Bamboo trusses

BAMBOO TRUSSES

a new construction

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model: Davey Hajema
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introduction

This manual describes how to build a bamboo truss to support the roof of a building with 8 meters free span (e.g. school, clinic, etc.). The construction of the truss is based on scientific research by the author.
This manual should be used to teach people how to build such trusses on their own.
They should be familiar with bamboo and with some basic English to use this book independantly, although we hope that the pictures will bridge over a great deal of linguistic problems.
This manual contains only information concerning the truss and the purlins; other topics like stability, wind-load, earthquakes, etc. are not dealt with; for these topics is referred to the book "Bamboo" by the same author.

PART 1

we are going to build a bamboo roof,
for a building of about 8 meters span.

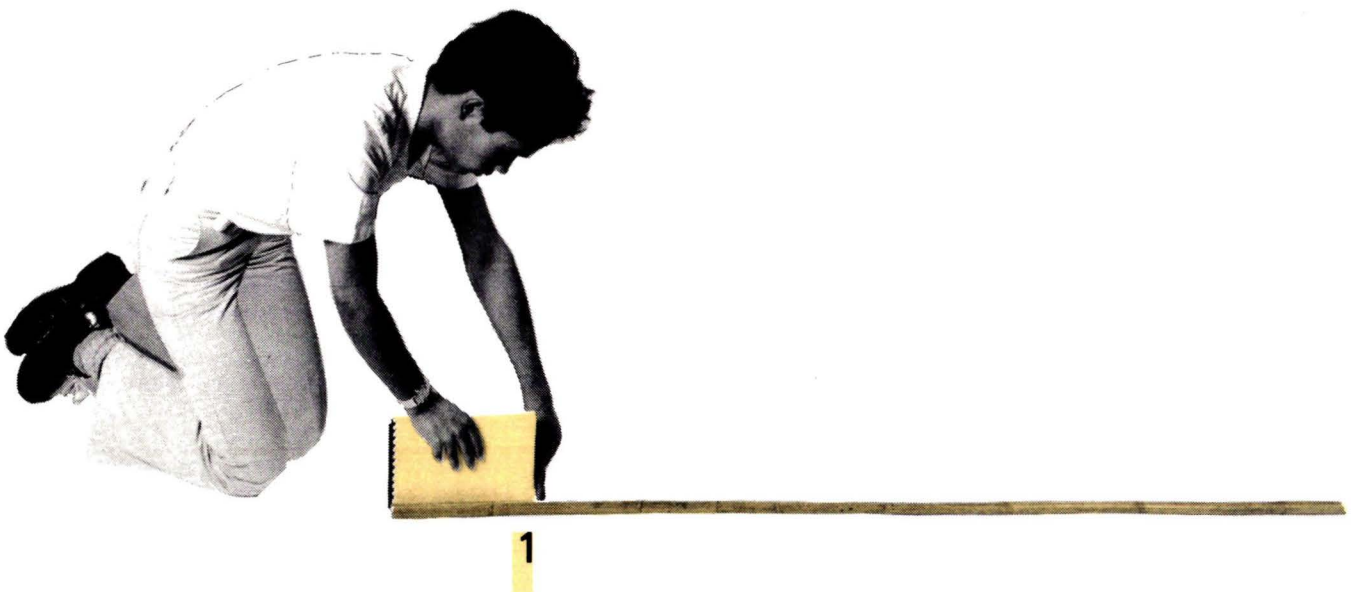
the roof is supported by a construction called a truss.

how many bamboo culms do we need?

for each truss we need 4 culms.

4 we are going to make a measuring-rod
from a thin bamboo.

this booklet is the scale.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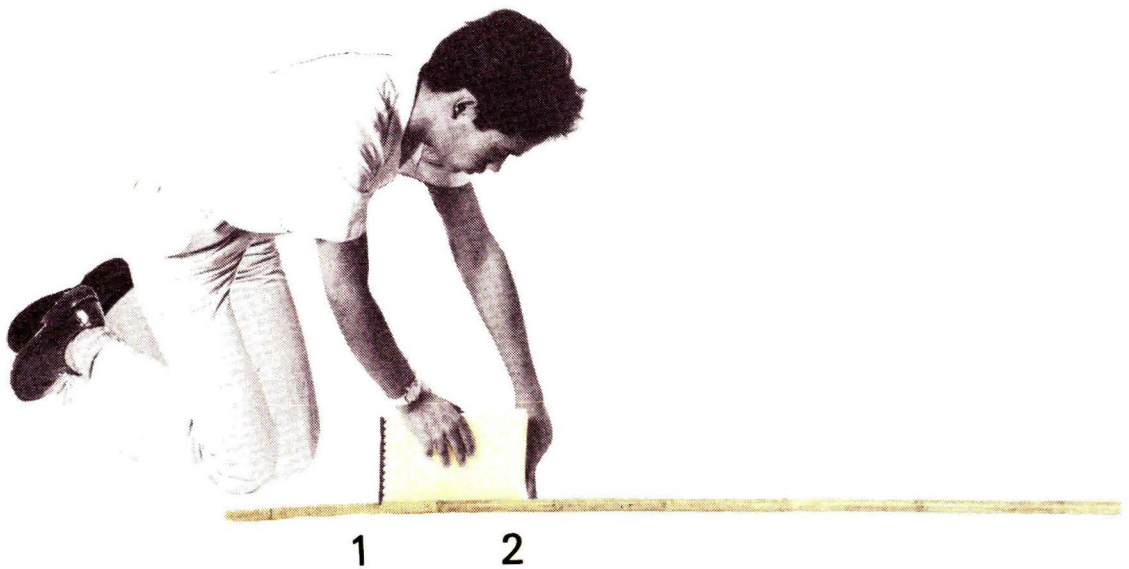
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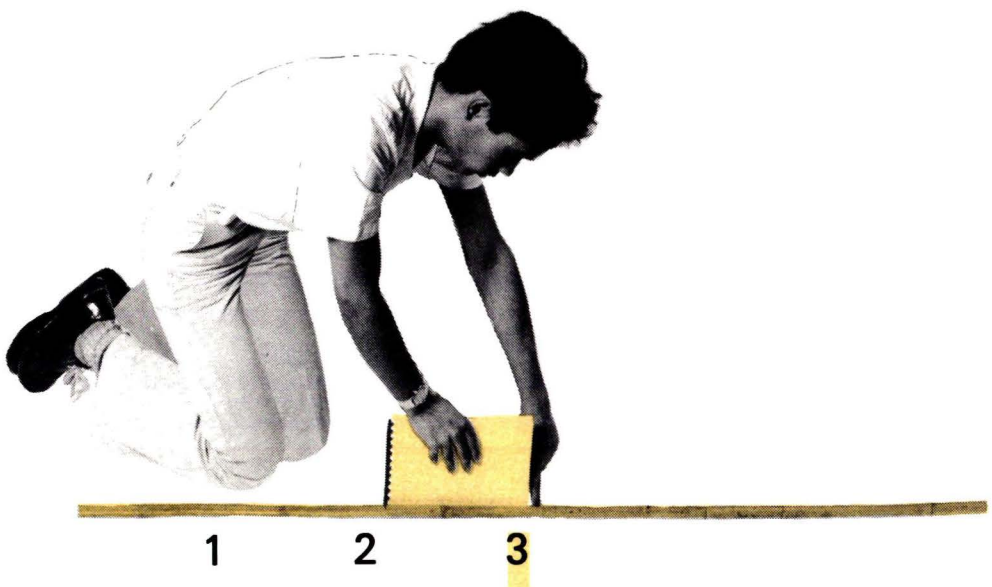
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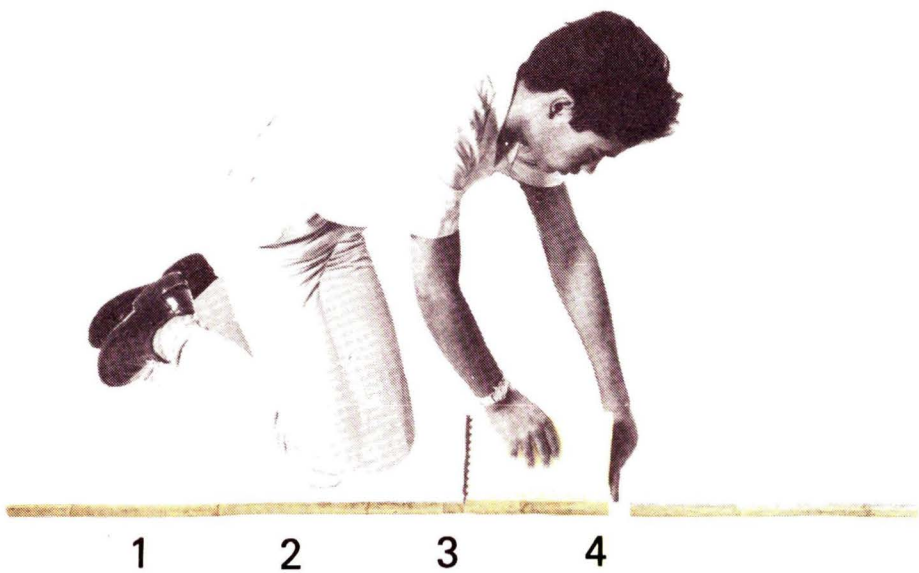
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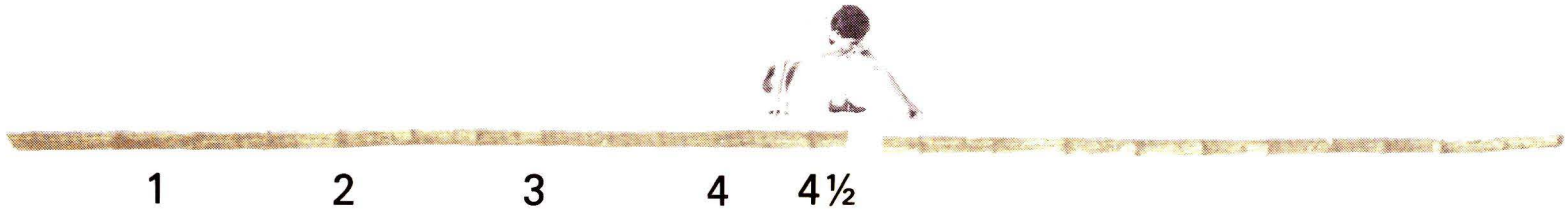
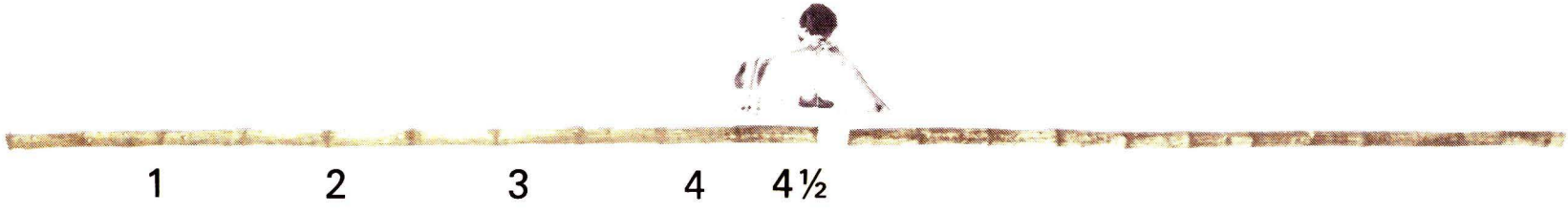
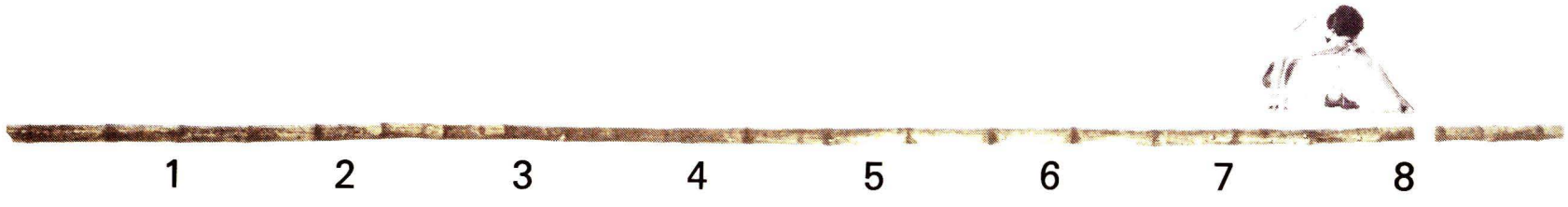
we have a measuring-rod of one meter.

