1940

Safety for Elementary School Playgrounds

Willard J. Day

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SAFETY FOR ELEMENTARY SCHOOL PLAYGROUNDS

By

Willard Jennings Day

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree Master of Science

COLLEGE OF EDUCATION

BUTLER UNIVERSITY

1940
ACKNOWLEDGMENTS

The writer wishes to express his appreciation to the following persons and organizations for their contributions to this study: Professor Albert Mock, A. B. Carlile, and W. L. Richardson of the School of Education, Butler University, for their suggestions and criticisms; Superintendent William F. Loper, the principals, and the elementary teachers of the Shelbyville Public Schools for their co-operation and assistance generously given; and the National Safety Council, Inc., for facts, figures, and literature pertaining to the problem of playground safety.
The problem of the present study, that of playground safety, arose as a result of two conditions: first, numerous accidents on the playground of the Charles Major School, of which the author is principal; secondly, the observation that certain schools have completely abandoned the use of playground apparatus, the reasons generally given for such abandonment being frequency of injuries and damage suits against school officials resulting from these injuries.

In order to eliminate accidents as completely as possible from the author's own playground, and from the playgrounds at other schools, he has sought diligently to determine the causes of playground accidents and to ascertain safer playground practices of planning, management, and supervision.

The results of the specific study made of Shelbyville playground injuries, covering the period of only one year, should not be accepted as final and conclusive; the time during which records were kept was too short, and the cases involved were too few. The facts obtained, however, are not without value; they reveal playground hazards which commonly are neglected, and they lay a groundwork for the establishment of a constructive safety program.

If one child on any playground is saved from serious injury as a result of this study, then the labors of research and writing will not have been in vain.

W. J. D.

Shelbyville, 1940
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SAFETY FOR ELEMENTARY SCHOOL PLAYGROUNDS

CHAPTER I

THE PROBLEM OF PLAYGROUND SAFETY

1. The Need for Playground Safety

A few years ago the Statistics Committee of the Child Education Section of the National Safety Council made a study\(^1\) which revealed surprising facts as to where children are when they get hurt. This investigation resulted in the discovery that only 9 per cent of all injuries received by the 544,000 children studied occurred going to and from school; 24 per cent happened while playing in streets, on public playgrounds, or in other public places; 32 per cent were suffered at home; and 35 per cent occurred within school buildings or on school playgrounds. Still another investigation\(^2\) shows further that more


accidents take place on school playgrounds than within school buildings.

The 1939 issue of Accident Facts reports that, of all injuries during the 1938-1939 school year to 818,000 students on whom reports were made, 24 per cent occurred at home, 7 per cent in going to and from home and school, 19 per cent in school buildings, 18 per cent on school grounds, and all others, 32 per cent.

FIGURE 1. Where Accidents Happen. Based on 1938-1939 Reports on 818,000 Students in Various Parts of the United States.

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4 Ibid.
Evidently, if the data resulting from the investigations referred to in the preceding paragraphs are correct, the combined safety efforts of the schools and the public have been highly successful in dealing with the problem of going to and from school, or else this problem has been one of less magnitude than we have been led to believe.

The fact that over one-third of all injuries, as reported by the National Safety Council,\(^5\) were received in school buildings and on school playgrounds, while less than one-fourteenth of these injuries occurred while going to and from school, should challenge the direction of our total safety efforts immediately. Perhaps, if we direct more of our safety instruction toward building and playground safety, we can reduce the number of such accidents from 37 per cent of the total to a point lower than or comparable to the 7 per cent received going to and from school.

Play is extremely important to the child. Lee says, "Play is serious work to the normal child."\(^6\) Children need to play, and they need safe places to play. The compelling impulses and abounding enthusiasm of normal, healthy children

\(^5\)Ibid.

make them extremely active creatures. When a desirable outlet for this great spectacle of energy is not provided, one usually appears of its own account—and often of an undesirable type.

2. The Thesis of Playground Safety

School playgrounds, wisely planned, managed, and supervised can provide a safe and valuable outlet for children's super-abundance of energy. Playgrounds should offer activities which contribute to health, opportunities for engendering attitudes and ideals, and situations which promote and develop self-expression, leadership, and co-operation.

Many elementary school playgrounds today are inadequate. Some are without either outdoor space or equipment. Others have play areas, but the sites commonly are poorly located and constructed, usually are overcrowded, and too often show little wisdom of either planning or management.

Injuries have been of such frequency and seriousness on some playgrounds that all play apparatus and many organized play activities have been abolished for the sake of safety.  

---


8At Anderson, Indianapolis, and to a certain extent in Shelbyville, Indiana.
School board members, and other school officials, harassed and embarrassed by personal damage suits,\(^9\) as a result of playground injuries, have been forced to abandon playground apparatus and limit playground activities for their own personal protection from such suits. The Etchison case at Alexandria, Indiana, is an outstanding example of the grief and worry which playground injuries sometimes cause school administrators.\(^10\)


A six-year-old child was injured on the playground when he fell from a slide which was alleged to have been out of plumb and sloping toward one side so as to be dangerous. This condition was described by the postman, who had seen it several times, but never reported it to authorities, although his own children attended the school. It was not proved that child plaintiff was injured on account of any defective condition of the slide. The defense intimated that he was using slide in an unorthodox manner. He had used the slide several times previously that day.

The suit was against the individual members of the board, the superintendent, and an athletic supervisor. The trial court awarded a verdict to plaintiff, a judgment was entered thereon, but reversed by the appellate court and a new trial ordered. The individual defendants, declared the court, were liable for negligence in such a case only when there was evidence of wilful neglect or other improper motive on their part, and not when the evidence pointed to nothing worse than a mere mistake regarding the safety of the device. The superintendent had honestly reported that the apparatus was properly installed, and the board members were justified in accepting the report, under the court's interpretation of the law. After long litigation, the case was finally settled in favor of the defendants.
No one will deny that accidents are painful. Playground injuries not only cause the children suffering and worry, but school time may be lost, and parents and school corporations are faced by financial obligations for medical care as a result. Even suitably located, well-constructed, and excellently managed playgrounds have accidents, and will continue to have them; generally, however, injuries will occur with greatest frequency on playgrounds managed haphazardly and with little safety forethought.

It may be doubted that playground injuries justify the complete abandonment of playground activities. The philosophy of Bourne,¹¹ that "The ideal school will make the playground the very center of its life," is the preferable attitude. The educational possibilities of the school playground can not be denied, nor will they be underestimated by the truly progressive educators of today. The purpose of the present study is to show what the hazards of elementary school playgrounds are generally, and especially those in Shelbyville, Indiana; and how these hazards may be removed or reduced in importance, making play thereon safer, more enjoyable, and more profitable for children.

3. Limitations of the Study

Accidents occurring within a school building and those taking place on school playgrounds are so distinct as to causes that each should be made the subject of separate investigations. The present study will confine itself to an examination of the causes of playground accidents and injuries, the problem of first aid for these injuries, and the formulation of a program of playground planning, management, supervision, and classroom instruction in playground safety.

4. Procedures and Technics of the Study

A great deal of preliminary reading was necessary as a first step in making the present study. Also considerable letter writing and personal interviews were necessary in order to obtain certain essential facts and information. The offices of departments of education in each of the forty-eight states were queried as to their safety programs, and the bulletins available from each state were analyzed to

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12See Bibliography.

13Letters seeking information on costs of dust-laying chemicals, sources and samples of safety materials, catalogs of college courses for teachers, requests for State Courses of Study, and other materials, were written. Personal visits for interviews and observation were made to Indianapolis and Anderson.
determine the extent and proportion of playground safety
instruction in the United States.

The Shelbyville schools have no system for reporting
or recording playground injuries, their care, and treatment.
A blank 14 for reporting this information was devised and put
into use at the five schools for an experimental period of
one school year. These reports have been collected and
summarized to show what types of injuries are common on the
Shelbyville playgrounds, what causes them, when they occur,
and what grades and sex suffer most injuries. A building
program 15 which caused two school districts to use the same
school plant during the second semester of the school year
made an unexpected, but important, contribution to the
present study.

A questionnaire 16 in two parts was constructed; the

14 See Appendix A.

15 The Thomas A. Hendricks and Colescott Schools each
held half-day sessions at the former building during the
second semester of the 1938-1939 school year, due to the
fact that a new building was under construction to replace
the old Colescott School. In order to lengthen an abbrevi­
ated school day for each of the two schools, the Hendricks
School classes commenced their work earlier of mornings,
eliminatin g the pre-school morning play, and dismissed for
the day at noon. The school day for the Colescott children
began at 12:30, likewise eliminating their pre-school play
periods. All recesses for both schools were abolished. See
Table III for the effect of this emergency program upon play­
ground accidents.

16 See Appendix B. Part I.
first part sought information of Shelbyville Elementary teachers as to whether their training has qualified them for doing successful playground supervision, for administering simple first aid as needed on the playground, and for teaching playground safety effectively. Furthermore, the attitudes of teachers toward these problems were sought.

The second part of the questionnaire contained fifty-seven statements dealing with proposed first aid procedures for nineteen common playground injuries. It was in the form of a test and given personally by the author. Thirty of the proposed procedures were correct and twenty-seven were incorrect. The purpose of this part of the questionnaire was to determine, by testing recognition of right and wrong procedures, whether Shelbyville teachers really are qualified to administer simple first aid when injuries do occur. The results of the test were tabulated and will be found, with their interpretation, in Chapter Four.

The individual site of each of the five Shelbyville elementary schools was mapped and studied for three purposes: the location of playground hazards which can be eradicated, determining the cost of dust elimination on

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17 See Appendix B, Part II.

each playground, and the possible discovery of unused school site areas which could and should be used for playground activities.

Finally, summarizing all data of the study, specific recommendations are made for increased safety on elementary school playgrounds in general, and on the Shelbyville playgrounds especially.
1. Types of Accidents

Before a program to make school playgrounds safer can be devised, it is essential to determine the types and causes of injuries which already occur upon these playgrounds. A summarization of the types of injuries suffered by children on the five elementary school playgrounds of Shelbyville previous to this study, as reported from memory by the principals, reveals twenty-three more or less common types of injuries. Arranged alphabetically, the list is as follows:

<table>
<thead>
<tr>
<th>Injury</th>
<th>Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>bite</td>
<td>laceration</td>
</tr>
<tr>
<td>blister</td>
<td>nose bleed</td>
</tr>
<tr>
<td>bruise</td>
<td>nose (foreign object in)</td>
</tr>
<tr>
<td>burn</td>
<td>puncture wound</td>
</tr>
<tr>
<td>cut artery</td>
<td>scratch</td>
</tr>
<tr>
<td>cut vein</td>
<td>shock</td>
</tr>
<tr>
<td>dislocation</td>
<td>sprain</td>
</tr>
<tr>
<td>ear (foreign object in)</td>
<td>throat (foreign object in)</td>
</tr>
<tr>
<td>eye (foreign object in)</td>
<td>tooth broken</td>
</tr>
<tr>
<td>fracture</td>
<td>tooth dislodged</td>
</tr>
<tr>
<td>frostbite</td>
<td>unconsciousness</td>
</tr>
<tr>
<td>heat prostration</td>
<td></td>
</tr>
</tbody>
</table>

The five Shelbyville schools, during the school year in which records were kept for this study had a combined
TABLE I. NUMBER OF CASES OF EACH TYPE OF PLAYGROUND INJURY AT EACH SHELBYVILLE ELEMENTARY SCHOOL DURING THE SCHOOL YEAR OF 1938-1939; TOTAL INJURIES PER SCHOOL: AND TOTAL INJURIES FOR THE SCHOOL CITY.

