

THE ELUSIVE BAR #2

The most complete book on Pole Vaulting
By Bruce Caldwell and David Bussabarger



*Recommended By Steve Smith
And Skypole*

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By Bruce Caldwell And David Bussabarger

Write to:

The Elusive Bar

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1220 G Airport Frwy: 405
Bedford, TX 76022-

Foreign \$7⁰⁰

Steve Smith —

Vaulter of the year 1973,
Collegiate record holder 18'0½"
4 time world Indoor record holder
Indoor P.R. 18'1¾" — outdoor 18'4"
Presently vaulting for International
Track Assoc. and Pro Record Holder
Indoor and Outdoor.

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By Bruce Caldwell

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USA

FOREWORD

The information you are about to read has been compiled by interested pole vaulters for pole vaulters and coaches.

We first started this venture when my first edition of **The Elusive Bar** was published and found to be lacking in information never before presented to the public. At first when we started compiling our information, we discovered that we couldn't claim one type of vaulting superior to other types. We also discovered that vaulters who vaulted their best which was unlike their normal techniques had come close to what we are presenting in this book. In order for the reader to gain the full benefit of our book, he must read it in its entirety.

We encourage vaulters to write and ask any questions.

—The Elusive Bar



ROLAND CARTER

ACKNOWLEDGEMENTS

I would like to thank the many people who helped me through conversation and donations to my project of compiling the most complete book on pole vaulting.

A special thanks to Steve Smith and Sky-Pole for their endorsement and advertising of this publication.

Also, my thanks to George Moore and Herb Jenks of Pacer American; Don Laz, Dave Roberts, and Tom Pott for their contributions.

The greatest contribution to this book was given by Dave Bussabarger, a great illustrator and one of the most knowledgeable vaulters.

—Bruce Caldwell

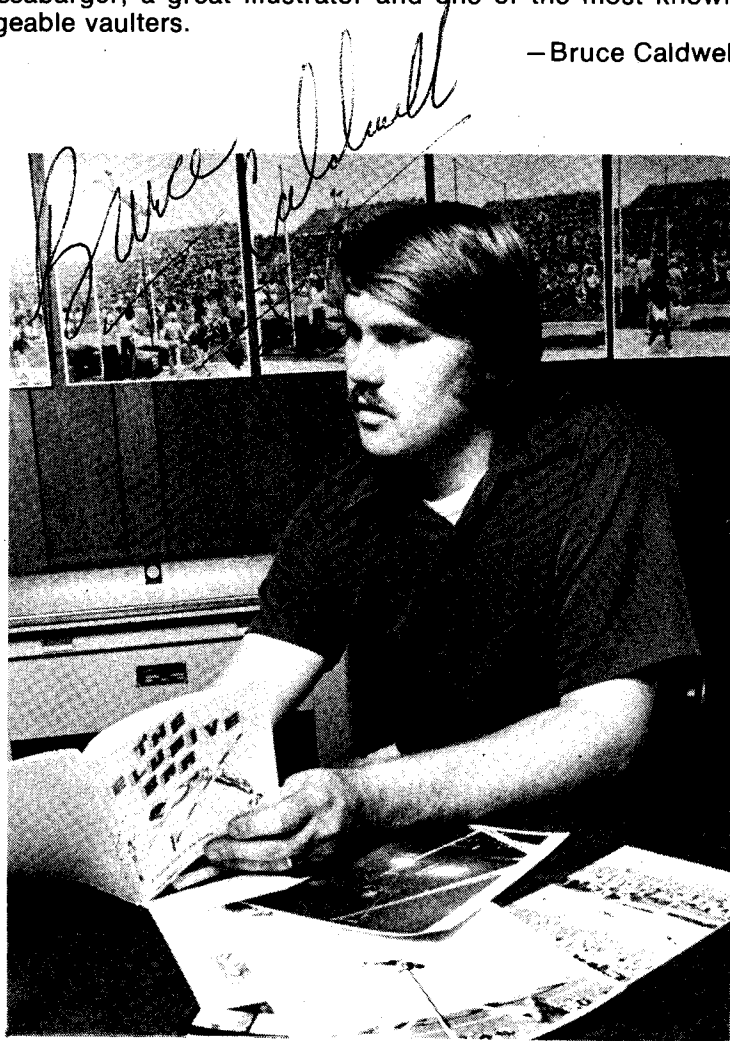


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INTRODUCTION

The objective of all pole vaulters, no matter what level of achievement, is to go higher. Therefore, the purpose of this book is to hopefully aid vaulters in improving their performance.

