

McConnell GeoServices



Allan McConnell

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Geotechnical Services

allan@mcgeo.com.au

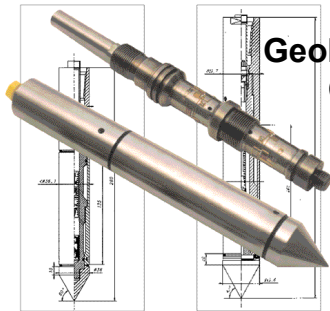
McConnell GeoServices



Geotechnical Support Services

Consulting Support
In Situ Testing Systems

Phone: 0417-748-669
Fax: 07-3358-4366
allan@mcgeo.com.au



GeoMil's CPT Systems
CPT rods & casings
in stock

new cordless CPT
arriving soon

www.geomil.com



Marchetti's Dilatometer
Complete systems and
spares held in stock

www.marchetti-dmt.it

Allan McConnell

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Fax: 07-3358-4366

allan@insitu.com.au

PO Box 876

New Farm Qld 4005

IGS

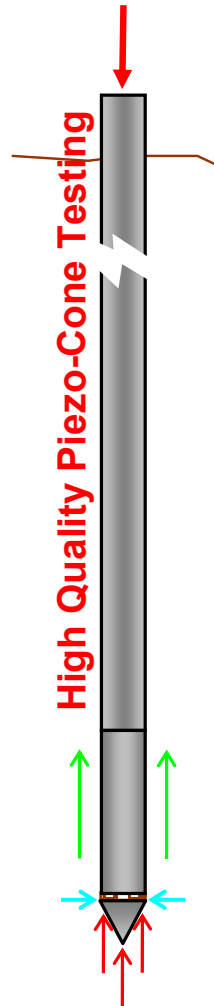


High quality
CPT and
Dilatometer
Testing

**Insitu
Geotech
Services**

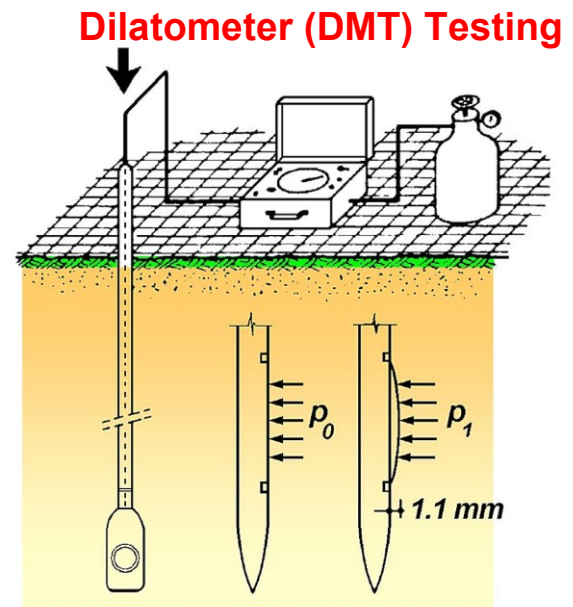


- we can access sites you never thought possible
- we can test ground you never thought possible
- based in Brisbane, available to work anywhere



IGS

Insitu Geotech Services



1969-1979 **Ground Test, Brisbane,
State Manager and Director**

1979-1985 **McConnell & Associates,
Principal**

1985-1997 **Golder Associates,
Director, Australia and Asia-Pacific**

1997-2005 **McConnell Consulting, ,
Principal**

Present **McConnell GeoServices, Principal
IGS, Director**

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State Manager and Director**

1979-1985

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Principal**

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Director, Australia and Asia-Pacific**

1997-2005

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Principal**

Present

**McConnell GeoServices, Principal
IGS, Director**

an experienced

geotechnical engineer

an experienced

geotechnical engineer



with a passion



for in situ testing

In Situ Testing



What's Available?



What's It Good For?