10 with the rod we measure the length of the bamboo parts needed for a truss.







2x4½ meters and 1x8 meters

the bamboo culms should be cut

as close to a node as possible.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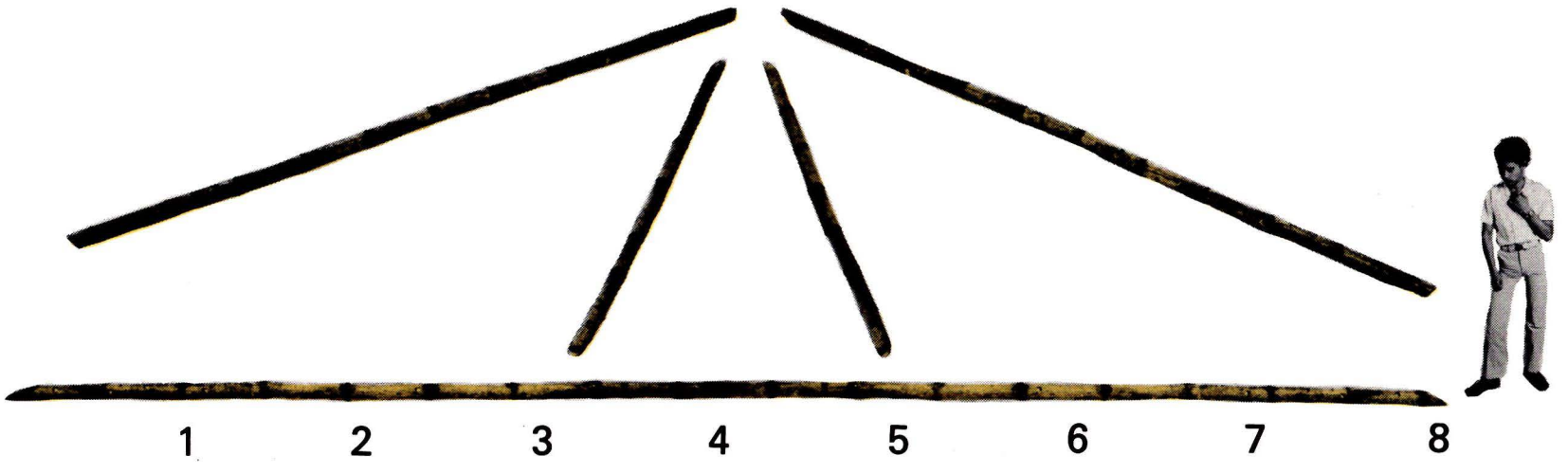
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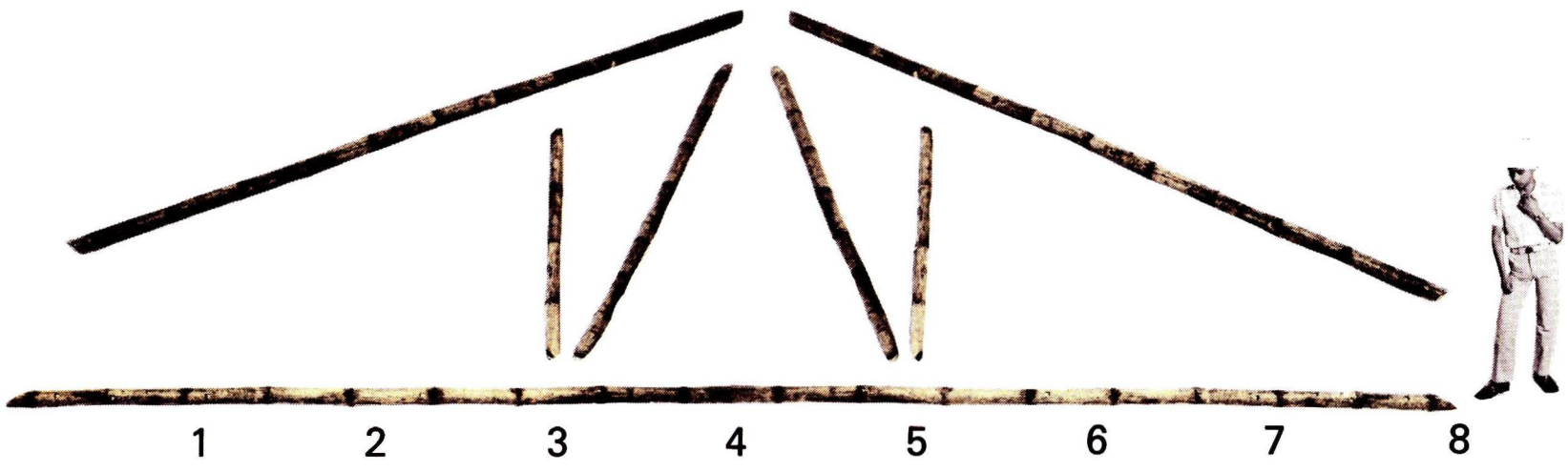
