

C.24

This boy is learning how machines that use wheels and belts work.



I think learning how machines that use wheels and belts work would be \_\_\_\_\_.

Very  
Interesting

Interesting

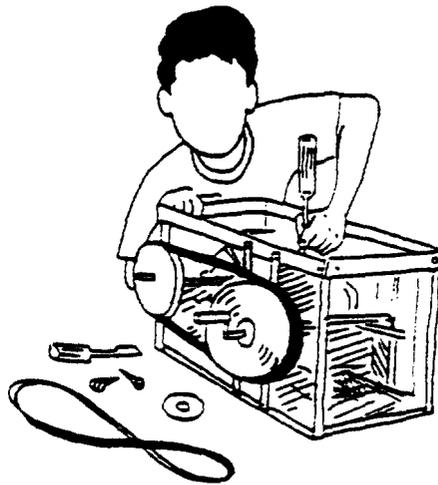
So-so

Boring

Very  
Boring

---

This boy is making a machine that uses wheels and belts.



I think making a machine that uses wheels and belts would be \_\_\_\_\_.

Very  
Interesting

Interesting

So-so

Boring

Very  
Boring

Appendix C4:

Club Interest

My name is: \_\_\_\_\_

I am a:                      boy                                      girl

I am in Grade:            1      2      3      4      5      6

My age is:                5      6      7      8      9      10      11      12

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**INSTRUCTIONS:** Let's pretend that your after-school program was going to start up a bunch of clubs. Would you want to join each of the following clubs? Please circle your answer.

1. Garden Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

2. Writers Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

3. Inventors Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

4. Homework Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

5. Recycling Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

6. Scientists Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

7. Computer Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

8. Photography Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

9. Music Club



Definitely  
Yes



Probably  
Yes



Probably  
Not



Definitely  
Not

C.30

**INSTRUCTIONS:** Please circle the name of the one club you would be most interested in joining.

Garden Club

Scientists Club

Writers Club

Computer Club

Inventors Club

Photography Club

Homework Club

Music Club

Recycling Club

INSTRUCTIONS: Please circle the name of the one club you would be least interested in joining.

Garden Club

Scientists Club

Writers Club

Computer Club

Inventors Club

Photography Club

Homework Club

Music Club

Recycling Club

**Appendix D:**

**Interview Protocols**

<b>D1 Interview One: Catapults.....</b>	<b>D.3</b>
<b>D2 Interview Two: Heat and Insulation.....</b>	<b>D.21</b>
<b>D3 Interview Three: Timekeepers.....</b>	<b>D.39</b>
<b>D4 Interview Four: Buoyancy.....</b>	<b>D.51</b>

Appendix D1:  
Interview One Protocol:  
Catapults

INTERVIEW PROTOCOL: CRO- MCKELVY/FULTON

Hi. My name is \_\_\_\_\_, and today I would like to talk with you about some of the things we've been doing here this week.

**Part I**

- 1) What kinds of things did you see on CRO this week? (This is to see if kids spontaneously mention content vs. storyline)
- 2) One episode of CRO was about MIRRORS & PERISCOPES and the other one was about CATAPULTS.

What did you think about these CRO shows?  
Did you like them or not like them? Why?

- 3) Would you want to find out more about MIRRORS & PERISCOPES?  
(If YES:) Why?  
(If NO:) Why not?

Would you want to find out more about CATAPULTS?  
(If YES:) Why?  
(If NO:) Why not?

- 4) While you were watching the show, were you thinking about anything or doing anything, or were you just watching?  
(If thinking or doing:) What were you thinking about/what were you doing?
- 5) Did you talk with anyone about the stuff you saw on these two CRO shows?  
(If YES:) Who did you talk to about CRO?  
What did you talk about?
- 6) Was there anything that you did after you watched the shows to find out more about the stuff in the shows?  
(If YES:) What did you do?  
(If NOT topic-related:) Did you do anything to find out more about MIRRORS & PERISCOPES or CATAPULTS  
(If YES:) What did you do?

(If NO to original question:) Did you do anything to find out more about MIRRORS & PERISCOPES or CATAPULTS? (If YES:) What did you do?

## PART II

I have here a bunch of pictures from the CRO show you just watched. In this story, the cavemen wanted to throw a heavy object really far and they tried a bunch of different things.