<table>
<thead>
<tr>
<th>Type of Injury</th>
<th>School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Major Washington</td>
</tr>
<tr>
<td>Loss of breath</td>
<td>1</td>
</tr>
<tr>
<td>Bruise</td>
<td>15</td>
</tr>
<tr>
<td>Cut artery</td>
<td>1</td>
</tr>
<tr>
<td>Cut vein</td>
<td>2</td>
</tr>
<tr>
<td>Eye (foreign object in)</td>
<td>3</td>
</tr>
<tr>
<td>Fracture</td>
<td>2</td>
</tr>
<tr>
<td>Laceration</td>
<td>6</td>
</tr>
<tr>
<td>Nose bleed</td>
<td>3</td>
</tr>
<tr>
<td>Nose (foreign object in)</td>
<td>1</td>
</tr>
<tr>
<td>Puncture wound</td>
<td>6</td>
</tr>
<tr>
<td>Scratch (severe)</td>
<td>3</td>
</tr>
<tr>
<td>Sprain</td>
<td>1</td>
</tr>
<tr>
<td>Tooth broken</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
</tr>
</tbody>
</table>
total of one hundred and twenty injuries on their playgrounds. Only those injuries which required some first aid were reported. Of the types of injuries originally listed by the principals only twelve occurred on the Shelbyville playgrounds during the 1938-1939 school year. They were bruise, cut artery, cut vein, foreign object in eye, fracture, laceration, nose bleed, foreign object in nose, puncture wound, scratch, sprain, and broken tooth. Loss of breath, due to collision, made a total of thirteen types of injuries suffered by the children during the period of this study.2

2. Play Periods Which Are Most Hazardous

The problem of determining the period or periods during the school day when accidents occur with the greatest frequency is worthy of consideration. In most school systems there are usually from four to six periods of the day when children are on the playground and exposed to injury. These are the two assembling periods, the morning and afternoon recesses, and the two dismissal periods—noon and evening. A few schools which possess adequate indoor facilities for physical exercise have abolished the outdoor recesses entirely.

1See Table I, page 12.
2Ibid.
TABLE II. NUMBER OF PLAYGROUND INJURIES AT EACH PERIOD OF THE DAY AT EACH SHELBURNE SCHOOL, AND TOTALS, FOR THE SCHOOL YEAR 1938-1939.*

<table>
<thead>
<tr>
<th>School</th>
<th>Morning, before assembling</th>
<th>Morning recesses</th>
<th>Noon dismissal</th>
<th>Noon, until 1:00 P.M.</th>
<th>Afternoon recesses</th>
<th>Afternoon dismissal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>20</td>
<td>11</td>
<td>1</td>
<td>46</td>
</tr>
<tr>
<td>Hendricks</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Colescott</td>
<td>6</td>
<td>10</td>
<td>3</td>
<td>12</td>
<td>10</td>
<td>3</td>
<td>41</td>
</tr>
<tr>
<td>Walkerville</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>8</td>
<td>0</td>
<td>29</td>
</tr>
</tbody>
</table>

*Injuries at Colescott and Hendricks Schools occurred during the First Semester. No accidents were reported during the Second Semester at those two schools. Temporary consolidation of the two schools, due to construction program at the former, made it necessary to abolish all playground periods in the latter half of the school year.
The three larger elementary schools\textsuperscript{3} of Shelbyville have both morning and afternoon recesses divided into two periods each: one in the morning for grades one, two, and three and another for grades four, five, and six. The same plan is followed in the afternoon.

In a study of when accidents occur, the tendency for accidents to concentrate at one or more periods of the day should point out the need for an immediate diagnosis of causes, the findings to be used as a basis for remedial action. Lack of any supervision, or inadequate supervision and direction of play activities, may lead to hazardous play. The playground may be overcrowded, necessitating a change in the school program. There may be other causes.

Table II,\textsuperscript{4} based on the injuries reported by Shelbyville schools during 1938-1939, shows that more injuries are received at noon, between lunch and 1:00 P.M., than at any other period of the day. Play at that time, except for the last fifteen minutes, is generally little supervised. Morning and afternoon recesses—both supervised—each seem approximately equally hazardous, although less than the noon period. The rank of recesses next to the noon assembling period is probably due to congestion of play activities.

\textsuperscript{3}Charles Major, Thomas A. Hendricks, and Colescott Schools.

\textsuperscript{4}See Table II, page 14.
TABLE III. NUMBER OF PLAYGROUND INJURIES BY MONTHS AT EACH SHELBYVILLE SCHOOL, AND TOTALS, DURING SCHOOL YEAR 1938-1939; ALSO THE AVERAGE NUMBER OF INJURIES PER SCHOOL DAY IN THE CITY.*

<table>
<thead>
<tr>
<th>School</th>
<th>W</th>
<th>H</th>
<th>C</th>
<th>D</th>
<th>W</th>
<th>Total</th>
<th>Number of Days School Was in Session</th>
<th>Average School Injuries Per Day in City</th>
<th>Average Each Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sept.</td>
<td>8</td>
<td>0</td>
<td>14</td>
<td>10</td>
<td>0</td>
<td>32</td>
<td>19</td>
<td>1.68</td>
<td></td>
</tr>
<tr>
<td>Oct.</td>
<td>10</td>
<td>0</td>
<td>17</td>
<td>10</td>
<td>1</td>
<td>38</td>
<td>19</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>Nov.</td>
<td>3</td>
<td>0</td>
<td>8</td>
<td>5</td>
<td>1</td>
<td>17</td>
<td>20</td>
<td>.85</td>
<td></td>
</tr>
<tr>
<td>Dec.</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>.18</td>
<td></td>
</tr>
<tr>
<td>Jan.</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>7</td>
<td>17</td>
<td>.41</td>
<td></td>
</tr>
<tr>
<td>Feb.</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>20</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>23</td>
<td>.22</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>18</td>
<td>.39</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>20</td>
<td>.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>1</td>
<td>41</td>
<td>29</td>
<td>3</td>
<td>120</td>
<td>173</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Due to construction program, the children of the Colescott and Hendricks Schools did not use their playgrounds during February, March, April, and May.
3. Months in Which Injuries Occur

An examination of Table III\textsuperscript{5} will reveal that September, October, November, and May are the months in which approximately three-fourths of all playground injuries were received on Shelbyville school playgrounds during 1938-1939. The high rate of injuries for these months is probably due chiefly to weather conditions which permitted much outdoor play; the lower rate of the other months may be due, partially to inclement weather which resulted in frequent "indoor recesses," and partially to less baseball playing\textsuperscript{6} in cold weather. The injury rate for January, February, March, April and May also was affected favorably by the building program, previously mentioned, which entirely eliminated playground play periods during those months at the schools named. It is evident that there is a very apparent need for close supervision of playground activities and for playground instruction at the opening of school, since half of all injuries were received during September and October.\textsuperscript{7} Slow adjustment of play activities to congested play areas, following the freedom of vacation play, may account for the high rate of injuries for the months just named.

\textsuperscript{5}See Table III, page 16.

\textsuperscript{6}See Table VI, page 18.

\textsuperscript{7}See Table III, page 20.
TABLE IV. SEX OF CHILDREN INJURED ON PLAYGROUND OF EACH SHELBYVILLE SCHOOL, AND TOTALS, DURING SCHOOL YEAR, 1938-1939; ALSO, AVERAGE DAILY ATTENDANCE OF EACH SEX DURING SAME PERIOD.

<table>
<thead>
<tr>
<th>School</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Average Daily Attendance for All Schools Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>Wash</td>
<td>Holmes</td>
<td>Walker</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>37</td>
<td>9</td>
<td>46</td>
<td>523</td>
</tr>
<tr>
<td>Female</td>
<td>33</td>
<td>8</td>
<td>41</td>
<td>519</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>17</td>
<td>87</td>
<td>1042</td>
</tr>
</tbody>
</table>
4. Distribution of Injuries According to Sex

Boys generally play games which require more vigorous activity and more body contacts than those participated in by girls. As a result, they suffer more injuries than girls.\(^8\) During the school year of 1938-1939 there were ninety-four injuries to boys on the Shelbyville elementary school playgrounds and only twenty-six to girls, although the average daily attendance of boys and girls in the five schools combined was approximately equal.\(^9\)

5. Distribution of Playground Injuries by Grades

Battey's study of all accidents occurring to children in a group of 831,000 over a period of one school year shows that the children of grades four, five, six, and seven suffer more playground injuries than of any other grades.\(^10\)

On the Shelbyville playgrounds the sixth grade suffered the most injuries and the fourth grade the fewest.\(^11\) While this is not in complete accord with the results of Battey's investigation, both studies do agree\(^12\) in that the injury

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\(^8\) See Table IV, page 18.
\(^9\) Ibid.
\(^11\) See Table V, page 20.
\(^12\) See Fig. 2, page 22.
TABLE V. PLAYGROUND INJURIES BY GRADES AT EACH SHELBYVILLE SCHOOL DURING THE 1938-1939 SCHOOL YEAR, AND TOTALS; AVERAGE DAILY ATTENDANCE BY GRADES; AND, RATIO OF PUPIL INJURIES IN EACH GRADE TO THE AVERAGE DAILY ATTENDANCE OF EACH GRADE.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Major</th>
<th>Wash</th>
<th>End</th>
<th>Col</th>
<th>Total</th>
<th>Average Daily Injuries</th>
<th>Ratio of Daily Injuries to Pupil Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>8</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>18</td>
<td>1 : 9.5</td>
</tr>
<tr>
<td>Two</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>15</td>
<td>1 : 11.6</td>
</tr>
<tr>
<td>Three</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>12</td>
<td>1 : 13.9</td>
</tr>
<tr>
<td>Four</td>
<td>7</td>
<td>8</td>
<td>6</td>
<td>0</td>
<td>21</td>
<td>183.5</td>
<td>1 : 8.7</td>
</tr>
<tr>
<td>Six</td>
<td>18</td>
<td>0</td>
<td>13</td>
<td>10</td>
<td>41</td>
<td>175</td>
<td>1 : 4.3</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>1</td>
<td>41</td>
<td>29</td>
<td>3e</td>
<td>120</td>
<td>1042</td>
</tr>
</tbody>
</table>

*The Walkerville School has only the first three grades; all others have six grades.*
rate for grades five and six are much higher than for grades one and two. At Shelbyville grades five and six participate in play activities leading to competition with other schools, their play being intensive and aggressive, while grades one, two, three and four play less violently at games which generally are not competitive.

6. School Time Lost Due to Injuries

Injuries on the playground, while generally painful, did not result in a great loss of school time during 1938-1939. Four and one-half days were lost at the Charles Major School, none at the Booker T. Washington School, four at the Colescott School, two at the Thomas A. Hendricks School, and one-half day at the Walkerville School—making a total of eleven days lost during the school year. This total probably was affected favorably by the fact that two of the schools temporarily abandoned recesses.

The risk of infection is perhaps the greatest danger from playground injuries, and a school is indeed fortunate if it has been free from serious cases.

7. Causes of Playground Accidents

Playground accidents do not just happen; they are caused, and the causes are numerous. The play site itself may be an important factor in accidents, if improperly located, developed, or prepared. Unwise layout of a play
FIGURE 2. Curves Comparing Frequency of Playground Injuries by Grades, as Shown by Battey's Investigation* and by a Study of Shelbyville Playground Injuries.**


**See Table V, page 20.
area also results in many injuries which could be prevented. Overcrowding is likewise dangerous and undesirable.

It is almost universally agreed that apparatus has a place on the playground, but defective, dangerous, or improperly placed or used play devices and equipment are the sources of many injuries. Vicious play often develops on unsupervised playgrounds, resulting in "gang" depredations, bullying, tripping, fighting, pushing, throwing, and other dangerous practices. Many injuries result from the presence of foreign objects such as broken glass, wire, nails, sharp sticks or pieces of metal, stumps, and rocks. Older and larger out-of-school children, dogs or other animals, and bicycles, wagons, and other vehicles are often permitted on the playground, adding to its hazards.