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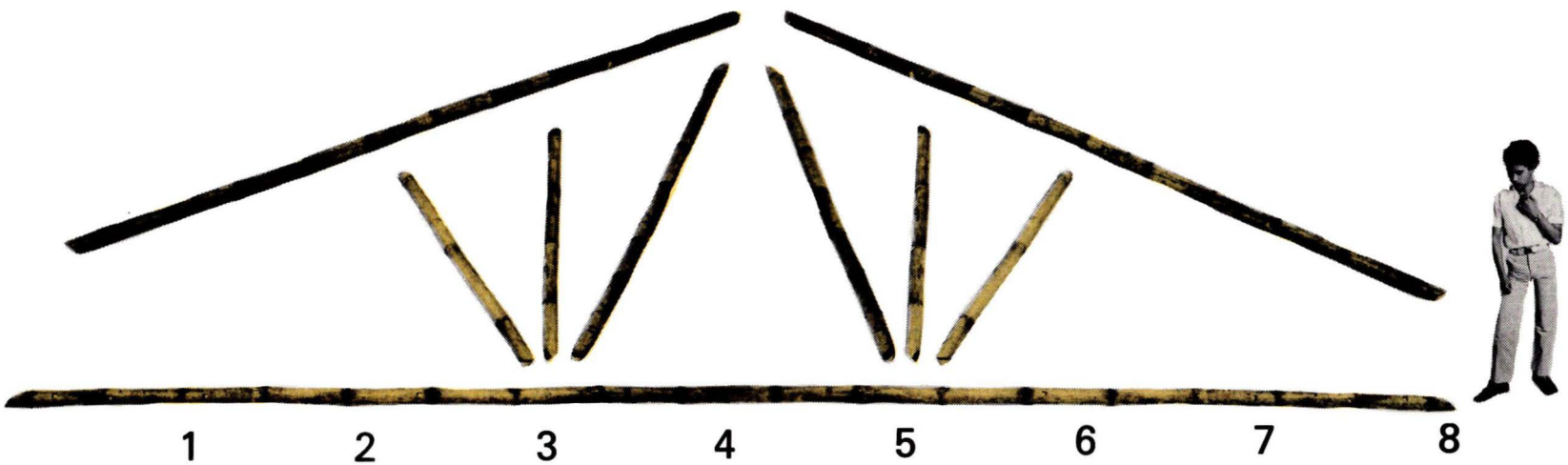
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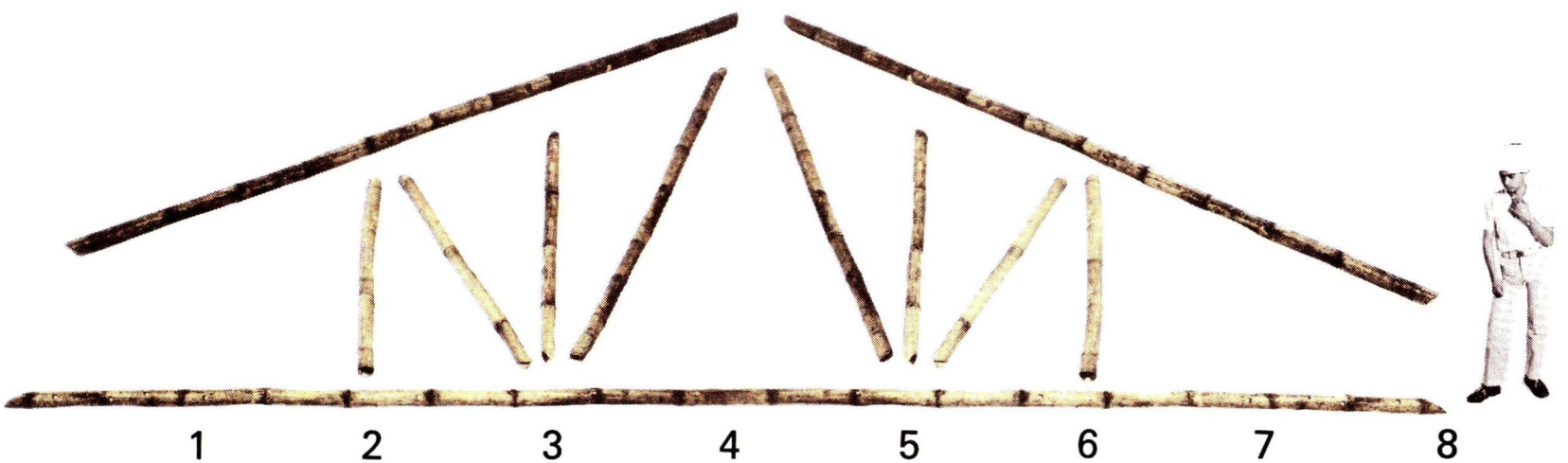
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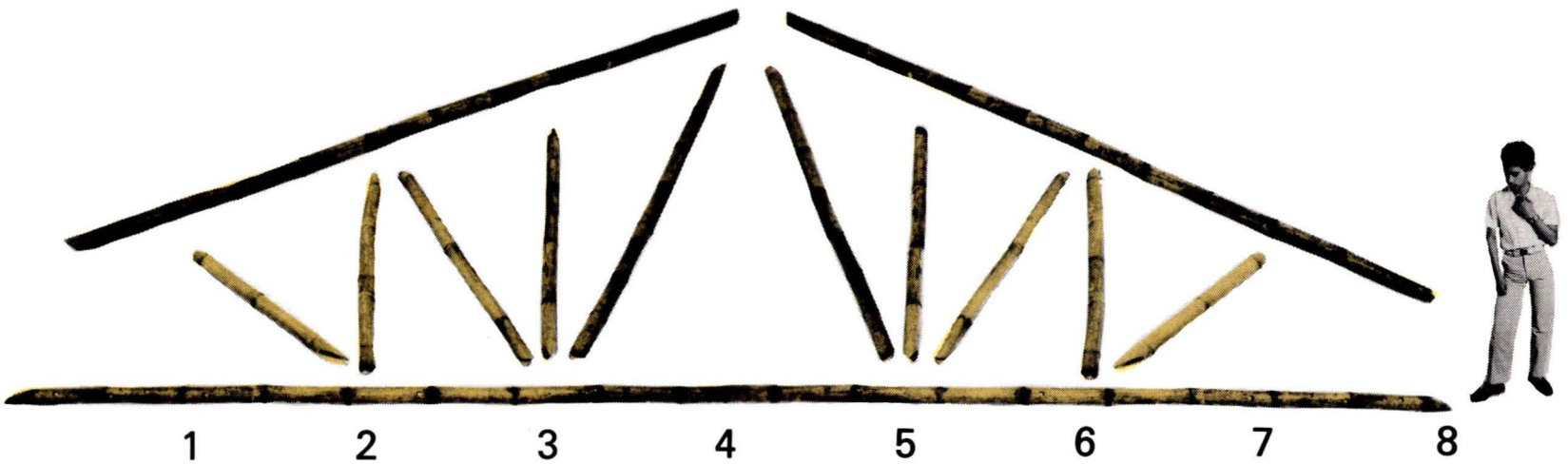
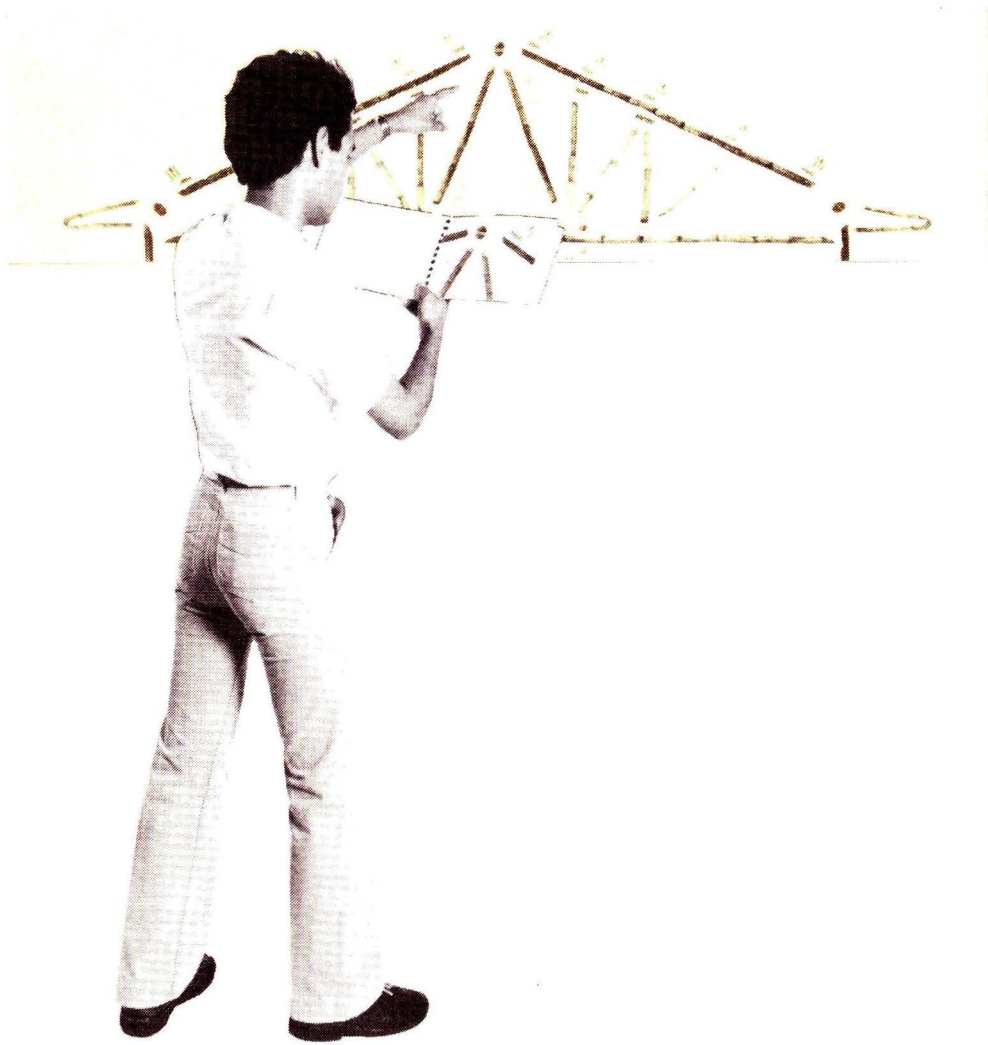
it is very important to build the construction
exactly as shown here.