What is Available (to all)
via
Specialist Contractors

During My Presentation

- **Please ask questions**
- **Please make comments**



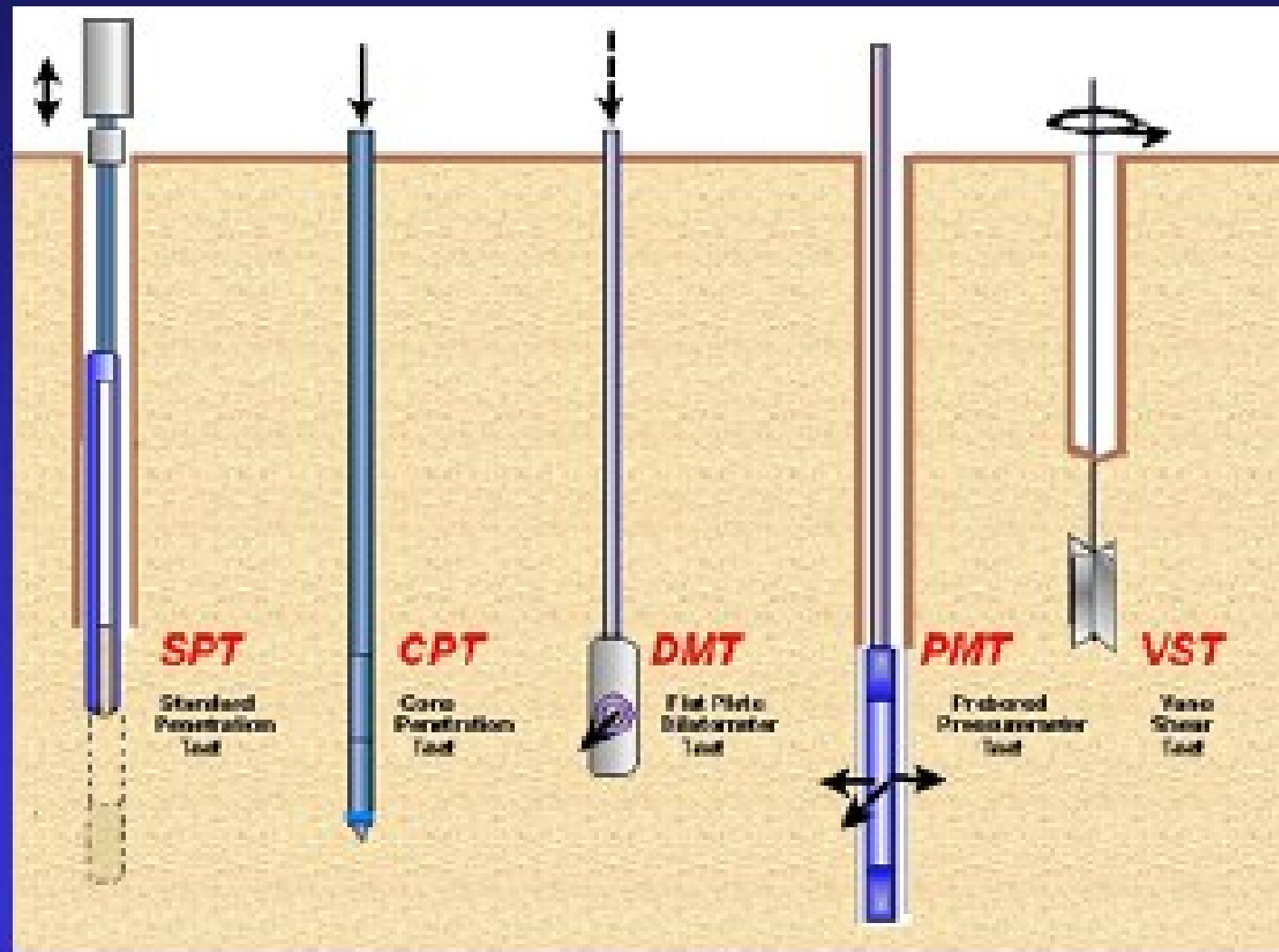
During My Presentation

- Please ask questions
- Please make comments
- Please interrupt me
- Please enjoy