Accident records for grades one to twelve, kept by the National Safety Council over a period of six years, show that football and play apparatus each contribute 15 per cent of all playground injuries, other athletics 19 per cent, other organized games 10 per cent, and the remaining 41 per cent are of a general nature.\(^1\)

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\(^{14}\)Mary May Wyman, "Accident Records Are the Best Test," Safety Education Magazine, (October, 1936).
The following list of general causes of playground injuries, while not an exhaustive one, nevertheless is rather complete. Each individual school playground, however, may have certain hazards peculiar to itself, but not at all common or included in the list of playground injury causes which follows:

- animal
- another child
- apparatus broken
- automobile or truck
- ball
- bat
- bicycle
- climbing tree
- climbing wall or fence
- climbing apparatus
- collision
- electricity
- fall, while running
- fighting
- fingernails
- gang activities
- glass
- guns
- horizontal bars
- ice
- illness
- kick
- knife
- lightning
- mud
- may-pole (giant stride)
- nail
- peelings
- pushing
- rock, stone, other missiles
- rope
- rough games and play
- running into street
- skates
- slide
- snowball
- splinter
- sticks and clubs
- sun (heat prostration)
- teeter (see-saw)
- trapeze
- tree limb
- tripping
- wind
- wire
- wrestling

The causes of injuries on the Shelbyville elementary school playgrounds, as revealed in Table VI, are chiefly falls while running, being hit by balls, and general rough play. Soft ball is played on all the playgrounds, and on each of them, except the Walkerville School, many children play at other games within range of batted or thrown balls. The abolishment of slides at the three larger schools has
TABLE VI. CAUSES OF INJURIES AT EACH SHELBYVILLE SCHOOL, AND TOTALS, DURING THE SCHOOL YEAR 1938-1939.

<table>
<thead>
<tr>
<th>Causes of Injuries*</th>
<th>Major School</th>
<th>Hendricks School</th>
<th>Colterville School</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball</td>
<td>11</td>
<td>2</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Bat</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Bicycle</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Climbing apparatus</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>Collision</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Fall, while running</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>Fighting</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Ice, slipped on</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pushing</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Rocks or stones</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Rough play</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>Snowball</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Tripping</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Swing, hit by</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Teeters</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>46</strong></td>
<td><strong>41</strong></td>
<td><strong>29</strong></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>

*No injuries were caused by broken or defective play apparatus. Weekly inspection of all apparatus is made.
eliminated one source of frequent painful injuries in years past. It is interesting to note that no injuries on the Shelbyville playgrounds were due to broken or defective equipment, although each playground has swings, teeters, and other play apparatus. Annually all such equipment is put into first class condition. In addition to this safety precaution, the principal of each school is responsible for a weekly inspection of all apparatus to detect worn parts or other sources of danger, although no official report is made of such inspections. Defective apparatus is immediately repaired or withdrawn from use.

8. Summary

The types of accidents and injuries which occur on school playgrounds vary with each playground, necessitating individual studies in order to formulate the most successful programs for playground play. Such a study should include types of injuries, their causes, periods of the day which are most hazardous, months in which most injuries occur, and sex and grade of those children injured. It should result in better playground management and supervision, with increased safety for all--and more fun!

It is apparent that Shelbyville schools need to put increased emphasis on playground safety, especially at the
opening of school each year, and to supervise more closely the noon assembling period each day. If soft ball were abolished from the playgrounds, except after school in the evening when the playground is no longer in use by children other than the teams, there would be fewer injuries. In that case it would be necessary for teachers to substitute at recesses other games which are safe and interesting. This plan necessitates greater teacher participation in playground activities, rather than mere police duty.
CHAPTER III

THE SAFETY CONTRIBUTION OF PLAYGROUND PLANNING

1. The Play Site

The location of the play site is an important factor of playground safety. If the playground is adjacent to the school building, so that dangerous roads, streets, or alleys do not have to be crossed by the children as they pass to or from the building or playground, and so that the playing space is easily accessible for supervision, the problem of playground safety will be simplified. Furthermore, the site should be free of all external hazards to safety, and it should be both dust free and easily drained.

There are no definite standards of size for playgrounds, but elementary school playgrounds generally are too small. The minimum space in England, and in certain European countries, is thirty square feet per child.¹ Spain, Moehlman, and Frostic²


TABLE VIII. THE TOTAL AREA OF EACH OF THE FIVE SHELBYVILLE ELEMENTARY SCHOOL SITES, THE PORTIONS OF THESE SITES DEVOTED TO PLAY AND TO NON-PLAY SPACE; THE AVERAGE PLAY SPACE PER CHILD AT EACH SCHOOL. *

<table>
<thead>
<tr>
<th>School</th>
<th>Enrollment</th>
<th>Total Area of School Site (Sq. Ft.)</th>
<th>Total Non-Play Area (Sq. Ft.)</th>
<th>Total Play Area (Sq. Ft.)</th>
<th>Av. Play Area Per Child (Sq. Ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Major</td>
<td>340</td>
<td>64,984.5</td>
<td>19,060.5</td>
<td>45,924</td>
<td>135</td>
</tr>
<tr>
<td>Booker T. Washington</td>
<td>42</td>
<td>84,589.5</td>
<td>11,664.5</td>
<td>53,925</td>
<td>311</td>
</tr>
<tr>
<td>Thomas A. Hendricks</td>
<td>566</td>
<td>78,464.0</td>
<td>45,893.0</td>
<td>32,571</td>
<td>57</td>
</tr>
<tr>
<td>Colescott</td>
<td>315</td>
<td>50,052.0</td>
<td>21,090.0</td>
<td>28,962</td>
<td>92</td>
</tr>
<tr>
<td>Walkerville</td>
<td>31</td>
<td>25,066.0</td>
<td>20,883.0</td>
<td>4,183</td>
<td>135</td>
</tr>
</tbody>
</table>

*Based on enrollment figures obtained from School Office on November 9, 1939.
recommend at least 140 square feet of play space per child, but admit that modern practice varies from 30 to 150 feet. Uhler\textsuperscript{3} insists that four acres or more are needed for schools having between two and three hundred pupils. Two and a half acres are recommended by Butler\textsuperscript{4} as a minimum area for three hundred pupils.

Table VII shows the total area of each Shelbyville elementary school site, the size of each school's play and non-play space, and the average play area per child at each school.

The Colescott and Hendricks schools are unfortunate in having small playing areas, accounting in part, perhaps, for many of the injuries received by the children of those schools. The proportions of each school site devoted to playing space and non-playing space are illustrated in Figure 3. Especially noticeable is the large portion of the Major and Washington sites devoted to play, in contrast to the large portion of the Hendricks and Walkerville sites not utilized for play activities. The Colescott site, with


\textsuperscript{5}See page 31.
<table>
<thead>
<tr>
<th>School</th>
<th>Play Space</th>
<th>Non-play Space</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Major School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Booker T. Washington</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thomas A. Hendricks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colescott School</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walkerville School</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIGURE 3.** Proportions of Shelbyville School Sites Devoted to Play and to Non-play Space.
a smaller total area, offers far less opportunity for enlarging the play space than the site of the Thomas A. Henricks School. These possibilities are discussed later in the present chapter.

Perhaps the sound basis for determining the correct size of a playground is as follows:

a. Anticipate the probable future maximum number of children who will use the playground at any one time, and their probable needs.

b. Ascertain the present play needs, interests, and activities of the children.

c. Adapt the play program to the area available, or provide space sufficient in size for the activities of the play program.

2. The Playground Surface

The mere provision of sufficient play area does not itself guarantee a safe playground. Poorly graded or improperly drained areas are so unsuited to safe play and so detrimental to health as to be hazards in themselves. Dusty play surfaces also endanger health, and therefore are unsafe.

The qualities of a good playground surface are that it be even, smooth, resilient, well-drained, quick-drying, durable, free from dust and abrasive materials, clean, and
firm. A grass surface is most desirable, except in wet weather, but grass wears so quickly that it is of no practical use for most school playgrounds. Oil-treated surfaces generally are unsatisfactory, as also are those treated with a topcoat of cinders.

Correct surfacing varies with local conditions, each play site having its own specific problem. A type of practically dustless surface highly recommended is one in which the entire top soil has been removed to a depth of from three to five inches and

... the excavation filled with three inches of cinders, wet, and rolled heavily. Wet again and cover with two and one-half inches of limestone screenings. Roll again until smooth. Cover with calcium chloride, one and one-half pounds to the square yard.6

Generally, if a soil is not porous and easily drained, the top will need to be excavated, covered with several inches of cinders, then given a top dressing. A satisfactory dressing for clay or heavy loam soil is torpedo sand or gravel, spread one cubic yard to each 150 square feet. Thorough rolling down is essential to success with this type of surface, as well as nearly all other types.

Some experimental work with asphalt play surfaces has been done, but as yet has not proved entirely successful.

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Indianapolis reports this type of surface as both expensive to construct and to maintain. The annual maintenance cost of an asphalt surface is estimated to be about one-sixth of the original cost of construction. To the author's knowledge, no experiments have been conducted with cotton fabric as a base for playground surfacing, although this much-publicized method of road surfacing might prove satisfactory, if tried. Here is a field for experimentation.

Keeping down dust is a safety problem, involving health, that is generally neglected. The most widely and successfully used dust binder is calcium chloride, a chemical which is neither expensive nor difficult to apply. This chemical absorbs a great deal of moisture from the air, thus preventing dust. It may be applied either in liquid or crystal form, two or three applications a year being necessary.

Glutrin, another substance sometimes used, is expensive, difficult to apply, and lacks the permanence of calcium chloride.

Sprinkling with water is probably most commonly employed, but this method of dust control produces mud and actually increases maintenance costs.

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7 This information was obtained by conversation with the head of the Department of Buildings and Grounds, Indianapolis Public Schools, Indianapolis, Indiana.

### TABLE VIII. THE COST OF DUST ELIMINATION FROM THE PLAYGROUNDS OF SHELBYVILLE ELEMENTARY SCHOOLS FOR ONE YEAR THROUGH THE USE OF CALCIUM CHLORIDE.*

<table>
<thead>
<tr>
<th>Name of School</th>
<th>Play Area of Each School in Square Yards</th>
<th>Total Annual Cost by Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Major</td>
<td>5100.5</td>
<td>$138.22</td>
</tr>
<tr>
<td>Booker T. Washington</td>
<td>1451.7</td>
<td>39.34</td>
</tr>
<tr>
<td>Thomas A. Hendricks</td>
<td>3396.8</td>
<td>92.05</td>
</tr>
<tr>
<td>Colescott</td>
<td>3218.0</td>
<td>87.21</td>
</tr>
<tr>
<td>Walkerville</td>
<td>465.0</td>
<td>12.60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13632.0</strong></td>
<td><strong>$369.42</strong>**</td>
</tr>
</tbody>
</table>

*Based on the price of calcium chloride quoted at Indianapolis, Indiana, November 9, 1939, at $27.10 per ton, and allowing total applications of two pounds annually to the square yard; all applications to be made by the custodians at no additional expense to the school corporation.

**Average cost per year per child for the 1094 children enrolled is $0.34**.
Table VIII shows the approximate yearly cost of dust elimination for each of the Shelbyville playgrounds, based on the current price of calcium chloride and excluding labor costs. The average cost per child enrolled is also given in this table.

School playgrounds should be maintained in the very best condition for economic, as well as safety, reasons. Neglect is often more costly over a period of time than frequent repairs made as needed; and neglected surfaces are constant safety hazards.

Children need to develop a sense of pride in the appearance of the play area, and a feeling of responsibility for maintaining the playground in a safe and attractive condition. When they have acquired this civic attitude, which is quite possible, they will find many ways to make their playground a safer place to play.

We think of playgrounds as safety zones of play, but they may be danger zones actually, when they are improperly divided and the activities thereon are not properly organized or adequately supervised. Older children too often appropriate more than their share of the playing space, or they organize games which should be restricted to especially planned areas.

9At Indianapolis, November 9, 1939, priced at $27.10 per ton; allowing annual application of two pounds per sq. yd.
Little children either are crowded off such playgrounds, or they are in constant danger of injury.