These are different ways they tried to throw heavy things really far.

*(Describe each picture in the following order. As you introduce each picture, try not to let kids start really talking about it at this point. Say something like, Whoa! Wait, there'll be time to talk about these in a minute. Right now I just want to show you each one and make sure you understand the picture.)*

A. In this picture one of the cavemen is getting ready to jump on a flat board to see how far it will throw a heavy rock that has been placed at the other end. Do you understand what's happening in this picture? (Point to the different objects as you say them, to focus their attention on what you are saying)

B. In this picture a young mammoth is bending a tree by pulling on a vine that is attached to the tree. He wants to see how far it will throw something that has been placed in between two branches. Do you understand what's happening in this picture?

C. In this picture a few of the cavemen and one of the mammoths are pulling down this part by pulling on a vine that is attached here (*point to spoon part of trebuchet*). They want to see how far this thing will throw a heavy rock. Do you understand what's happening in this picture?

D. In this picture one of the cavemen is picking up a heavy rock to see how far he can throw it. Do you understand what's happening in this picture?

## D.6

Now let's pretend that there was a contest, to see which was the best way to throw a heavy object really far. I want you to decide which of these is the very best way to throw an object really far and should get first prize, which one should get second prize, which one should get third prize, and which one should get fourth prize. I want you to work together to figure out which prize to give each picture. Let me know when you both agree on the prize each one should get. (*Interviewer withdraws and lets dyad talk and order pictures.. Give them a maximum of 5 minutes to do this. Don't tell them how much time they will have, but when they only have a minute left:*

Tell them: "You only have another minute or so to decide, so do the best you can and let me know as soon as you're done."

*Once dyad tells interviewer that they agree... or time is up...*

Okay, so you think that this one gets fourth prize (*point to picture farthest left*) and this one gets first prize (*point to farthest right*)? (*This is to check that the order goes left to right = worst to best.*)

Do you both agree with this? *If no agreement (time is up or stalemate reached), interviewer asks each partner to explain own reasons for order following protocol: for Q.1-4)*

### Mark order on subject interview sheet.

Q.1. Why is this the worst way and gets fourth prize for throwing a heavy object really far?

Q.2. Why is this a better way and gets third prize for throwing a heavy object really far?

Q.3. Why is this an even better way and gets second prize for throwing a heavy object really far?

Q.4. Why is this the best way and gets first prize for throwing an object really far?

Ask the following questions to both partners at the same time, even if they disagreed on ordering pictures:

Q.5 Okay, let's all look at this picture (*go to picture B - the mammoth pulling the vine with rock in tree*).

- What do you think is going to happen next?
  - Why would that happen?
- 

Q.6 (*Using Picture B again*) Now let's say that the mammoth and the caveman pulled the tree back, like it is in the picture and put a rock inside.

- Could they do anything to make the tree throw the rock further?
  - (If YES) What would they have to do? Why would that work better?
- 

Q.7 (*Go to picture C- the cavemen and mammoth pulling vine on the catapult*) Okay, let's look at this picture.

- What do you think will happen when they pull on this vine?
  - What will happen when they let go? Why?
- 

Q.8 (*Using picture C again*) Let's say that the mammoth and cavemen pulled this spoon part back like this, and put the heavy rock inside.

- Could they do anything to make it throw the rock even farther?
- (If YES) What would they have to do? Why would that work better?

**PART III**

*Remove Pictures A, B, C, & D and take out Pictures X (Steamer and CRO pulling vine without knots) and Y (Steamer and CRO pulling vine with knots)*

**Q.9** *(Go to picture of CRO and Steamer pulling the vine; one with knots and one without)* Okay, here are two pictures of a caveman and a mammoth pulling a vine that is tied to the tree, to get the tree ready to throw a rock really far. In this picture they're pulling on a plain vine, and in this one they've tied knots in the vine and they're pulling it through here so that it catches on the limb of the tree.

- Which way is better: this way or this way. or are they both the same? Why?

## INTERVIEW PROTOCOL: CARMEN-McKelvy/Fulton

Hi. My name is \_\_\_\_\_, and today I would like to talk with you about some of the things we've been doing here this week.