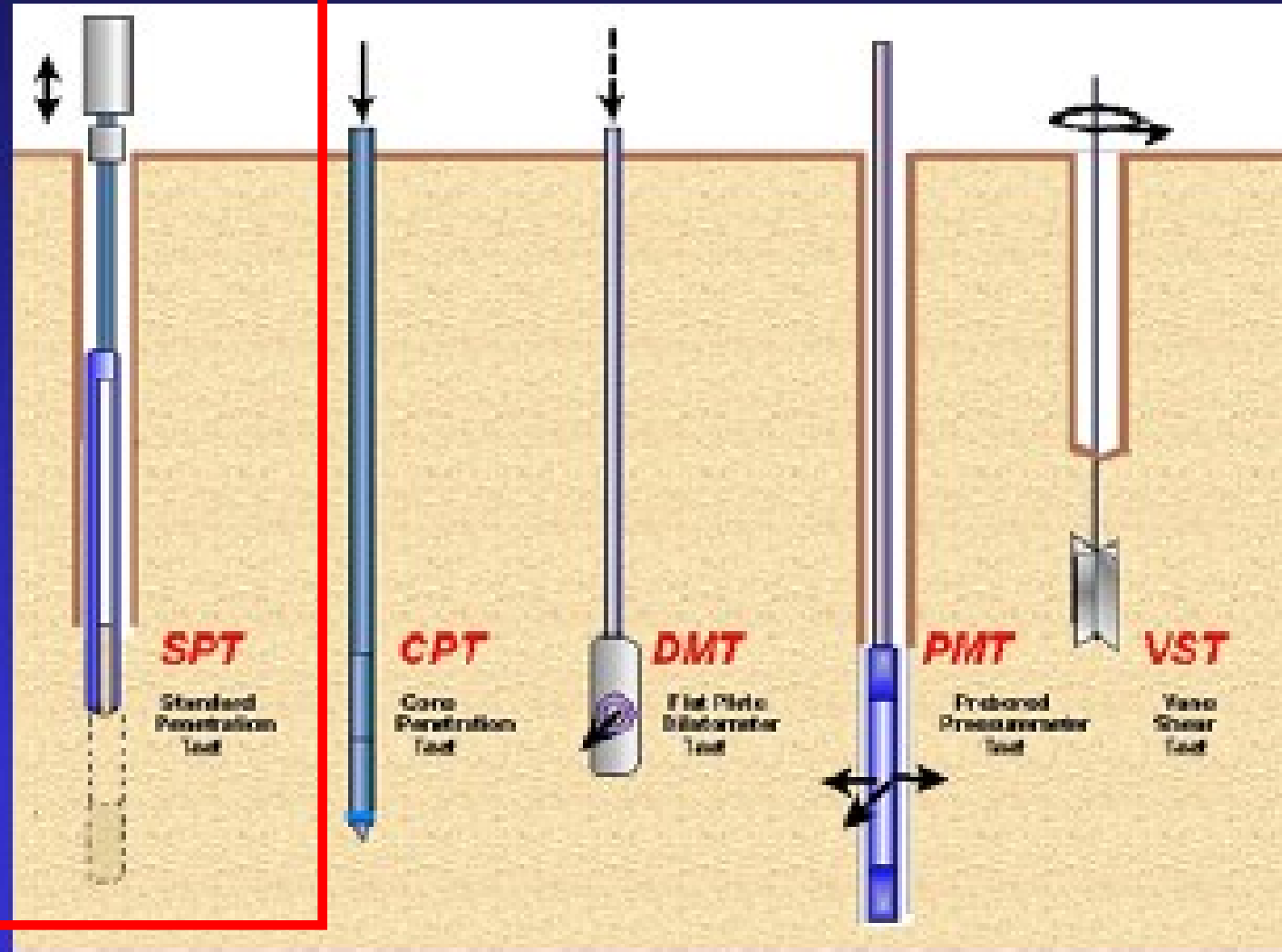


Valuable Prizes

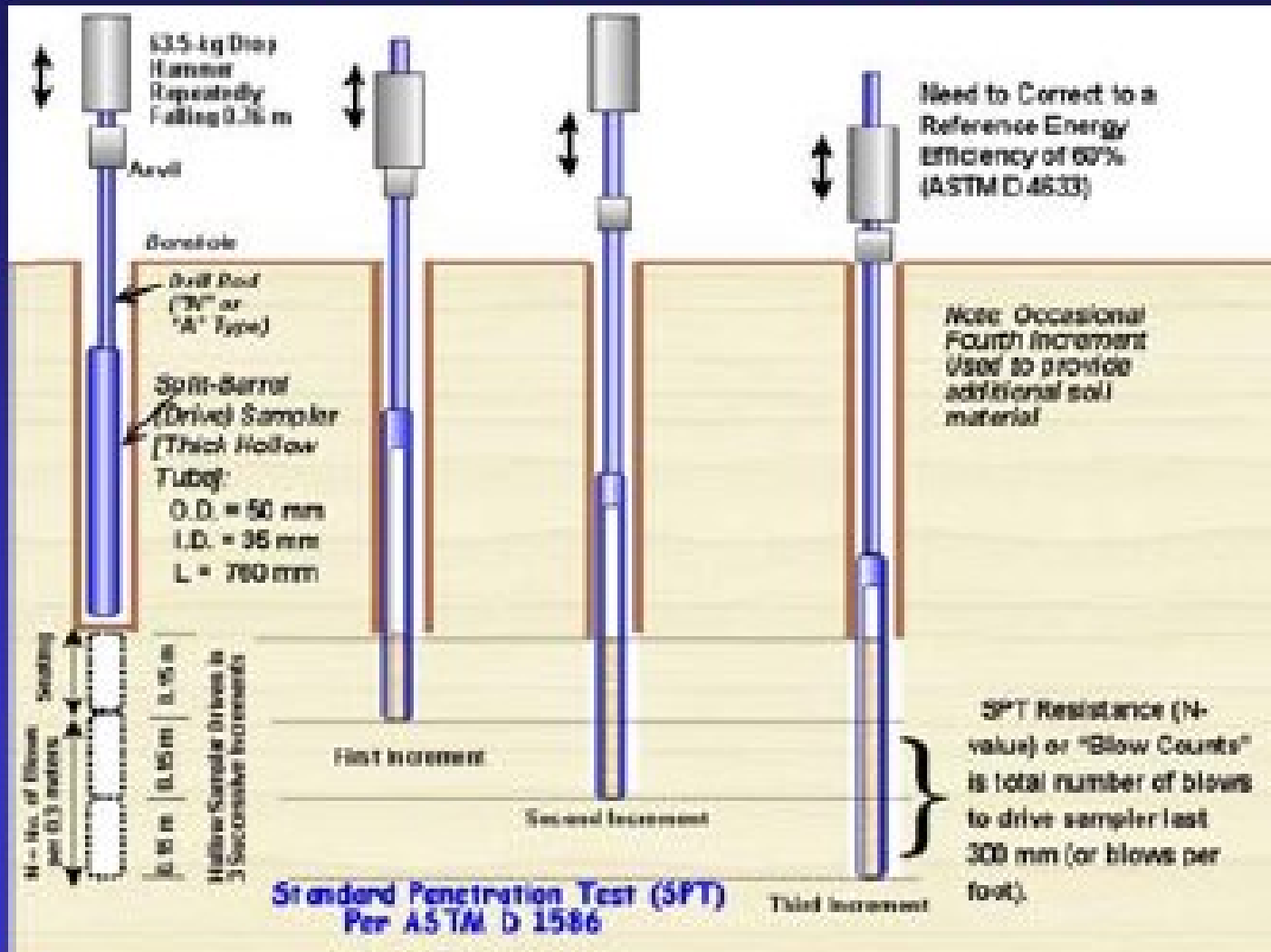