It is common practice to divide the playground equally between boys and girls with practically the same type of apparatus for each part. Various other schemes for division of areas are used at different schools, but Bennett's three-playgrounds plan should contribute much to safe play. This plan would allot one-third of the total play area to large boys, another third to large girls, and the other third to smaller children—both sexes below the fifth grade using it together.

The size of the play space available and the number of children on it at any one time largely determine which play activities should be encouraged and which should be forbidden.

3. Play Apparatus and Equipment

At least three school systems of Indiana have abolished play apparatus almost entirely from their playgrounds because of injuries resulting from the use of such equipment.

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10 Playground and Recreation Association of America, op. cit., pp. 74-75.
12 Anderson, Indianapolis, and Terre Haute.
Other schools are most completely equipped for this type of play. A majority of schools probably have such common types of apparatus as swings, teeters, and slides.

The selection of safe, useful apparatus deserves more careful attention than it generally receives. Committees of parents, members of school boards, and even teachers, are commonly unqualified by either experience or study of play-ground needs to select play apparatus with wisdom. Super-salesmanship has put many dangerous pieces of play equipment on school playgrounds. Generally it is wise to purchase only pieces of apparatus "... proved by years of observation to be valuable, interesting, and safe."\(^\text{13}\)

The Playground and Recreation Association of America suggests the following six rules for the selection, erection, and care of playground apparatus:\(^\text{14}\)

a. Limit the height, especially for small children.

b. Avoid apparatus that is dangerous, or not known to be safe.

c. Place apparatus in locations convenient to use, yet free from unnecessary hazards.

d. Set apparatus firmly.

\(^{13}\text{Lorna H. Leland, Playground Construction. P. 5. New York: Playground and Recreation Association of America, No. date.}\)

\(^{14}\text{Playground and Recreation Association of America, op. cit., pp. 86-87.}\)
e. Provide some shade, if possible, for most apparatus.

f. Inspect frequently for worn, defective pieces of equipment, and for glass, sharp stones, or other dangerous objects in the apparatus areas.

Leland recommends for little children eight-foot swings, small slides, small see-saws, and sand courts. For large girls he advises giant strides, larger see-saws, eight-foot and eleven-foot swings, basket ball goals, and volley ball courts. He suggests for the large boys' playground combination swings-and-gymnasium, trapeze, eleven-foot swings, large slide, horizontal bars, testers, ladders, giant stride, volley and basket ball courts, and a diamond for soft ball.

Whatever apparatus and equipment is chosen, each piece should be located for convenient use, but where it will not endanger any child because of other play activities nearby.

Play equipment should not be purchased all at one time, but gradually, De Groot advises. Purchased at one time, it is likely to wear out at one time, with the result that a high cost of replacement and repair will encourage use of unsafe apparatus. He further advises that steel


KEY

Trees or shrubbery

/utility pole

Flag pole

Fence or railing

Lawn

Lawn which could be used to increase play area

Steps

Total Area: 76,464 sq.ft

Non-Playing Area: 45,893 sq.ft

Play Area: 30,571 sq.ft

Enrollment: 366

Average Play Space Per Child: 83 sq.ft

Fig. 6 INDIANA.
Fig. 5. WALKERVILLE SCHOOL, SHELBYVILLE, INDIANA.
Fig. 8. Cole scott School, Shelebyville, Ind.
and a very big lawn. Play on this lawn is prohibited at all times, and the labor of maintenance is heavy.

At the Booker T. Washington School there is sufficient space for the play activities of its pupils, the average per pupil being over twice that of any of the other schools.¹⁹

The Charles Major and Colescott sites are best planned for maximum play space at little sacrifice of adequate landscape features. The Colescott playground could be enlarged by the purchase and addition of the now privately owned lot which creates an offset in the southwest corner of the present school site.²⁰

All of the Shelbyville playgrounds are equipped with sufficient play apparatus; but a thoughtful examination of the location of each item and its proximity to other play activities will reveal hazards which could be removed entirely or the dangers reduced. The swings and trapeze on the boys’ playground at the Charles Major School were situated so close to the soft ball diamond that children in them were hit frequently by batted balls, and runners to and from third base often were struck by swings. As a result of the present study these swings have been relocated on another part of the playground where they no longer are hazardous to any other play group.

¹⁹Ibid.
²⁰See Fig. 8.
There is also a dangerous relationship between the swings and teeters and the baseball diamond at the Booker T. Washington School. The relocation of these two pieces of apparatus, perhaps in the same area with the flag pole, would increase the play area and make a worthy contribution to safety.

Swings at the Thomas A. Hendricks School likewise are located close to the baseball diamond, and also to the basketball court. These swings could be relocated in safer parts of the playground. Furthermore, it is possible at this school to enlarge its playground by utilizing portions of the excessive space now devoted to lawn. Available additional space is indicated on Figure 4.

Apparatus at the Colescott School is well placed, but play would be less congested—and therefore much safer—if the territorial addition suggested in a previous paragraph were made.

There is no serious safety problem at the Walkerville School. The enrollment there seldom exceeds thirty-five, the children are young and small (only grades one, two and three attend this school), the school site is large and it is completely fenced. In dry weather, if the children of this school were permitted to play on the grassy, shaded areas,
they would eliminate all congestion of play activities and do little harm to the lawn.

4. The Playground Fence

It is almost universally agreed that correct fencing is essential to a safe playground. A playground fence protects school property and that of residents nearby; it keeps out mischief makers, both human and animal; it assists discipline, affording the supervisor more time to direct play activities; and, it keeps children out of the highways.

Many types of playground fences are available, among which are wooden, iron picket, pipe, regular farm-type woven wire, and the industrial type of chain-mesh. The most satisfactory type of fence, according to the Playground and Recreation Association of America is a

... chain link fabric made of copper-bearing steel wire, galvanized after weaving. ... A No. 6 or No. 9 gauge wire, two-inch mesh, generally is used; and the height ranges from five to eight feet. 22

If the fence is set a few feet from the sidewalk to permit the planting of shrubs and vines along the border outside the fence, the playground will be made attractive and a real beauty asset to the neighborhood. The Thomas A. Hendricks

and Walkerville Schools are especially well protected by fence. There is no fence along the east side of the Booker T. Washington School to prevent children running off the playground into the heavily travelled adjoining alley.\footnote{See Fig. 6.}

5. Special Hazards

Bicycles frequently are a hazard on a playground, due both to careless parking and to unrestricted riding through areas in which children are at play. As a safety precaution many schools provide parking racks for bicycles.

Some schools guard students against undue exposure to the sun by the development of a tree planting program designed to provide adequate shade without interference with regular play activities.

Sand is frequently provided near and under apparatus where there is danger of falls. If sand boxes for play are provided, there are always the problems of keeping them free of foreign matter and debris, and of locating them where they will be exposed to the germ-killing power of the sun a part of each day.

On many playgrounds unfenced poles supporting electric wires are hazards.

The burning of debris on the playground is another
dangerous practice often permitted, not only before and after school, but during the school day when children are at play.

Finally, on every school playground there are hazards peculiar to the individual school which may be due to poor planning, or to a lack of any plan.

6. Summary

The play site is seldom large enough for play needs and safety. No really definite standards for size of play areas are available; the only sound basis for determining correct size is one which takes into account the maximum number of children who will use the playground at one time, and the activities for which it will be designed.

Play surfaces generally are unsatisfactorily constructed, drained, and maintained, although there is little justification of such neglect. The dust problem, as well as that of muddy grounds, needs the attention of school officials.

Play apparatus is often unwisely chosen, located in unsafe areas, and activities on many playgrounds show little or no thoughtful planning.

Although a fence would contribute much to safety where a playground adjoins roads, streets, alleys, or other similar hazards, such protection frequently is not available.
A playground fence can be an asset in appearance, as well as a factor in safety.

Careful playground planning on the part of school officials is necessary if the school is to protect its students against unnecessary playground hazards.

1. Inspection of grounds and equipment

Scene up the task per square playgrounds constant attention and regular inspection of playground and equipment by proper principal, or other person responsible, preferably at weekends, are necessary to prevent children against playground hazards. "Lack of vision in an accident problem, with no "mystery and uncertainty," Sproul says. For the sake of both appearance and safety of the playground, regular, careful inspection should be made and eliminate defective equipment. Broken glass, a crescent, and pieces, liquid, or any other hazards, before the children reach the playground each day.

In addition to regular daily working inspection and checking of play areas, some actually employ frequent periods during which the premises are intensively alledged by the children at a peak, or by appointed clean-up squads. Properly placed, properly located and faithfully used, are an
CHAPTER IV

THE SAFETY CONTRIBUTION OF PLAYGROUND MANAGEMENT

1. Inspection of Grounds and Apparatus

Even on the best planned playgrounds constant alertness and regular inspection of playground and apparatus by teacher, principal, or other person responsible, preferably of mornings, are necessary to protect children against playground hazards. "Cleanliness is an abiding problem, with us always and constantly," Bennett says, "for the sake of both appearance and safety of the playground." Regular, careful inspection should detect and eliminate defective apparatus, broken glass, excrement, condoms, liquor, or any other hazards, before the children reach the playground each day.

In addition to regular early morning inspection and tidying of play areas, some schools employ frequent periods during which the premises are thoroughly cleaned by the children as a body, or by appointed clean-up squads. Receptacles for refuse, conveniently located and faithfully used, are an

aid to safety cleanliness on most playgrounds. "No child or teacher is too good to help clean up the premises." 2

Children trust school officials to provide play apparatus and play areas that are safe. In a number of cases of playground injuries, where it has been possible to prove negligence on the part of those officially responsible, the school officials have been held liable personally for damages. 3 Regular and frequent inspection protects both the child and the school officials.

On many playgrounds there are yet, despite modern conveniences in general, the moral and health hazard of unsanitary out-of-door toilets whose walls are covered by vulgar writing and obscene drawings. Where this condition exists, school officials must be on guard constantly against both moral and health injuries. "Plain heart-to-heart talks" are advised by Bennett 4 for handling trouble of this kind which has already developed. Frequent inspection, " . . . almost hourly the first few days," 5 may be necessary to forestall or eliminate hazards of this type.

2Ibid.


4Henry Eastman Bennett, op. cit., pp. 16-17.

5Ibid.
2. Play Periods

When all the children of a school are turned loose to play at one time, the play area is usually overcrowded, the larger children monopolize the playing space, and the smaller children are subjected to many hazards due to the rougher play of the older children. In an attempt to solve this problem, a number of schools employ what is commonly called "split", "dual", or "multiple" recess periods. This plan has advantages for safety worthy of our attention, but it does not solve the problem of overcrowded conditions during the morning and noon assembling periods.

One objection to separate recesses for different groups arises from the fact that the group on the playground may create noises which disturb or interfere with the work and study of those children who are not having recess at that time. Another objection is the fact that more supervisors, or more frequent assignments to playground supervision, are necessary.

In the author's own school the experiment of holding separate recesses for grades one to three and four to six has resulted in a reduction in the number of injuries requiring first aid from an average of 1.7 injuries per school day.

Based on figures kept by principal for 2 periods of three years.
to an average under the new plan of only .97 injuries per school week. This increase in play safety, plus a comparable reduction in discipline problems, makes the plan of dual recesses worthy of consideration for crowded play areas.

3. Rules for the Playground

The adoption of simple rules for the use of play areas, apparatus, and equipment is recommended by most authorities for safe play. The rules adopted will differ according to the special needs of each playground. Two excellent sources of practical suggestions of rules for the use of playground apparatus are available in Safety Programs and Activities for Elementary and Junior High Schools and Safety for Supervised Playgrounds.

Whatever rules are adopted should be posted in a conspicuous place, fully understood by all children and teachers, and strictly obeyed. Permitting children to suggest playground rules is a method of securing immediate co-operation employed by some schools; this method has been found to

produce a sense of responsibility on the part of the children for enforcing obedience. No rule should be made which can not be impartially enforced.