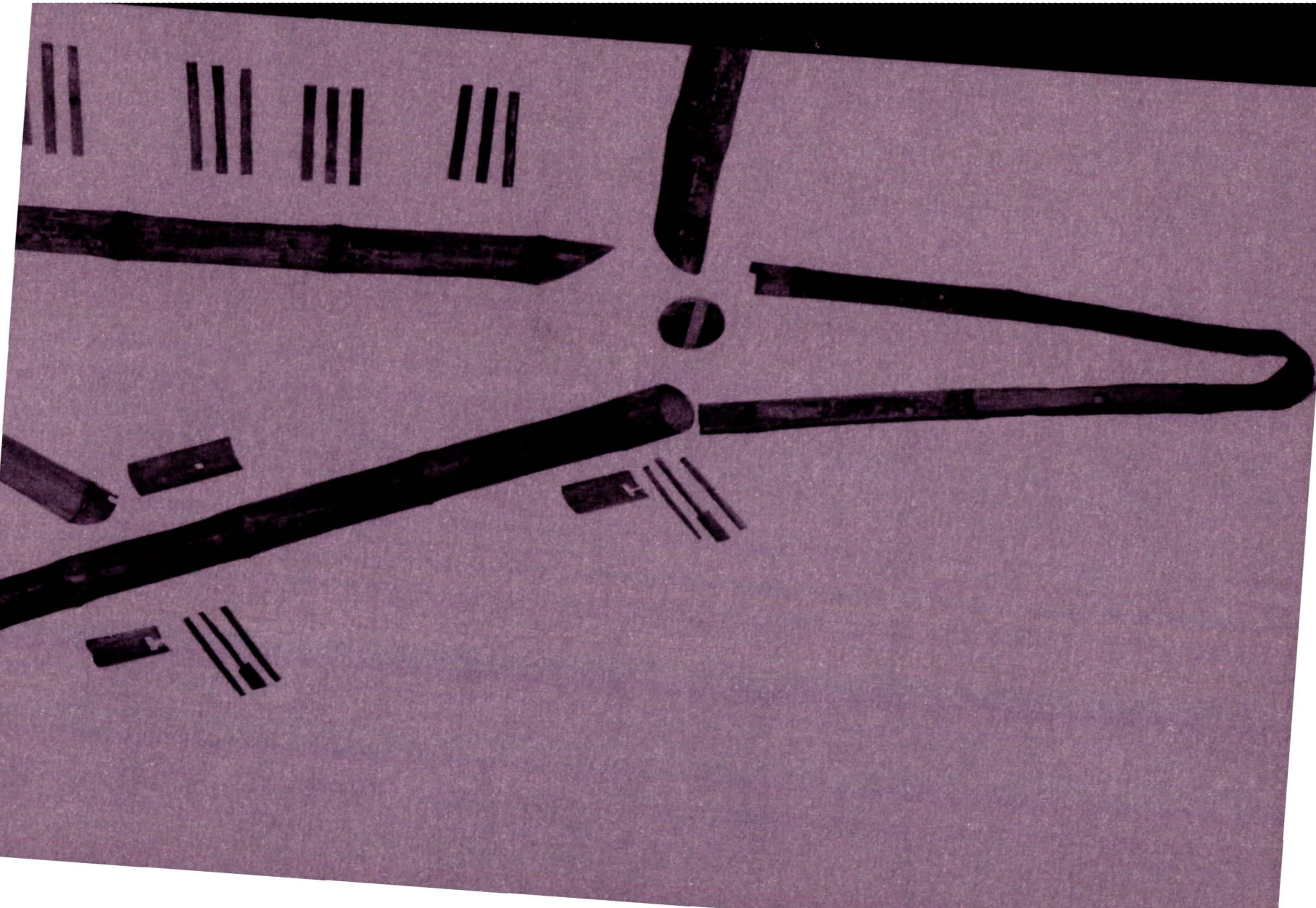
20 compare the following pictures in this booklet with the poster.



join the parts as shown.

