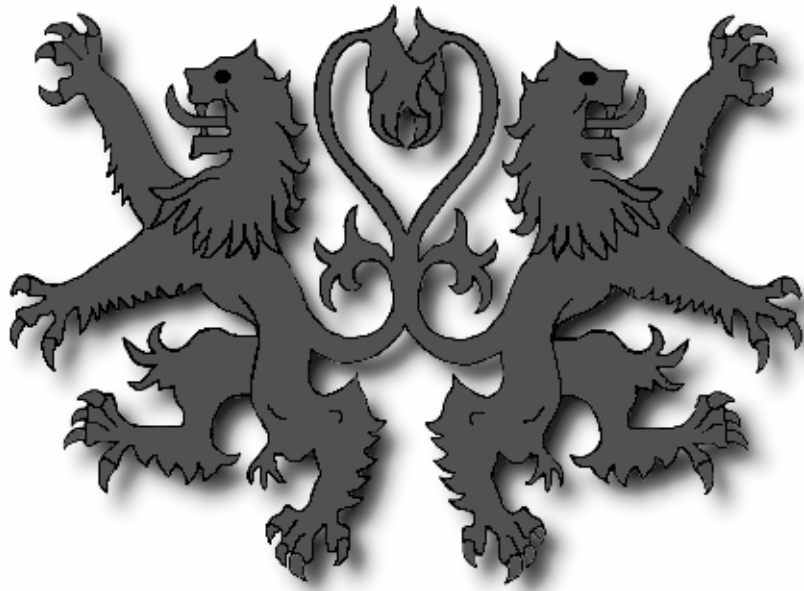


RMSA



Rule Book

For the Scottish Heavy Events

Version 1.3 (ratified February 2004)

General Rules for the Stone Puts, Weight Throws for Distance, and Hammer Throws

1. The trig is to be made of wood. The trig will be 4'6" long, nominally 6" tall, and at least nominally 4" to 6" wide. Every effort shall be made to secure the trig to the ground so that it will not move during the event if a competitor steps against it.
2. A backline will be drawn the appropriate distance (either 7'6" or 9'0") from and parallel to the trig.
3. Sidelines are drawn from the edges of the trig to the backline.
4. Both the backline and sidelines are considered to be in the 'fair' part of the throwing area.
5. The competitor will complete the throw under control as decided by the judge or the throw will be ruled a foul.
6. Each competitor will be allowed three throws in the competition, the farthest of which will count for that event.
7. With approval of the judge, the competitor may stop during the throw and re-start (including setting the weight on the ground) the throw as long as no foul has occurred. The competitor may even leave the throwing area before re-starting if allowed by the judge.
8. Each throw will be measured from a point on the inside-upper edge of the trig closest to where the competitor's plant foot (left foot for a right-handed competitor) landed to the nearest break in the ground made by the implement (not including the handle).
9. Ties will be broken by comparing the next farthest throw for each competitor involved in the tie. The competitor with the

farthest of these throws will place highest. If other ties occur, then this process will repeat for all attempts taken.

10. A throw will count as a foul if the competitor touches the ground as defined in Figure 1 or any surface of the trig other than the edge facing the throwing area. One of the competitor's feet must always remain in the throwing area either on the ground or in the space above the throwing area.

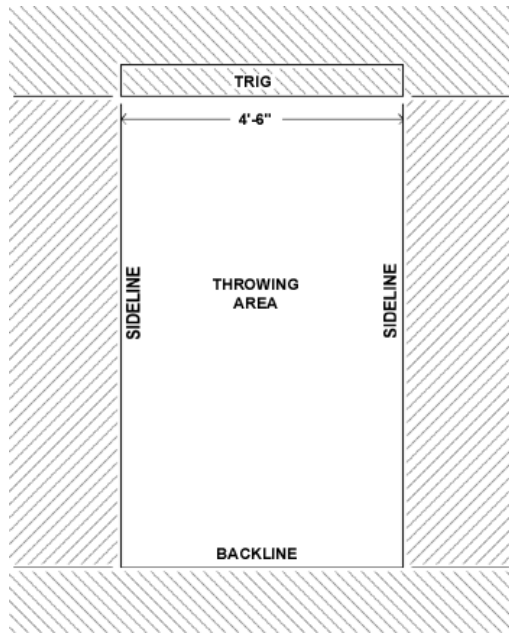


Figure 1



No part of the competitor or implement will touch



One of the competitor's feet may touch as long as the other foot is completely within the throwing area.