4. Supervision of the Playground

The presence of a teacher, or other capable supervisor, on the playground is of extreme importance in the prevention of accidents and in developing wholesome attitudes of play. Ideally, all free periods of play, including after school dismissals and noon periods, should be supervised.9

Waits10 lists four values of systematic playground supervision: the prevention of difficulties, reduction in the number of accidents, and the elimination of both profanity and vulgarity. Such supervision, however, must be active, rather than passive; it should be one of leadership, guidance, and co-operation, rather than one of dictatorial control or critical aloofness.

Playground safety patrols, used in addition to adult supervision, have been of considerable value in some schools; much depends upon the wise guidance of the adult responsible

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for their organization. The duties of such patrols usually are to assist in inspection of apparatus and grounds, to instruct newcomers in regard to rules and hazards, to caution individual children who are careless of their own safety, and to teach smaller children new games. The patrol must be inspired and directed to do real safety work, rather than merely to assume police-like authority. Faithful service generally is rewarded by one or more means, such as merits, certificates, pins or medals, free admission to athletic contests, theater parties, parades, or picnics.

5. Organized Play Activities

Waitz\textsuperscript{11} reports that organized play results in safer play. Pupils are nearly always interested in games, but they generally know only a few. At most schools it may be necessary to teach new ones in order to establish safe play.

Games selected to be taught should be suited to the age and sex of the children, the facilities available for play, and they should be absolutely safe. While it is not a play supervisor's right or duty to dominate children's play, teacher participation in games is wholesome for both pupils and teachers and is conducive to safer play activities.

\textsuperscript{11}Ibid., pp. 82-83.
Adequate safety zones, marked, painted, or roped around all apparatus, and around all play areas which are restricted for one game or one type of activity, are another means of increasing safety.

6. Accident Records

The necessary preliminary step toward effective safety education is to record all playground accidents requiring a doctor's attention, or resulting in an absence from school of at least one-half day.\(^\text{12}\)

Every school corporation should make adequate provisions for regularly reporting children's injuries. The system adopted should be so simple as to require a minimum of effort, yet it should give complete details as to the cause of the accident and the treatment administered. The author feels that even minor injuries, if they require any first aid treatment, should be reported. A blank devised by the author for use by the Shelbyville schools in reporting injuries during the period of this study will be found in Appendix A. The National Safety Council has devised a form for use in reporting accidents which is now used by many school systems.\(^\text{13}\)


\(^{13}\)A copy of this form can be seen in the Eighteenth Yearbook of the American Association of School Administration, pp. 290-291; or a sample copy can be obtained free of charge from the National Safety Council, Chicago, Illinois.
TABLE IX. TEACHER-RECOGNITION OF CORRECT FIRST AID PROCEDURES, AS REVEALED BY RESULTS OF TEST GIVEN TO THIRTY ELEMENTARY TEACHERS.*

<table>
<thead>
<tr>
<th>Subjects of Suggested First Aid Procedure</th>
<th>Number Who Recognized Correct Procedure</th>
<th>Number Who Failed to Recognize Correct Procedure</th>
<th>Number Who Failed to Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog bite</td>
<td>22</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Dog bite</td>
<td>19</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Burn (minor)</td>
<td>20</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Burn (minor)</td>
<td>18</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Burn (major)</td>
<td>7</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Burn (major)</td>
<td>12</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Bruise</td>
<td>18</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Blister</td>
<td>18</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Cut (vein)</td>
<td>18</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Cut (vein)</td>
<td>21</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Cut (artery)</td>
<td>19</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Dislocation</td>
<td>18</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Electric shock</td>
<td>27</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Electric shock</td>
<td>18</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Eye (object in)</td>
<td>19</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Ear (object in)</td>
<td>25</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Fainting</td>
<td>23</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Fracture</td>
<td>22</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Frost bite</td>
<td>10</td>
<td>15</td>
<td>5</td>
</tr>
<tr>
<td>Frost bite</td>
<td>26</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Asphyxiation</td>
<td>26</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Nose bleed</td>
<td>14</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Nose bleed</td>
<td>21</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Nose bleed</td>
<td>28</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Sprain</td>
<td>24</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Sprain</td>
<td>13</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Sunstroke</td>
<td>14</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Sunstroke</td>
<td>21</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Throat (object in)</td>
<td>23</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Throat (object in)</td>
<td>12</td>
<td>15</td>
<td>3</td>
</tr>
</tbody>
</table>

Totals                                  567  226  107

*See Appendix B, Part II. Table IX is a tabulation based upon the results of this test.
Merely reporting accidents is of little value, unless the original reports are frequently summarized and analyzed to determine specific, basic causes. Once such causes have been ascertained, immediate steps should be taken to remove all hazards thus discovered. No school system can excuse itself for frequently repeated accidents of a similar nature.

7. Playground First Aid

It is perhaps impossible to eliminate all playground accidents, although their number may be reduced to a minimum. Therefore, on every playground there will be need for some first aid. Authorities recommend that playground supervisors and school nurses do very little first aid, except for minor injuries, generally relying upon a licensed doctor or hospital to care for serious cases. Home injuries, boils, and similar ailments are not a school responsibility, and they never should be treated at school, except as emergencies. Minor cuts, bruises, and other injuries received at school should be cared for; and, if neither doctor nor hospital is easily available, the playground supervisor will need to administer proper temporary treatment when serious injuries do occur. Generally parents are notified immediately, if possible, when injuries of importance occur, and their advice sought as to care, doctor, and treatment.
TABLE X. TEACHER-RECOGNITION OF INCORRECT FIRST AID PROCEDURES, AS REVEALED BY RESULTS OF TEST GIVEN TO THIRTY ELEMENTARY TEACHERS.*

<table>
<thead>
<tr>
<th>Subjects of Suggested First Aid Procedure</th>
<th>Number Who Recognized Correct Procedure</th>
<th>Number Who Failed to Recognize Incorrect Procedure</th>
<th>Number Who Failed to Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog bite</td>
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<td>9</td>
</tr>
<tr>
<td>Burn (minor)</td>
<td>21</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Burn (major)</td>
<td>18</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Bruise</td>
<td>10</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>Bruise</td>
<td>15</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Blister</td>
<td>13</td>
<td>12</td>
<td>5</td>
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<td>Cut (vein)</td>
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<td>4</td>
</tr>
<tr>
<td>Cut (artery)</td>
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</tr>
<tr>
<td>Cut (artery)</td>
<td>16</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Dislocation</td>
<td>12</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Dislocation</td>
<td>1</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>Electric shock</td>
<td>12</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Eye (object in)</td>
<td>20</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Eye (object in)</td>
<td>16</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>Ear (object in)</td>
<td>25</td>
<td>1</td>
<td>4</td>
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<tr>
<td>Ear (object in)</td>
<td>22</td>
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</tr>
<tr>
<td>Painting</td>
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<td>Painting</td>
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<tr>
<td>Fracture</td>
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<td>11</td>
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<tr>
<td>Fracture</td>
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<td>5</td>
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<tr>
<td>Frostbite</td>
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<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Asphyxiation</td>
<td>21</td>
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<td>8</td>
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<td>Asphyxiation</td>
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<td>Sprain</td>
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<td>Throat (object in)</td>
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<td>6</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>14</td>
<td>5</td>
</tr>
</tbody>
</table>

Totals 451 208 151

*See Appendix B, Part II. Table X is a tabulation based upon the results of this test.
Tables IX and X, summarizing results of a test in first aid procedures given to thirty Shelbyville teachers, show that these teachers generally are not qualified to administer adequate first aid should an emergency arise on the playground requiring it. Although the average college and normal school training of the thirty teachers tested was 100.5 weeks, Table IX shows that of nine hundred opportunities to select correct first aid procedures, a total of only 567, or 63 per cent, of the correct procedures suggested in the test were recognized by the thirty teachers. In 226 instances—25.1 per cent of the total—these same teachers definitely failed to recognize correct procedures. Of the nine hundred opportunities to select correct procedures 107, or 11.9 per cent, were unanswered for reasons not known.

Table X, based on the same study, is even more startling. This table reveals that of 810 opportunities to indicate incorrect first aid procedures, only 451, or 55.6 per cent, of the incorrect procedures were recognized as incorrect. These same teachers marked 208 suggested procedures, or 25.7 per cent of the total, as correct when they were actually incorrect. In other words, in over one-fourth of the instances the teachers might have given incorrect first aid had they actually been called upon to administer it.

14See Appendix B, Part II.
Finally, in 151 instances incorrect procedures were neither checked as correct nor incorrect.

Twenty-two of the above teachers declared that their college and normal school courses had not prepared them satisfactorily to administer the type of simple first aid frequently necessary on the school playground; twenty-six teachers expressed belief that Indiana's Teacher Training Course of Study should include instruction in simple first aid. Only ten teachers had ever received special training in first aid at any time in their lives.

As to the attitude of Shelbyville teachers toward playground responsibilities, thirteen said that they enjoyed playground associations, activities, and supervising duties; sixteen teachers indicated that they did not find pleasure in them; and one did not answer the query.

The author's personal examination of the elementary teacher training courses offered by the colleges and universities reveals little opportunity for elementary teachers to acquire first aid knowledge and skill.15 If thorough training in first aid were one of the requisites of teacher licensing, playground injuries would be handled more wisely and efficiently--contributing much to playground safety.16

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15See catalogs of Indiana colleges and universities for the school year 1938-1939.

In addition to trained, interested teachers, a clean, well-equipped first aid kit is essential for administering first aid. The kit is usually placed where it will be out of reach of small children, yet easily accessible and available for all persons responsible for playground supervision. The contents of first aid kits in different schools vary; but the following list, recommended by the National Safety Council, probably is adequate for most school needs:

- **enamel cup**
- **Aromatic spirits of ammonia**
- **enamel basin**
- **boric acid powder**
- **mercuriochrome**
- **adhesive tape**
- **sterile cotton**
- **tweezers and scissors**
- **gauze**
- **first aid manual**

Although wise planning and intelligent supervision will prevent many needless injuries; yet, in spite of all efforts, accidents are sure to occur. For these good management will provide adequate first aid.

8. Summary

Cleanliness is an essential factor of playground safety. Regular, frequent inspection of both grounds and apparatus protects children against unnecessary injuries and school officials against lawsuits charging negligence and seeking damages.

The number of injuries due to congestion of play activities on the playground has been greatly reduced at some schools by holding separate recesses for younger and older children.

Some playground rules are a necessity. Children may be permitted to assist in formulating these rules; and once made and understood by all, they should be impartially enforced.

Playground supervision is essential to safe play. Teachers generally assume this responsibility personally, although well-trained student patrols can be of much assistance.

Children need to be taught to play games that are as free as possible of danger, and each play activity should be restricted to areas set apart especially for that type of play.

Faithful recording of accidents and their causes, plus frequent summarization and analysis of these reports, will enable the individual school to determine its special hazards and to adopt a program designed to eliminate many of them.

Teachers who supervise playgrounds are required frequently to administer first aid, a responsibility for which they may be inadequately prepared. This type of training has seldom been required of teachers in the past. The first aid kit is generally located where it is easily accessible from the playground.
CHAPTER V

TEACHING PLAYGROUND SAFETY

1. Safety Education Defined

Although the movement for safety education and training in the schools of the United States is almost thirty years old, it is only recently that safety has assumed a position of prominence in the elementary school curriculum; there yet remains much to be done in this field. Educators now realize that children not only need to be trained to avoid accidents to themselves and to prevent injuries to others, but

Safety education involves the acquisition of a certain fund of information ... the ability to apply it to concrete situations ... and the building up of habits which make the application of knowledge to the situation automatic.

A successful safety program is "... not a complete getting rid of danger, but a substitution of worthwhile adventures for poor adventure."

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2 Ibid., p. 7.
"Not more than one child in two thousand will be killed by accident during the year, whether safety is taught or not.\textsuperscript{3} Yet, if a program of activities, designed to teach children to play more safely, preserves one life, or even reduces the number of serious injuries to children, it is justified.

There is more than immediate practical value to safety education; life attitudes and the development of character are also important products of any successful safety program, and they should be sought constantly. The fostering of proper ideals, sentiments, and attitudes is essential to the success of any program for teaching children to play safely.