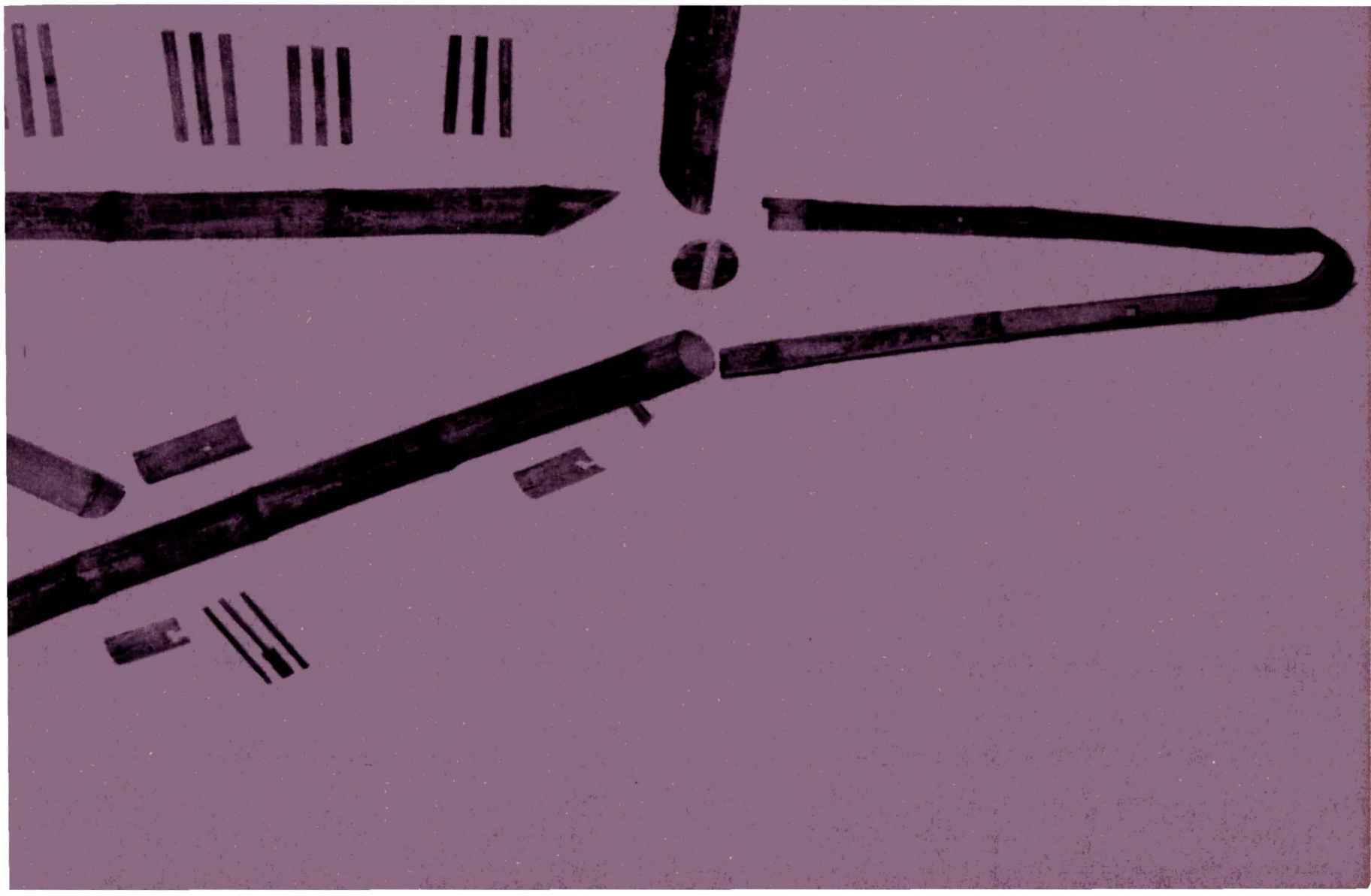
PART 2

right corner, exploded view



left corner, exploded view

right corner, the pins put through the hole
in the culm

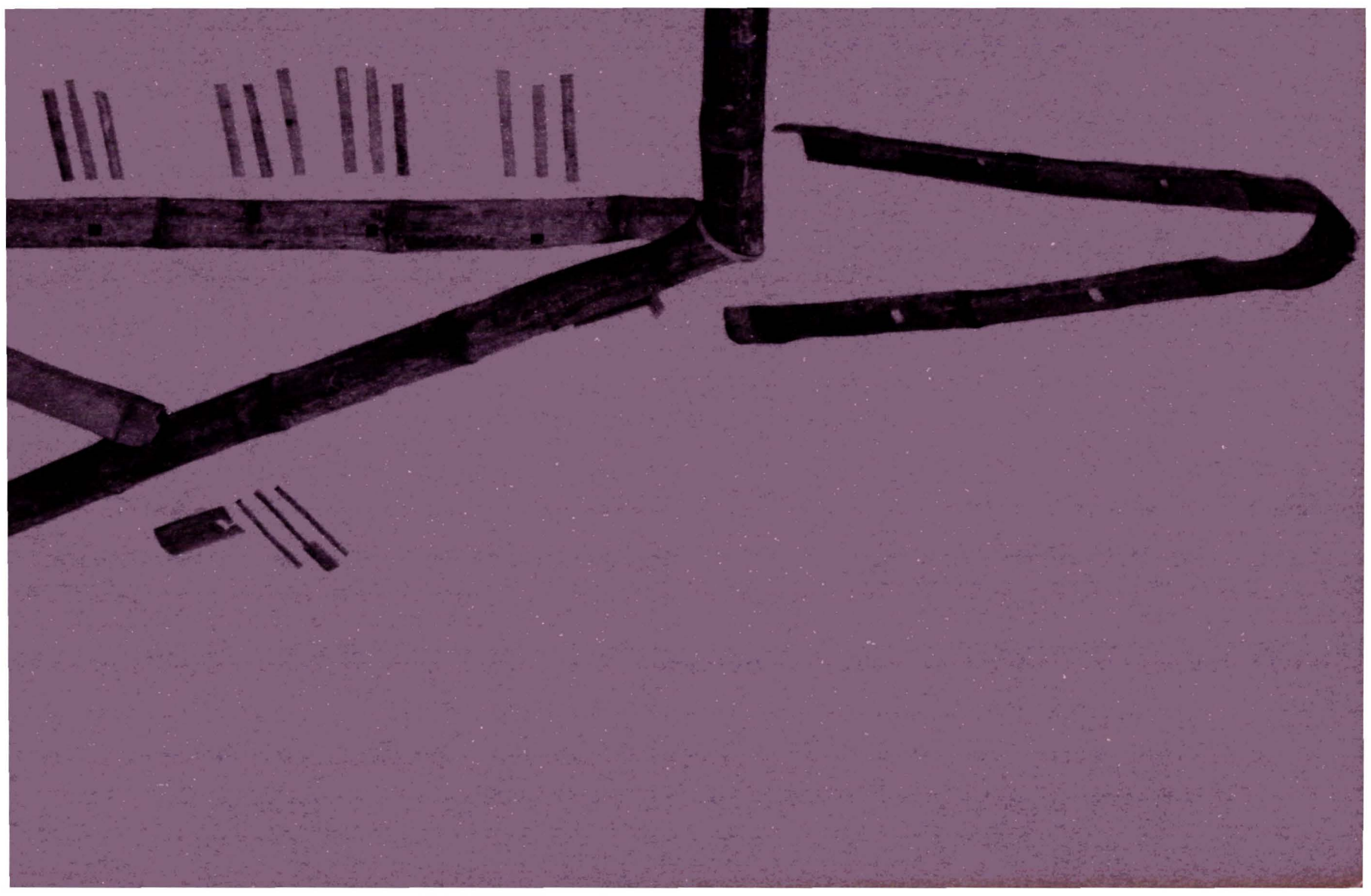


left corner, the pins put through the hole
in the culm

right corner, 2 culms put together,
the disk between them , the intermediate layer put in its place

left corner, 2 culms put together,
the disk between them , the intermediate layer put in its place

right corner, the horizontal culm
put in its place



left corner, the horizontal culm
put in its place

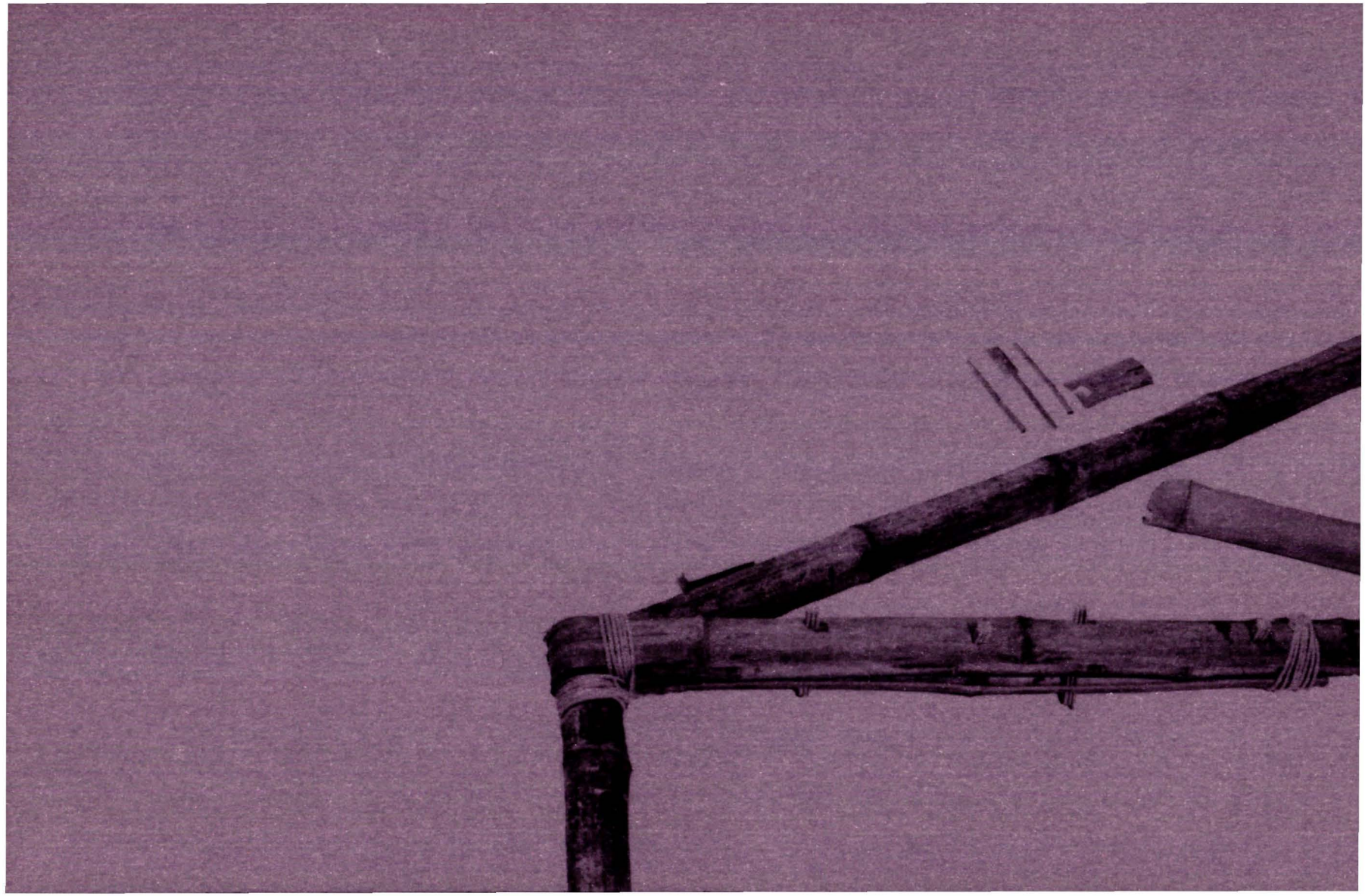
right corner, the ''hair-pin'' put in its place