Any part of competitor may touch as long as he is under control.

Putting the Stone

Open Stone

Standard Weight: Men 16 lbs. to 22 lbs.
Women 8 lbs. to 12 lbs.

There is no standard size or weight of the stone. The stone must be **PUT** with one hand and with the stone remaining against the neck throughout the throw until the release. Any throwing style may be used as long as the rules are followed and the style is deemed safe by the judge.

The backline will be drawn 7'-6" from the trig. ("A legal put must be made from the shoulder with one hand only so that, during the attempt, the shot does not drop behind or below the shoulder." NCAA Track & Field definition of a "put".)

Braemar Stone

Standard Weight: Men 22 lbs. to 26 lbs.
Women 11 lbs. to 18 lbs.

The same rules apply in the Braemar Stone Put as in the Open Stone Put except, there is no approach on the trig allowed. The stone must be put from a standing position. Reversing the feet after the release is allowed.

Throwing the Weights for Distance

Standard Weight: Men 28 lbs. to 56 lbs.
Women 14 lbs. to 28 lbs.
Master 28 lbs. and 42 lbs.
<190 # 28 lbs. and 42 lbs.

The weight will be thrown with one hand only. The weight shall be made of metal but can be of various shapes and sizes including spherical, bullet or box shaped. The handle can either be attached directly to the weight or attached with a length chain. The handle may also be of various shapes and thickness such as a ring, triangle or "D" shaped. The total weight of each implement will be at least 14 lb., 28 lb., 42 lbs. or 56 lbs.

The implement shall not measure more than 18" in overall length. Any throwing style may be used as long as the rules are followed and the style is deemed safe by the judge. The backline will be drawn 9'-0" from the trig.

Throwing the Hammers

Standard Weight: Men 16 lbs. and 22 lbs.
Women 9 lbs. and 12 lbs.

The hammer head shall be made of metal, and the shaft shall be of wood, rattan, bamboo, or plastic (PVC pipe is sometimes used for increased durability). The total weight of each hammer will be at least 9lbs., 12 lbs., 16 lbs., and 22 lbs. The length of the hammer shall be no longer than 50" in overall length (48" for women).

The hammer will be thrown with the feet in a fixed position and the thrower facing away from the trig and the throwing area. There is no approach allowed in the hammer throw. The competitor may move his feet after the hammer is released. No back line is drawn for the Hammer Throw, and sidelines are normally not drawn either. All fouls besides the backline foul still apply. Once the hammer makes contact with the ground in the throwing area (whether accidental or on purpose) the attempt is completed. However, the thrower may begin the attempt with the hammer ahead of the trig.

Tossing the Caber

It is recommended that two or more cabers be used for a competition. One qualifying caber and one or two competition cabers. There is no standard size or weight of a caber, but the caber should be of a length and weight such that at least half the competitors can turn it. The caber is to be made only of wood. The caber shall be placed upright for the competitor, with the heavy end on top. The attempt begins when the competitor lifts the caber from the ground. If the competitor

drops the small end of the caber back to the ground after having picked it up, this shall count as one attempt. It is recommended that a back judge and a side judge be used. The judge may set boundaries if he feels the ground in a certain area is not suitable for the caber to be tossed or to provide safety for the spectators (i.e. the Dodge line). The competitor may take any length of run they wish and may toss the caber from where they choose, as long as it is within the judge's boundaries. The caber must pass through the vertical position (90 degrees from the ground) in order to count as a turned caber. It is up to either judge to determine if the caber has passed through it. The "clock face method" of judging shall be used. The caber in a perfect toss will pass through the vertical position and land with the small end pointing directly at 12 o'clock away from the competitor in an imaginary straight line extending from the competitor through the initial landing point. An overhead view is drawn in Figure 2 below to demonstrate a 12 o'clock toss.