2. The Present Status of Safety Education

A recent study\textsuperscript{4} made of 1,862 school systems of the United States shows that safety is being taught in 86 per cent of the elementary schools examined, but does not show how much safety is being taught, or how well. It does indicate recognition of the safety problem as a part of the school program. Of all the cities reporting in the

\textsuperscript{3}Ibid., p. 6.
\textsuperscript{4}Ibid., pp. 11-12.
No State Course in Safety

- General Safety Course now under construction
- Only High School courses or outlines on Safety
- Only Elementary courses or outlines on Safety
- Both High School and Elementary courses or outlines on Safety

Fig. 9. Map showing the status of State Courses on Safety in the U.S.
study 15 per cent had separate courses of study in safety; 79 per cent taught safety in correlation with other subjects, especially Civics, English, Art, Geography, and Health; and 40 per cent of the schools employed extra-curricular activities for safety instruction. It is evident from these figures that some schools employ more than one type of lesson for teaching safety.

A number of cities, notably safety-spirited and famous for successful city-wide safety activities, especially those pertaining to playgrounds, are listed and their activities described in a recent pamphlet issued by the National Safety Council. The results obtained from safety programs in these cities are ample evidence of the very great possibilities of aggressive safety programs.

To determine the present extent of definite safety instruction in public schools throughout the United States, a survey of the safety program of the Department of Education in each state was made during 1939. The findings of this investigation are illustrated in Figure 9. Fourteen states have no required courses of instruction in safety for either elementary or high schools; three states have


6 Indiana, one of the three states, already has a safety program for grades eight and high school. A program for the elementary grades was recommended by the State Board of Education at its regular meeting in September, 1939.
TABLE XI. PROPORTIONS OF EIGHTEEN STATE COURSES OF STUDY FOR ELEMENTARY SCHOOL SAFETY INSTRUCTION DEVOTED TO EACH OF FIVE TYPES OF SAFETY PROBLEMS. *

<table>
<thead>
<tr>
<th>Type of Safety Problem</th>
<th>Per cent of total pages devoted to each type</th>
</tr>
</thead>
<tbody>
<tr>
<td>School grounds</td>
<td>6.3</td>
</tr>
<tr>
<td>School building</td>
<td>8.6</td>
</tr>
<tr>
<td>Traffic</td>
<td>23.2</td>
</tr>
<tr>
<td>Home</td>
<td>18.4</td>
</tr>
<tr>
<td>General (industrial, other public)</td>
<td>43.5</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Based on an analysis of the courses of study in elementary school safety of eighteen states which had elementary school safety programs during 1939.
general programs for all grades now contemplated or actually being constructed; fourteen states have courses in safety for high schools only; seven states have adopted such programs for elementary grades only; and nine states now have general programs for all grades.

The courses of study and outlines for safety instruction in the eighteen states of the United States which have elementary school safety programs were analyzed to determine the proportion of pages devoted to each of five types of safety problems. Table XI lists these proportions, expressed in per cents, of the total pages devoted to safety instruction in elementary schools.

A comparison of this table with Figure 1, which is based on 1939 accident statistics compiled by the National Safety Council, shows considerable disparity between the sources of injuries to children and the present direction of safety instruction as outlined in state courses of study. These statistics for 1939 show that 37 per cent of all injuries to children occurred in school buildings and on school playgrounds, yet, an examination of state courses of study in elementary school safety reveals that these courses devote only 14.9 per cent of their materials to school building and playground safety. A similar disparity also exists between

7 Indiana is also one of these states.
the need for instruction in home safety and the amount of materials now devoted to that feature of safety.

On the other hand the proportion of instruction devoted to traffic safety by the same courses of study is very large in comparison to the actual number of injuries suffered by children in 1939 as a result of traffic accidents. A comparison of the ratios of playground injuries to all other injuries and of playground safety instruction to all other safety instruction shows a need for more attention to playground safety.

Although there are educators who insist that "Safety Education" should be added as a full-time subject to the present elementary curricula, the other school leaders, while fully sensing the importance and necessity for teaching safety, decry any effort to add a new subject to an already overcrowded curricula. The bulletin, Safety Education thru Schools, reporting on returns from 14,500 teachers, finds that 28 per cent favor the establishment of safety as a separate school subject and 43 per cent believe that it should be placed as a distinct unit in other subjects. The latter group agree with Rugg that "safety should develop intelligently through the activities of the school," and

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that "it should not create a new school subject, but correlate with other subjects."\(^9\) Health, Science, and Civics are regarded as ideal subjects in which to include units of safety, although correlation is easy with most regular school subjects. Frequently the opening exercise period is used for safety instruction and activities.

The current yearbook of the American Association of School Administrators declares that the problem of what form of organization to use for safety instruction has no single answer, but is dependent upon the general organization and curriculum of the individual school. The essential point, according to this report, is that every school should have a definite, active program of safety education.\(^10\)

The success of a safety program depends largely upon teachers, school nurses, and custodians trained in the spirit and technique of safety and safety education.\(^11\) An abundance of instructional materials is available, but these materials are not always fully and properly used. The National Safety Council says, "Teachers generally need training in safety


education; it should be made a part of the normal school course."\(^{12}\)

In replies to the question, "Do you feel that your college and normal school courses have prepared you adequately for effective teaching of playground safety?"\(^{13}\) seven Shelbyville elementary teachers replied, "Yes"; twenty-three answered, "No". In response to another question, "Should the training course for elementary teachers include instruction in materials and methods of teaching playground safety?"\(^{14}\) twenty-eight answered, "Yes"; two did not answer. Plainly the majority of these teachers feel a real personal need for training in safety. College training programs, however, have been slow to develop plans for training teachers in safety work.\(^{15}\)

3. Objectives of the Safety Program

Perhaps the first objective in teaching playground safety should be to develop an understanding of the common causes of playground injuries. To achieve this objective,


\(^{13}\) See Appendix B.

\(^{14}\) Ibid.

it is necessary that complete records of all accidents be kept, and that frequent summarizations be made of their causes. Children need to learn where safe play areas are, how to use apparatus safely, how to avoid special or seasonal hazards, and to remain out of areas restricted to certain types of play adapted to older children. A study of safety information pertaining to accident facts should result in the development by children of a consciousness of responsibility for their own personal safety and the welfare of others.

The development of proper attitudes is not sufficient; practice of these attitudes should lead to habitually safe activities.

Finally, safety habits should evolve into the higher plane of skills. A safety program which has as its objectives the development of correct attitudes, habits, and skills can hardly fail.

Children, especially older ones, need to learn simple first aid: what to do, and how to do it, when playground accidents result in injuries. Thoroughly trained, such children can be of great assistance to the adult playground supervisor in cases of emergency.

4. Methods of Teaching Playground Safety

The proper time to teach playground safety is before an accident occurs, but there are instances where the best
teaching can be done immediately following an accident, using the injury as a demonstration lesson. This type of lesson is very effective.

Positive or negative instruction, threats or warnings, and efforts to teach safety through the use of codes or slogans, are of little real value—unless there is a consistent follow-up check of actual practices and habits. Direct instruction, correlation with other subjects, and extra-curricular activities are the common and most successful methods of instruction employed.

As has been pointed out previously in this chapter, direct instruction through a full-time subject of safety is not always feasible. Health and safety are of such affinity in their natures as to recommend that the teaching of elementary school playground safety be correlated chiefly with that subject.

Not all attempts at teaching safety are successful. Dr. Stack classifies regular Safety Lessons into two groups, as follows:

**Most Effective Safety Lessons**
- Practice lessons
- Lessons checked by patrols
- Dramatizations
- Lantern slides
- Motion pictures
- Safety story lessons
- Foster lessons
- Demonstrations
Less Effective Safety Lessons

General exhortations
Learning safety rules
Negative instructions
Threats and the use of fears
Teaching safety through arithmetic writing lessons

Whatever lessons are undertaken, they should be specific, based on real situations, and the children should undergo a feeling of actual experience in regard to specific hazards. Demonstration lessons are especially valuable, if there is a follow-up of practice in the same type of activity.

Safety instruction can be successfully correlated with a number of school subjects, especially those which require but little attention to mechanical details. A discussion of correlation will appear later in this chapter.

Extra-curricular activities also offer a fertile field for safety instruction. Safety organizations of children, such as councils, clubs, committees, and assistants, can be effective helps in safety instruction. A safety council should prove its value in a number of ways. Weekly or monthly discussions by a safety council, anticipating regular or seasonal hazards, is an excellent step toward reducing the number of injuries from such hazards, according

to the National Safety Council. A student council is also an aid in devising needed regulations, in fostering safety drives and campaigns, in staging safety or first aid demonstrations and exhibits, in giving assembly programs and safety talks, in sponsoring playground patrols, in assisting with playground and apparatus inspection, in conducting safety courts, and in instructing children in safety rules and safe conduct of play.

Other safety activities, probably of value and accessible to most schools, are the telling of safety stories, the use of safety plays, charts, displays, puppet shows, shadow pictures and pantomimes; the study of safety films, slides, and stereopticon views, and other visual aids; the making of safety posters, booklets, mottoes, pledges, and codes; the reporting on interviews of nurses, doctors, playground supervisors, and children who may have been injured at play; the playing of safety games; the singing of safety songs; giving safety yells; and, the memorization and frequent use of safety pledges.

The bulletin board frequently is used successfully to stimulate interest and activities in safety, especially among upper grade children.

From the examples given it can be seen that opportunities for extra-curricular safety instruction are unlimited and easily available to all teachers. The alert teacher will adapt desirable ones to specific school situations, conditions, and needs.

5. Materials for Teaching Playground Safety

The possibilities for correlation of safety with regular school subjects are almost without limit. The subject of health not only should arouse the child's respect for the condition of his physical body, making him more careful to prevent its injury, but this subject should also teach the child the rudiments of first aid. The elementary school child needs to "learn to care for all injuries immediately, how to care for the minor ones, and how to secure aid for injuries which are serious,"18

English or Language can be correlated easily with safety. Oral and written expression, dealing with common safety problems and activities, can be used for effective safety teaching. The use of safety rhymes, slogans, stories, talks, plays, scrap-books, jingles, verses for songs,

spelling contests, and debates is recommended by Shea\textsuperscript{19} for correlating safety with English. Upper grade children often employ successfully such safety subjects as the following for debate before school audiences:

\begin{itemize}
  \item a. Resolved: That life is more valuable than "saving time."
  \item b. Resolved: That habits of courtesy would reduce the number of playground injuries more effectively than rules.
  \item c. Resolved: That school playgrounds are a neighborhood nuisance and danger.
  \item d. Resolved: That playgrounds are as essential as school houses.
\end{itemize}

Letter writing, discussions of safety experiences or accidents, and the composition of safety codes and pledges are suggested as useful by the National Safety Council.\textsuperscript{20}

Art offers special opportunities for visual safety appeal. Drawings, posters, models of safe playgrounds, and other illustrative devices are of great interest to children. Generally the original work of children is more effective, but colorful commercial posters also are helpful for stimulating interest in and desirable attitudes toward safety.

Arithmetic appears to have less correlative value for the safety program than certain other subjects, but


the same use of accident statistics, graphs, and problems will interest some children who otherwise might care little for the whole safety education program.  

Penmanship, like arithmetic, requires so much attention to mechanics that its possibilities for correlation with safety instruction are limited. Shea finds that the copying of verses, rhymes, jingles, and slogans is of some value, however.

The field of reading and literature is rich with safety material. Every normal child enjoys a good story, and the excellent safety stories available today are of great number. Among the many textbooks on safety, The Road to Safety series of readers published by the American Book Company recently are an outstanding contribution to safety instruction through correlation with reading. There is hardly a modern reader which does not contain some safety lessons.

Other subjects no doubt have some value for correlation, but this value is of such minor importance that these subjects need not be discussed here. It is often surprising what an interested, resourceful teacher can accomplish with

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limited material resources.