We have done a large amount of research and experimentation as well as discussed ideas with many top vaulters in an attempt to formulate a specific approach to vaulting. We do not believe there is only one way to vault, but that there is one best way to approach the event.

The great diversity of ideas and techniques used by the world's top vaulters proves that there are many successful approaches to pole vaulting. This, however, does not mean that there is not one best way to approach vaulting.

The writers of this book are dedicated to this idea. This book, therefore, consists of our opinion of what the best approach is and *why!*

It is doubtful that any top vaulter will disagree with all of what we present and it is doubtful that any top vaulter will completely agree with us. This is because what we propose is a *synthesis* of ideas. Nearly every top vaulter in the world has contributed to this book in some form. Many have openly discussed their ideas with us, while others have been analyzed through films, sequences and personal observation. The end result is a book which we feel can help *any* vaulter improve his performance.

CHAPTER ONE
THE VAULT



THE POLE CARRY...

The most important point concerning the carry is RELAXATION. The carry should be worked out to best suit the individual vaulter. But, work for a carry that puts as little strain or less tension on the arms as possible. For beginners, it is advisable to keep straight ahead with the tip of the pole not higher than the top of the head.

The pole carry *greatly* affects the run. A tight, awkward carry will destroy the vaulter's rhythmical run.



The distance between the vaulter's hands can vary according to the vaulter's preference. Many vaulters today carry the pole with hands "closer" together to avoid shifting at the plant. This is not recommended unless the vaulter has a particular problem with the shift during the plant. A "closer" handsread will put more stress on the arms and shoulders and will in turn impair the run.

For relaxation purposes the vaulter should not grip the pole tightly during the run. He should instead grasp the pole loosely, which will aid in preventing tightness. When the vaulter starts the plant he will naturally grab the pole tightly, which at this point is a necessity.

The pole should be carried at about waist level. Generally, the pole is carried straight ahead, with the tip of the pole about even with the top of the head. Some vaulters prefer to carry the pole off to the side or high above the head at the beginning of the run for easier acceleration. This is fine as long as the pole is brought back in line well before the planting action begins.

THE RUN...

Obviously, during the run the vaulter wants to build up as much speed as possible, but it should be kept in mind that the run is not a race. The vaulter must have a fast RHYTHMICAL AND CONTROLLED run. A good comparison is a hurdler. The hurdler must have control of his stride and rhythm in order to clear the hurdles without loss of speed. Likewise, the vaulter must have control of his stride and rhythm in order to execute the plant and take-off properly.

It is recommended that the vaulter start his approach gradually gaining speed. Full speed or MAXIMUM CONTROLLABLE STRIDE, as we will call it, should be reached about 30 ft. from the take-off point (this distance is variable) and maintain that stride through the take-off.

Since it is more difficult to maintain good running action during the plant, the tendency is to slow down. Many vaulters are also intimidated by the pole which causes them to "lean away" at the take-off. The most common solution to this problem is putting out extra effort at the box or driving the box. This can be a cure for loss of momentum but tends to *cause more problems* than it cures. As a result the vaulter's stride is broken which leads to step problems. And by driving the box the vaulter loses control and timing at the take-off. This gain in speed is at the expense of the proper execution of the plant and take-off.

What we propose is a compromise: not slowing down or speeding up, but maintaining. Maintaining maximum controllable speed and equal stride through the take-off. This is not an easy thing to master. In an effort to perfect this type of run the authors have developed a method which will aid the vaulter in learning to maintain EQUAL STRIDE through the take-off.