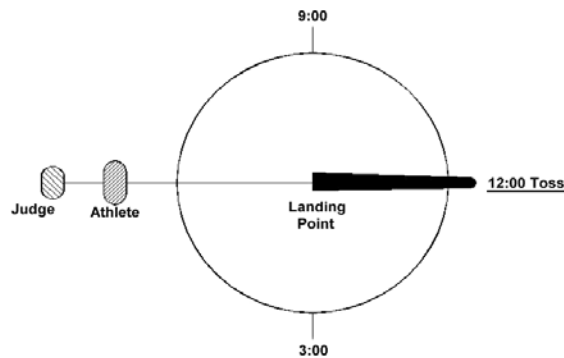


Figure 2

A valid throw is when the small end of the caber passes through the vertical position and falls away from the competitor to land within the 180 degree radius between 9 o'clock and 3 o'clock. An overhead view is drawn below in Figure 3 to demonstrate some turned cabers and how to score them.

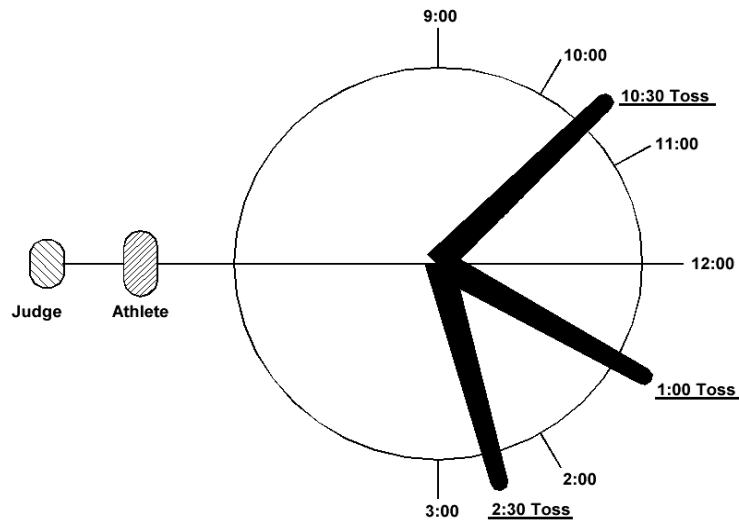


Figure 3

The caber shall be judged on its landing position, not the position to which it may bounce or roll.

If the caber is not turned by the competitor, then it is the responsibility of the side judge to determine the angle at which the caber was tossed with respect to the 90 degree vertical. The side judge should be perpendicular to the competitor's direction of run in order to make an accurate call. (Side judging is only done on the qualifying caber. Other cabers only score if they are turned). A drawing of a view from the side judge's position is shown below in Figure 4.

DEFINITION:

Dodge Line: A safety line designation for the Caber event. This line is laid out for the caber area 20' inside the spectator fence and 20' away from any other events or tents. The rule is then stated that "The competitor has to stay within the Dodge lines AND the top (heavy end) of the caber has to land inside the Dodge lines. This will assure that the caber in its entirety will land inside the fence and away from other events or tents."