## Part I

- 1) What kinds of things did you see on CARMEN SANDIEGO this week?  
(This is to see if kids spontaneously mention content vs. storyline)
- 2) The two episodes of CARMEN SANDIEGO were about MUSIC and UFO'S.

What did you think about these CARMEN SANDIEGO shows?  
Did you like them or not like them? Why?

- 3) Would you want to find out more about MUSIC?  
(If YES:) Why?  
(If NO:) Why not?

Would you want to find out more about UFO'S?  
(If YES:) Why?  
(If NO:) Why not?

- 4) While you were watching the show, were you thinking about anything or doing anything, or were you just watching?  
(If thinking or doing:) What were you thinking about/what were you doing?
- 5) Did you talk with anyone about the stuff you saw on these two CARMEN SANDIEGO shows?  
(If YES:) Who did you talk to about CARMEN SANDIEGO?  
What did you talk about?
- 6) Was there anything that you did after you watched the shows to find out more about the stuff in the shows?  
(If YES:) What did you do?  
(If NOT topic-related:) Did you do anything to find out more about MUSIC or UFO'S  
(If YES:) What did you do?  
  
(If NO to original question:) Did you do anything to find out more about MUSIC or UFO'S? (If YES:) What did you do?

## PART II

I have here a bunch of pictures from a comic book about some cavemen and the animals they live with called mammoths. In one of the comic book stories, the cavemen and the mammoths are trying to throw heavy things really far, and they try a bunch of different ways.

These are different ways they tried to throw heavy things really far.

*(Describe each picture in the following order. As you introduce each picture, try not to let kids start really talking about it at this point. Say something like, 'Whoa! Wait, there'll be time to talk about these in a minute. Right now I just want to show you each one and make sure you understand the picture.)*

A. In this picture one of the cavemen is getting ready to jump on a flat board to see how far it will throw a heavy rock that has been placed at the other end. Do you understand what's happening in this picture? (Point to the different objects as you say them, to focus their attention on what you are saying)

B. In this picture a young mammoth is bending a tree by pulling on a vine that is attached to the tree. He wants to see how far it will throw something that has been placed in between two branches. Do you understand what's happening in this picture?

C. In this picture a few of the cavemen and one of the mammoths are pulling down this part by pulling on a vine that is attached here (*point to spoon part of trebuchet*). They want to see how far this thing will throw a heavy rock. Do you understand what's happening in this picture?

D. In this picture one of the cavemen is picking up a heavy rock to see how far he can throw it. Do you understand what's happening in this picture?

Now let's pretend that there was a contest. to see which was the best way to throw a heavy object really far. I want you to decide which of these is the very best way to throw an object really far and should get first prize. which one should get second prize, which one should get third prize, and which one should get fourth prize. I want you to work together to figure out which prize to give each picture. Let me know when you both agree on the prize each on should get. *(Interviewer withdraws and lets dyad talks and order pictures.. Give them a maximum of 5 minutes to do this. Don't tell them how much time they will have, but when they only have a minute left:*

Tell them: "You only have another minute or so to decide, so do the best you can and let me know as soon as you're done."

*Once dyad tells interviewer that they agree... or time is up...*

Okay, so you think that this one gets fourth prize (*point to picture farthest left*) and this one gets first prize(*point to farthest right*)? (*This is to check that the order goes left to right = worst to best.*)

Do you both agree with this? *If no agreement (time is up or stalemate reached), interviewer asks each partner to explain own reasons for order following protocol: for Q.1-4)*

Mark order on subject interview sheet.

- Q.1. Why is this the worst way and gets fourth prize for throwing a heavy object really far?
- Q.2. Why is this a better way and gets third prize for throwing a heavy object really far?
- Q.3. Why is this an even better way and gets second prize for throwing a heavy object really far?
- Q.4. Why is this the best way and gets first prize for throwing an object really far?

*Ask the following questions to both partners at the same time, even if they disagreed on ordering pictures:*

**Q.5** Okay, let's all look at this picture (*go to picture B - the mammoth pulling the vine with rock in tree*).

- What do you think is going to happen next?
  - Why would that happen?
- 

**Q.6** (*Using Picture B again*) Now let's say that the mammoth and the caveman pulled the tree back, like it is in the picture and put a rock inside.