EQUAL STRIDE SYSTEM OF RUNNING...

During the run, the vaulter's stride ~~with~~ lengthen as the vaulter accelerates. When the vaulter reaches his top controllable speed, his stride length should stabilize. Therefore, in order to maintain top controllable speed to the box, the vaulter's *stride length must remain the same!* The vaulter must find the length of his maximum controllable stride by having someone mark his stride at full controlled speed carrying a pole. Once the stride length is established, the vaulter marks off 5 to 6 strides back from the point of take-off.

The vaulter then adjusts his run to hit the first stride marker. Then without breaking stride simply concentrates on hitting each succeeding marker until he takes off. The vaulter will probably find it difficult at first since the natural tendency is to shorten the stride before take-off. But with practice, it will become natural and eventually the vaulter will no longer be dependent on stride markers.

The vaulter's stride length will vary on different running surfaces and with different weather conditions; therefore, the stride length and stride markers must be adjusted accordingly. It should be pointed out that the important factor is not the specific length of the stride but maintaining the same length stride through the take-off.

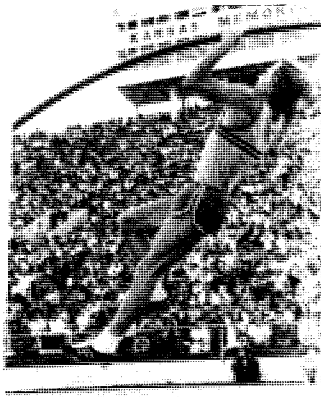
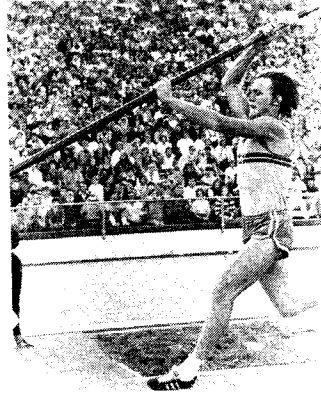
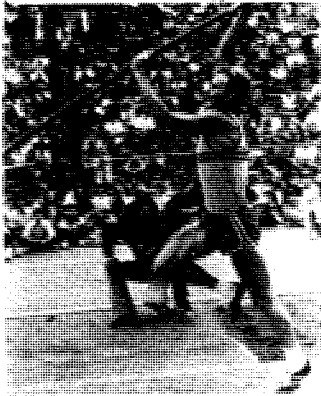
Using the EQUAL STRIDE SYSTEM will promote a strong *consistent* run, which is the basis for good vaulting.

The length of the run can vary greatly. The vaulter needs a run long enough to reach the first stride marker with maximum controllable speed without having to rush or press, but not so long that he will tire or waste energy.

The vaulter should never be satisfied with his present controllable speed. Learn to increase that speed maintaining the same control.

Dave Roberts builds his controllable speed by laying a towel on the track and running with his pole as fast as possible planting on the towel but not have the control that is needed to get a smooth run. But with practice the vaulter will build control as well as speed into his approach.

Steve Smith is presently working on a power-stride-system-of-running which will be used by more established vaulters.

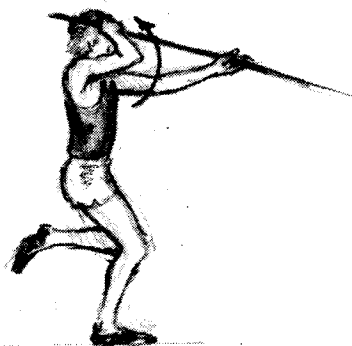


KJELL ISAKSSON - K.U. Relays - 17'6"

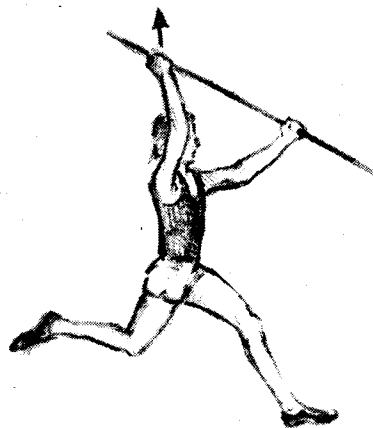
THE PLANT...