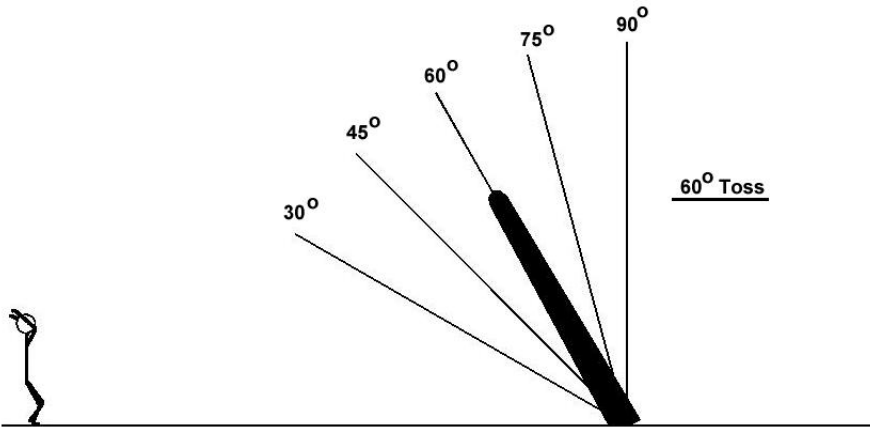


Figure 4

Each competitor is allowed three attempts per caber, all of which will be scored and the best of these to be used to determine placing. In the event of a tie then the next best attempt or attempts shall be used to determine placing. The order of placing shall be determined by the nearest to 12 o'clock toss made by a competitor. If the competitor did not turn the caber, then placing shall be determined by the toss closest to the 90 degree vertical.

When a qualifying caber(s) is used then any successful turn qualifies the competitor for the next caber (Qualifying cabers will be scored either by clock face or degrees, in order to assure correct the placing within the class).

Competitors may only be allowed one or two attempts with the qualifying cabers. Ties are broken by comparing the next best attempt for each competitor involved in the tie. The competitor with the next best score places highest. If other ties occur, this process is repeated for all previous attempts.

A Pass on a caber counts as a 'no time'.

General Rules for Height Events

1. Each competitor will be allowed three attempts at each height.
2. Each competitor may enter the event at any height in the competition.
3. A competitor may pass any height they choose, but each height attempted must be cleared before attempting the next height. If a competitor has passed a height it is not considered a miss or a make and will not count for or against the competitor.
4. When a competitor has missed three attempts at one height then he will be eliminated from the competition.
5. A competitor may make a pass on individual attempts at a given height, but it will count as a miss.
6. All measurements will be made from the ground to the top of the crossbar at the center of the crossbar.
7. The starting height will be agreed upon by the competitors and the judge with the judge having the final decision.
8. The bar should be raised by larger increments (one foot increments in the WOB and two foot increments in the Sheaf) until most of the competitors are eliminated and then raised by a lesser amount requested by the competitors and agreed to by the judge.
9. The crossbar may be suspended at both ends or by one end. It may be suspended at both ends by either pulleys and rope attached or rested on pegs attached to the uprights or both. If the bar is not a knockoff bar, the weight only needs to go over the bar within the uprights. If the crossbar is suspended by resting on pegs ("touch-bar"),

then the toss will not be counted if the crossbar is knocked off either peg. The crossbar will remain on the pegs after an attempt until the competitor leaves the throwing area (determined by the judge's discretion).

10. The distance between uprights shall be 12' for the sheaf and 9' for the WOB. The length of the crossbar for each event shall be enough to allow for sufficient overlap (10' for WOB, 13' for Sheaf).
11. The implement will go over the crossbar within the inside of the uprights or the inside of the upright and the end of the bar if only one upright is used.
12. The implement may touch the crossbar as it goes over.
13. Ties will be broken by comparing the number of misses at the last height cleared. The competitor with the least amount of misses at that height will place highest. If the number of misses are equal, then the next highest height is then compared and the competitor with the least amount of misses at that height will place highest. If other ties occur, then this process is repeated for each previous height until all places are determined.
14. If the number of competitors requires a starting height that any competitor can't achieve, the judge may estimate at what height the bar would have been for a successful attempt based on when the weight crossed directly under the bar. This is only done at the opening height. (This is so the competitor doesn't score zero points for an almost successful attempt at the opening height in a decathlon scoring method.)