The use of slogans may, or may not, be of value in safety education, depending upon the manner in which they are used. Because slogans generally are epigrammatic in form, they are easily remembered. Shea says that each class should have its own slogan, either original or copied; that it should be constantly on display and frequently repeated aloud. A few examples of slogans which he recommends are as follows:

a. Waste a minute and save a life.
b. Always alert—nobody hurt.
c. A bed at home is worth two in the hospital.
d. Use more brains, suffer less pains.
e. Two legs are better than a car-load of crutches.\(^{23}\)

The value of a safety pledge, like that of a safety slogan, is dependent upon its use. The following pledge, devised by the Kansas City (Mo.) Junior Safety Council, is an excellent example of what a good safety pledge should contain:

I will work for the safety of others as I would want them to work for my safety.
I will try to be careful all the time, everywhere.
I will not take unnecessary chances of getting hurt, and I will warn others against doing so.
I will do my part to help reduce the number of accidents this year.
All this I will do for the sake of humanity and the honor of my school.\(^{24}\)

\(^{23}\)Loc. cit., Shea, p. 60.
Because children enjoy play, safety games afford excellent and effective material for instruction in playground safety. The National Safety Council has available instructions for playing a number of such games.  

Since accidents do occur on the playground, despite all teaching and precautions, boys and girls—especially those of the upper grades—need to learn simple first aid. Beard recommends the following minimum instructions in first aid for grade children:

Grade Four:  
  a. Treat minor cases where antiseptics are not needed, such as choking, hiccough, nosebleed, bruise, black eye, foreign object in eye, sprain, poison ivy, and frostbite.

Grade Five:  
  a. Use simple antiseptics; treat for splinters, scratches, rusty nail wounds, cuts, dog bites, fainting and shock.

Grade Six:  
  a. Burns, sunstroke, heat exhaustion, tying the square knot, using the triangular bandage and the tourniquet.

Grade Seven:  

Grade Eight:  
  a. Artificial respiration.
  b. What the minimum first aid equipment for the home should be, and how to use it.

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To the teacher who is willing to study and analyze her pupils' safety needs, because she has their welfare at heart, the teaching of safety will seem an opportunity, rather than a burden; and it will not be difficult.

Safety, so well-taught that it is habitually lived, is its own reward.

6. Summary

Playground safety is largely a matter of ideals, attitudes, and habits, plus an understanding of the causes of accidents. Educators generally agree that elementary school safety should not be made a full-time subject, but should be taught intensively in correlation with other subjects, especially health, and through extra-curricular activities.

The success of any program for teaching safety is largely dependent upon the attitudes, resourcefulness, and safety training of the teachers. Generally teachers recognize their own need for training in safety, even though they may have been unable to obtain this training.
CONCLUSIONS AND RECOMMENDATIONS

1. Conclusions

Playgrounds are not always safe places for children to play, but they can be made safe; and they can be made so attractive as to be an asset to a community. Many injuries could be avoided by better planning, management, supervision, and an aggressive program of safety education. School administrators and teachers in the past have devoted too little of their attention to the problem of playground safety. An awakening to the seriousness of this problem is needed today, not only for the welfare of the children, but also for the protection of officials and teachers responsible for the playground.

An analysis of school playground injuries shows that bruises, lacerations, and puncture wounds are the most common injuries suffered, although a variety of other types occur on every playground. The most hazardous play period of the day, between lunch and the afternoon tardy bell, would be safer if it were more efficiently supervised. Afternoon
recesses have more accidents than morning recesses, even when equally supervised. This is probably due to the fact that physical efficiency is generally lower of an afternoon than of a morning.

The four most dangerous months of the year on the school playground are September, October, April, and May. Fair weather, with much outdoor activity, accounts in part for these months being most hazardous. The higher frequency of accidents during the first months of the school year may be due to the fact that children are unable to quickly adjust their play activities to limited areas of school playgrounds after the freedom of vacation recreation.

Boys are hurt more frequently than girls, and generally they get hurt more seriously. This is due to the fact that boys usually play games which require greater physical activity and more body contacts than those in which girls participate.

Sixth grade children suffer more playground injuries than any other grade of the elementary school. Unorganized play is more dangerous than apparatus play and organized play together—if we except football. Careful analysis of accident records of each individual school, if they have been

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1This conclusion, based on Shelbyville playground accident statistics, is confirmed by the National Safety Council's 1939 edition of Accident Facts.
accurately kept, will reveal a school's chief hazards and give a true answer to the question, "How safe is a school playground?"

Most school sites are too small; and, generally, they are so located that no additional areas are available, except at almost prohibitive costs. Frequently, as is the case at the Thomas A. Hendricks and Walkerville Schools in Shelbyville, too much of the total school site is devoted to lawn and not enough to play area. Beauty of a school setting is not to be decried, but safety should take precedence over beauty in planning the school site.

Playgrounds that are either dusty or muddy are a health hazard. Money spent to eliminate mud or dust from the playground is not an extravagance, but a worthy contribution to safety and health.

Play apparatus is not necessarily a hazard, but frequently is a source of injuries on many playgrounds. These injuries are generally due to the fact that apparatus has been so located that play thereon conflicts with other types of activity, to a lack of supervision, or to failure to make frequent inspection to detect worn, defective pieces. Swings, teeters, and other play apparatus located close to a baseball diamond and in range of batted balls shows poor planning, although this situation is common.

An unfenced playground if it adjoins travelled roads,
alleys, or streets, exposes children at play to an unnecessary hazard.

The number of injuries resulting from congested play activities at recesses on small playgrounds can be reduced. At schools where it is impossible to increase the play area, the plan of using separate recesses for large and small children has contributed much to safety.

Since unsupervised play periods have more injuries than supervised periods, it is evident that supervision of the playground at all times when children are at play thereon is essential to the welfare of those children. Yet, despite good supervision, some accidents will occur; and not all teachers are adequately trained to administer first aid as needed. Teacher training courses have neglected to prepare teachers for this phase of school safety.

The fact that more children were hurt during the 1938-1939 school year on school playgrounds than in going to and from school during the same period should indicate to school officials and teachers the need for the school to give instruction in playground safety as well as traffic safety. Although the need for a complete safety program is apparent, it is not necessary to add safety as a new subject to an already overcrowded curriculum. Educators agree that safety can be successfully taught to elementary school children as distinct units of such subjects as health and science,
and in correlation with other regular school subjects, or through extra-curricular activities. The real problem is not when and how to teach playground safety, but that schools awaken to the need and then adopt a definite, aggressive, and complete safety program designed to meet this need.

2. General Recommendations

The first step in making playgrounds safe for children's play is recognition of the fact that they are not safe play areas generally. Next, each playground situation should be analyzed carefully to determine why accidents do occur thereon. Having sensed the need for safety and ascertained the causes of playground injuries, then a definite program of playground management, supervision, and education for safer play should be adopted.

The site of the playground should be as free from hazards as possible. The area should be large enough to provide safe places for different types of play suited to the number and ages of the children on it at any one time. The surface should be level, properly graded, free from dangerous foreign objects, and never very dusty nor muddy. The whole play area should be protected by a suitable fence. If the school site is too small to accommodate the play activities of all the children at one time, and there is no
possibility of enlarging the site, the use of "multiple recess periods" is recommended.

Only apparatus and activities generally recognized as safe should be permitted on the playground. Play apparatus, wisely selected, suitably located, correctly installed, and sanely used, will provide hours of enjoyment and not constitute a serious playground hazard. Daily inspection of all play equipment is necessary to prevent injury to children resulting from defective or worn apparatus, and to discourage lawsuits against school officials personally, charging them with neglect and seeking damages. Adequate safety zones should be created for all pieces of apparatus and for activities which might endanger non-participating children who might be engaged at other play nearby.

The presence of one or more teachers in a supervising capacity on the playground is also an essential safety factor. Such supervision should be friendly and active—of a guidance rather than a domination type. The supervisor should, if possible, participate in many of the common play activities and teach new ones. Teachers who have an unwholesome attitude toward playground supervision and direction of play activities should repent or withdraw from the profession. If a teacher's attitude toward playground responsibilities is satisfactory, but he is inadequately trained
for the work, then he should endeavor to remedy the deficiency. Elementary teachers generally should seek to become expert in all phases of playground supervision.

Every school should employ a system of recording playground accidents. These reports should be frequently summarized and analyzed in order to ascertain specific hazards which can be avoided.

The playground safety program should recognize the need for adequate first aid equipment and a personnel trained in the care of injuries. This need is especially great on city school playgrounds because play there is in congested areas and results frequently in injuries. Rural schools, while they may have fewer accidents due to larger play areas, generally are located at some distance from skilled medical assistance. They, too, need adequate first aid equipment and teachers trained to use it correctly. Since teachers are surprisingly poorly trained in first aid procedures, it is essential that they receive such training. First aid courses should be required of all prospective teachers now working toward licenses. Those teachers already in the service should be thoroughly tested in first aid and, if found deficient, be required to secure adequate training. The American Red Cross course in first aid is available to teachers at no cost, except a small sum for the handbook, and it provides excellent training.
A final factor of the safety program, and an important one, is that of education. The educational phase of playground safety requires a definite, constantly functioning program; but it does not mean that safety should be taught as a new or a special subject in the curriculum of every school. It is possible in any school to develop ideals, attitudes, and habits of safety among elementary school children through persistent correlation of safety instruction with regular school subjects, and through carefully planned extra-curricular activities. Classroom instruction in safety, however, is not sufficient; no child is truly educated in playground safety who has not acquired the habit of safe play—safe for himself, and for others.

3. Specific Safety Recommendations for Shelbyville Schools

After a careful study of playground safety in general, and of the specific problems of the individual Shelbyville playgrounds, the following recommendations for safety of Shelbyville playgrounds are made:

a. That a system of regularly reporting playground accidents be adopted and used.

b. That the use of "multiple recess periods" be continued.
c. That property owners adjoining the Charles Major School in compliance with a City Ordinance already adopted but seldom enforced, be forbidden to burn debris in the alley which runs parallel to the unfenced north side of the playground.¹

d. That at the Booker T. Washington School² the east end of the playground be protected by the erection of a suitable fence. Also at this school a container for rubbish should be used, instead of piling broken glass, discarded cans, clinkers, ashes, and limbs in an open heap on the play area. Both swings and teeters should be removed and established at points out of danger of batted balls—probably in the area surrounding the flag pole.

e. That at the Thomas A. Hendricks School³ a part of the present lawn should be devoted to play space. Areas designated in Figure 4 as possible sources of play space should be properly surfaced and converted to playground either for smaller children or for the re-location of swings, may-pole, and basket ball courts which now are in areas unsafe due to batted balls and congested play.

f. That at the Colescott School,⁴ as at the

¹See Figure 7.
²See Figure 6.
³See Figure 4.
⁴See Figure 8.
Hendricks School, the play space should be increased. This can be accomplished by purchase of the now privately owned property adjoining the southwest corner of the playground. The play apparatus is located as safely as possible in the limited play area.

g. That at the Walkerville School the children should be permitted to play on the spacious, shaded lawn during warm, dry weather.

h. That a program of playground improvement be adopted by the School Board for the purpose of increasing the general safety of each playground, including the elimination of the health hazards of dust and mud.

i. That a series of teachers' meetings be held for the purpose of studying and practicing correct first aid procedures, for developing a purposeful general play program, and for acquiring the technique necessary for adequate playground supervision.

j. And, that a committee of teachers be appointed to cooperate with superintendent and principals in devising a program of regular safety instruction in correlation with subjects already being taught and through the use of extra-curricular activities.

Playgrounds in Shelbyville, and everywhere, can be

5See Figure 5.
made safe if the following philosophy of play, from Robert Louis Stevenson, guides school officials and teachers in their attitudes toward safety activities pertaining to the playground:

Happy hearts and happy faces,
Happy play in grassy places;
This was how in ancient ages
Children grew to kings and sages. 6

BIBLIOGRAPHY

BOOKS


Safety units are an important part of this set of eight readers designed as a comprehensive health course.