The key word associated with the plant is *early*. The plant should be completed before the take-off foot has reached the ground. In other words, the vaulter runs the last stride with the pole overhead. (See illustration #2)

The plant is divided into two basic and distinct stages. The first stage is the CURL. The curl is simply curling the pole to the *ear*. This action must be completed by the time the second to the last stride is completed.



CURL



PRESS

The second stage is the PRESS. Here the vaulter presses the pole overhead as high as possible. This action occurs during the last stride and must be completed before the take-off foot lands.

Although the plant is in two stages it should be a *continuous action*. There should be *no hesitation*.

The vaulter should attempt to get the pole in the box as smoothly as possible. There should be no attempt to jab or ram the pole into the box. These actions only tend to jar the vaulter at the take-off.

One problem during the plant is leaning back. The vaulter must strive to remain erect through the plant and the take-off. The EQUAL STRIDE SYSTEM will aid the vaulter in maintaining his posture during the plant.

THE TAKE-OFF...

The take-off action of the vaulter is unique and cannot be compared to other jumping events. This is because the vaulter's main objective at the take-off is unlike any other jumping event. The vaulter is not converting his momentum into *distance* or *height*. He is instead attempting to transfer the energy of the run into the vault itself.

The key to transition in the take-off is INTEGRATION of the running action with the LEAPING ACTION. The LEAPING ACTION allows a smooth transition off the ground, while the running action provides the necessary momentum to complete the vault. Both elements are a necessity to the success of the vault but at the same time tend to interfere with each other. If the vaulter emphasizes the LEAPING ACTION at the take-off, it will take away from the effectiveness of the last three strides of the run. On the other hand, if the vaulter emphasizes the run or forward drive at the take-off he will impair his ability to leap at the take-off. The trick is to integrate the two actions. *The ability of the vaulter to do this is dependent ON THE RUNNING STYLE OF THE VAULTER.* It is imperative that the vaulter has the last three to five strides before the take-off.

The most important factor in successfully integrating the take-off action is fluidity and maintenance of rhythm.

Hesitation or a break in rhythm before or during the take-off will almost always cause an "Imbalance" at the take-off. The need for the center of mass to move fluently over the legs is of great importance in receiving all the momentum generated by the run. We have found that the EQUAL STRIDE SYSTEM of running is excellent for teaching the vaulter FLUIDITY AND RHYTHM at the take-off.

Proper execution of the take-off is also dependent on the vaulter's understanding of what he is trying to accomplish. As mentioned previously, the vaulter is attempting to transfer the energy of the run into the vault. The vaulter has two means through which to achieve this end. One is by storing the run energy in the bend of the pole. The second means is creating a body pendulum or swing after the take-off. Then again the problem of integrating both actions is of importance. Probably the most common error of vaulters today is the overemphasis on "getting into" or bending the pole at the take-off. This action tends to have many negative effects. It can cause the vaulter to press and lose his rhythmic fluidity in the approach. It also tends to create a "Flat" or leapless take-off. These both in turn tend to destroy the swing.

The SOLUTION to this problem is concentrating on swinging rather than bending the pole at the take-off. If the run can be successfully transferred into the swing, then the swinging action will bend the pole.

Bending the pole by means of the swing is easier and more efficient because the vaulter uses leverage rather than force. It should be pointed out that the vaulter will always bend the pole at the take-off. However, the bulk of the bending action will occur during the swing.