- Could they do anything to make the tree throw the rock further?
  - (If YES) What would they have to do? Why would that work better?
- 

**Q.7** (*Go to picture C- the cavemen and mammoth pulling vine on the catapult*) Okay, let's look at this picture.

- What do you think will happen when they pull on this vine?
  - What will happen when they let go? Why?
- 

**Q.8** (*Using picture C again*) Let's say that the mammoth and cavemen pulled this spoon part back like this, and put the heavy rock inside.

- Could they do anything to make it throw the rock even farther?
- (If YES) What would they have to do? Why would that work better?

**PART III**

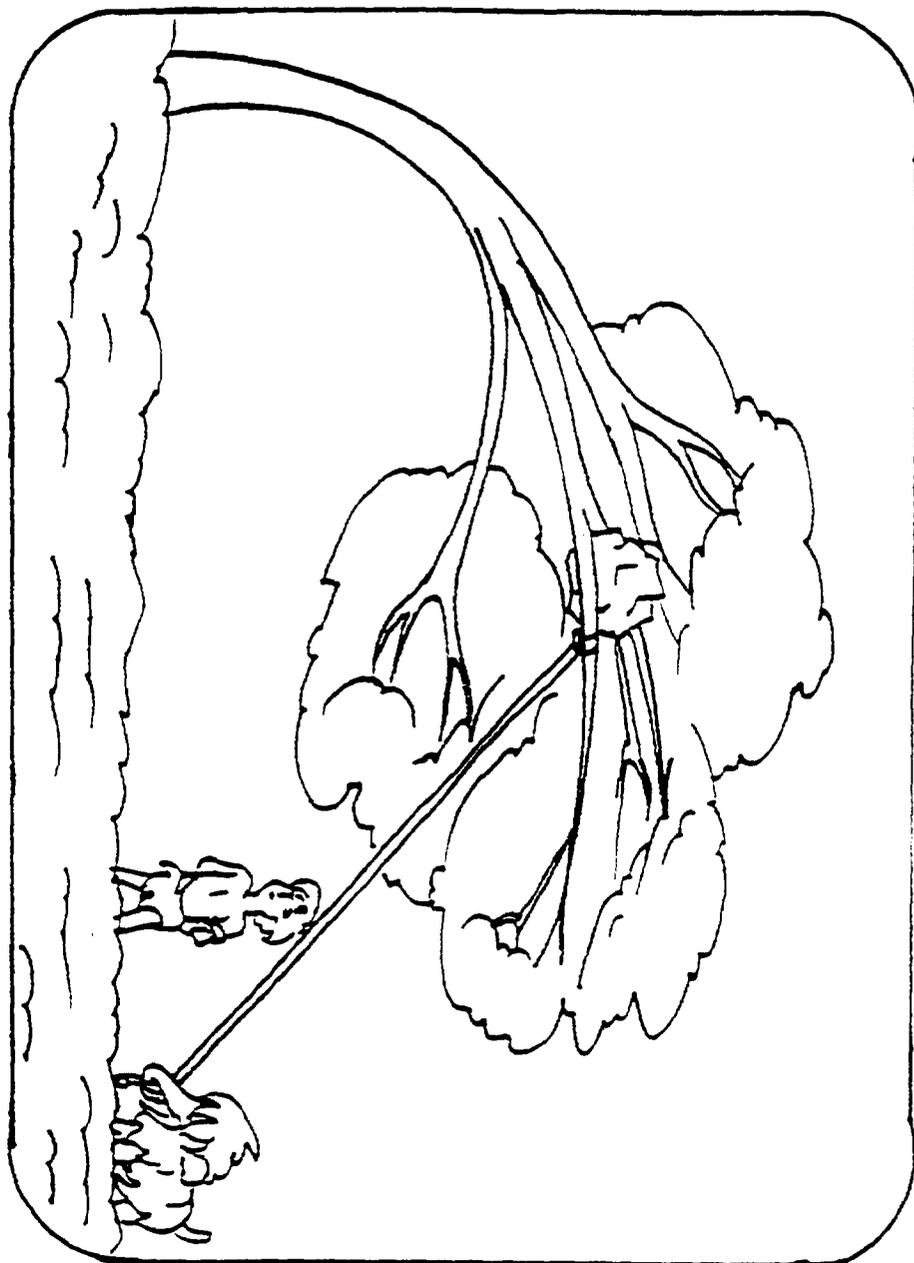
*Remove Pictures A, B, C, & D and take out Pictures X (Steamer and CRO pulling vine without knots) and Y (Steamer and CRO pulling vine with knots)*

