34
49	8	Holden Division	James Robertson	Consolidated Coal Co.	Island Creek Coal Co.	Holden, W. Va.	94.70

The proper functioning of any large first-aid contest is affected greatly by the method of distributing the problems and scorecards to the teams and of delivering the judges' scorecards to the recorders. The method of handling scorecards in this contest was similar to that followed in previous national contests; the assistants to the person in charge of the problems distributed them to the team judges, who, at the sound of the first gong, handed them to the team captains. The problem distributors also returned the scorecards to the chief distributor, who checked them off the list, then forwarded them to the scorecard examiners. All scorecards were sealed in envelopes by the judges as soon as the discounts were recorded and also by the scorecard examiners as soon as the information was completed and before the sheets were forwarded to the recorder. The contest functioned smoothly.

#### COMBINATION CONTEST

The combination event consisted of teams that had participated in both the mine rescue and first-aid contests. To compete in this event the same team that participated in the first-aid contest, exclusive of the patient, had to participate in the mine rescue contest.

Table 5 lists the teams, the companies represented, addresses of the teams, number of discounts received, and the standing of the teams in the combination contest.

TABLE 5. - Standing of teams in combination contest

Place	Mine or team	Company	Address	No. discounts	
				First aid	Mine rescue
1	Frick District	United States Steel Corporation	Uniontown, Pa.	48	101
2	Holden Division	Island Creek Coal Co.	Holden, W. Va.	265	84

#### BANQUET AND AWARDING OF PRIZES

The contest was followed by a banquet in the main ballroom of the Sheraton-Seelbach Hotel the evening of October 4. Approximately 525 team members, officials, judges, and guests attended. After the banquet prizes were presented to the winning teams in the first 5 places in the mine rescue and the first 7 places in the first-aid contest. A congressional medallion was awarded for the first time to the winner of the combination contest.

The master of ceremonies was Harry Candy, Jr., who announced the prizewinners. The names of the winners of each event, the prizes awarded, and the donors of the prizes are listed in appendix G. There were no speeches at the banquet.

#### STATE CHAMPIONS

The standing of the teams in the first-aid and mine rescue events was used as a basis for selecting the State champions. Winners of State awards and the awards are recorded in table 6.

TABLE 6. - State awards

State	Contest	Mine	Company	Award
Kentucky	Mine rescue	Lynch District	United States Steel Corporation, Coal Division	(a) Kentucky State banner. (b) Kentucky River Coal Assoc. trophy. (c) Kentucky Mining Institute plaque. (d) National Mine Rescue Assoc. Post. No. 2 plaque.
Do.	First aid	Price preparation plant	Inland Steel Company	(a) Kentucky State banner. (b) Kentucky River Coal Assoc. trophy. (c) Kentucky Mining Institute plaque.
Virginia	do.	Derby colliery	Stonega Coke and Coal Company	Virginia Coal Operators Assoc. trophy.
Pennsylvania	Mine rescue	Frick District	United States Steel Corporation, Coal Division	Pennsylvania State banner.
Do.	Combination	do.	do.	Do.

## COST OF NATIONAL CONTEST - METHOD OF FINANCING

An accurate detailed record of the cost of the national contest is not possible because much of the work in connection with making prior arrangements and for conducting it was done by representatives of various organizations without cost.

The amount necessary to cover the actual expenses of the contest, except the banquet, which was financed by the sale of tickets, was raised by popular subscription from coal associations, mining institutes, mining companies, labor organizations, and others. Bureau of Mines personnel erected the gallery and laid out the simulated mine workings.

Contributions to the contest fund totaled \$5,125. Disbursements totaled \$4,328.74, leaving a balance of \$796.26. In keeping with established practice, this is to be returned to the contributors pro rata.

A list of the donors follow:

Contributors of funds

Armco Steel Corporation .....	Middletown, Ohio
Bethlehem Mines Corporation .....	Bethlehem, Pa.
Big Sandy-Elkhorn Mining Institute .....	Pikeville, Ky.
Buckeye Coal Company .....	Youngstown, Ohio
Central Pennsylvania Coal Producers Association .....	Altoona, Pa.
Crucible Steel Company .....	Pittsburgh, Pa.
Duquesne Light Company .....	Do.

Contributors of Funds (Con.)

Harlan Mining Institute .....	Harlan, Ky.
Inland Steel Company .....	Chicago, Ill.
Jones and Laughlin Steel Corporation .....	Pittsburgh, Pa.
Kanawha Coal Operators Association .....	Charleston, W. Va.
Kentucky River Mining Institute .....	Hazard, Ky.
Logan Coal Operators Association .....	Logan, W. Va.
Lynch Coal Operators Reciprocal Association .....	Terre Haute, Ind.
National Coal Association .....	Washington, D. C.
National Mines Corporation .....	Brownsville, Pa.
Northern West Virginia Coal Association .....	Fairmont, W. Va.
Ohio Coal Association .....	Cleveland, Ohio
Operators Association of the Williamson Field .....	Williamson, W. Va.
Pocahontas Operators Association .....	Bluefield, W. Va.
Republic Steel Corporation .....	Cleveland, Ohio
United Mine Workers of America .....	Washington, D. C.
United States Steel Corporation .....	Pittsburgh, Pa.
Western Kentucky Mining Institute .....	Madisonville, Ky.
Western Pennsylvania Coal Operators Association .....	Pittsburgh, Pa.
Winding Gulf Operators Association .....	Beckley, W. Va.

Disbursements

The disbursements in connection with both the mine rescue and first-aid contests are listed in table 7.

TABLE 7. - Disbursements

Paid to -	Item or service	Amount
Byron S. Adams	Printing programs	\$ 396.87
H. H. Engel	Grounds Committee Petty Cash	43.79
Jos. T. Griffith Co.	Decoration and signs	208.00
Kentucky Fair and Exposition Center		1,800.00
Chester A. Lorch Agency		20.00
The Matheson Company	Carbon monoxide	28.43
O'Ryan & Bathelder, Inc.	Card display	75.80
National Coal Association	Envelopes	52.73
Berthold Nebel	Medals	716.25
Wm. H. Roll	Prize Committee incidental expense	42.67
H. H. Seiferth	Posters	219.57
Sheraton-Seelbach Hotel		180.75
Sterling G. Thompson Co.	Liability insurance	62.37
Wm. G. Wabnitz Sign Co.	Signs	40.00
H. F. Weaver	Badge inserts	.92
West Elizabeth Lumber Co.	Lumber	376.00
Westinghouse Electric Supply Co.	Tape	60.81
	Printing checks	3.78
	Refund to contributors	796.26
		<u>\$5,125.00</u>

OFFICIALS AND JUDGES

The officials and judges of the 1957 Contest are recorded in appendix H.



## APPENDIX A

General Rules for Conducting the 1957 National  
First-Aid and Mine Rescue Contest

1. The First-Aid and Mine Rescue Contests will be held in the Coliseum, Kentucky Fair and Exposition Center, Louisville, Ky.
2. There will be no limitations as to the number of teams admitted from any State, district, company, or organization.
3. The members of all teams must be bona fide employees of the mine or mines, smelter or smelters, mill or mills, petroleum refinery or other branch of the petroleum industry, quarry or quarries, or plant of an allied industry, represented by the team and may be underground or surface workers in or about the mine, smelter, mill, metallurgical plant, petroleum operation, quarry, or allied industry.
4. Any organization, union, club, or local benefit society may enter a team. The members of such team shall be actual members of the said organization and shall be employed in or about a mine, smelter, mill, petroleum plant, quarry, or allied industry plant in the local district covered by the membership of the organization.
5. No physician or trained nurse shall be a member of a team.
6. Entries shall be submitted in writing or by wire to H. F. Weaver, Secretary, 1957 National First-Aid and Mine Rescue Contest, Federal Bureau of Mines, Room 4522 Interior Building, Washington 25, D. C., on or before September 20, 1957. Entries will not be received after September 20, 1957, except in cases where participation in the National Contest is determined through elimination processes in district, State, or other contests held on or after September 20, 1957. Teams from these contests will be permitted to enter the National Contest subsequent to September 20; provided, however, that no notice of entry of any team will be accepted after 12 o'clock noon, October 1, 1957. Entry blanks may be obtained by application to the nearest Bureau of Mines Health and Safety Office.
7. The same team may enter the First-Aid and Mine Rescue Contests, provided that the same team members who participate in the First-Aid Contest, exclusive of the patient, must constitute the mine rescue team to qualify for combination prizes.
8. Each team entering Contests will draw a number to determine its order of performance and field location.
9. Registration of first-aid and mine rescue teams, judges, and Contest Officials will be at the Sheraton-Seelbach Hotel, Louisville, Kentucky, between 1:00 p.m. and 10:00 p.m., October 1, 1957. Registration for mine rescue teams will be continued at the Coliseum, between 7:00 a.m. and 8:00 a.m. on October 2, 1957. Registration for first-aid teams will be continued at the Sheraton-Seelbach Hotel between 10:00 a.m. and 10:00 p.m. on October 2 and between 7:00 a.m. and 8:00 a.m. on October 3 at the Coliseum.
10. At the time of registering, the captain of each mine rescue team will be required to turn over to the registrars a Bureau of Mines Physician's Examination Form signed by the examining physician, showing that each member of the team has had a thorough physical examination by a qualified physician not more than 30 days before the Contest and is physically sound and capable of performing strenuous work under oxygen. Physician's Examination Form (Bureau of Mines Form 6-141) may be obtained from the nearest Bureau of Mines Health and Safety Office.



11. Any team not on the field and ready, when the first event for which it is entered is announced, will be disqualified for the Contest.

12. The preliminary examination and testing of mine rescue crews and apparatus will commence at the Coliseum, at 8:00 a.m., October 2, 1957. Each team, after completing the preliminary examination, will wait to be conducted to the Contest gallery when the team number is called.

13. The First-Aid Contest will begin at 9:00 a.m. on October 3 and 4. The Mine Rescue Contest will begin at 9:00 a.m. on October 2.

14. The use of any type of mechanical resuscitating device will not be permitted in the first-aid or mine rescue events.

15. After the completion of the First-Aid and Mine Rescue Contests, teams with their equipment must remain on the field until announcements are made regarding ties, if any.

16. Any team which has left the field or whose equipment is not available when called upon to compete in ties will be disqualified.

17. Possible ties in Contests will be decided by special events; if time does not permit, they may, by mutual agreement, be decided by lot.

18. Information regarding cups and prizes will be found in the program of the meet, which will be given to the teams when they register.

19. The prize-winning first-aid and mine rescue teams will be officially announced during the banquet on October 4.

20. Following the awarding of prizes, team ratings will be posted at a conspicuous place in the Sheraton-Seelbach Hotel.

21. All rules relating to the Contest will be rigidly enforced.

22. All hours mentioned in these rules are based on Louisville time.

#### Rules for Taking Appeal to Final Appeals Committee

1. Any unresolved dispute between a chief judge and any team member, judge, or other contest official which arises, under the rules of a contest, concerning eligibility, judging, or scoring may be appealed to the Final Appeals Committee, composed of members of the Federal Coal Mine Safety Board of Review.

2. To take a dispute to the Final Appeals Committee, prompt notification must be given to the chief judge of the contest involved by the person desiring to make such appeal, specifying the exact grounds upon which the appeal is taken. The chief judge, in turn, must promptly inform a member of the Final Appeals Committee that an appeal is desired and the grounds for such appeal. Appeals may be taken in the mine rescue contest and in the first-aid contest no later than 45 minutes after the completion of the final problem in each contest.

3. The Final Appeals Committee will thereupon immediately conduct a hearing at which the dispute will be presented by the chief judge, or his designated representative, and by the other party to the dispute, or his designated representative. Witnesses may be called and permitted to testify at the discretion of the Final Appeals Committee.

4. No person except each party to the dispute, or his designated representative, and witnesses called at the discretion of the Final Appeals Committee will be permitted to attend the hearing. Time will be granted to each party in an amount to be determined by the Final Appeals Committee, depending upon the nature of the controversy.

5. As soon as possible after the hearing, the Final Appeals Committee will announce its decision, either upholding, reversing, or modifying the determination of the chief judge, from which appeal has been taken. The decision of the Final Appeals Committee is conclusive. The Final Appeals Committee shall be controlled by the unit rule; that is, if the Final Appeals-Committee is not in unanimous agreement, the determination of the chief judge will remain standing.

6. All teams participating in, and officials of, the contest shall receive a copy of the foregoing rules for taking an appeal.

## APPENDIX B

Rules Governing National Mine Rescue Contest, 1957

1. Each team shall be composed of six men, including a captain and patient. Each team member shall be provided with an oxygen breathing apparatus (2-hour type) and closed lights of a type approved by the United States Bureau of Mines.

Note: Because approved mine rescue apparatus equipped with face-pieces were not generally available in time for the contest, teams so equipped are not eligible to participate in the mine rescue contest.

2. Each team should bring one substitute to be available for use in case of sickness or for any other reason a team member is unable to compete or to act as patient if a patient is required in the problem.

3. The substitute or patient shall weigh approximately the same as the average weight of the team members.

4. Members of mine rescue teams must not be over fifty (50) years of age, as older men than this will not be permitted to participate.

5. Prior to the beginning of the mine rescue contest the team captain will present to the chief judge a medical certificate, dated not over 30 days prior to the contest, showing that each member of his team (including the captain) is physically sound and capable of performing strenuous work under oxygen. No examination at field. False teeth OK for contest work.

6. Each crew shall provide its own apparatus, including goggles for each member of team.

7. Goggles should be in place but need not be worn over eyes unless conditions actually require their use.

8. Any 2-hour self-contained breathing apparatus approved by the Bureau of Mines must be used on the patient. (See note under 1.)

9. Teams will be required to bring with them a sufficient supply of regenerating material and apparatus accessories for both preliminary examination and performance or problem or problems.

10. Each team will be given a preliminary right or wrong written examination and will perform one or more problems. The teams will be furnished a problem and 10 minutes will be allowed for its study, putting on apparatus, and other preparations before entering the mine.