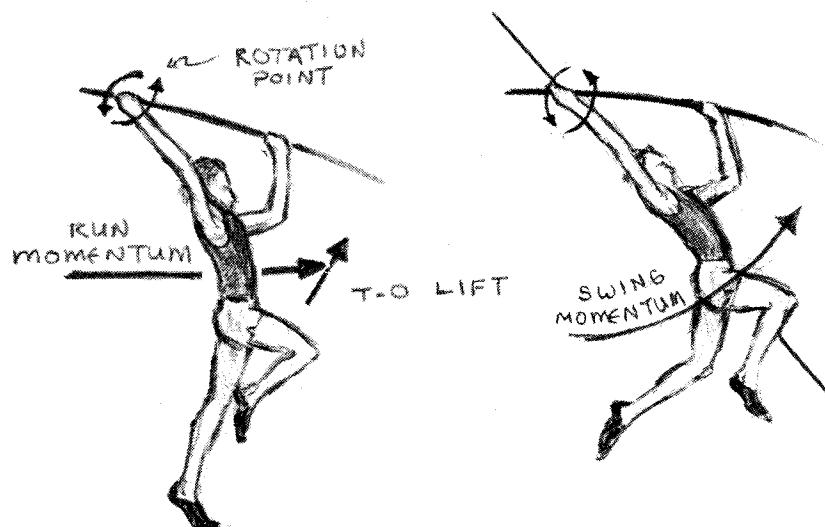
TAKE-OFF SWING...

Because the vault is a continuous motion all phases overlap. The vaulter begins the take-off before the plant is complete. The swing, in turn, begins before the take-off is terminated and so on.

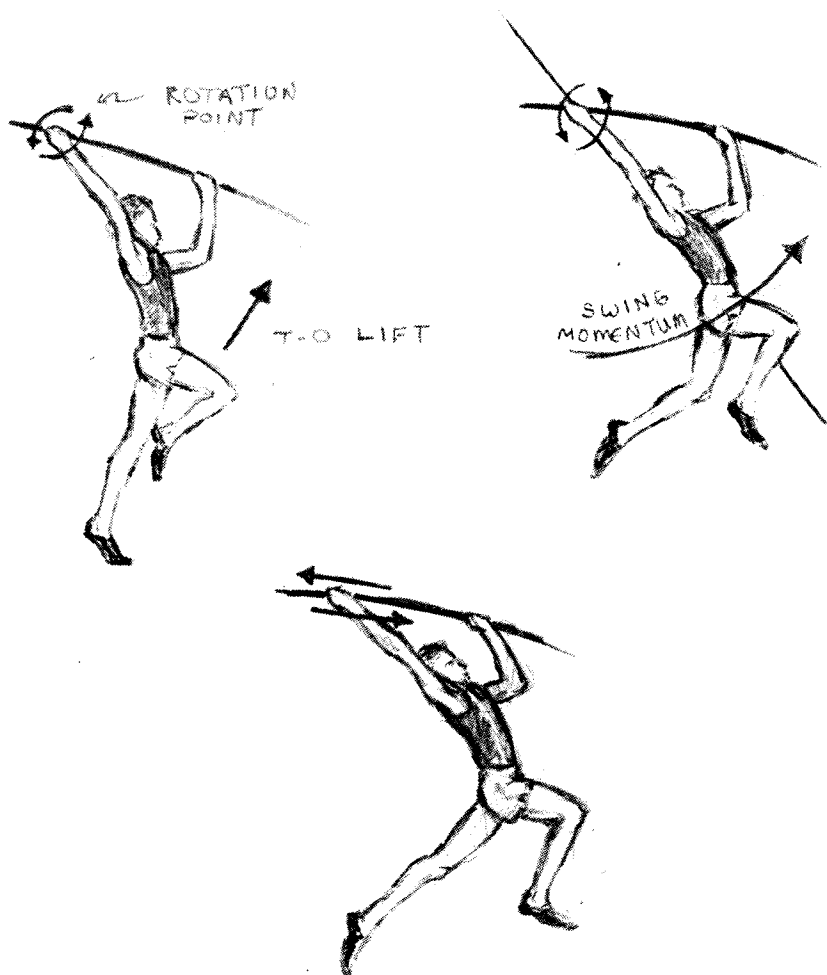
The plant is easily distinguishable from the take-off, but from there on the technical analyst *arbitrarily* dissects the vault into pieces. Dissection of the vault is necessary for the purpose of communication. However, one should never lose track of the fact that the vault is a series of interdependent, interrelated and overlapping moves which work together to form a total action.