**Q.9** *(Go to picture of CRO and Steamer pulling the vine; one with knots and one without)* Okay, here are two pictures of a caveman and a mammoth pulling a vine that is tied to the tree, to get the tree ready to throw a rock really far. In this picture they're pulling on a plain vine, and in this one they've tied knots in the vine and they're pulling it through here so that it catches on the limb of the tree.

- Which way is better: this way or this way, or are they both the same?  
Why?

BOARD

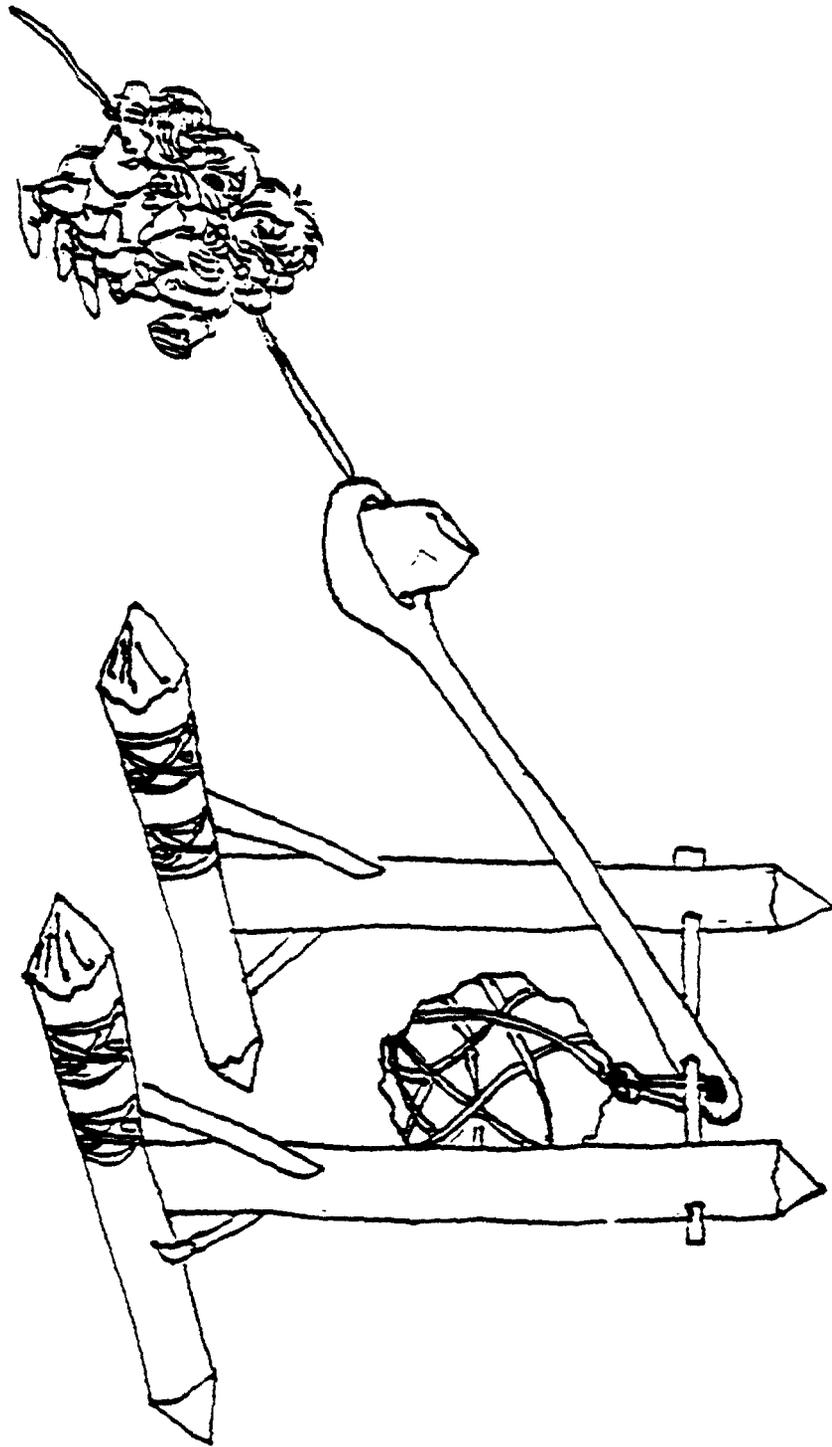


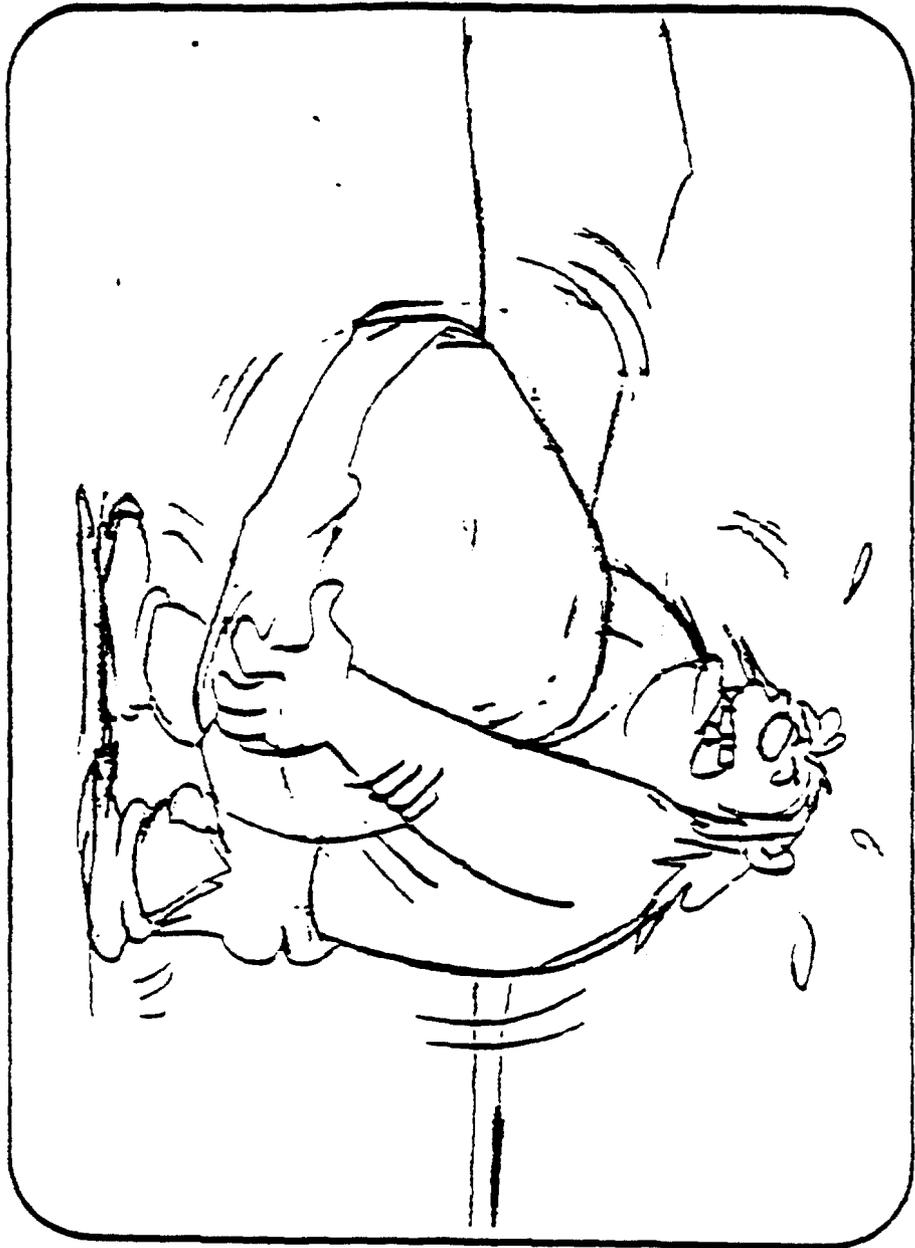


TREE

D.16.

ARM





PAVENHAN