11. Before reporting to the mine entrance all apparatus must be fully assembled and ready to wear. Oxygen bottles shall be charged to 100 atmospheres or above, but not to exceed 150 atmospheres. It will be the teams' responsibility to have the apparatus sufficiently charged with oxygen for the contest.

12. All teams must be underground at the beginning of the contest.

13. Lifelines, tools, stretchers, brattice boards, canvas, nails, or other material necessary for constructing bulkheads or stoppings, and fire-fighting equipment (if necessary in problem) will be furnished by the field committee. However, obtaining this material will be the teams' responsibility.

14. Each team should have its own canary birds and cages or United States Bureau of Mines approved carbon monoxide detectors, CO testers, and flame safety lamps; however, if a team does not have such equipment it will be furnished by the field committee on request.

15. Apparatus will be furnished by the field committee on request for the recovery of men supposed to be entombed. Teams may, however, bring their own apparatus for this purpose if they so desire.

16. All teams not performing problems will be placed in a location where they are unable to obtain information regarding the problem being worked. No person excepting designated officials will be allowed to communicate with the teams waiting to perform problems. Teams which have performed will not be permitted to communicate with teams awaiting their turn.

17. Accompanying officials, substitutes, or friends of a team shall remain away from the team and make no effort to communicate with it before or during the preliminary examination or the working of the problem.

18. After the team leaves the mine on the completion of the problem and the judges have examined the team, apparatus, etc., the crew will be given 10 additional minutes for checking and marking the map.

19. The chief judge and his assistants will be men trained in the assembly, use, and care of the different types of oxygen breathing apparatus, gas masks, etc., and will not be connected with any of the crews, employers of competing crews, or the manufacturers or agents of breathing apparatus, gas masks, or gas-detecting devices.

20. Infractions of any of the rules governing the mine rescue contest, if such infractions are not covered in the table of discounts, may at the discretion of a committee of judges result in the disqualification of the team or teams involved.

#### Preliminary Examination of Crews

1. The preliminary examination of crews will be held in a place designated and assigned by the contest committee and chief judge prior to contest.

2. A judge or judges will examine the captain and other team members as to their knowledge of the proper operation, assembly, and testing of oxygen or other self-contained breathing apparatus, gas masks, self-rescuers, gas-detecting devices, and methods of procedure.

3. Teams being examined will be supervised by 2 or more judges, at least one of whom will be a Bureau of Mines employee. The committees of judges will work under the chief judge.

4. The judges will observe the captain and other team members as to their knowledge of proper operation, assembly, and testing of self-contained breathing apparatus, gas-detecting devices, and methods of procedure during the 10-minute preparation period.

5. Judges shall not ask questions or interfere with a team during the preparation period.

### Procedure of Rescue Crews in Performing Problems

1. Teams will report to the judges when called upon. Ten minutes will then be allowed for study of the problem, inspection of apparatus and equipment, and getting under oxygen. At the end of the ten-minute period, a whistle or gong will be sounded.

2. Each team will be given a written problem which will show the working time permitted.

3. During the 10-minute preparation period, team members must check apparatus for working condition and air tightness. High and low pressure tests, admission valve opening and closing tests, and whistle valve test must be made.

4. Each team member must clear his apparatus before getting under oxygen and then proceed to perform the problem.

5. The team will check lifeline signals with the judge at the lifeline reel, procure mine map, procure and place in operating condition gas-detecting devices, procure stretcher, and any other materials needed for the working of the problem.

6. Standard lifeline signals will be used by all teams as follows:

- 1 Pull - "Stop" if traveling or "all right" if at rest.
- 2 Pulls - "Advance."
- 3 Pulls - "Retreat" (from fresh-air base to team, "return at once").
- 4 Pulls - "Distress."

7. If telephone is used, it will replace the use of the lifeline.

8. Team must count off.

9. Horns or other audible signals between team members will be the same as given for lifeline signals.

10. Crew members will keep lifeline taut at all times in order to be able to give or receive signals.

11. Persons selected by the United States Bureau of Mines will operate the lifeline at the fresh-air base for all crews unless telephone is used.

12. The entire gallery, enclosed area, or roped-off space used to represent a portion of a mine shall be assumed to be filled with unbreathable atmosphere, unless otherwise specified in problem.

13. The captain will examine gages, apparatus, etc., twice while advancing into the mine and once while coming out.

14. Each crew on reaching the farthest point of travel in a room, chamber, entry, drift, crosscut, etc., will mark the initials or name of the captain or crew, also, the day, month, and year of the trip, in order to indicate that the area has been explored. Places so marked should be indicated by the crew on the map, which must be turned over to the judges after the 10-minute time allotted as mentioned elsewhere in these rules.

15. The working time for the problem will start when the team leaves the fresh-air base and continue until the team completes the problem and leaves the gallery, enclosed area, or roped-off space, and the captain indicates to the judges by raising his hand that the problem has been completed.

16. A penalty for overtime for each minute or fraction thereof will be made in accordance with the points shown on the discount sheet. A signal will be given for each minute overtime.

17. After the crew completes the working of the problem, have had their apparatus examined by the judges, and removed their mouthpieces and nose clips, 10 minutes will be given to check and mark the map before turning it over to the judges.

18. The marked map as submitted by the team will be compared with the problem by the judges and credited or charged against the team as marked.

19. Each team as it performs a problem will be rated by a committee of judges. Bureau of Mines employee will be the chairman for the judges, and he will work under a chief judge.

#### Judging

1. Only men trained in the assembly, use, and care of the different types of mine rescue equipment and trained in mine rescue procedure will be used as judges.

2. Groups of 5 men will judge the preliminary examination and groups of 5 men will judge during the 10-minute preparation period. Judges will be stationed in the mine and will score the teams on the particular part of the problem assigned to them. Judges will be assigned to act as timekeepers and will indicate on the scorecard where the apparatus is cleared and where lifeline or other signaling is performed. These same or a separate group of judges will score the teams in the smokeroom and will check maps.

3. The judge or judges will mark a scorecard for work done by each team in their specified area. All judges will sign discounts where given. Discount sheets will be marked and delivered to the scorecard examiner promptly.

#### Miscellaneous

1. Problems will be on a flat layout, having no inclines or ladders unless the team has been notified to the contrary prior to the date of the contest.

2. Only problems which can be worked in 25 to 35 minutes will be given, and insofar as possible, materials rather than placards will be used in the mine.

3. The captain and one or more team members may advance a maximum of 25 feet in by the original stopping point of the captain, or the rear man may go back from the team a like distance from his original post, when in an atmosphere free of smoke.

4. Roof examinations must be made from rib to rib at working faces. Roof examinations need not be made along ribs unless material or placards are along the rib.

5. Stations or stops in the discount sheet mean any place in the mine where the entire team is stopped for any purpose.

6. Lamp and detector tests must be made in the entire face area as well as in boxes if testing boxes are being used. Examinations should begin on the side of the place opposite the testing box and the face area should be examined before a test is made in the box. When testing in boxes the CO test should be made first.

7. Roof tests should be made by the sound-and-vibration method.

8. Examinations for gas may be made with a walking or traveling flame or with a nonluminous flame.

9. No person or persons other than the judges, contest officials, and team members be permitted in the working areas.

Note: Questions in the written examinations on oxygen breathing apparatus will be taken from the Bureau of Mines handbook, Self-Contained Oxygen Breathing Apparatus.

Questions on mine gases and methods of detection will be taken from Bureau of Mines Miners' Circular 33.

Questions on protection against mine gases, other than those on oxygen breathing apparatus, will be taken from Bureau of Mines Miners' Circular 35.

Questions on mine rescue procedure will be taken from Bureau of Mines Miners' Circular 36.

## INTERPRETATIONS FOR JUDGES AND TEAM TRAINERS

Previous to entering the mine or leaving fresh-air base

1. Apparatus should be evacuated of air before turning on oxygen as shown on page 97 of the 1941 edition of the Bureau of Mines Manual on Self-Contained Oxygen Breathing Apparatus.

2. The captain must examine the gages and apparatus of team members and have a team member examine the captain's gage and apparatus before entering the mine.

3. Extra apparatus must be tested for airtightness and proper working condition. High- and low-pressure tests, admission-valve opening and closing tests, and whistle-valve tests must be made. Tester should not put mouthpiece in his mouth while testing.

4. Hand or audible counting off is acceptable. Team members must "count off" immediately before leaving fresh-air base or surface. It is not necessary to "count off" on reentering the mine during the working of the problem.

5. Team member will be discounted for breathing external air or for failure to place the nose clip promptly after oxygen has been turned on.

After entering the mine and beyond fresh-air base

1. This section is not intended to cover horn signals but covers only lifeline signals. Signals must be given before leaving fresh-air base.

2. Teams must not be discounted under other sections for wrong horn signaling.

3. Course of travel should be marked regardless of whether or not a lifeline is used. Arrows need be marked only around corners, out by No. 5 man, but they must point toward place of entrance. Course of travel should only be used.

4. Items other than those listed specifically on the discount sheet need not be marked.

5. An interval of from 5 to 7 feet between any 2 members while traveling will not be considered improper.

6. Teams will not be discounted under this section unless the safety of the crew is actually endangered. Examples of endangering the crew are traveling under unsupported dangerous roof and carrying a lighted flame safety lamp into dangerous mixtures. Where methane can be detected by a flame safety lamp (1 percent or more) the lamp shall be extinguished.



## APPENDIX C

Judges' Discount Sheets, National Mine Rescue Contest

## 1. Card A - Preliminary Mine Rescue Questions

Team Member No. 1

	<u>True</u>	<u>False</u>
1. A rescue crew should not advance when an explosion from gas is probable (p. 79, M.C. 36).	_____	_____
2. A self-rescuer should be discarded if the inhaled air becomes hot (p. 16, M.C. 35).	_____	_____
3. The universal-type gas-mask canister should be discarded after 2 hours use even though it was only used in fresh air (p. 23, M.C. 35).	_____	_____
4. A man may breathe an atmosphere containing 60 percent oxygen, at atmospheric pressure, almost indefinitely without harmful effects (p. 4, M.C. 33).	_____	_____
5. Methane is not the only cause of mine explosions.	_____	_____
6. The colorimetric carbon monoxide detector will indicate concentrations as low as 0.001 percent by volume (p. 53, M.C. 33).	_____	_____
7. The average use of flame safety lamps can readily detect less than 0.5(1/2) percent of methane.	_____	_____
8. When charged to a pressure of 135 atmospheres the bottle holds 8.6 cubic feet or not less than 342 liters of oxygen (p. 198, Handbook).	_____	_____
9. The safety cap on the main bottle valve assembly is tested by compressing the bellows of the reducing valve, thereby increasing the pressure (p. 199, Handbook).	_____	_____
10. When the bypass valve is open only the inhalation valve is between the bypass valve and the lungs (p. 199, Handbook).	_____	_____

Team Member No. 2

1. A rescue crew should not advance into an irrespirable atmosphere unless there is a reserve crew, fully equipped, at fresh-air base, except for very short trips (p. 79, M.C. 36).	_____	_____
2. The presence of heat indicates that carbon monoxide is present in the air being drawn into the self-rescuer (p. 18, M.C. 35).	_____	_____
3. The universal gas mask and the self-rescuer are the only two types of approved gas masks that afford respiratory protection against carbon monoxide (p. 20, M.C. 35).	_____	_____

	<u>True</u>	<u>False</u>
4. It is dangerous to breathe pure oxygen, as used in oxygen breathing apparatus, at pressures higher than 15 pounds per sq. inch (p. 4, M.C. 33).	_____	_____
5. A man may breathe air containing 0.04 to 0.05 percent of carbon monoxide for 1 hour without appreciable effect (p. 11, M.C. 33).	_____	_____
6. There are five (5) field methods that may be used for detecting carbon monoxide in mine air (p. 52, M.C. 33).	_____	_____
7. The flame safety lamp will not show the presence of carbon monoxide until the concentration has reached 5 percent or more (p. 35, M.C. 33).	_____	_____
8. The safety cap on the oxygen bottle valve will rupture at 94 degrees Fahrenheit (p. 199, Handbook).	_____	_____
9. The safety valve should whistle at approximately 7 pounds above atmospheric pressure (p. 201, M.H.).	_____	_____
10. If the pressure tube or gage develops a leak or breaks, close the main bottle valve, and use the bypass to reach fresh air.	_____	_____

Team Member No. 3

1. A rescue crew may advance a short distance into an irrespirable atmosphere without a reserve crew at the fresh-air base (p. 79, M.C. 36).	_____	_____
2. There is no stated limit regarding the maximum concentration of carbon monoxide in which the self-rescuer is worn (p. 16, M.C. 35).	_____	_____
3. It is recommended that a person can change a gas-mask canister in contaminated air if he holds his breath (p. 25, M.C. 35).	_____	_____
4. It is dangerous to breathe pure oxygen for more than a few minutes at a time (p. 4, M.C. 33).	_____	_____
5. A man may breathe air containing 0.4 (4 tenths) of 1 percent of carbon monoxide for a period of 1 hour without serious effects (p. 11, M.C. 33).	_____	_____
6. The iodine pentoxide (Hoolamite) detector will indicate carbon monoxide ranging from 0.1 to 1.0 percent (p. 56, M.C. 33).	_____	_____
7. It is doubtful if the average user can detect less than 2 percent of methane with the ordinary flame safety lamp.	_____	_____
8. When the bypass valve is open only the inhalation check valve is between the wearers lungs and the high pressure in the oxygen bottle.	_____	_____

	<u>True</u>	<u>False</u>
9. The air capacity of the breathing bag is about 8 pints.	_____	_____
10. The inhalation check valve prevents the wearer from inhaling outside the atmosphere when the release valve is open (p. 204, M.H.B.).	_____	_____