Tossing the Sheaf

Standard Weight:	Men	20 lbs. (16 lbs. or 20 lbs. for Amateurs)
	Women	10 lbs.
	Master	16 lbs.
	<190 #	16 lbs.

The sheaf will be a burlap or plastic bag filled with a suitable material such as straw, mulch, or rope. The sheaf will be thrown over a crossbar for height with a pitchfork. The total weight of the bag shall be at least 16 lbs. or 20 lbs. for men and 10 lbs. for women. If there is a master's or lightweight (under 190#) class they will throw a 16 lb. sheaf. The toss shall be made in any manner deemed safe, using a pitchfork with at least two tines.

Tossing the Weight for Height

Standard Weight:	Men	56 lbs.
	Women	28 lbs.
	Master	42 lbs.
	<190 #	42 lbs.

The weight will be thrown with one hand only. The weight shall be made of metal but can be of various shapes and sizes including spherical, bullet or box shaped. The handle can either be attached directly to the weight or attached with a length chain. The handle may also be of various shapes and thickness such as a ring, triangle or "D" shaped. The total weight of each implement shall be at least 28 lb., 42 lbs. and 56 lbs. The implement shall not measure more than 18" in overall length but a weight shorter than this is normally used when thrown for height to avoid hitting the ground when swung between the legs. Any throwing style may be used as long as the rules are followed and the style is deemed safe by the judge.

General Rules for All Events

1. A Scottish Heavy Events competition is defined by at least five of the events listed above. If only five events are used, then there must be at least four dissimilar events. If an implement breaks during a competition and cannot be repaired or replaced with an equivalent implement then the round where the break occurred is scratched, and the round in which it broke should be started over with a new implement being used. If the judge determines that substituting a new implement will not affect the outcome, then a new implement will be used and the round continued where it left off.
2. In the interest of safety, the judge has the right to disqualify any competitor who in their opinion does not have the ability to complete a throw without injuring themselves, other competitors or spectators. The judge also has the right to disqualify any competitor who displays poor sportsmanship.
3. All competitors competing will wear a kilt during the competition. At the discretion of the AD this may be waived for a novice class.
4. The judge may apply a time limit to each throw if he feels it is necessary. If the competitor does not begin the throw within this time limit the attempt will be a foul.
5. In the event of a tie after any of the above tie-breaking methods have been applied, the points for the places in question will be added together and divided evenly among the tied competitors. (Place point system only.)
6. The trig is to be made of wood. The trig will be 4'-6" long, nominally 6" tall, and at least nominally 4" or 6" wide. Every effort shall be made to secure the trig to the ground so that it will not move during the event if a competitor steps against it.

7. The winner of a distance event may take three extra throws to try to break a record, whether it be a Games Record, North American Record, or World Record. Extra throws taken for records will not count for points in the decathlon scoring system.
8. Individual fingers or the thumb of the throwing hand may be taped but the fingers or thumb will not be taped together. No straps or other devices besides a glove will be used to aid the competitor in holding the implement. No footwear that may aid in increasing the athlete's height will be used in the events thrown for height.
9. In order for a competitor to win or place in an overall competition, they must attempt to compete in all of the events. At the discretion of the Athletic Director, if the competitor does not attempt to compete in all the events then they will not receive points or awards for the individual events or the overall competition.

10. The points for an event are usually awarded in one of three ways: one point method with least points wins, one point method with most points wins, and the decathlon scoring systems. One point scoring method examples:

Most points wins	Least points wins
6	1
5	2
4	3
3	4
2	5
1	6

11. The decathlon scoring system is recommended. The decathlon scoring system uses a standard points/distance for each event. To determine the overall champion the total amount of points accumulated throughout the competition will be added together and the competitor with the most or fewest points, whichever the case, will be declared the winner. If there is a tie for first place overall then the winner will be the competitor with the most first places in the individual events. If this does not produce a winner then the competitors will remain tied unless prior to the beginning of the competition the Athletic Director has determined another method for breaking a tie. All other overall places besides first will remain a tie.
12. Measurements shall be recorded to the nearest .01' when using an engineers tape for decathlon scoring, or after rounding the measurement down to the nearest 1/4" in all of the distance events

