SELF-CAUGHT FLIGHTS

People seem to have a fixation about "boomerang" flights. Rarely will anyone get through a demonstration without someone urging that he "make it come back, make it come back." Maximum Time Aloft (M.T.A.) and Throw, Run & Catch (TR&C) are the most popular competitive forms in this area of play.

Steve Gottlieb of Berkeley, California is one of the real students if these events. He wrote the following Article on M.T.A. for **Frisbee® disc World** magazine. The more technical aspects will be the most helpful after some experiment.

YOU AND THE WIND

MTA or "boomerang" throwing is one of the most versatile and exciting of disc activities. It can be a true solitary pleasure when played at a windy park or at the beach. In addition, MTA throwing can be easily adapted to an informal contest when 2-6 players are available.

Formal competition with a stopwatch was not introduced until 1973 when Roger Barrett was timed at 8.3 seconds at the International Frisbee Disc Tournament. But as early as 1968, MTA has been very popular with the Berkeley Frisbee Disc Group as a group activity played with relative times. The BFG rules are as follows: The winner of the previous throw gives the cadence, "ready, one, two, three" and all the players throw on a silent four. Players shout "caught" when a successful catch is made and then act as an official if longer throws are made by the other players. One point is given to the longest successful catch. Play continues until one player reaches a pre-determined point total.

A beginner will have a difficult time throwing boomerang shots of longer than 5-8 seconds. For those wishing to obtain longer times, certain techniques are helpful and indeed, essential for top competitive times. Three parameters of MTA techniques will be discussed in this article: 1) The direction of the throw with respect to the wind 2) the "fade" or "turnover" in the curve of the flight and 3) the angle of attack of the throw.

To over-simplify, one could say that the disc should be thrown straight in the direction of the prevailing wind so that the disc would return directly to the thrower. Unfortunately, this does not lead to the longest possible flight. A throw with a clockwise spin (e.g., a right-handed backhand throw) should be placed slightly (10 to 25 degrees) to the right of the wind.

Analogously, counter spin throws are best placed to the left of the wind. The purpose will be made clear in the next two paragraphs.

The second parameter is the amount of "fade" in the curve of the throw. To define terms, a curve is called "normal" if the arc is in opposite direction of the spin of the leading edge of the disc. A curve is called "reverse" if it is in the same direction as the spin. These curves are usually accomplished by throwing with the outside edge lower on a normal and the outside edge higher on a reverse curve. The ideal is to throw your disc so that it fades slightly (to the right on a clockwise throw and the loft on a counter spin throw) and hence changes from a straight or normal at the very apex of its initial thrust, stalls, and becomes a mild reverse curve on the return flight. By throwing slight to the right or left of the wind as the case may be, the fade will line up your disc with the direction of the wind. When the disc stalls at the apex, the underside is presented to the oncoming winds. This is often called "putting the disc on the shelf". At this point, many times, the disc will be lifted naturally by the wind to a higher altitude (often called "towering"). At the peak of the tower, the disc will inflect to a mild reverse curve with a neutral (or even positive) angle of attack on its return flight. This allows for a riding on the wind currents and the loss of altitude at a relatively slow rate. An "inflection" is a point at which the disc undergoes a reversal of altitude. An inflection point is not always incurred on an MTA flight. If the disc has a slightly positive angle of attack on its return flight, a second stall point and possibly inflection may occur resulting in a new direction of flight. Some strong players prefer throwing with unstable discs, as many times as they will obtain second and even third inflection points, adding precious tenths of a second to their flight time.

A very common error by beginners is to achieve a reverse curve either initially or before the disc reaches its high point, causing a slicing, high-speed return flight. Experimentation with your favorite disc is essential to determine how normal it should be thrown initially to achieve the desired result. Unstable discs (a disc tending to curve into the spin) must be thrown initially with a steep normal curve while stable discs can be thrown flat. Even stable discs however, will tend toward a reverse curve when thrown into a wind.

The last variable is the angle of attack. A throw is said to have a positive angle of attack if the nose of the disc is higher than the tail with respect to the direction of flight of the disc. Similarly a throw has negative angle of attack if the nose is lower than the tail with respect to the line of flight. The most common technique for obtaining a negative angle of attack is rotating your wrist downward so that the nose is lover than the tail upon release. The impulse for beginners is to throw the disc with too positive an angle of attack in order to achieve high elevation. On such a throw, the disc reaches the apex and stalls at a very steep angle with respect to the ground and then cuts back through the wind at a high rate of speed. It is essential to eliminate the positive angle of attack by throwing at a relatively low altitude with as much rotation as possible using a neutral angle of attack. The choice of altitude angle of the flight in the penetration phase is dependent upon the wind speed and ranged from 15 to 45 degrees.

The key to consistent MTA times is to become familiar with the peculiarities of various wind levels of different discs. Very small weight or stability differences in the disc can make critical differences in your results. As you improve, you should be able to handle stronger winds which produce good times and be able to get more consistent times in less wind.

There are several approaches to M.T.A. but Steve has outlined the "classic" approach to the event. The issue is less clear in Throw, Run & Catch. The goal, of course, is distance rather than time. Some players simply throw a lower M.T.A. flight, slightly more across the wind line.

Others throw a flatter, lower shot directly into the wind. If done correctly, this method is very consistent, although without great potential for the longest distances.

A particularly interesting aspect of the self-caught events is the importance of disc selection. The flight characteristics of the disc used in these events are very important. In general, lighter discs such as the 119-G, ® Pro™ model or Premium Fastback are favored. Slightly unstable discs are often favored because they more consistently produce the critical inflections.

INSTABILITY:

Strictly speaking, instability refers to a "fade" either with or against the rotation direction of the disc. However, it has been traditional in disc play to refer to two different instabilities in disc flight. Therefore, for our purposes, "unstable" describes a disc thrown with a right-handed backhand curving or fading toward the right during its flight. "Overstable" refers to the same flight fading left.

A NOTE ON CONDITIONS
In order to generate very long MTA times which include towering, multiple stalls and inflections, relatively strong winds are required. Clear, steady wind flow is ideal. MTA can be played in dead air, but times will not usually be as long.

MTA FLIGHT