left corner, the ''hair-pin'' put in its place

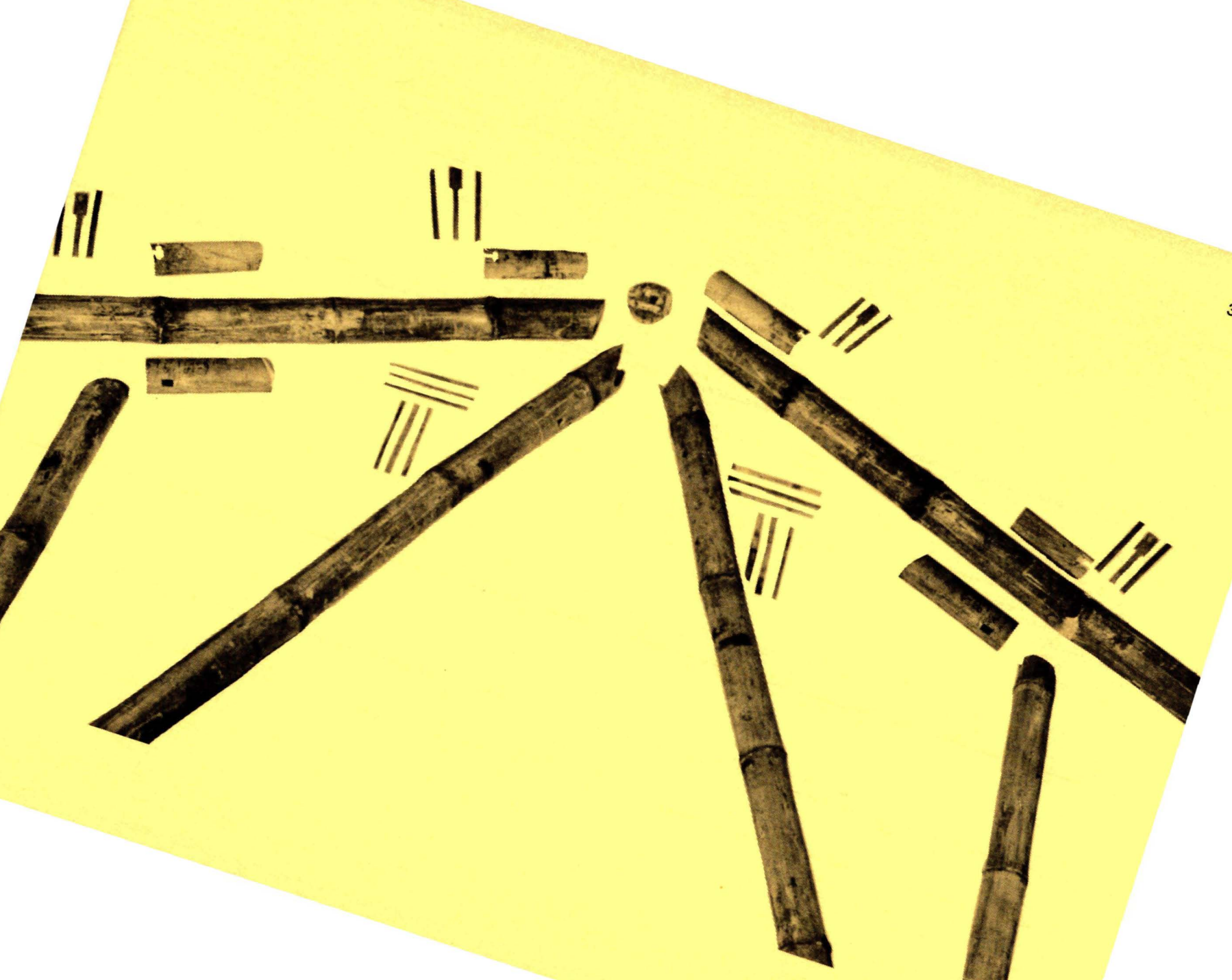
right corner, the pins put through the holes
in the ''hair-pin'' and the culm

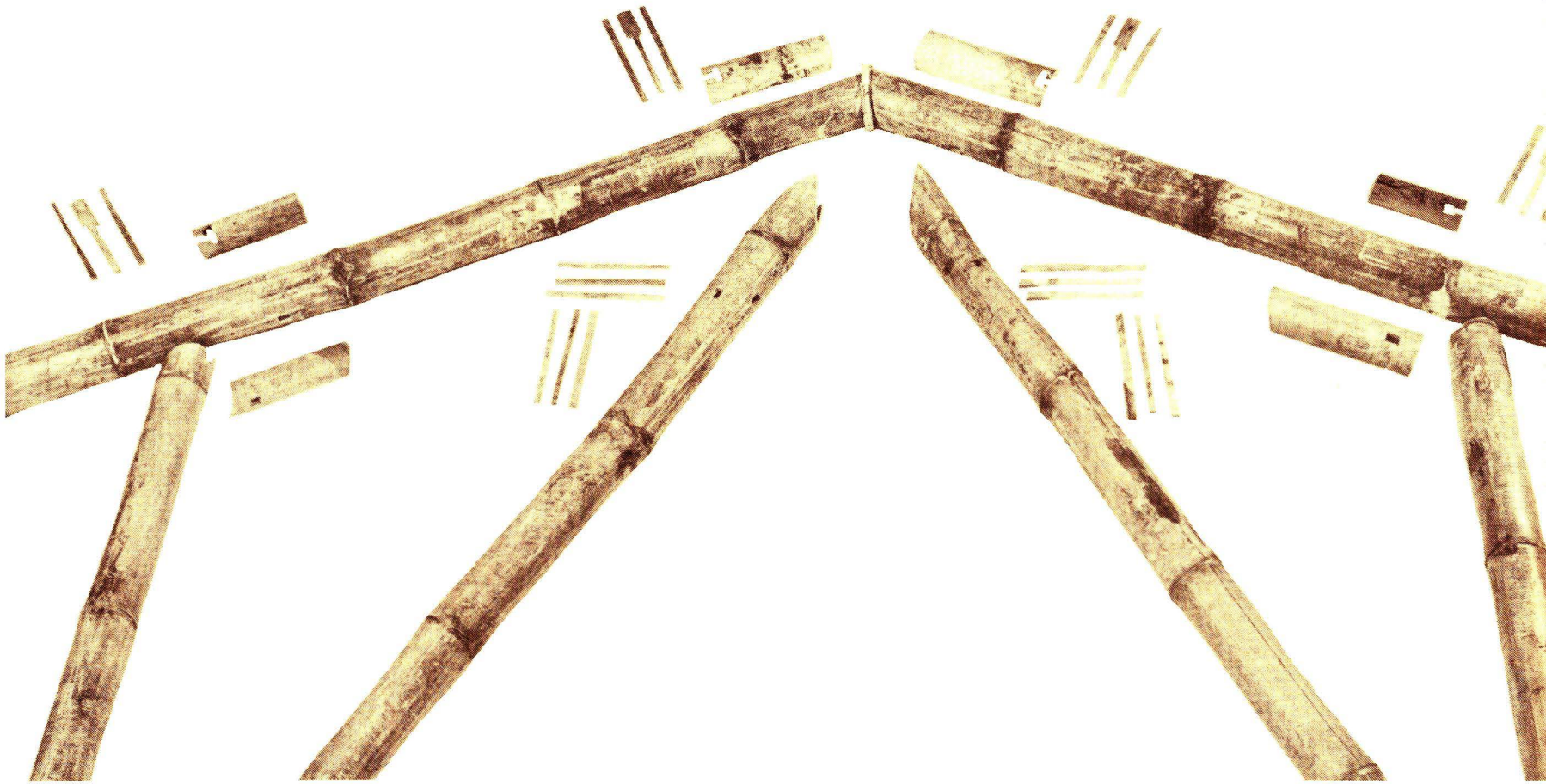
left corner, the pins put through the holes
in the "hair-pin" and the culm

right corner, a rope fastenes the connection.