13. After each completed event, the competitor who threw first is now placed last in the throwing order in the next event and all other competitors move up one place. This is repeated after every event.
14. When an American, North American, or World Record has been broken it is the responsibility of the Judge AND Athletic Director to verify that record. The record must be set within all rules for that event. The implement will be weighed on a certified scale and the weight will be equal to or more than the legal weight for that implement. In the case of the Weights for Distance, the Weight for Height, and the Hammer Throw, the overall length of the implement will be measured and the length will be equal to or less than the legal length of that implement. (Measure for records on height events by measuring with tape on each end of the bar and from the center of the bar.)
15. American records must be set by a competitor with American citizenship and may be set anywhere in the world. Canadian records must be set a competitor with Canadian citizenship and may be set anywhere in the world. North American records must be set by a competitor with citizenship in North American and may be set anywhere in the world. World records may be set by any competitor anywhere in the world.
16. Safety must be a paramount concern to all the organizers, judges, competitors, helpers, and spectators present at the competition. Precautions should be taken to protect these people. The throwing area shall be roped off to keep spectators off the athletic field. There should be some type of cage or backstop for the hammer throw.

17. The order of events is recommended to be as follows: Stone Put(s), Weight Throw(s) for Distance, Hammer Throw(s), Caber Toss, Sheaf Toss and Weight for Height. If the competition is spread over two days, the events should be arranged so that there is equal heavy and light implements thrown on each day.
18. If the judge has a doubt about calling a foul on a competitor then no foul should be called.
19. Prize money will only be given to professional competitors. Prize money will be determined by awarding money according to placing. Amateur competitors shall not receive prize money for the events listed above. They may receive compensation for travel expenses or any other events competed in such as a Challenge Caber or Farmer's Walk.
20. Drug testing of any competitors is left to the discretion and capabilities of each Games being competed in. If a competitor is banned/suspended as a result of a drug test he will not be allowed to compete until the ban/suspension is over. Bans/suspensions from other sports will be enforced. Competitors banned/suspended from another sport will not be allowed to compete in a Games

Decathlon Scoring Explained

Introduction

Below is a list of the Scottish Heavy events and the decathlon values (Points per foot) that are associated with them. The caber event, being the premier heavy event, is weighted a little heavier than the other events. There is no formula on how to “value” a stone since they all throw different and shapes very so much. The best way to value your stone is to see what your average throws are in all of the other events and then take that average divided by the average distance of your stone and get a “stone value”. Of course you will have to cut the value a little if the stone is your strongest event. If you do use this method to determine the value of the Stone, it should only be done once and not changed every year.

Classes

An athlete generally starts out as a “C” athlete. If an athlete consistently averages over 500 pts, then, they need to move to the “B” class, or if an athlete breaks 550 once, he is a “B”.

A “B” athlete can consider moving up to the “A’s” if his average is constantly in the 620-630 avg. pt. Range. If he breaks 650/660 once, he will be “moved to the “A’s”.

Point Values

Event	Points Per/Foot
25# Braemar (men)	27 (stones varies)
16# Braemar (women)	26 (stones varies)
56# WFD	24m
42# WFD	18m
28# WFD	12m/24w
14# WFD	12w
09# Hammer	6.67w
12# Hammer	8.23w
16# Hammer	6.67m
22# Hammer	8.23m
10# Sheaf	32w
16# Sheaf	27m
20# Sheaf	32m
28# WFH/WOB	60w
42# WFH/WOB	45m
56# WFH/WOB	60m