Team Member No. 4

1. A rescue crew should not make trips ahead of fresh air with less than 30 minutes oxygen supply in each apparatus, except possibly to save life (p. 78, M.C. 36).	_____	_____
2. A self-rescuer may be used a number of times over a period of days, provided the total use does not exceed 30 minutes (p. 16, M.C. 35).	_____	_____
3. Gas mask crews should always carry a lighted, approved flame safety lamp to serve as an indicator of an oxygen deficiency (p. 25, M.C. 35).	_____	_____
4. When the air contains only about 21 percent of oxygen, life is greatly endangered (p. 4, M.C. 33).	_____	_____
5. A man may breathe air containing 15 percent or more of methane without ill effects, provided at least 20 percent of oxygen is present.	_____	_____
6. Cold weather has no effect on the indicating tubes of the colorimetric CO detector (p. 56, M.C. 33).	_____	_____
7. The flame safety lamp should not be used in high places where it is necessary to attach it to a pole (p. 31, M.C. 33).	_____	_____
8. The inspired air of an oxygen breathing apparatus must not average more than 2-1/2 percent carbon monoxide.	_____	_____
9. The bypass valve should be used frequently, even though the reducing and admission valves are working properly if in dense smoke (p. 199, H.B.).	_____	_____
10. About 4 to 6 pounds of carbon dioxide is given off in each exhaled breath (p. 205, M.H.B.).	_____	_____

Team Member No. 5

1. Exploration trips ahead of the fresh-air base should not be taken with less than a full crew of five men (p. 79, M.C. 36).	_____	_____
2. The only function of the self-rescuer is to protect the wearer against carbon monoxide (p. 15, M.C. 35).	_____	_____
3. The universal type gas mask should not be worn in atmospheres containing more than 2 percent carbon monoxide by volume (p. 24, M.C. 35).	_____	_____

	<u>True</u>	<u>False</u>
4. Normal air contains about 29 percent oxygen at sea level (p. 3, M.C. 33).	_____	_____
5. A methane explosion cannot occur if the oxygen content of the air is less than 16 percent (p. 7, M.C. 33).	_____	_____
6. One squeeze of the colorimetric CO detector bulb will obtain an indication of carbon monoxide in concentrations ranging from 0.005 to 0.10 percent by volume (p. 56, M.C. 33).	_____	_____
7. It is safe to leave a lighted flame safety lamp on the floor of the mine, as explosive gas is not likely to be present.	_____	_____
8. The regenerating material in a self-contained oxygen breathing apparatus must not permit more than 2.5 percent carbon dioxide in the inspired air (p. 15, M.H.B.).	_____	_____
9. The locking device is used on the main bottle valve wheel to prevent it from opening accidentally in use (p. 200, M.H.).	_____	_____
10. About 4 pounds of carbon dioxide is used in the regenerator (p. 205, M.H.B.).	_____	_____

2. Card B - Checking Apparatus and Other Procedure Previous  
to Entering the Mine or Leaving Fresh-Air Base

Team No. \_\_\_\_\_

Note: Teams will be additionally discounted for repetitions of the same mistake in the same problem, for example: Two members of crew breathing external air, 4 points discount.

	DISCOUNTS
(a) Apparatus improperly assembled .....	3 _____
(b) Failure to make tests for airtightness on high- and low-pressure side and operating tests of admission valve and safety valve. <u>Each omission on each apparatus including extra apparatus</u> .....	1 _____
(c) Apparatus improperly adjusted to wearer, <u>each man</u> .....	1 _____
(d) Failure to follow procedures for going under oxygen as shown on page 97 in Manual, <u>each man</u> .....	3 _____
(e) Apparatus part or parts worn or deteriorated so as to be dangerous to the wearer, <u>each man</u> .....	5 _____
(f) Oxygen supply of team member less than 100 or more than 150 atmospheres, <u>each man</u> .....	2 _____

## DISCOUNTS

- (g) Insufficient or too great rate of oxygen feed, evidenced by flat or high-inflated breathing bag, each man ..... 1 \_\_\_\_\_
- (h) Failure to examine gages and apparatus before entering the mine, each apparatus ..... 2 \_\_\_\_\_
- (i) Failure to take necessary equipment and gas-detecting devices to work the problem, each omission ..... 2 \_\_\_\_\_
- (j) Failure to have equipment and gas-detecting devices ready for testing, each omission ..... 1 \_\_\_\_\_
- (k) Failure to test CO detector (visual test), flame safety lamp, and fire extinguishers, each omission ..... 2 \_\_\_\_\_
- (l) Colorimetric CO detector bulb inflating in less than 27 or more than 33 seconds. For each second under 27 seconds ..... 2 \_\_\_\_\_
- (m) Failure of team to arrange standard lifeline signals with fresh-air base unless using telephone ..... 3 \_\_\_\_\_
- (n) Failure of team to procure mine map ..... 3 \_\_\_\_\_
- (o) Failure of team to be under oxygen and ready to enter the mine at the end of 10-minute preparation period. For each minute or fraction thereof over 10 minutes ..... 1 \_\_\_\_\_
- (p) Team member talking to or listening to instructions from an unauthorized person without permission of the supervisor or judge, each infraction ..... 5 \_\_\_\_\_
- (q) Breathing external air after getting under oxygen unless the apparatus is cleared of air as required on page 97 in Manual before going underground, each man, each infraction ..... 2 \_\_\_\_\_
- (r) Failure to test stretcher ..... 4 \_\_\_\_\_
- (s) Failure to secure extra apparatus to stretcher ..... 2 \_\_\_\_\_
- (t) Failure of team to "count off" before entering the mine ..... 2 \_\_\_\_\_
- (u) Flame safety lamp improperly assembled or defective parts used ..... 3 \_\_\_\_\_
- (v) Failure of one or more team members to leave fresh air base, each team member ..... 12 \_\_\_\_\_

TOTAL DISCOUNTS \_\_\_\_\_

\_\_\_\_\_  
Judge\_\_\_\_\_  
Judge\_\_\_\_\_  
Judge

## 3. Card C - After Entering the Mine and Beyond Fresh-Air Base

Team No. \_\_\_\_\_

Note: Teams will be additionally discounted for repetitions of the same mistake in the same problem, for example: Unnecessary use of bypass valve, each infraction 2 points discount; excessive use of relief valve, each team member committing the infraction, 2 points discount, etc.

	DISCOUNTS
(a) Failure to take lifeline into mine .....	10 _____
(b) Failure to signal properly by use of lifeline using standard signals, <u>each infraction</u> .....	2 _____
(c) Failure of team to stop within 50 feet of the fresh-air base to check men and apparatus .....	2 _____
(d) None of team members having hold of lifeline, <u>each infraction</u> .	2 _____
(e) Any team member not having hold of lifeline, or having it firmly attached to his person in dense smoke, <u>each infraction</u> .	2 _____
(f) Any team member more than 7 feet from nearest other team member in dense smoke, <u>each man</u> .....	2 _____
(g) Failure to maintain proper distance, 5 to 7 feet while traveling, <u>each man</u> .....	1 _____
(h) Any team member traveling more than 25 feet from the captain's stopping point, except No. 5 man who may go back 25 feet from his stopping point, <u>each infraction</u> .....	2 _____
(i) Failure to signal properly with horn or other similar device, if not corrected, <u>each infraction</u> .....	1 _____
(j) Failure to mark the course of travel with arrow pointing toward the fresh-air base, the date, and the captain's initials at all corners that the entire team turns, <u>each infraction</u> .....	2 _____
(k) Failure to mark the date; the captain's initials at the faces of rooms, entries, crosscuts, impassible falls, barricades, stoppings, bodies, and the farthest point of advance in any direction, <u>each omission</u> .....	2 _____
(l) Failure of captain to direct or command crew properly, <u>each infraction</u> .....	2 _____
(m) Captain or other team member doing anything to endanger the team, <u>each infraction</u> .....	4 _____
(n) Failure of the captain to test the roof by sound and vibration method, <u>each infraction</u> .....	2 _____

## DISCOUNTS

(u)	Failure to examine gages and clean apparatus of excess nitrogen at least twice going into and once coming out of the mine, <u>each infraction</u> .....	4	_____
(p)	Breathing external air while working problem, each team member, <u>each infraction</u> .....	6	_____
(q)	Unnecessary use of bypass, <u>each team member</u> .....	2	_____
(r)	Excessive use of release valve, <u>each man</u> .....	2	_____
(s)	In the event the nose clip slips off while working the problem, <u>each infraction</u> .....	1	_____
(t)	Working all or part of problem without the nose clip in place, <u>each team member</u> .....	8	_____
(u)	Failure to find fire, gas, smoke, barricades, stoppings, falls, doors, and other conditions when actually in the mine or when indicated by signs or otherwise, <u>each omission</u> .....	3	_____
(v)	Failure to test all stops for poisonous irrespirable or flammable gases, <u>each infraction</u> .....	3	_____
(w)	Improper procedure when testing with flame safety lamp and detector, <u>each infraction</u> .....	2	_____
(x)	Failure to use flame safety lamp properly in mixtures of air and methane, <u>each infraction</u> .....	4	_____
(y)	Failure of team to cover light or indicate turning off cap lamp while testing with a nonluminous flame, <u>each team member, each infraction</u> .....	1	_____
(z)	Failure to return to known fresh air when relighting flame safety lamp, <u>each infraction</u> .....	2	_____
(aa)	Failure to extinguish or carrying a lighted flame safety lamp in or through areas where the oxygen content is 16.25 percent or below as indicated by cards or otherwise, <u>each infraction</u> .	2	_____
(bb)	Excessive talking, <u>each team member</u> .....	2	_____
(cc)	Failure to find live men, <u>each omission</u> .....	20	_____
(dd)	Failure to bring live man to surface, <u>each omission</u> .....	20	_____
(ee)	Failure to properly protect live man or men, <u>each omission</u> ...	8	_____
(ff)	Failure to have main bottle valve open and to open and close bypass valve 2 times before placing apparatus on patient .....	2	_____
(gg)	Apparatus mouthpiece and nose clip not properly adjusted to patient, also goggles when necessary .....	4	_____

		DISCOUNTS
(hh)	Failure to test stretcher before placing patient on it, <u>each omission</u> .....	4 _____
(ii)	Rough handling of patient .....	2 _____
(jj)	Failure to tie patient's arms, tie patient to stretcher or cover patient with blanket, <u>each omission</u> .....	2 _____
(kk)	Placing patient on stretcher with apparatus valves next to stretcher, <u>each infraction</u> .....	2 _____
(ll)	Assistance lent by unconscious patient .....	2 _____
(mm)	Transporting patient in unexplored territory when unnecessary, <u>each infraction</u> .....	4 _____
(nn)	Failure to erect temporary barricade when necessary, <u>each infraction</u> .....	6 _____
(oo)	Failure to erect temporary barricade, seal or stopping reasonably airtight, <u>each infraction</u> .....	2 _____
(pp)	Failure of teams to explore or examine working systematically and thoroughly, <u>each omission</u> .....	4 _____
(qq)	Less than 5 team members completing problem, <u>each man</u> .....	8 _____
(rr)	Any team member passing a card indicating a condition in the mine before determining the information on the card, <u>each infraction</u> .....	2 _____
(ss)	Failure to complete problem in the time specified, each minute or fraction thereof .....	1 _____
TOTAL DISCOUNTS		_____

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 Judge

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 Judge

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 Judge



## 4. Card D - After Working Problem and Leaving Mine

Team No. \_\_\_\_\_

Note: Teams shall not shut off oxygen until judges examine apparatus.

## DISCOUNTS

- (a) Oxygen supply of team member less than 30 atmospheres,  
each member ..... 6 \_\_\_\_\_
- (b) Failure to remain in smoke room the entire specified period,  
each man ..... 6 \_\_\_\_\_
- (c) Failure to turn over to judges marked map within 10 minutes  
 after starting consultation. For each minute or fraction  
thereof overtime ..... 1 \_\_\_\_\_
- (d) Failure to locate and record on map with reasonable accuracy  
 conditions as found or indicated in the mine, each omission .. 2 \_\_\_\_\_

TOTAL DISCOUNTS \_\_\_\_\_

\_\_\_\_\_  
Judge\_\_\_\_\_  
Judge\_\_\_\_\_  
Judge

## APPENDIX D

## First-Aid Problems

## Problem No. 1

Three minutes will be allowed for reading problem and assembling material.

A brakeman jumps from a moving trip of mine cars to open a door, slips, and falls. He is struck by a moving locomotive and receives the following injuries: He is lying face downward and the lower part of his body is paralyzed; he has a fracture of the lower jaw and a 3-inch wound on the inside of the right thigh spurting bright-red blood. Patient is conscious and suffers from physical shock. Treat.

Working time - 8 minutes.

-----

Outline for Working Problem

1. Arterial bleeding, right thigh.
  2. Physical shock.
  3. Wound on right thigh.
  4. Fracture of lower jaw.
  5. Broken back.
1. Arterial bleeding, right thigh.
    - (a) Apply digital pressure at thigh pressure point.
    - (b) Apply tourniquet at thigh pressure point.
  2. Physical shock.
    - (a) Head level with body. (When patient is placed on broken-back splint, foot end of splint should be raised at least 6 inches.)
    - (b) Remove all foreign bodies from mouth. See that tongue is forward.
    - (c) Loosen tight clothing at neck, chest, and waist.
    - (d) Cover patient with blanket after completion of dressings.
    - (e) Tested heated objects may be used.
    - (f) Give tested stimulant by inhalation.
  3. Wound on right thigh.
    - (a) Apply bandages as for wound of thigh (see p. 67 and fig. 30B).
  4. Fracture of lower jaw.
    - (a) Apply bandages as for fracture of lower jaw (see p. 89 and fig. 39).
  5. Broken back.
    - (a) Test broken-back splint.
    - (b) Apply padded splint and bandages as for broken back (see p. 99 and fig. 45B).
    - (c) Lift from left side.
    - (d) Elevate foot end of splint at least 6 inches.

## Problem No. 2

Three minutes will be allowed for reading problem and assembling material.