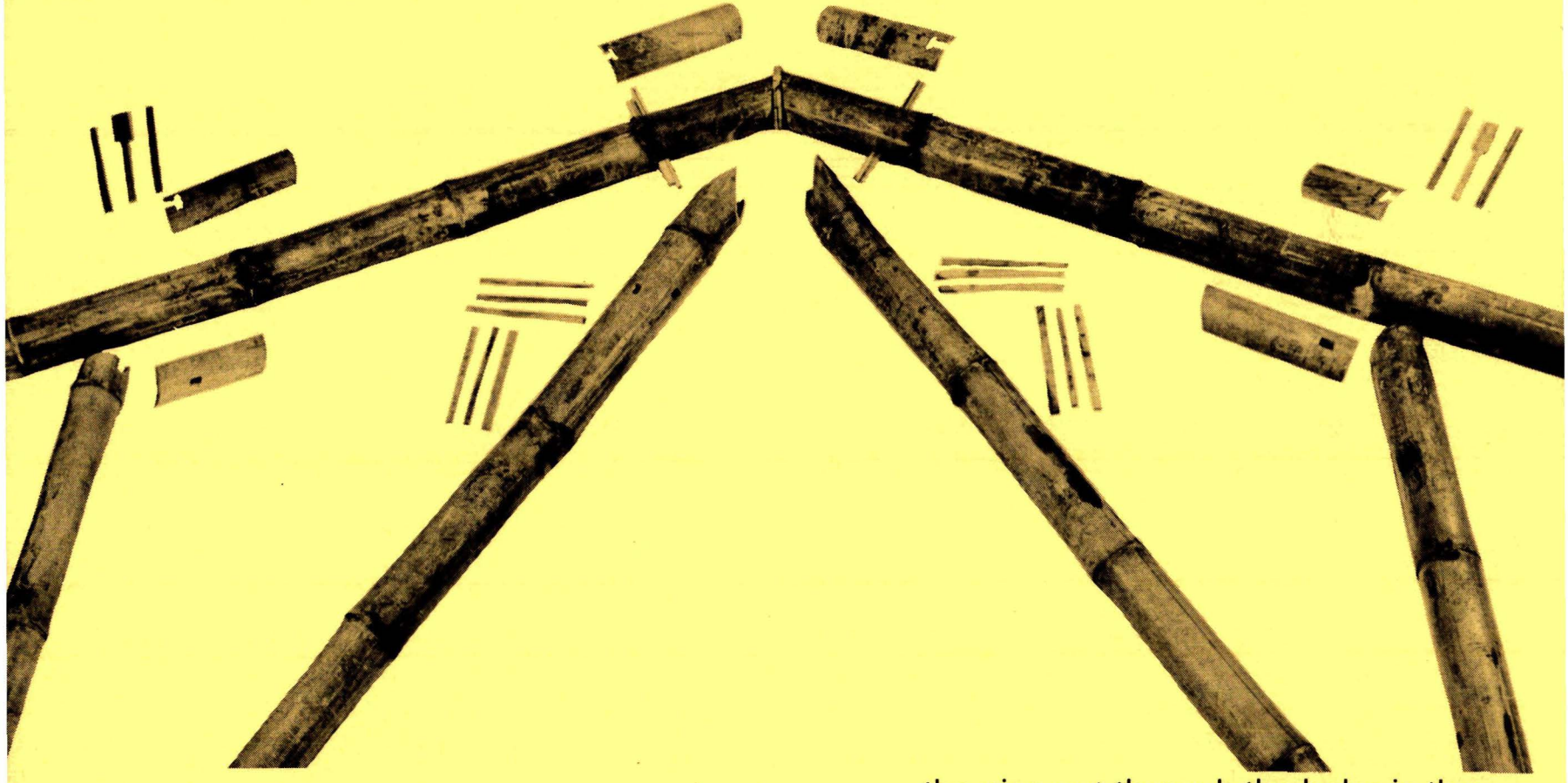


left corner, a rope fastenes the connection.



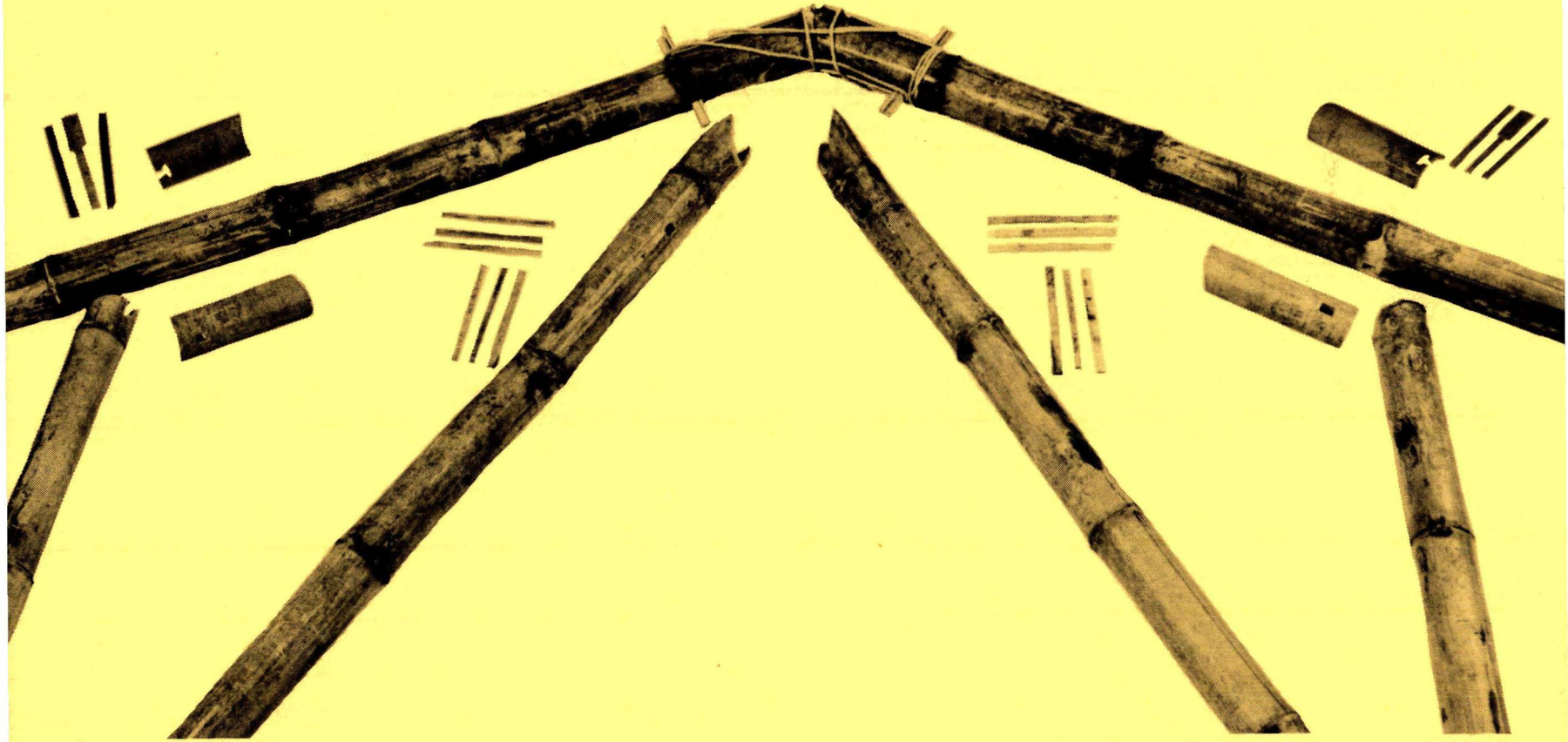


2 culms put together, the disk between them



the pins put through the holes in the upper culms

the intermediate layers put in their place



a rope fastenes the connection

the pins put through the hole in the other culms

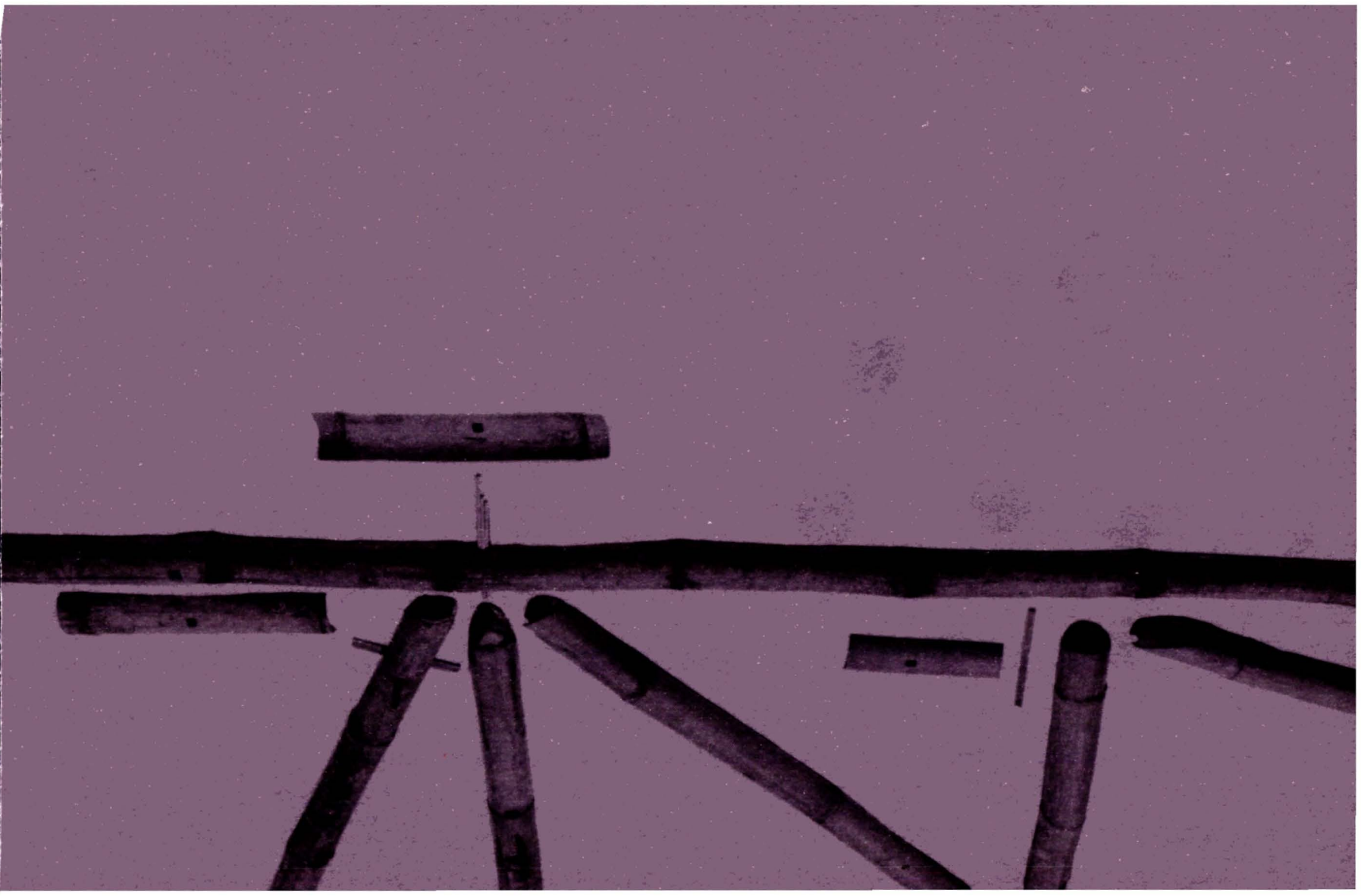
the culms put together

a rope fastenes the whole connection.