The most crucial point of the vault is the vaulter's ability to transform the energy of the run into *usable* energy during the vault. The main means for transforming run energy into usable energy is through a properly executed swing. The swing acts as an energy converter, in that it converts the forward momentum of the run into upward lift. The bending action of the pole works in conjunction with the swing to aid the process.

The impact of the take-off primarily centers on the vaulter's top hand, which makes it the key to the energy transformation process. The top hand (right for right-handed vaulters) must become a rotation point at the time of contact between the force of the vaulter and the pole. The vaulter *pivots* around the top hand, which smoothly translates run energy into the swing up. The pivot action begins before the vaulter is off the ground, although the vaulter will not be directly aware of this. This means that the swing or pivot action begins while the take-off is still in process.



The body swing, generated by run momentum and instigated by the pivotal action of the top hand, is *primarily responsible for bending the pole.*

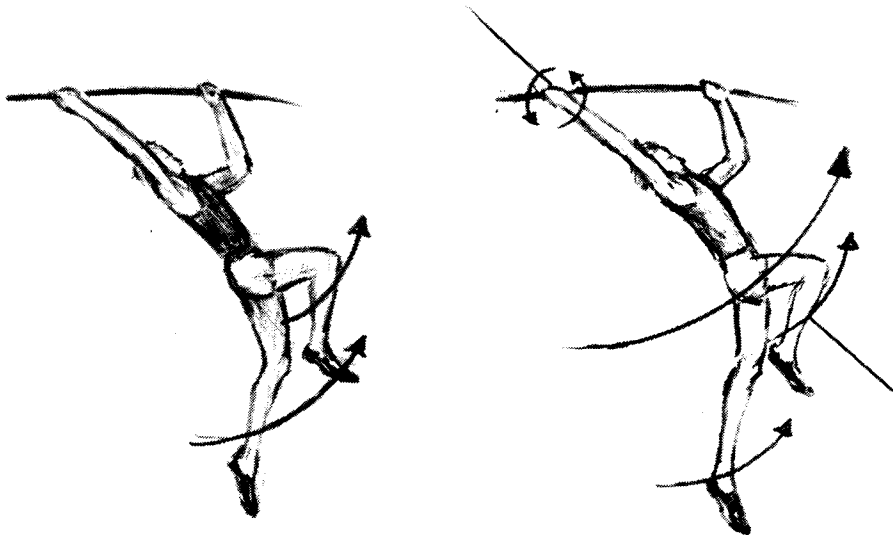


In a poorly executed vault the top hand fails to work as a rotation point. The result is like a collision of two opposite forces. The force of the vaulter works directly against the pole. The vaulter will have little trouble bending the pole if this occurs, but there will virtually be no swing, which will greatly diminish the vaulter's effectiveness in the latter stages of the vault.

The ability of the vaulter to make his top hand become a rotation point is relative to the take-off. The vaulter must successfully run over the take-off foot while at the same time "springing upwards." The leaping action starts the pivotal action in the top hand before the full force of the take-off impact hits the hand.

SWING-THROUGH...

The swing-through is a separate action while at the same time is part of the swing. The distinction between the two is as follows . . . the swing is the movement of the Center of Mass in an upward forward direction resulting from the pivotal action of the body. The swing-through can be defined as the *conscience* action of the vaulter to swing his legs up and back towards a rocked back position.



The swing-through is instigated by the vaulter while the swing is still in process. Thus, as with the take-off and swing, the two actions overlap.

To the observer there should be no noticeable hesitation between the two actions. They should blend smoothly and continuously together. The vaulter should concentrate on gathering himself after take off, so that he can execute the swing-through as quickly and powerfully as possible. The success of the swing-through is completely dependent on the swing. The better the swing, the easier the swing-through becomes.