A timberman fails to set safety posts and is caught by a fall of roof. After the material has been removed and the patient is in a safe place, the following injuries are observed: The patient is unconscious, bleeding from the mouth and nose, and the pupils of the eyes are unequal in size. He has a wound on the center of the forehead at the point of the skull fracture; fracture of four ribs on the left side; a forward dislocation of the right hip; and a fracture of the left hand. Patient is suffering from physical shock. Treat and prepare for transportation.

Working time - 8 minutes

-----

Outline for Working Problem

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| 1. Physical shock.               | 5. Fracture of left hand.            |
| 2. Wound on forehead.            | 6. Forward dislocation of right hip. |
| 3. Fracture of skull.            | 7. Prepare for transportation.       |
| 4. Fracture of ribs (left side). |                                      |
1. Physical shock.
    - (a) Head raised by a pad.
    - (b) Remove all foreign bodies from mouth. See that tongue is forward.
    - (c) Loosen tight clothing at neck, chest, and waist.
    - (d) Cover patient with blanket after completion of dressings.
    - (e) Tested heated objects may be used.
    - (f) Do not give stimulants.
  2. Wound on forehead.
    - (a) Apply bandages as for wound of forehead (see p. 53 and fig. 21A).
    - (b) Do not tie knot of compress or cravat bandage over wound.
  3. Fracture of skull.
    - (a) Have patient's head raised.
    - (b) Cold applications may be used.
    - (c) Do not give stimulants.
  4. Fracture of ribs (left side).
    - (a) Apply bandages as for fracture of ribs (see p. 94 and fig. 43).
  5. Fracture of left hand.
    - (a) Support the hand.
    - (b) Apply padded splint and bandages as for fracture of hand (see p. 94 and fig. 42B).
  6. Forward dislocation of right hip.
    - (a) Support hip until splint and all bandages are applied and tied on the injured side.
    - (b) Test splint.
    - (c) Apply padded splint and bandages as for dislocation of hip (see p. 108 and fig. 50).
  7. Prepare for transportation.
    - (a) Test stretcher.
    - (b) Three men lift from the right side and place patient on stretcher.
    - (c) Elevate the head but not the stretcher.

## Problem No. 3

Three minutes will be allowed for reading problem and assembling material.

A shuttle-car operator is squeezed between the rib and the shuttle car. He is lying face down. He complains of severe pain through the pelvic region. Blood is oozing from a 3-inch wound on the right side of his face, a 2-inch wound on the point of the right shoulder, and a 3-inch wound on the left forearm. Patient is conscious but suffers from physical shock throughout the problem. Treat and transport patient 25 feet on stretcher and return to original position but do not unload patient from stretcher.

Working time - 8 minutes

-----

Outline for Working Problem

1. Physical shock.
  - (a) Remove all foreign bodies from mouth. See that tongue is forward.
  - (b) Loosen tight clothing at neck, chest, and waist.
  - (c) Cover patient with blanket after completion of dressings.
  - (d) Tested heated objects may be used.
  - (e) Give tested stimulant by inhalation.
  - (f) When patient is placed on splint or board, foot end of splint or board should be elevated at least 6 inches.
2. Wound on right shoulder.
  - (a) Apply bandages as for wound of shoulder (see p. 56 and fig. 22A).
3. Wound on right side of face.
  - (a) Apply bandages as for wound of face (see p. 53 and fig. 20C).
4. Wound on left forearm.
  - (a) Apply bandages as for wound of forearm (see p. 58 and fig. 23B).
5. Fracture of pelvis.
  - (a) Support the pelvis until two wide bandages are applied and tied.
  - (b) Apply padded and tested splint or board.
  - (c) Apply bandages as for fracture of pelvis (see p. 100 and fig. 46).
6. Transportation.
  - (a) Test stretcher.
  - (b) Three men lift from the left side and place patient on stretcher.
  - (c) Carry stretcher 25 feet and return to original position, but do not unload patient from stretcher.
  - (d) Elevate foot end of stretcher at least 6 inches.

## Problem No. 4

Three minutes will be allowed for reading problem and assembling material.

A wireman comes in contact with a live electric wire which is down. He is found unconscious and not breathing, lying face downward. He has a compound fracture of the left kneecap; a 3-inch wound on the outside of the right ankle; and a wound on the right hip. Resuscitate by all team members (except patient) performing the Holger-Nielsen method of artificial respiration for 1 minute each. Patient regains consciousness at the end of artificial respiration but suffers from physical shock throughout the problem. Treat and prepare for transportation.

Working time - 7 minutes.

-----

Outline for Working Problem

1. Electric shock (artificial respiration).
  2. Physical shock.
  3. Wound on left kneecap (compound fracture).
  4. Wound on right hip.
  5. Wound on outside of right ankle.
  6. Compound fracture of left kneecap.
  7. Prepare for transportation.
1. Artificial respiration (Holger-Nielsen method).
    - (a) Remove all foreign bodies from mouth. See that tongue is forward.
    - (b) Loosen tight clothing from neck, chest, and waist.
    - (c) Apply tested heated objects.
  2. Physical shock.
    - (a) Head level with body.
    - (b) Cover patient with blanket after completion of dressings.
    - (c) Give tested stimulant by inhalation during artificial respiration and tested stimulant by mouth after completion of artificial respiration.
  3. Wound on left kneecap (compound fracture).
    - (a) Apply tourniquet loosely at thigh pressure point.
    - (b) Apply bandages as for wound of knee (see p. 68 and fig. 31A).
    - (c) Do not tie knot of compress or cravat bandage over wound.
  4. Wound on right hip.
    - (a) Apply bandages as for wound of hip (see p. 67 and fig. 30A).
  5. Wound on outside of right ankle.
    - (a) Apply bandages as for wound of ankle (see p. 68 and fig. 32A).
  6. Compound fracture of left kneecap.
    - (a) Support top of left leg, one hand above and one hand below the kneecap.
    - (b) Apply padded splint and bandages as for fracture of kneecap (see p. 103 and fig. 47B).
  7. Prepare for transportation.
    - (a) Test stretcher.
    - (b) Three men lift from the left side and place patient on stretcher.
    - (c) Elevate foot end of stretcher at least 6 inches.

## Problem No. 5

Three minutes will be allowed for reading problem and assembling material.

A machineman fails to set a safety post and is caught by a fall of roof near the working place. When the rock and material are removed from him, the following injuries are observed: Fracture of the neck; simple fracture of the right hand; a 1-inch wound on the first joint of the index finger of the left hand, and a dislocation of the first joint of the index finger of the left hand. Patient is unconscious and suffering from physical shock. Treat and transport patient on stretcher 25 feet, return to original position, and unload patient from stretcher.

Working time - 9 minutes.

-----

Outline for Working Problem

1. Physical shock.
  - (a) Do not lower head (broken neck). Keep head level with body. When patient is placed on splint, foot end of splint should be elevated at least 6 inches.
  - (b) Remove all foreign bodies from mouth. See that tongue is forward.
  - (c) Loosen tight clothing from neck, chest, and waist.
  - (d) Cover patient with blanket after completion of dressings.
  - (e) Tested heated objects may be used.
  - (f) Give tested stimulant by inhalation.
2. Wound on first joint of index finger of left hand.
  - (a) Apply bandage as for wound of finger (see p. 61).
3. Fracture of right hand.
  - (a) Support the hand.
  - (b) Apply padded splint and bandages as for fracture of hand (see p. 94 and fig. 42B).
4. Fracture of neck.
  - (a) Support the head until the fifth bandage of neck dressing has been tied.
  - (b) Place patient on tested broken-back splint.
  - (c) Tie as for fractured neck (see p. 97 and fig. 45A).
5. Dislocation of first joint of index finger of left hand.
  - (a) Do not reduce dislocation (see p. 108).
6. Transportation.
  - (a) Test stretcher.
  - (b) Three men lift from left side and place patient on stretcher.
  - (c) Carry stretcher 25 feet, return to original position, and unload patient from stretcher.
  - (d) Elevate foot end of splint at least 6 inches.

## Problem No. 6

Three minutes will be allowed for reading problem and assembling material.

A shuttle-car operator has been squeezed between the rib and the shuttle car and is found lying face downward with the following injuries: Fracture of the left hip; a wound on the palm of left hand bleeding in spurts; a wound on point of chin; a simple fracture of the right foot. The patient is unconscious and in a state of physical shock. Treat and prepare for transportation.

Working time - 8 minutes.

-----  
Outline for Working Problem

1. Arterial bleeding, palm of left hand.
  2. Physical shock.
  3. Wound on palm of left hand.
  4. Wound on chin.
  5. Fracture of right foot.
  6. Fracture of left hip (lying face down).
  7. Prepare for transportation.
1. Arterial bleeding, palm of left hand.
    - (a) Apply digital pressure at wrist pressure points.
    - (b) Apply tourniquet at arm pressure point.
  2. Physical shock.
    - (a) Head level with body.
    - (b) Remove all foreign bodies from mouth. See that tongue is forward.
    - (c) Loosen tight clothing from neck, chest, and waist.
    - (d) Cover patient with blanket after completion of dressings.
    - (e) Tested heated objects may be used.
    - (f) Give tested stimulant by inhalation.
  3. Wound on palm of left hand.
    - (a) Apply bandages as for wound of palm of hand (see p. 59 and fig. 24A).
  4. Wound on chin.
    - (a) Apply compress bandage as for wound of chin (see p. 56 and fig. 21D).
  5. Fracture of right foot.
    - (a) Support the foot.
    - (b) Apply padded splint and bandages as for fracture of foot (see p. 103 and fig. 48).
  6. Fracture of left hip (lying face down).
    - (a) Support hip until two wide bandages are tied.
    - (b) Test splint.
    - (c) Apply padded splint and tie bandages over back of body before turning patient over.
    - (d) Pass a cravat bandage around the head and splint and tie it (see p. 100 and fig. 46).
    - (e) Tie the forearms folded across the chest (see p. 19 and fig. 7).
  7. Prepare for transportation.
    - (a) Test stretcher.
    - (b) Three men lift from the right side and place patient on stretcher.
    - (c) Elevate foot end of stretcher at least 6 inches.

## Problem No. 7

Three minutes will be allowed for reading problem and assembling material.

A hand loader fails to set the brakes of a mine car at the working place and is squeezed by the mine car. When the mine car is released from the victim, the following injuries are observed: A fracture of the right side of the pelvis; a compound fracture of the lower two-thirds of the left arm 4 inches above the elbow, with arterial bleeding; a 3-inch wound on the right side of the neck; and a 3-inch wound on the right forearm. Patient is unconscious and suffering from physical shock throughout the problem. Treat and transport patient on stretcher 25 feet, return to original position, and unload patient from stretcher.

Working time - 7 minutes

-----  
Outline for Working Problem

- |   |                                      |
|---|--------------------------------------|
| 1. Arterial bleeding, left arm.           | 5. Wound on right forearm.           |
| 2. Physical shock.                        | 6. Compound fracture of left arm.    |
| 3. Wound on left arm (compound fracture). | 7. Fracture of right side of pelvis. |
| 4. Wound on right side of neck.           | 8. Transportation.                   |
- 
1. Arterial bleeding, left arm.
    - (a) Apply digital pressure at arm pressure point.
    - (b) Apply tourniquet at armpit pressure point.
  2. Physical shock.
    - (a) Head should be level with the body (when patient is placed on splint, foot end of splint should be raised at least 6 inches).
    - (b) Remove all foreign bodies from mouth. See that tongue is forward.
    - (c) Loosen tight clothing from neck, chest, and waist.
    - (d) Cover patient with blanket after completion of dressings.
    - (e) Tested heated objects may be applied.
    - (f) Give tested stimulant by inhalation.
  3. Wound on left arm (compound fracture).
    - (a) Apply bandages as for wound of arm.
    - (b) Do not tie knot of compress or cravat bandages over wound (see p. 58 and fig. 23A).
  4. Wound on right side of neck.
    - (a) Apply bandages as for wound of neck (see p. 56).
  5. Wound on right forearm.
    - (a) Apply bandages as for wound of forearm (see p. 58 and fig. 23B).
  6. Compound fracture of left arm.
    - (a) Support the arm.
    - (b) Apply padded L-shaped splint.
    - (c) Apply bandages as for fracture of the lower two-thirds of arm (see p. 92 and fig. 42A).
  7. Fracture of right side of pelvis.
    - (a) Support pelvis until two wide bandages are applied and tied.
    - (b) Apply padded and tested board or splint.
    - (c) Apply bandages as for fracture of pelvis (see p. 100 and fig. 46).
  8. Transportation.
    - (a) Test stretcher.
    - (b) Three men lift from the left side and place the patient on stretcher.
    - (c) Carry stretcher 25 feet, return to original position, and unload patient from stretcher.
    - (d) Elevate foot end of splint or board at least 6 inches.



## Problem No. 8

Three minutes will be allowed for reading problem and assembling material.

A lineman was putting a fuse in a power circuit at an elevated transformer station when he received an electrical shock and fell from the platform, receiving the following injuries: Wound of the left armpit with bleeding; fracture of the right shoulder blade; a 3-inch wound spurting bright red blood on the inside of the right thigh midway between the crotch and the knee; fracture of four ribs on the right side; extensive wounds on the scalp with slight bleeding; burns on both hands; a wound of the left groin; and a severe bruise of the left thigh. The patient remains unconscious throughout the problem and suffers from physical shock. Treat and transport 50 feet and return to original position but do not unload patient from stretcher.

Working time - 8 minutes.