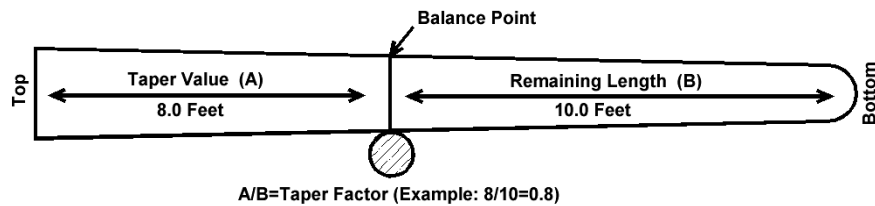
Caber Value:

Weight x Height x Taper Factor = **women's value** (men's value: women's value x 0.55 = **men's value**)

To get the taper factor: taper value / remaining length = taper factor

Taper value: measurement from top of Caber to balance point.

Remaining Length: total length of Caber minus Taper Value



Example Caber: weight =70 lbs. length=18' taper value=8.0 remainder=10.0

$$70 \times 18 \times 0.80 = 1008 \text{ (x 0.55)=554.4 total points}$$

For every minute of a turned Caber before or past 12:00 is 0.6 point (a score of 12:10 would be a deduction of 6 points from the total point value of the caber) max points deducted for 3 hours would be 108. If the Caber does not turn and a score in degrees is awarded, use the following formula:

$$(\text{Caber value} - 108) * (\text{degrees} / 100)$$

example: If the above caber is scored as a 60 degree attempt by the side judge, then the score would be as follows:

$$(554-108)*(60/100) = 268 \text{ points}$$

Measuring the Distance Events

To convert the distances to scores in the distance and height events, it is best to score them in feet & decimals of feet (instead of feet & inches). For the distance events, RMSA highly recommends the use of Engineers tapes that are marked in feet & decimals of feet. They are fairly easy to find. Many tapes have feet & decimals of feet on one side and feet & inches on the other side. This makes it much easier to perform the calculations or enter into a computer for the calculations. For the height events, either kind of tape will work since we generally have the bar set at even feet or half foot increments.

Scoring Program

The RMSA has the scoring program available as an Excel spreadsheet.

Decathlon Scoring: A History

In the late 1970's at the Rocky Mountain Highland Games in Golden, Colorado, we had an athlete who had a background in track & field and in one of his first games, he almost won the overall (based on a 5-4-3-2-1 system), but he could not even get the 60 pound qualifying caber turned. Since the caber event is the premier event, this bothered us at the time that we might crown an overall champion who couldn't turn a caber but built up enough points in the distance events to win. Since there was also a very strong emphasis on the athletes competing in all 7 events (a heptathlon), a scoring system based on how far or high an athlete threw each implement would be a more fair way to crown a champion. After researching the decathlon scoring for track & field, most of the events were pretty easy to determine a factor. We started with the current world records and rounded off the factors for ease of scoring. The two events that were more difficult were the sheaf & caber.

The sheaf was interesting because with the old "push" method, we used a 6 foot fork to hoist the bag. So in our initial method, we subtracted the length of the fork out and then figured the factor. In a full review after the first 8 years of results, we dropped the length of fork issue and re-factored the numbers. Part of the reason for this was the new method (the flick) introduced by Larry Satchwell took the length of the fork out of the equation.

The caber was obviously going to be the most difficult event to implement a scoring system for. In our region we had always used multiple cabers for each group - a qualifying caber first (if you turned it, you could attempt the next caber and so on). Typically 2 or 3 cabers per class. We originally did this because we had such a wide degree of ability within our typically amateur groups. We had both a men's group and a women's group. Multiple cabers are better for the crowds to

witness more successful turns of the caber (that's what they come to see). At some games that use one caber, we've seen a group of 7 compete and out of 21 attempts with the one caber, we had one turn. That's not good for the crowd. I liken it running the sheaf toss or weight for height by putting the bar at a height where only the top competitors can get it over, then judging by seeing how close or how far over the bar the implement went on each of the three attempts.