down right, exploded view

down left, exploded view

down right, the pins put through the holes



down left, the pins put through the holes

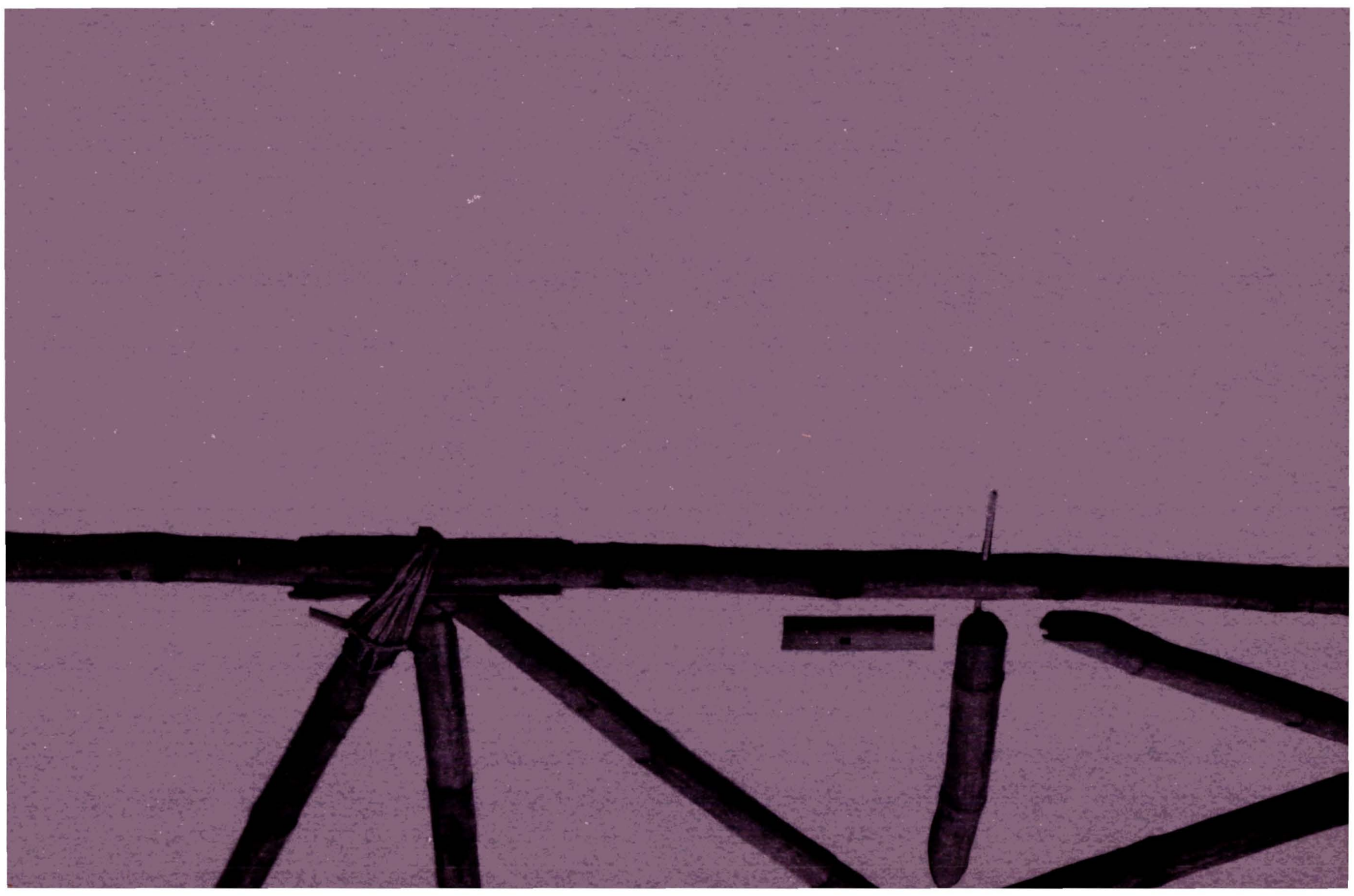
down right, the intermediate layers
put in their place

down left, the intermediate layers
put in their place

down right, a rope fastenes the connection.

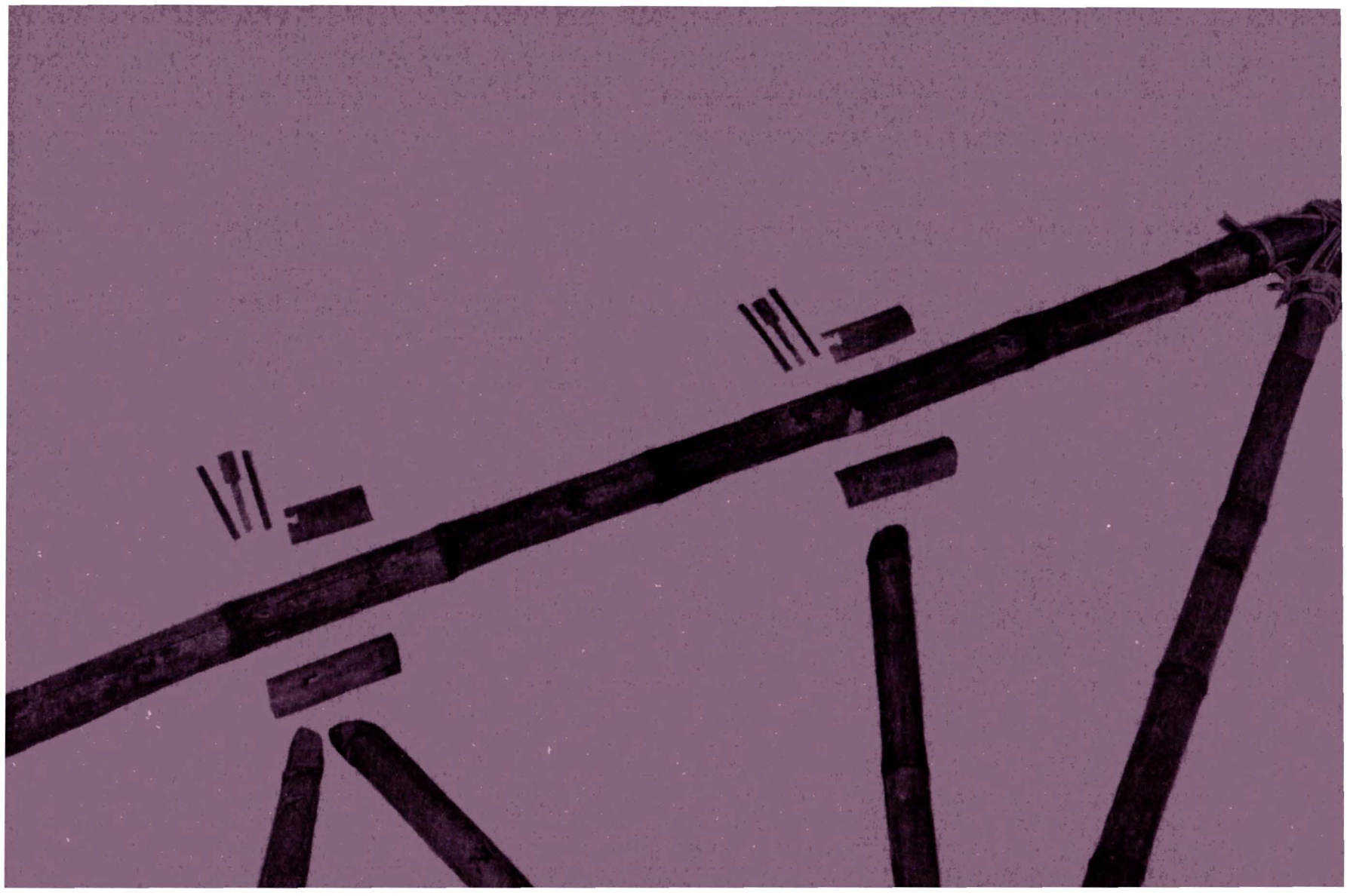
down left, a rope fastenes the connection.

down right, 2 other culms put in their place



down left, 2 other culms put in their place

up right, exploded view



up left, exploded view

up right, the pins and intermediate layers
put in their place

up left, the pins and intermediate layers
put in their place

right, all the connections are made.

left, all the connections are made.

right, with lashings, the total construction
is fastened.

left, with lashings, the total construction
is fastened.