-----  
Outline for Working Problem

1. Arterial bleeding, right thigh.
  2. Physical shock.
  3. Wound on inside of right thigh.
  4. Wound of left armpit with bleeding.
  5. Wound of left groin.
  6. Extensive wounds of scalp.
  7. Burns of both hands.
  8. Bruise of left thigh.
  9. Fracture of ribs (right side).
  10. Fracture of right shoulder blade.
  11. Transportation.
- 
1. Arterial bleeding, right thigh.
    - (a) Apply digital pressure at thigh pressure point.
    - (b) Apply tourniquet at thigh pressure point.
  2. Physical shock.
    - (a) Head level with body.
    - (b) Remove all foreign objects from mouth. See that tongue is forward.
    - (c) Loosen tight clothing from neck, chest, and waist.
    - (d) Cover patient with blanket after completion of dressings.
    - (e) Tested heated objects may be used.
    - (f) Give tested stimulant by inhalation.
  3. Wound on inside of right thigh.
    - (a) Apply bandages as for wound of thigh (see p. 67 and fig. 30B).
  4. Wound of left armpit with bleeding.
    - (a) Apply bandages as for wound of armpit (see p. 57 and fig. 22B).
  5. Wound of left groin.
    - (a) Apply bandages as for wound of groin (see p. 65 and fig. 28B).
  6. Extensive wounds of scalp.
    - (a) Apply bandages as for extensive wounds of scalp (see p. 53 and fig. 19).

## Problem No. 8 (Con.)

7. Burns of both hands.
  - (a) Remove all loose clothing from burns.
  - (b) Place moistened picric-acid gauze over burned surfaces and place picric-acid gauze between the fingers (see p. 76).
  - (c) Apply triangular bandages as for extensive wounds of the hand (see p. 61 and fig. 25).
8. Bruise of left thigh.
  - (a) Apply cold applications.
  - (b) Elevate the thigh.
9. Fracture of ribs (right side).
  - (a) Apply bandages as for fracture of ribs (see p. 94 and fig. 43).
10. Fracture of right shoulder blade.
  - (a) Need not be supported.
  - (b) Apply dressings as for fracture of shoulder blade (see p. 90 and fig. 41A).
11. Transportation.
  - (a) Test stretcher.
  - (b) Three men lift from left side and place patient on stretcher.
  - (c) Carry patient 50 feet and return to original position but do not unload patient from stretcher.
  - (d) Elevate foot end of stretcher at least 6 inches.

## Problem No. 9

Three minutes will be allowed for reading problem and assembling material.

A shuttle car struck a timber support which dislodged some timbers, causing the roof to fall on the shuttle-car operator. When the material has been removed from the operator the following injuries are observed: A compound fracture of the left thigh 6 inches above the knee, with arterial bleeding; a wound of the left eye; a dislocated lower jaw; a crushed left hand with the skin scraped off the back of the hand from the wrist to the end of the fingers with slight bleeding; a dislocation of the right elbow with the arm in a straight position. Patient is unconscious and suffers from physical shock. Treat and prepare for transportation.

Working time - 8 minutes.

-----  
Outline for Working Problem

1. Arterial bleeding, left thigh.
  2. Physical shock.
  3. Wound on left thigh (compound fracture).
  4. Wound of left eye.
  5. Extensive wounds on back of left hand.
  6. Compound fracture of left thigh.
  7. Crushed left hand (compound fracture).
  8. Dislocation of right elbow (straight position).
  9. Dislocation of lower jaw.
  10. Prepare for transportation.
1. Arterial bleeding, left thigh.
    - (a) Apply digital pressure at thigh pressure point.
    - (b) Apply tourniquet at thigh pressure point.
  2. Physical shock.
    - (a) Head level with body.
    - (b) Remove all foreign objects from mouth. See that tongue is forward.
    - (c) Loosen tight clothing from neck, chest, and waist.
    - (d) Cover patient with blanket after completion of dressings.
    - (e) Tested heated objects may be used.
    - (f) Give tested stimulant by inhalation.
  3. Wound on left thigh (compound fracture).
    - (a) Apply bandages as for wound of thigh (see p. 67 and fig. 30B).
    - (b) Do not tie knot of compress or cravat bandage over wound.
  4. Wound of left eye.
    - (a) Apply compress bandage as for injury of eye (see p. 54 and fig. 21B).
  5. Extensive wounds on back of left hand.
    - (a) Apply tourniquet loosely at arm pressure point.
    - (b) Apply bandages as for extensive wounds of hand (see p. 61 and fig. 25).
  6. Compound fracture of left thigh.
    - (a) Support the thigh.
    - (b) Apply padded splint and bandages as for fracture of thigh (see p. 101 and fig. 47A).

## Problem No. 9 (Con.)

7. Crushed left hand (compound fracture).
  - (a) Support the hand.
  - (b) Apply padded splint and bandages as for crushed hand (see p. 94 and fig. 42B).
8. Dislocation of right elbow (straight position).
  - (a) Support dislocated elbow.
  - (b) Apply padded splint and bandages as for dislocated elbow in straight position (see p. 106 and fig. 49B).
9. Dislocation of lower jaw.
  - (a) Reduce dislocation.
  - (b) Place wedge between teeth.
  - (c) Apply bandages as for dislocated jaw. Remove wedge from between teeth after completion of dressing (see p. 105 and fig. 39).
10. Prepare for transportation.
  - (a) Test stretcher.
  - (b) Three men lift from the right side and place patient on stretcher.
  - (c) Elevate foot end of stretcher at least 6 inches.

## Problem No. 10

Three minutes will be allowed for reading problem and assembling material.

A wireman is found along the haulage road in the mine, lying on his back, unconscious and not breathing. The right arm is rigid at the shoulder, the right elbow stands off a distance of 2 inches from his body, the shoulder appears flat, and there is a marked depression beneath the point of the shoulder. The ends of bones can be seen on the inside of the right leg 6 inches below the knee, and the leg is out of line from normal position. There is a 3-inch wound on the left side of the face. Each team member should administer artificial respiration for 1 minute. Patient regains consciousness at end of artificial respiration but suffers from physical shock throughout the problem. Treat and prepare for transportation.

Working time - 8 minutes

-----  
Outline for Working Problem

1. Electric shock (artificial respiration).
  2. Physical shock.
  3. Wound on inside of right leg (compound fracture).
  4. Wound on left side of face.
  5. Compound fracture of inside of right leg.
  6. Dislocation of right shoulder.
  7. Prepare for transportation.
1. Artificial respiration (Schafer method).
    - (a) Remove all foreign bodies from mouth. See that tongue is forward.
    - (b) Loosen tight clothing from neck, chest, and waist.
    - (c) Apply tested heated objects.
  2. Physical shock.
    - (a) Head level with body.
    - (b) Cover patient with blanket after completion of dressings.
    - (c) Give tested stimulant by inhalation during artificial respiration and tested stimulant by mouth after respiration is completed.
  3. Wound on inside of right leg (compound fracture).
    - (a) Apply bandages as for wound of leg (see p. 68 and fig. 31B).
  4. Wound on left side of face.
    - (a) Apply bandages as for wound of face (see p. 53 and fig. 20C).
  5. Compound fracture of inside of right leg.
    - (a) Apply loose tourniquet to thigh pressure point.
    - (b) Support the leg.
    - (c) Apply padded splint and bandages as for fracture of leg (see p. 103 and fig. 47C).
  6. Dislocation of right shoulder.
    - (a) Support the shoulder.
    - (b) Apply bandages as for dislocation of shoulder (see p. 106 and fig. 49A).
  7. Prepare for transportation.
    - (a) Test stretcher.
    - (b) Three men lift from the left side and place patient on stretcher.
    - (c) Elevate foot end of stretcher at least 6 inches.

## Problem No. 11

Three minutes will be allowed for reading problem and assembling material.

A machineman has been squeezed between the rib and mining machine and is found lying face down with the following injuries: A fracture of the left hip; a wound on the palm of left hand bleeding in spurts; a wound on point of chin; a simple fracture of the right foot. The patient is unconscious and in a state of physical shock. Treat and prepare for transportation.

----- Working time - 7 minutes. -----

Outline for Working Problem

1. Arterial bleeding, palm of left hand.
  2. Physical shock.
  3. Wound on palm of left hand.
  4. Wound on chin.
  5. Fracture of right foot.
  6. Fracture of left hip (lying face down).
  7. Prepare for transportation.
1. Arterial bleeding, palm of left hand.
    - (a) Apply digital pressure at wrist pressure points.
    - (b) Apply tourniquet at arm pressure point.
  2. Physical shock.
    - (a) Head level with body.
    - (b) Remove all foreign bodies from mouth. See that tongue is forward.
    - (c) Loosen tight clothing from neck, chest, and waist.
    - (d) Cover patient with blanket after completion of dressings.
    - (e) Tested heated objects may be used.
    - (f) Give tested stimulant by inhalation.
  3. Wound on palm of left hand.
    - (a) Apply bandages as for wound of palm of hand (see p. 59 and fig. 24A).
  4. Wound on chin.
    - (a) Apply compress bandage as for wound of chin (see p. 56 and fig. 21D).
  5. Fracture of right foot.
    - (a) Support the foot.
    - (b) Apply padded splint and bandages as for fracture of foot (see p. 103 and fig. 48).
  6. Fracture of left hip (lying face down).
    - (a) Support hip until two wide bandages are tied.
    - (b) Test splint.
    - (c) Apply padded splint and tie bandages over back of body before turning patient over.
    - (d) Pass a cravat bandage around the head and splint and tie it (see p. 100 and fig. 46).
    - (e) Tie the forearms folded across the chest (see p. 19 and fig. 7).
  7. Prepare for transportation.
    - (a) Test stretcher.
    - (b) Three men lift from the right side and place patient on stretcher.
    - (c) Elevate foot end of stretcher at least 6 inches.

## Problem No. 12

Three minutes will be allowed for reading problem and assembling material.

A wireman while working on a telegraph pole came in contact with a live wire, fell from the pole, and is lying on his stomach, unconscious and not breathing. He has a compound fracture of the left kneecap, a 3-inch wound on the left ankle, and a 3-inch wound on the right hip. Resuscitate by all team members (except patient) performing the Holger-Nielsen method of artificial respiration for 1 minute each. Patient regains consciousness at the end of artificial respiration but suffers from physical shock throughout the problem. Treat and prepare for transportation.

Working time - 7 minutes.

-----  
Outline for Working Problem

1. Electric shock (artificial respiration).
  2. Physical shock.
  3. Wound on left kneecap (compound fracture).
  4. Wound on right hip.
  5. Wound on left ankle.
  6. Compound fracture of left kneecap.
  7. Prepare for transportation.
1. Artificial respiration (Holger-Nielsen method).
    - (a) Remove all foreign bodies from mouth. See that tongue is forward.
    - (b) Loosen tight clothing from neck, chest, and waist.
    - (c) Apply tested heated objects.
  2. Physical shock.
    - (a) Head level with body.
    - (b) Cover patient with blanket after completion of dressings.
    - (c) Give tested stimulant by inhalation during artificial respiration and rested stimulant by mouth after completion of artificial respiration.
  3. Wound on left kneecap (compound fracture).
    - (a) Apply tourniquet loosely at thigh pressure point.
    - (b) Apply bandages as for wound of knee (see p. 68 and fig. 31A).
    - (c) Do not tie knot of compress or cravat bandage over the wound.
  4. Wound on right hip.
    - (a) Apply bandages as for wound of hip (see p. 67 and fig. 30A).
  5. Wound on left ankle.
    - (a) Apply bandages as for wound of ankle (see p. 68 and fig. 32A).
  6. Compound fracture of left kneecap.
    - (a) Support top of left leg, one hand above and one hand below the kneecap.
    - (b) Apply padded splint and bandages as for fracture of kneecap (see p. 103 and fig. 47B).
  7. Prepare for transportation.
    - (a) Test stretcher.
    - (b) Three men lift from the right side and place patient on stretcher.
    - (c) Elevate foot end of stretcher at least 6 inches.

## APPENDIX E

Rules Governing National First-Aid Contest, 1957

1. A team will be composed of six persons, including a captain and patient. An additional person may be carried as a team member to act as an alternate or substitute.
2. If substitutes are on a team, they shall be placed in the stands or other place indicated by the chief judge.
3. Full team events only will be used.
4. Each team will perform ten or more problems. This, of course, does not prevent the running off of ties between the individual teams concerned, but the points made in problems performed to decide a tie shall not be included in the total points for the whole contest.
5. The Bureau of Mines Manual of First-Aid Instruction (1953 edition) is hereby authorized for sole reference and guidance in contest work at this meet.
6. The teams will be numbered consecutively beginning with No. 1, and they must occupy the position assigned them on the field.
7. The use of lettering on first-aid boxes and hats will be permitted.
8. Team members will not be permitted to mark patient to indicate the location of injuries.
9. No practicing will be allowed on the field before the beginning of the contest.
10. All problems will be worked in marked-off spaces which shall contain only the judges and the contesting teams.
11. All teams not performing a problem will be placed in a location where they are unable to obtain information regarding problem being worked.
12. No persons, excepting designated officials, will be allowed to communicate with teams waiting to perform problems or while working problems. Teams which have performed will not be permitted to communicate with teams waiting their turn.
13. Accompanying officials, substitutes, or friends of a team shall remain away from the team and make no effort to communicate with it during or between problems.
14. All teams and judges will be furnished copies of the contest rules sufficiently in advance of the contest so that they will have time to become familiar with them.
15. The patient shall take his position before the beginning of each problem by lying on his back, head toward team and arms extended alongside of body.
16. The captain, or other team member, must change the position of the patient as required by the problem, during the three minutes reading period.



17. In problems involving artificial respiration, 12 complete strokes of the Holger-Nielsen (back-pressure arm-lift) method and 12 to 15 complete strokes for the Schafer and Silvester methods of artificial respiration will be given per minute.

18. Teams shall not be discounted because of any special way of changing operators in artificial respiration so long as the rhythm is not broken.

19. The wearing of a watch is permitted.

20. If conditions make it impracticable for the operator to straddle both thighs, he may assume the position where one thigh is straddled.

21. Support of fractures or dislocations and control of bleeding cannot be done at the same time; one person must support the limb and another person should control the bleeding.

22. If problem reads, "prepare for transportation," patient must be loaded on stretcher unless otherwise stated in problem. If problem reads, "treat patient," stretcher does not have to be taken to the patient.

#### Dress

(a) Teams performing will wear a two-piece uniform or similar form of dress.

(b) The patient shall be dressed like other team members and when taking his position before each problem, he shall have his shirt and waistband of his trousers completely fastened and his belt in place. Shoes shall be removed at the instruction of team captain during the 3-minute period.