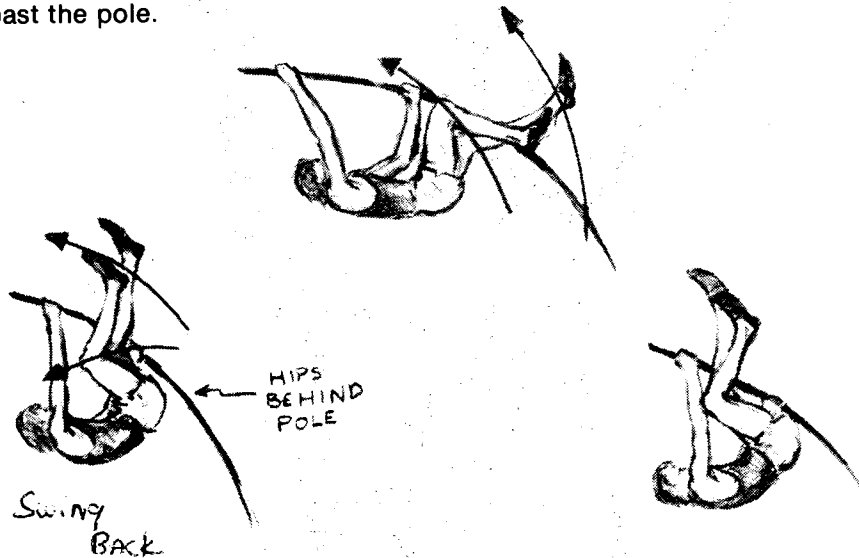
There should be no attempt to drop the head and/or shoulders back during the swing-through. This action is unnecessary if the swing has been properly executed. If the vaulter is having trouble executing a good swing-through action, or "getting back," this is a sure indication that his take-off and swing are faulty.

Often times the vaulter will fail to create the necessary pivotal action in the top hand because of a poor take-off action. When this occurs the vaulter has no control of the swing-through. The trail leg will swing out from under the vaulter giving him no chance to "gather" himself for a powerful swing-through action.

SWING-BACK...

If the vaulter's technique is proper the swing-back is merely the end result of a powerful swing-through action, and is barely distinguishable from it. However, if the vaulter's technique is faulty, the rock-back will appear and will be a separate and distinct action.

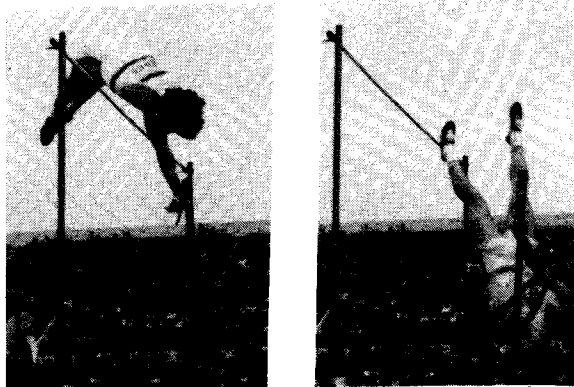
There are no special guidelines here other than the vaulter should try to get his legs back to the pole, while not allowing his hips to go past the pole.



It is important that the vaulter hang passively with the top arm until the completion of the swing-back. The pull must start *after* the swing-back.

PULL-TURN (EXTENSION)...

If the swing-through, swing-back phases have been properly executed, the vaulter will be in a coiled position with the hips slightly higher than the shoulders and the legs flexed back towards the pole as far as possible.



The key to the pull-turn is a unified effort. The pull-turn and hip extension should be executed almost simultaneously in a powerful, coordinated manner.

The vaulter initiates the action with a slight body kip, which quickly blends into the pulling and turning actions.

Combining the pull, turn and extension action is the most gymnastically difficult phase of the vault. Few vaulters, if any, have ever really mastered this phase of the vault. It is important to keep in mind that the vaulter's ability to execute a unified action is largely dependent on the success of the lower stages of the vault. Without a coordinated and powerful swing-through, swing-back action, little can be done to save the vault.

A successful vault can be executed without proper pull-turn technique if the lower stages of the vault are strong. However, the vaulter will never reach his full potential without mastery of this stage. Steve Smith has probably perfected the pull-turn phase further than any vaulter to date. This can account for him being the most efficient technical vaulter today. He has vaulted 4' over his hand grip!