An old book, but useful for instructions in playing games.


A convenient, concise guide for simple first aid, written in a language all can understand, and sold at a price (10¢) which all can afford.


This book contains excellent outline of the aims, objectives, and methods of teaching safety, grades kindergarten to the ninth.


The value of play in educating the whole child is thoroughly discussed.

Excellent safety stories, especially stressing the habit of safety, and providing tests to determine probable child reactions to situations.


A set of eight graded readers covering every important field of child safety for elementary grades. Supplementary to each reader is a Work-book for the children.


A textbook on safety designed to correlate character training and safety education.


A convenient manual and at a moderate cost, giving complete instruction in first aid.


An elementary text-book, stressing especially safety habits and first aid for common emergencies.

A discussion of safety methods for use in elementary and junior high schools, with emphasis on teacher training in supervision, leadership, preventative measures, and first aid.


Very good discussion of the problem of playground workers—the need for, and how to train them.


A very thorough discussion of the problem of school safety and safety education. The book is practical and the bibliography excellent.


Contains excellent suggestions for teaching safety in schools.


This booklet presents both the need for safety and safety accomplishments. Statistics are graphically presented, and they are of value to all interested in the safety problem.

An accurate picture of the present status of the safety movement.


A workbook including ten units on safety for intermediate grades.


A workbook, consisting of nine units on safety, designed for upper grades and junior high school.


Shows the need for teaching accident prevention, with emphasis upon the method of teaching which correlates safety with regular school subjects.


Stresses the need of training teachers to teach health and safety.


A practical discussion of laying out a playground so as best to adapt it to the needs and safety of the children served, with emphasis upon safety.


Contains excellent suggestions for safe playground activities for pre-school and school children.


After making a study of conditions and safety needs of one large New York School, the author suggests subject matter and methods for safety teaching in grades one to nine.


A complete first-aid manual.


Chapter VI deals with problems of management on the playground. The author stresses the need for play by children, the need for teacher supervision of playground play, and the types of equipment and apparatus adapted to the safe playground.

Weitzin, Frederick. *The Legal Authority of the American Schools as Developed by a Study of Liabilities to Damages.* Grand Forks, N. D.: Mid-West Book Concern, 1931. 286 pp.

A study made of damage suits filed against school corporations and against school officials personally as a result of school accidents.


Evidence that in California the school is liable for damages from accidents only when there has been actual negligence on the part of the school officials.


Suggests a basis for determining playground space needed, and recommends definite areas for variously sized groups.


Shows that only where there is negligence, are school officials personally liable for damages resulting from accidents on the school playground or in the school building.


Stresses mental, moral, and social education, as well as that of physical safety.

The three authors divide the subject of safety teaching into three parts, each applying to a different type of school situation. These types are: rural schools, village and small city schools, and large cities.


The author regards the school playground as a necessity and opportunity for education; discusses the playground area and offers suggestions on planning.

STATE COURSES OF STUDY IN ELEMENTARY SCHOOL SAFETY


Louisiana. A Course of Study in Safety Education for


MISCELLANEOUS


Emphasizes the need for play, playgrounds, and playgrounds that are safe.


This pamphlet deals with play facilities and equipment, with plans for utility and safety.


The case of a child at Alexandria, Indiana, injured on a school slide; the school board, superintendent, and the physical education supervisor were charged with negligence. The lower court found for the plaintiff; the appellate court reversed the decision of the lower court.


Very good suggestions for teaching safety.


An excellent checklist designed to aid the school in appraising its safety program.


More than 1400 references to books, pamphlets, posters, magazine articles, etc.

National Safety Council. An Introduction to Safety Education.

A discussion of where accidents happen, how they happen, and reasons why we should stress safety.


A practical discussion of the organization of school safety councils. Suggested programs for regular meetings, with outlines dealing with pertinent problems. Also discusses safety courts.


Many excellent suggestions for securing safe play on the playground.


An excellent magazine for those interested in the problem of safety. A monthly magazine (in
two sections) published September-May. Priced at $1.00. Contains lesson plans, stories, plays, poster supplements in colors, and other excellent safety materials.


A manual for teachers and pupils, designed to aid in accident prevention through specific safety education in the elementary school. The method is one of correlation with regular school subjects.

PLAYGROUND INJURY REPORT

Make accurate report of all playground injuries to children of your home room. Use check (✓) where possible.

Name of child: ____________________________ Sex: ___ M. ___ F.
Age: ___ years Grade: ___ 1. ___ 2. ___ 3. ___ 4. ___ 5. ___ 6.

When injury occurred:
- Morning, before assembling. ___ Noon, between lunch and 1:00
- Morning recess. ___ Afternoon recess.
- Noon dismissal. ___ Afternoon dismissal.

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<tr>
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<tr>
<td>Bite</td>
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<tr>
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<td>Another child</td>
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<td>Burn</td>
<td>Apparatus broken</td>
</tr>
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<td>Automobile, truck</td>
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</tr>
<tr>
<td>Nose, foreign object</td>
<td>Gang activities</td>
</tr>
<tr>
<td>Puncture wound</td>
<td>Glass</td>
</tr>
<tr>
<td>Scratch</td>
<td>Guns</td>
</tr>
<tr>
<td>Shock</td>
<td>Horizontal bars</td>
</tr>
<tr>
<td>Sprain</td>
<td>Ice</td>
</tr>
<tr>
<td>Tooth, foreign obj.</td>
<td>Illness</td>
</tr>
<tr>
<td>Unconsciousness</td>
<td>Kick</td>
</tr>
<tr>
<td></td>
<td>Knife</td>
</tr>
<tr>
<td></td>
<td>Wrestling</td>
</tr>
<tr>
<td></td>
<td>Lightning</td>
</tr>
</tbody>
</table>

First Aid administered by:
- Teacher
- Principal
- Janitor
- School nurse
- Another child
- Another adult
- Doctor called
- Doctor (sent to) Hospital
- Home
- Using ambulance
- Using ambulance

Indicate persons supervising playground at time of injury:
- Principal
- Teacher
- Janitor
- Other
- No one

School time lost due to injury: ___ None ___ 1/2 day ___ 1 day

Date: ________ 19__ School No. ___ Person reporting: ___
(give initials only.)
APPENDIX B --- PART I

QUALIFICATIONS OF TEACHERS FOR PLAYGROUND SUPERVISION AND ADMINISTRATION OF FIRST AID

(Please contribute the information requested below, but do not give your name. Indicate answers by check (√) where possible.)

A. School No.: ____________. Date: ____________

B. Sex of teacher reporting: ___Male. ___Female.

C. Give the approximate total number of weeks of college and normal school training which you now have: _______ weeks.

D. During this training did you receive special instruction in any of the following subjects:

- First Aid? ____________ YES. NO.
- Playground Supervision? ____________ YES. NO.
- Methods and Materials for Teaching Playground Safety? ____________ YES. NO.

E. Do you feel that your college and normal courses have prepared you adequately for:

- Administering simple first aid? ____________ YES. NO.
- Constructive playground supervision? ____________ YES. NO.
- Effective teaching of playground safety? ____________ YES. NO.

F. Should the training course for elementary teachers include:

- Instruction in administering first aid? ____________ YES. NO.
- Instruction in playground supervision? ____________ YES. NO.
- Instruction in materials and methods of teaching playground safety? ____________ YES. NO.

G. What special training in first aid, in addition to regular teacher training courses, have you had:

- Medical Course? ____________ YES. NO.
- Nurse's Training? ____________ YES. NO.
- Boy Scout or Girl Scout? ____________ YES. NO.
- Other? (List) ____________ YES. NO.

H. Do you enjoy playground associations, activities, and responsibilities? ____________ YES. NO.
APPENDIX B --- Part II

TEST FOR RECOGNITION OF RIGHT AND WRONG FIRST AID PROCEDURE

(Below are listed a number of common injuries; and after each injury are suggested first aid procedures. Some of the suggested treatments are correct, and others are incorrect. If correct, check (√) "YES"; if incorrect, check (X) "NO".)

A. DOG BITE:
- Wash wound with clear, running water........ YES NO
- Apply carbolic salve.......................... YES NO
- Apply tincture of iodine solution..................... YES NO

B. BURN (First Degree):
- Apply soda water solution.................. YES NO
- Apply a clean oil substance and bandage......... YES NO
- Apply iodine solution.......................... YES NO

C. BURN (Second Degree and Third Degree):
- Open blisters immediately to relieve pain...... YES NO
- Apply moist, warm compresses...................... YES NO
- Apply compresses moistened with piritic or tannic acid solution.................. YES NO

D. BRUISE:
- Apply hot water bottle or cloth wrung out of hot water......................... YES NO
- Massage affected part to prevent swelling...... YES NO
- Apply ice or cloth wrung out of cold water.... YES NO

E. BLISTER:
- Apply tincture of iodine to point at edge of blister where puncture is to be made........ YES NO
- Wipe soot from needle which has been sterile-lized in flame to prevent infection...... YES NO
- Apply pressure to top of blister to squeeze out water or blood............... YES NO

F. CUT VENIN:
- Wash wound with soap and water.................. YES NO
- Apply 3 l/2% solution of tincture of iodine... YES NO
- Encourage some bleeding to wash out wound..... YES NO
G. CUT ARTERY:
- Encourage bleeding to wash out wound. 
- Loosen tourniquet every 15 to 20 minutes to prevent gangrene.
- Keep tourniquet taught for at least two hours before temporary or permanent release.

H. DISLOCATION:
- Apply cold compress.
- Bandage tightly.
- Apply carbolized salve.

I. ELECTRIC SHOCK (Unconsciousness from):
- Allow five minutes rest—or more, if thought necessary—for benefit of patient's heart before starting artificial respiration.
- Keep the patient warm.
- Start artificial respiration immediately.

J. EYE—FOREIGN OBJECT IN:
- Moisten corner of handkerchief with tongue or lips and wipe object off eyeball.
- Apply two drops of olive or castor oil to give temporary relief if object is imbedded so as to need doctor's assistance.
- If splinter has entered ball, pull out the splinter to prevent further injury.

K. EAR—FOREIGN OBJECT IN:
- Make cold applications to relieve pain.
- Use soft cloth, wrapped about match or hair pin to remove foreign object.
- Use a few drops of olive or mineral oil in ear when bugs or flies enter it.

L. PAINTING:
- Place patient in upright position, making sure to keep head higher than rest of body.
- Lay patient down, elevating body or lowering the head.
- Revive unconscious patient by giving stimulant through mouth.

M. FRACTURE:
- Always apply a splint before patient is moved.
- If bone protrudes, push or pull back into flesh before applying splint.
- Massage to prevent swelling.
N. FROSTEITE:
Rub affected part vigorously with snow......... YES NO
Hold hand or other part of body over frosted
area until circulation is restored............. YES NO
Thaw affected part gradually by immersion in
cool water or by applying cold compresses.....YES NO

O. GAS POISONING (Asphyxiation):
Sponge body with cold water................... YES NO
Employ artificial respiration immediately.....YES NO
Give small doses of stimulants every twelve
minutes...................................... YES NO

P. NOSE BLEED:
Press nostril closed for 4 or 5 minutes....... YES NO
In case of persistent bleeding, pack sterile
cotton or gauze into nostril...................YES NO
Apply cold compress to back of neck............YES NO

Q. SPRAIN:
Employ either hot or cold applications........YES NO
Generally apply cold application, except in
case of shock..................................YES NO
Keep the sprain lower than the rest of body.....YES NO

R. SUNSTROKE:
Give stimulant to revive........................YES NO
Cool body with bath or cold applications.....YES NO
Keep patient on back, head elevated.............YES NO

S. THROAT--FOREIGN OBJECT IN:
Invert the patient and slap on back............YES NO
Do not waste time attempting to remove object,
but place in car and rush to doctor..........YES NO
Attempt to remove object immediately by pass-
ing finger gently down throat...................YES NO

SCORE:
Number right:_______
Number wrong:_______
No answer: _______
TOTAL: 57