(c) The three top buttons on shirt, belt, and top button of trousers must be open during shock treatment.

(d) The use of rubber bands or similar devices on the patient's arms, legs, and splints shall be prohibited.

(e) Bandages must be applied over the team uniform worn by the patient.

#### Material

(a) Teams must bring their own first-aid material, including bandages, splints, blankets, etc.

(b) Only first-aid material as outlined in the Bureau of Mines Manual of First-Aid Instruction shall be used in this contest. Unsterile compresses and cravat bandages may be used.

(c) Splints or boards shall be of proper size, shall not be previously marked, and shall have no cleats thereon.

(d) Elevating devices higher than 6 inches shall not be used.

(e) Splints shall not be padded or wrapped prior to the beginning of any problem requiring their use.

(f) Splints, boards, and stretchers must be tested separately. Splints cannot be tested in conjunction with stretcher.

(g) No prepared padding will be permitted; however, triangular bandages or any suitable material that is found in or around mines, mills, quarries, petroleum plants, etc., may be used for padding, provided that this material is cut or torn and folded during the working of the problem. Cravat bandages are considered prepared padding. Blankets used for padding splints shall be opened to full width.

(h) All materials except blankets, stretchers, and splints must be kept in boxes or kits until after the gong or whistle has been sounded to begin working of the problem.

(i) A team or team member will be penalized for leaving the patient to obtain material during working of problem.

#### Timing

(a) Problems will be kept in sealed envelopes, retained by the judges, and given to team captains (opened) immediately after the sounding of the first gong.

(b) Three minutes will be allowed for reading problem. This will be indicated by the sounding of a gong.

(c) At the sounding of the first gong, the patient will take his place on the mat.

(d) A second gong will be sounded to indicate the time of starting the problem.

(e) A third gong will sound when the time for working the problem is completed.

(f) Time consumed in excess of that allowed for the problem will be indicated by a gong at one-minute intervals until all teams have completed the problem.

(g) In any given problem, time will not be taken into consideration, unless the team performing exceeds the allotted time or fails to give treatment promptly.

(h) At the conclusion of any problem, the team will return to its base, line up, count off, then the captain raises his right hand and announces his team number. The team remains at its post. (The problem will not be considered completed until this is done.)

(i) Teams will be allowed a definite period for removing bandages between problems or leaving the field - approximately 5 minutes.

#### Judging

(a) Each team as it performs a problem will be rated by a judge or judges. If two or more judges are used, one will act as chairman and mark the scorecard. All judges must sign the scorecard.

(b) The judges will be employees of the United States Bureau of Mines, skilled in first-aid training and conversant with Bureau of Mines first-aid standards, or experienced first-aid judges or instructors.

(c) Judges will work under a committee of chief judges, one of whom shall act as chairman.

(d) Judges will perform their work progressively. If two or more judges are judging the same team they must confer with each other.

(e) Judges will receive a scorecard and a copy of the problem, together with an outline of the correct method of working the problem according to the Bureau of Mines Manual of First-Aid Instruction.

(f) Judges should not ask questions or interfere in any way with a team while it is working the problem.

(g) Judges will be required to examine carefully the work done in each problem.

(h) Judges shall not inform a team as to the discounts inflicted, discuss discounts with a team within hearing of a team, or within hearing of officials or spectators.

(i) Judges should exercise care in marking the discount sheet so that the teams or spectators cannot see or get an idea of the discounts charged.

(j) Judges should mark plainly the team number, problem number, and discounts on the scorecard and sign the card in the space provided for that purpose. Do not use check marks for discounts. For example, if a team incurred a 1-point discount twice, the scorecard should be marked  $1 + 1 = 2$ ; if a 2-point discount three times,  $2 + 2 + 2 = 6$ , etc.

(k) When the judges have completed the rating of each team, the scorecards will be collected by a person or persons designated for this purpose.

(l) Judges should explain on the back of the discount sheet what the teams were discounted for.

#### Scorecard Examiners

(a) At least two (2) persons, who are not connected with or interested in any team and who are well versed in first-aid work, should be appointed to examine the scorecards before they are turned over to the recorders.

(b) The scorecard examiners shall carefully "check" the scorecards to see that there are no improper discounts on the scorecards, that the cards are properly signed, and that the totals are correct.

(c) Any scorecard or cards which are found improperly or not clearly marked shall be returned by messenger to the judge or judges responsible. Any erasures or corrections made by the judge shall be initialed by him.

(d) After the scorecard examiners have completed their work, they shall sign the scorecards and turn them over to the recorders.

(e) The scorecard examiners shall keep the scores confidential at all times during the contest.

#### Recording

(a) The recorders will tabulate the scores from the scorecards according to the numbers occupied by the teams on the field and not by names of teams.

(b) Scores shall be kept confidential by recorders, and no scores shall be given to anyone before the conclusion and tabulation of the last problem, when they may be given to the Chief Judge, who, in turn, will give the results of the contest to the proper authorized officials.

#### Ties

(a) Announcement of ties will be made and decided as soon as possible after the completion of the regular problem.

(b) All teams shall leave their material in place and remain on the field until scores are tabulated and announcement made regarding ties.

(c) Ties will be decided by one or more problems. Only one scorecard will be used, regardless of how many judges are used for judging the event.

(d) Infraction of the above rules, if such infractions are not covered in the table of discounts, may result in the disqualification of the team or teams involved.

#### Miscellaneous

(a) Broken neck: Support neck until 5th bandage is tied. Where slings are required, tie arms together of an unconscious patient for transportation. See page 20, figure 7.

(b) Crushed hand: If open wound is specified tourniquet loosely arm-pressure point.

(c) Compound fracture of foot: Either way in dressing of the foot will be correct.

(d) Stretchers: Army-type stretchers.

(e) Shock: Blanket must be used for shock treatments. Blanket must be placed on the patient after the completion of dressings.

(f) When a problem calls for a dressing for burns of the face, a dislocated or fractured jaw, neck or spine, or while the patient is lying face down, stimulants must be given only by inhalation whether the patient is conscious or unconscious.

(g) Use of stimulants: Either raise or turn head when giving liquid stimulants. Stimulants by inhalation must be given twice during working of problem and stimulants by mouth at least once.

(h) Compound fractures of the extremities: Shall not be arched unless the bone protrudes toward the splint.

(i) A tourniquet need not be loosened unless the working time of the problem exceeds ten (10) minutes, then the tourniquet shall be loosened at the end of ten minutes. (This does not mean that during the working of a problem the tourniquet shall be kept so tight as to cut off the circulation.)

(j) Arching of a tourniquet is not required, but in no case shall a bandage or other first-aid dressing be applied so as to foul the tourniquet.

(k) Fracture of pelvis must be supported until the two wide bandages are tied.

(l) Dressings of burns of face, head, or neck as described on page 74 of the manual shall not be construed to mean that small burns such as chin, cheek, etc. must be covered by the entire face dressing. Small burns should be dressed as regular wound dressings. The full dressing is applied where large areas of the face, head, and neck are involved.

(m) Rubbing of extremities to be done only in case of sunstroke.

## APPENDIX F

Judges' Discount Sheet, First-Aid Contest

PROBLEM No. \_\_\_\_\_

TEAM NO. \_\_\_\_\_

## FIRST-AID CONTEST

## NOTE

Teams shall not be discounted more than once for any 1 mistake in the same problem where such mistake may be discounted under more than 1 of the 15 sections of discounts.

Teams shall be additionally discounted for repetition of the same mistakes in the same problem, for example: 2 tight bandages, 4 points discount, 3 granny knots, 3 points discount, etc.

## 1. ARTIFICIAL RESPIRATION:

(a)	Not giving artificial respiration (in required cases) ..	40	_____
(b)	Unnecessary delay in starting artificial respiration ...	6	_____
(c)	Not removing patient from dangerous gas, roof, wire, etc. ....	6	_____
(d)	Not insulating or protecting oneself when removing patient from electric wire or dangerous gas .....	6	_____
(e)	Not demonstrating method of cutting off current (each infraction) .....	2	_____
(f)	Not placing patient in proper position (body, head, arm, etc.) .....	2	_____
(g)	Not loosening tight clothing (neck, chest and waistline) (each) .....	2	_____
(h)	Not removing foreign substances from mouth .....	2	_____
(i)	Not seeing that the tongue is in proper position .....	4	_____
(j)	Incorrect method (prone method instead of back-pressure arm lift, Silvester instead of prone, etc.) (each man) .	4	_____
(k)	Incorrect position of operator (each man) .....	4	_____
(l)	Improper position of operator's hands (too high, too low, or too far apart, etc.) (each man) .....	2	_____
(m)	Swinging too far forward when applying pressure (each man) .....	2	_____
(n)	Bending elbows (back-pressure arm lift, prone method) (each man) .....	1	_____
(o)	Not removing hands between applications to relieve pressure (each man) .....	1	_____
(p)	Incorrect timing for each 2 seconds or fraction thereof over or under 60 seconds in giving 12 complete strokes of the Holger Nielsen method and 12 to 15 complete strokes for the Schafer and Silvester methods of artificial respiration (each infraction by each man) ...	1	_____
	No. 1 man .....		_____
	No. 2 man .....		_____
	No. 3 man .....		_____
	No. 4 man .....		_____
	No. 5 man .....		_____
(q)	Breaking rhythm when changing operators (each man) .....	2	_____
(r)	Team member not giving artificial respiration when specified in problem (each man) .....	8	_____

(s)	Use of watch, other timing devices, or signals from others while giving artificial respiration (each man) ..	4	_____
(t)	Not placing pad under shoulder (Silvester method) .....	2	_____
2. CONTROL OF BLEEDING AND USE OF TOURNIQUETS:			
(a)	Not controlling arterial bleeding (in required cases) ..	20	_____
(b)	Not applying digital pressure to temporarily control arterial bleeding .....	8	_____
(c)	Unnecessary delay in applying digital pressure, and/or tourniquet .....	4	_____
(d)	Ineffective digital pressure (off pressure point, etc.)	4	_____
(e)	Releasing digital pressure before tourniquet is applied .....	2	_____
(f)	Not applying tourniquet in required cases .....	12	_____
(g)	Application of tourniquet so as not to stop bleeding (block not fully under band, not in right position, stick not anchored, etc.) .....	6	_____
(h)	Not applying tourniquet loosely in compound fractures not having arterial bleeding (limbs only) .....	4	_____
(i)	Tourniquet applied at wrong pressure point .....	4	_____
(j)	Tourniquet applied to wrong limb (right for left or left for right) .....	6	_____
(k)	Tourniquet applied so as to injure patient (pinching, not wrapping hard object) .....	2	_____
(l)	Binding or covering tourniquet with dressing (each) ...	2	_____
(m)	Applying tourniquets so as to stop bleeding from wounds, simple fractures, and compound fractures not having arterial bleeding .....	4	_____
(n)	Not elevating head (severe bleeding of head only) .....	2	_____
(o)	Not loosening tourniquet at 10-minute intervals .....	2	_____
(p)	Not giving any treatment for internal bleeding .....	2	_____
3. PHYSICAL SHOCK AND USE OF STIMULANTS:			
(a)	Not rendering any shock treatment in required cases ...	10	_____
(b)	Unnecessary delay in starting shock treatment (treating wounds, dislocations, fracture, etc., before shock treatment) .....	4	_____

- (c) Improper position of patient (head too high, etc.)..... 2 \_\_\_\_\_
- (d) Not removing foreign substance from mouth ..... 2 \_\_\_\_\_
- (e) Not seeing that tongue is in proper position ..... 2 \_\_\_\_\_
- (f) Not loosening tight clothing at neck, chest, and waist-  
line (each infraction) ..... 2 \_\_\_\_\_
- (g) Not covering or improper covering of patient ..... 2 \_\_\_\_\_
- (h) Not giving stimulant in required cases ..... 4 \_\_\_\_\_
- (i) Giving stimulant to patient having skull fracture,  
apoplexy, sunstroke, or internal bleeding ..... 4 \_\_\_\_\_
- (j) Giving unconscious patient stimulant by mouth (each  
infraction) ..... 4 \_\_\_\_\_
- (k) Giving stimulant by nose and not by mouth when patient  
is conscious (except patients with fractures of jaw,  
neck, or back and dislocated jaw) (each infraction).  
Give stimulant by mouth when conscious ..... 2 \_\_\_\_\_
- (l) Giving stimulant before arterial bleeding is controlled. 2 \_\_\_\_\_
- (m) Not testing stimulant before given by nose or mouth .... 2 \_\_\_\_\_
- (n) Not using or improper use of or not testing heat  
applications (each infraction) ..... 2 \_\_\_\_\_
- (o) Rubbing extremities when unnecessary ..... 2 \_\_\_\_\_

#### 4. WOUNDS:

- (a) Not applying any dressing for a wound ..... 10 \_\_\_\_\_
- (b) Not being aseptic (each wound) ..... 5 \_\_\_\_\_
- (c) Not using sterile compress or sterile gauze ..... 4 \_\_\_\_\_
- (d) Compress or gauze improperly applied (wound not entirely  
covered, wrong location, method, or position of knot,  
etc.) (each) ..... 2 \_\_\_\_\_
- (e) Tight or loose compress (each) ..... 2 \_\_\_\_\_
- (f) Insecure, incomplete, or granny knot (compress only)  
(each) ..... 1 \_\_\_\_\_
- (g) Lack of neatness (compress only) ..... 1 \_\_\_\_\_
- (h) Using gauze instead of compress for wounds less than  
4 inches ..... 1 \_\_\_\_\_



## 5. BURNS OR SCALDS:

- (a) Not applying any dressing for a burn or scald ..... 10 \_\_\_\_\_
- (b) Not being aseptic (each burn or scald) ..... 6 \_\_\_\_\_
- (c) Not entirely covering burn (picric acid gauze, etc.) ... 4 \_\_\_\_\_
- (d) Not placing picric acid gauze between fingers, toes,  
back of ears, etc. (each omission) ..... 2 \_\_\_\_\_
- (e) Not moistening or not indicating that picric acid gauze  
is moist ..... 2 \_\_\_\_\_
- (f) Applying picric acid gauze too tight (each piece) ..... 2 \_\_\_\_\_
- (g) Not removing or indicating removal of clothing from  
burned or scalded area ..... 2 \_\_\_\_\_