We consulted with a physics teacher, describing the event and the caber. It was at his suggestion that the taper factor of the caber was going to be important. We already knew that if you had two cabers of equal weight and length, but one caber had no taper, it was going to be much tougher to turn. In terms of physics, once you toss the caber, it will turn around its center of gravity. With a better (lower) taper factor, that point moves upward and the caber has more chance to turn before encountering an obstacle (the ground).

We had to first value any particular caber and then devise a way to deduct points if the toss was not 12:00. Our first attempt at valuing a caber was pretty dead on. We took the weight times the length times the taper factor (taper factor is figured by laying the caber across another caber and determining the balance point. If an 18' caber balanced at 8' from the fat end and 10' from the skinny end, then the taper factor was 8 divided by 10). Then we picked an arbitrary factor to bring the result into the 1000 points/event realm. The original factor was .6. This was later lowered to .55 in the 8th year review.

We decided that if a competitor turned an 800 point caber at 12:00, he would get 800 points. Initially, for every minute less than 12:00, one point was deducted. The 8th year review adjusted this to .6 points for every minute (or 9 points for every 15 minutes; 36 points for an hour).

If a competitor didn't turn the initial (qualifying) or only caber, we had to determine a way to calculate some points from the side judging (degrees). We first deduct 3 hours of points (108 points) and then convert the degrees to a percentage (i.e., 70 degrees becomes 70%). We then took the points for a 9:00 or 3:00 turn ($800 - 108 = 692$ points) times the percentage (692 times 70%) and scored the 70 degree attempt on the 108 point caber at 485 points. Now, you may ask why we didn't use 70 divided by 90 (78%) for the percentage. We felt that not turning the caber successfully should hurt more than that. In other words, the difference between the 9:00 turn (692 points) and an 89 degree attempt should be more than 8 points. The method we used ended up using makes this difference 76 points.

The rest of the events were pretty straightforward, although the stone put can vary from competition to competition (due to different weights and whether it is open or braemar style). We took the current world records at that time and divided them into 1000 points, then rounded off the points/foot value to be easy to calculate. For instance, the 56# weight for distance calculated out to be 23.4 points/foot. We rounded this to 24 points/foot (it also worked out to 2 points/inch). We did this because we wanted to make it as easy as possible. We couldn't round off the two hammer events though without making too big a difference in the result. That is why we ended up with 6.67 & 8.23 points/foot for the light and heavy hammers.

I've mentioned a few times the 8th year review. I felt we had enough scores by then to reassess the system and we found two interesting things. Both the caber and sheaf were much more heavily weighted in the scores vs. the other 5 events. So we adjusted both of those events, but still left the caber to be a bit more heavily weighted due to the fact it is the premier event.

Once we settled on the values for each event, we decided to NOT adjust them each time a new world record was set. The

bookkeeping would be horrendous and competitors would never get comfortable with how much each event was worth. Also, since we realized that each competitor could keep track of how well he/she was doing in relationship to how they did at the last Games or the previous year, that even if he wasn't climbing in the standings, he would know if he was improving overall. Also, we could then use this scoring to more closely match athletes in their respective classes. And an athlete from a different part of the country who might normally compete as a "B" in his home area, could be evaluated with this system to fit better in an out-of-area Games. We initially set up our classes so that you competed as a "C" until you consistently went over 500 points/event average. B's were from 500 to 625 and A's were from 625 to 750. Once an athlete consistently averaged over 750 points/event, the athlete was "encouraged" to turn Pro - but because of many other issues with turning Pro, this move was totally left up to the athlete. The moves from C to B and B to A were mandated by the RMSA. These break points could be adjusted as classes became better.

Another reason we left the event values alone was that we felt the overall score (even if it went over 1000 points/event average) was also a personal record in itself that could be bettered every year. And there is no reason why an athlete couldn't score over 1000 points in any event. We realize that the Olympic decathlon system is adjusted every so often, but we don't see a compelling reason to do so.

For the first 10 years or so, we did all the scoring without benefit of a computer, although we had liberal use of calculators.