## 6. BRUISES, STRAINS, AND SPRAINS:

- (a) Not rendering any treatment for a bruise, strain, or  
sprain (each infraction) ..... 4 \_\_\_\_\_
- (b) Failure to apply cold applications or elevate bruises  
(when practical) (each infraction) ..... 2 \_\_\_\_\_
- (c) Failure to apply hot applications and massage strain  
(each) ..... 2 \_\_\_\_\_
- (d) Failure to bind and elevate sprain (when practical)  
(each infraction) ..... 2 \_\_\_\_\_
- (e) Removing shoe and/or not loosening shoe lace (each  
infraction) ..... 2 \_\_\_\_\_
- (f) Failure to apply cold applications to sprains (each  
infraction) ..... 2 \_\_\_\_\_

## 7. FRACTURES:

- (a) Not treating fracture of skull, spine, neck, pelvis, or  
thigh (each) ..... 12 \_\_\_\_\_
- (b) Not treating fractures other than (a) (each) ..... 10 \_\_\_\_\_
- (c) Not elevating head of patient with a fracture of skull . 4 \_\_\_\_\_
- (d) Applying cold application to fracture of skull over open  
wound, before applying dressing. Failure to apply cold  
application ..... 2 \_\_\_\_\_
- (e) Not straightening or improper straightening of frac-  
tured limb ..... 2 \_\_\_\_\_
- (f) Not supporting or improper support of fracture ..... 4 \_\_\_\_\_

- (g) Hands in wrong position, or attempting to control arterial bleeding while supporting fracture ..... 4 \_\_\_\_\_
- (h) Failure to place pad under knot in required cases (each infraction) ..... 1 \_\_\_\_\_
- (i) Improper lifting or lowering patient when applying splints (wrong side, etc.) ..... 2 \_\_\_\_\_
- (j) Placing wedge between teeth in fracture of lower jaw ... 2 \_\_\_\_\_

#### 8. DISLOCATIONS:

- (a) Not reducing or treating dislocations of lower jaw, fingers, or toes (each) ..... 6 \_\_\_\_\_
- (b) Not treating dislocations other than (a) (each) ..... 8 \_\_\_\_\_
- (c) Not placing wedge between teeth (dislocated jaw) ..... 2 \_\_\_\_\_
- (d) Not placing limb in proper position for treatment ..... 4 \_\_\_\_\_
- (e) Not supporting dislocations ..... 4 \_\_\_\_\_
- (f) Improper lifting or lowering of patient when applying splints (wrong side, etc.) ..... 2 \_\_\_\_\_
- (g) Failure to place pad under knot in required cases (each infraction) ..... 1 \_\_\_\_\_

#### 9. APPLICATION OF SPLINTS AND PADDING:

- (a) Improper splint ("L" splint instead of straight splint, or the reverse, cleats, marks, length, width, etc.) .... 2 \_\_\_\_\_
- (b) Splint improperly applied (too high, too low, etc.) .... 2 \_\_\_\_\_
- (c) Use of prepared padding (prefolded bandages, compresses, gauze, blanket, or previously padded splint) each infraction ..... 2 \_\_\_\_\_
- (d) Improper or insufficient padding. No arch placed where compound fractures contact splint (each) ..... 4 \_\_\_\_\_
- (e) Failure to place pad under knot in required cases (each infraction) ..... 1 \_\_\_\_\_
- (f) Failure to test splint used in dislocated hip, and fracture of neck, spine, or pelvis ..... 4 \_\_\_\_\_
- (g) Failure to pad under natural arches of extremities (each) ..... 2 \_\_\_\_\_
- (h) Lack of neatness ..... 1 \_\_\_\_\_

- (i) Use of prepared material other than cravat bandages to hold padding on splints (rubber bands, etc.) (each infraction) ..... 2 \_\_\_\_\_

10. APPLICATION OF CRAVAT OR TRIANGULAR BANDAGES:

- (a) Not using cravat or triangular bandage in required cases (wounds, burns, fractures, dislocations, tying arms of unconscious person for transportation, etc.) or not using sufficient bandages to complete dressing (each omission) ..... 4 \_\_\_\_\_
- (b) Improperly applied cravat or triangular bandage (compress not entirely covered, wrong method, wrong location, wrong position of knot) (each infraction) ..... 2 \_\_\_\_\_
- (c) Applying bandages in wrong order (each bandage) ..... 2 \_\_\_\_\_
- (d) Cravat or triangular bandage too tight or too loose (each) ..... 2 \_\_\_\_\_
- (e) Failure to use sling in required cases ..... 2 \_\_\_\_\_
- (f) Wrong type of sling or sling improperly applied ..... 2 \_\_\_\_\_
- (g) Insecure, incomplete, or granny knot (bandages only) (each) ..... 1 \_\_\_\_\_
- (h) Lack of neatness ..... 1 \_\_\_\_\_

11. RUPTURE:

- (a) Not rendering any treatment ..... 4 \_\_\_\_\_
- (b) Improper position of patient (knees not raised and held in place by padding and bandages when practical) ..... 4 \_\_\_\_\_
- (c) Failure to apply cold applications ..... 1 \_\_\_\_\_

12. POISONS, APOPLEXY, AND SNAKEBITE:

- (a) Failure to render any treatment ..... 8 \_\_\_\_\_
- (b) Not applying constricting bandage in snakebite ..... 8 \_\_\_\_\_
- (c) Failure to loosen constricting bandage for 1 minute after bleeding wound for 20 minutes ..... 2 \_\_\_\_\_
- (d) Not elevating head of patient having apoplexy. Not applying cold application ..... 2 \_\_\_\_\_
- (e) Incomplete treatment (each omission) ..... 2 \_\_\_\_\_

## 13. FAINTING, SUNSTROKE, HEAT EXHAUSTION, FROSTBITE, AND FREEZING:

- (a) Failure to render any treatment ..... 6 \_\_\_\_\_
- (b) Improper position of patient (head, body, etc.) ..... 4 \_\_\_\_\_
- (c) Incomplete treatment (each omission) ..... 2 \_\_\_\_\_
- (d) Applying heated objects or covering patient with blanket before reducing body temperature in sunstroke (each infraction) ..... 2 \_\_\_\_\_
- (e) Not rubbing extremities over wet sheet ..... 2 \_\_\_\_\_

## 14. TRANSPORTATION:

- (a) Not testing, or improper testing of stretcher ..... 4 \_\_\_\_\_
- (b) Not loading patient in required cases ..... 4 \_\_\_\_\_
- (c) Loading on stretcher but failing to carry patient ..... 4 \_\_\_\_\_
- (d) Improper construction of improvised stretcher ..... 2 \_\_\_\_\_
- (e) Lifting patient from wrong side (three men on least injured side) ..... 2 \_\_\_\_\_
- (f) Improper lifting or lowering (wrong knee, etc.) (each man) ..... 2 \_\_\_\_\_
- (g) Improper carrying (wrong step, etc.) (each man) ..... 2 \_\_\_\_\_
- (h) Not crossing obstacle or loading ambulance in required cases ..... 2 \_\_\_\_\_
- (i) Not unloading patient from stretcher in required cases . 2 \_\_\_\_\_
- (j) Captain not commanding properly (each infraction) ..... 2 \_\_\_\_\_
- (k) Team member not obeying command (each infraction) ..... 2 \_\_\_\_\_
- (l) Not elevating foot end or head end of stretcher in required cases ..... 1 \_\_\_\_\_

## 15. GENERAL:

- (a) Treating wrong condition (dislocation for fracture, sunstroke for heat exhaustion, etc.) (each) ..... 2 \_\_\_\_\_
- (b) Treating wrong location of injury (wrong side of body, arm for forearm, thigh for leg, etc.) (each) ..... 2 \_\_\_\_\_
- (c) Not treating injuries in their proper order (most severe one first, etc.) (each) ..... 2 \_\_\_\_\_

- (d) Not taking sufficient material to complete problem (each trip back) ..... 2 \_\_\_\_\_
- (e) Assistance lent by patient (physical or verbal) (each time) ..... 2 \_\_\_\_\_
- (f) Rough or unnecessary handling of patient (each infraction) ..... 2 \_\_\_\_\_
- (g) Slowness in work (each minute or fraction overtime) .... 1 \_\_\_\_\_
- (h) Use of rubber bands or similar devices on the patient's arms, legs, and splints is prohibited ..... 2 \_\_\_\_\_
- (i) Violation of, or failure to observe rules ..... 2 \_\_\_\_\_
- (j) Captain not commanding properly ..... 2 \_\_\_\_\_
- (k) Team member not obeying command ..... 2 \_\_\_\_\_

TOTAL ..... 500

Total Discounts \_\_\_\_\_ Total Credits \_\_\_\_\_

Recorder \_\_\_\_\_ Judges \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## APPENDIX G

09

Prize Winners in Mine Rescue, First-Aid, and Combination Contests

	Winner	Prize	Donor
		<u>Mine Rescue Contest</u>	
<u>1st place</u>	Team No. 4 Captain, Ted Hollin United States Steel Corporation Lynch District Lynch, Ky.	Congressional medallion Team trophy Coal Age trophy Lamp (Safety) Individual medallions Individual first-aid kits Individual brief cases	Congress of the United States. United Mine Workers of America. Coal Age Magazine. Engineering & Mining Journal. Bituminous Coal Operators' Association. Mine Safety Appliances Co. Cardox Corporation; Goodman Manufacturing Company; and also an anonymous contributor. Kentucky Dept. of Mines & Minerals.
<u>2d place</u>	Team No. 7 Captain, Wilmar Donahue Bethlehem Mines Corporation Mine No. 22 Deane, Ky.	State banner Team trophy Flashlights	National Coal Association. American Re-Insurance Co. of New York.
<u>3d place</u>	Team No. 3 Captain, J. P. Gibson Inland Steel Company Price No. 1 mine Wheelwright, Ky.	Team trophy Billfolds	Mine Safety Appliances Co. Old Republic Insurance Company.
<u>4th place</u>	Team No. 6 Captain, Harold Brogan Eastern Coal Corporation Eastern coal mine Stone, Ky.	Cigarette lighters	Anonymous.
<u>5th place</u>	Team No. 2 Captain, James E. Robertson Island Creek Coal Co. Holden Division Holden, W. Va.	Pocket secretaries	National Mine Service Company.
		<u>First-Aid Contest</u>	
<u>1st place</u>	Team No. 36 Captain, Willard Graham Island Creek Coal Co. Wyoming mine Wyoming, W. Va.	Congressional medallion Team trophy Coal Age trophy Lamp Individual medallions Individual first-aid kits Individual desk travel clocks	Congress of the United States. National Coal Association. Coal Age Magazine. Engineering & Mining Journal. Bituminous Coal Operators' Association. Mine Safety Appliances Co. Eureka Casualty Corporation.
<u>2d place</u>	Team No. 2 Captain, John Chambers United States Steel Corporation Robena No. 2 mine Uniontown, Pa.	Team trophy Individual pen and pencil sets State banner	Mine Safety Appliances Co. Bituminous Casualty Corp. Pennsylvania Department of Mines and Minerals.

<u>3d place</u>	Team No. 23 Captain, Bob Secrest Hanna Coal Co. Division of Pittsburgh Consolidation Coal Georgetown No. 12 mine Cadiz, Ohio	Team trophy Individual pocket secretaries (pigskin)	United Mine Workers of America, Cincinnati Mine & Machinery Co.
<u>4th place</u>	Team No. 24 Captain, Andrew Janoski Hanna Coal Co. Division of Pittsburgh Consolidation Coal Glen Castle No. 3 Cadiz, Ohio	Cigarette lighters	Simplex Wire & Cable Co.
<u>5th place</u>	Team No. 11 Captain, Burton Phillips Imperial Smokeless Coal Co. No. 3 mine Quinwood, W. Va.	Cigarette lighters	Cleveland Rock Drill Plant (LeRoi Division)
<u>6th place</u>	Team No. 6 Captain, John McCulloch Northern West Virginia Coal Mining Institute; South Union Coal Co. Jamison No. 11 mine Edna, W. Va.	Cuff links	Ingersoll Rand Co.
<u>7th place</u>	Team No. 38 Captain, Hilliard Stone Inland Steel Co. Price preparation plant Wheelwright, Ky.	Pocket knives Pencils State banner	Guyon Machinery Co. Jones & Laughlin Steel Corp. Kentucky Department of Mines and Minerals.
<u>1st place</u>	Team No. 1 Captain, Pete Yadamec United States Steel Corporation Frick District mine Uniontown, Pa.	<u>Combination Contest</u> Congressional medallion Team trophy Individual medallions First-aid kits Individual travel clocks  State banners	Congress of the United States. Mine Safety Appliances Co. Bituminous Coal Operators' Association. Mine Safety Appliances Co. Pennsylvania Threshermen's & Farmers Mutual Insurance Co. Pennsylvania Dept. of Mines & Minerals.
<u>2d place</u>	Team No. 2 Captain, James E. Robertson Island Creek Coal Co. Holden Division Holden, W. Va.	Team trophy Individual travel kits	United Mine Workers of America. American Mine Supply.

## APPENDIX H

Officials and Judges

Assignment	Name	Organization
General Chairman	Marling J. Ankeny	Federal Bureau of Mines.
General Vice Chairman	L. W. Schuler	United Mine Workers of America.
Secretary	Harry F. Weaver	Federal Bureau of Mines.
Assistant to Secretary	Dorothy M. Alden	Do.
Treasurer	Robert Norcross	West Virginia Coal Association.
Final Appeals Committee	Edward Steidle	Federal Coal Mine Safety Board of Review.
	E. R. Price	Do.
	Charles Ferguson	Do.
	Troy L. Back (alternate)	Do.
Arrangements Committee	Harry Gandy, Jr., Chairman	National Coal Association
	James B. Benson	Southern Coal Producers' Assoc.
	Charles Ferguson	United Mine Workers of America.
	George C. Trevorrow	Bituminous Coal Operators' Association.
	James Westfield	Federal Bureau of Mines.
Grounds Committee	Harold H. Engel, Chairman	Do.
	James A. Bennett	Do.
	C. M. Dovidas	Do.
	William E. Duke	Do.
	George L. Freas	Do.
	J. P. Sheridan	Do.
	C. E. Stinnette	Do.
	Everett Turner	Do.
Finance Committee	G. R. Spindler, Chairman	West Virginia University.
	H. T. Batman	Lynch Coal Operators' Reciprocal Association.
	B. W. Deringer	Central Pennsylvania Coal Producers' Association.
	Robert Dickson	Kentucky River Mining Institute.
	E. G. Fox	Bituminous Coal Operators' Association.
	Ira D. Inman	Western Kentucky Coal Producers Association.
	J. E. Moody	Southern Coal Producers' Assoc.
	Ford Sampson	Ohio Coal Association.
Prize Committee	W. H. Roll, Chairman	University of Kentucky.
	Thomas Allen	Colorado State Coal Mine Inspection Department.
	H. T. Batman	Lynch Coal Operators' Reciprocal Association.
	J. P. Busarello	United Mine Workers of America.
	R. D. Currie	General Reinsurance Corporation.



Assignment	Name	Organization
Prize Committee (Con.)	C. M. Donahue Lyman Fearn Charles Ferguson Harry Gandy, Jr. H. J. Grafton C. F. Herbert Charles Legg	Mine Safety Appliances Company. Wyoming State Inspector of Mines. United Mine Workers of America. National Coal Association. Eureka Casualty Company. Bituminous Casualty Company. Pennsylvania Department of Mines and Mineral Industries.
Publicity Committee	E. R. Nicolai, Chairman Jeanne Dubendorf, Co- chairman T. W. Kienlen Rex Lauck Albert Pass Robert P. Willing	Federal Bureau of Mines. United Mine Workers Journal. National Coal Association. United Mine Workers Journal. United Mine Workers of America. Federal Bureau of Mines.
Rules Committee	H. R. Burdelsky, Chairman George W. Colbert James Leeber, Jr. William J. McCullough J. H. Mosgrove William Schuster	Do. Do. United Mine Workers of America. Snow Hill Coal Corporation. Big Sandy-Elkhorn Coal Mining Institute. Ohio Division of Mines.
<u>First-Aid Contest</u>		
Chief Judge	H. R. Burdelsky	Federal Bureau of Mines
Assistant Chief Judge	F. D. Baker	Do.
Announcer	A. D. Sisk	Do.
Registrars	Clarence J. Dalzeli John J. Dougherty Florence H. Flaherty Dorothy C. Harrison Thomas C. Higgins Ann G. Mehl Leonard W. Pieper William Rachunis Russell G. Warncke	Do. Do. Do. Do. Do. Do. Do. Do. Do.
Recorders	J. Howard Bird Pat Heatherman	Do. West Virginia Department of Mines.
Timekeepers	F. J. Forsyth John A. Johnson James Leeber, Jr.	Kentucky Department of Mines and Minerals. Federal Bureau of Mines. United Mine Workers of America.
Problem Distributors	Eric H. Brown Milton C. McCall Joseph S. Malesky	Federal Bureau of Mines. Do. Do.

Assignment	Name	Organization
Problem Distributors (Con.)	William R. Park	Federal Bureau of Mines.
	William Rachunis	Do.
	Raymond Rich	Kentucky Department of Mines and Minerals.
	Francis J. Smith	Federal Bureau of Mines.
	Arch Thompson	Kentucky Department of Mines and Minerals.
	R. L. Vines	Do.
Scorecard Examiners	Robert D. Bradford	Federal Bureau of Mines
	Clement M. Dovidas	Do.
	Gerald C. Farren	Do.
	Joseph S. Ferraro	Do.
	Thomas R. Mark	Do.
	Edward J. Marron	Do.
	Joseph Marshalek	Do.
	Anthony C. Moschetti	Do.
	Joe L. Nelson	Do.
Supervising Judges	Wilburn C. Cagley	Do.
	Otis Cox	Kentucky Department of Mines and Minerals.
	William M. Demkowicz	Federal Bureau of Mines
	Joseph J. Dobis	Do.
	Frank J. Furin	Do.
	Patrick A. Loughney	Do.
	William L. Lyons	Do.
	Robert McCormick	West Virginia Department of Mines.
	Theodore Plumlee	Illinois Department of Mines and Minerals.
	Arthur A. Sinicrope	Federal Bureau of Mines.
	W. C. Sturgill	West Virginia Department of Mines.
	Arlie Webb	Kentucky Department of Mines and Minerals.
	Thomas Allamon	Federal Bureau of Mines
	Leslie E. Allen	Do.
Team Judges	William Arthur	Do.
	Rufus Bailey	Kentucky Department of Mines and Minerals.
	F. Delbert Baker	Federal Bureau of Mines
	Boyd E. Banks	Kentucky Department of Mines and Minerals.
	Lawrence Banks	Do.
	Durrell W. Barger	Federal Bureau of Mines
	Richard E. Barr	Do.
	Everett Bartlett	Kentucky Department of Mines and Minerals.
	Henry E. Basinger	Federal Bureau of Mines.
	George Benson	West Virginia Department of Mines.
	William Berry	Do.
	George M. Betchey	Federal Bureau of Mines.
	James E. Biggs	Do.

Assignment	Name	Organization
Team Judges (Con.)	Brooks Blackwood	Federal Bureau of Mines.
	Bernice M. Booker	Do.
	James G. Bosley	Do.
	V. H. Bowling	Do.
	Chester Brooks	Kentucky Department of Mines and Minerals.
	Everett Brown	Do.
	Patrick J. Buchanan	Federal Bureau of Mines
	Stephen J. Bukovitz	Do.
	Robert Calvert	Do.
	L. L. Carroll	Kentucky Department of Mines and Minerals.
	John H. Cartwright	Kansas Department of Labor.
	Robert L. Cochran	Federal Bureau of Mines.
	William M. Cordray	Do.
	Herbert D. Couk	Do.
	James Cromwell	Do.
	William T. Cummings	Do.
	Thomas F. Curry	Do.
	Raymond C. DeWeese	Do.
	Matthew I. Duncan	Do.
	William C. Eiduke	Do.
	Charles E. Estep	Do.
	Jay D. Farris	Do.
	Anthony J. Fumich	Do.
	Denver S. Griffith	Do.
	Dennie R. Hager	Do.
	Grant Hall	Kentucky Department of Mines and Minerals.
	W. E. Hardwick	Do.
	Oscar W. Harris	Federal Bureau of Mines.
	Francis H. Henderson	Do.
	Mason B. Horton	West Virginia Department of Mines.
	Floyd Houck	Do.
	M. D. Hudson	Kentucky Department of Mines and Minerals.
	Roy E. Hudson	Indiana Bureau of Mines and Mining.
	Noah Jackson	Kentucky Department of Mines and Minerals.
	Elfyn H. John	West Virginia Department of Mines.
	John E. Jones	Federal Bureau of Mines
	Ralph B. Jones	Do.
	Fornie A. Jordan	Do.
	Carl A. Kansala	Do.
	E. E. Kemrite	Do.
	Walter W. Kessler	Do.
	Andrew J. Kopp	Do.
	James H. Lampkin	Virginia Department of Labor and Industry.
	David J. Lee	West Virginia Department of Mines.
	Meile Lechiara	Do.
	Edward M. Lewis	Federal Bureau of Mines.
	Raymond T. Linville	Do.

Assignment	Name	Organization
Team Judges (Con.)	Ray McCluskey	Illinois Department of Mines and Minerals.
	James A. McCune	Federal Bureau of Mines
	John D. Martin	Do.
	John Matsko	Do.
	C. M. Meadows	West Virginia Department of Mines.
	George L. Mears	Federal Bureau of Mines.
	William R. Melville	Do.
	James A. Merrick	Do.
	Maurice R. Messersmith	Do.
	James A. Moore	Do.
	John S. Muir	Do.
	Joseph Neal	Do.
	George Noe	Do.
	Louis E. O'Connor	Do.
	John J. Pendergast, Jr.	Do.
	Lelan Phillips	West Virginia Department of Mines.
	J. A. Philpott	Do.
	Clarence Powell	Kentucky Department of Mines and Minerals.
	Anthony Puskas	Federal Bureau of Mines
	Joseph C. Reardon	Do.
	James J. Redmond	Indiana Bureau of Mines and Mining.
	Jack Reese	Federal Bureau of Mines
	Joe A. Rejonis	Do.
	Lawrence Risley	Kentucky Department of Mines and Minerals.
	O. L. Risner	Do.
	Jacob Runyon	Do.
	James Sammons	Do.
	Alexander Schrader	Federal Bureau of Mines.
	Raymond See	Kentucky Department of Mines and Minerals.
	Paul Sexton	Do.
	Paul M. Shay	Federal Bureau of Mines
	James P. Sheridan	Do.
	Carl Smithers	Kentucky Department of Mines and Minerals.
	Willard Stanley	Do.
	William R. Stewart	Federal Bureau of Mines.
	Henry Strubeck	Do.
	Joseph R. Summary	Do.
	William T. Trinkley	Do.
	Lex Trunko	Do.
	Arthur L. Ulshafer	Do.
	Ward R. Vickers	Do.
	Thomas J. Ward	Do.
	Guy West	Kentucky Department of Mines and Minerals.
	Matt Wilder	Do.
	Harold H. Wiley	Federal Bureau of Mines.
	Walter Williams	Kentucky Department of Mines and Minerals.

Assignment	Name	Organization
Team Judges (Con.)	Paul Willis	Federal Bureau of Mines.
	Harrison F. Wilson	Do.
	James T. Whalen	Do.
	Richard W. Whittaker	Do.
	John Zelesky	Do.
	James Zubal	Do.
<u>Mine Rescue Contest</u>		
Chief Judge	George W. Colbert	Do.
Assistant Chief Judge	Clement M. Dovidas	Do.
Announcer	A. D. Sisk	Do.
Timekeepers	F. J. Forsyth	Kentucky Department of Mines and Minerals.
	John A. Johnson	Federal Bureau of Mines.
	James Leeber, Jr.	United Mine Workers of America.
Recorders	J. Howard Bird	Federal Bureau of Mines.
	Pat Heatherman	West Virginia Department of Mines.
Gas-Box Attendants	Joseph S. Malesky	Federal Bureau of Mines.
	Supervisory Attendant	
	William R. Park	Do.
	Supervisory Attendant	
	F. Delbert Baker	Do.
	Wilburn C. Cagley	Do.
	Robert L. Cochran	Do.
	William M. Cordray	Do.
	James W. Cromwell	Do.
	Noah Jackson	Kentucky Department of Mines and Minerals.
	James H. Lampkin	Virginia Department of Labor and Industry.
	James A. McCune	Federal Bureau of Mines.
	Joe L. Nelson	Do.
	James P. Sheridan	Do.
	Henry Strubeck	Do.
	Walter Williams	Kentucky Department of Mines and Minerals.
Lifeline Men	Henry E. Basinger	Federal Bureau of Mines.
	George W. Culverhouse	Do.
	Clarence Powell	Kentucky Department of Mines and Minerals.
	Harrison F. Wilson	Federal Bureau of Mines.
Map Examiners	William Berry	West Virginia Department of Mines.
	Eric H. Brown	Federal Bureau of Mines.
	Otis Cox	Kentucky Department of Mines and Minerals.
	Joseph S. Malesky	Federal Bureau of Mines.
	Francis J. Smith	Do.

Assignment	Name	Organization
Guards for Mine Rescue Teams	Richard E. Barr	Federal Bureau of Mines
	Bernice M. Booker	Do.
	Thomas F. Curry	Do.
	Matthew I. Duncan	Do.
	Gerald C. Farren	Do.
	Edward J. Marron	Do.
	John Matsko	Do.
	George Noe	Do.
	Joseph C. Reardon	Do.
	Joe A. Rejonis	Do.
Mine Attendants	Ben J. Dona	Do.
	Raymond T. Linville	Do.
	Maurice R. Messersmith	Do.
	Alexander Schrader	Do.
	Thomas J. Ward	Do.
Scorecard Examiners	Eric H. Brown	Do.
	Milton C. McCall	Do.
Judges - Part A	Thomas Allamon	Do.
	Rufus Bailey	Kentucky Department of Mines and Minerals.
- Part B	Joseph S. Ferraro	Federal Bureau of Mines.
	Meile Lechlara	West Virginia Department of Mines.
	J. A. Philpott	Do.
	Clement M. Dovidas	Federal Bureau of Mines
	Frank J. Furin	Do.
- Part C	Elfyn H. John	West Virginia Department of Mines.
	Thomas R. Mark	Federal Bureau of Mines.
	Raymond See	Kentucky Department of Mines and Minerals.
	Leslie E. Allen	Federal Bureau of Mines.
	Everett Bartlett	Kentucky Department of Mines and Minerals.
	James G. Bosley	Federal Bureau of Mines.
	Patrick J. Buchanan	Do.
	Joseph J. Dobis	Do.
	Jay D. Farris	Do.
	John E. Jones	Do.
	Joseph Marshalek	Do.
	George L. Mears	Do.
	Carl Smithers	Kentucky Department of Mines and Minerals.
	Willard Stanley	Do.
	William R. Stewart	Federal Bureau of Mines.
- Part D	Lex Trunko	Do.
	Arlie Webb	Kentucky Department of Mines and Minerals.
	Harold H. Wiley	Federal Bureau of Mines.
	Robert D. Bradford	Do.
	Floyd Houck	West Virginia Department of Mines.
	Paul Sexton	Kentucky Department of Mines and Minerals.
	W. Dan Walker, Jr.	Federal Bureau of Mines
	John Zelesky	Do.