In-Situ Geotechnical Tests for Soils

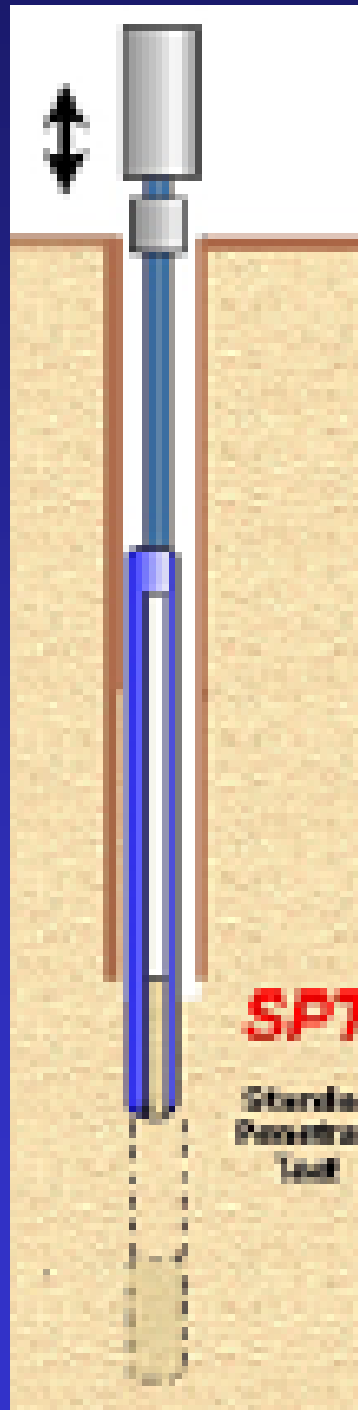


In-Situ Geotechnical Tests for Soils

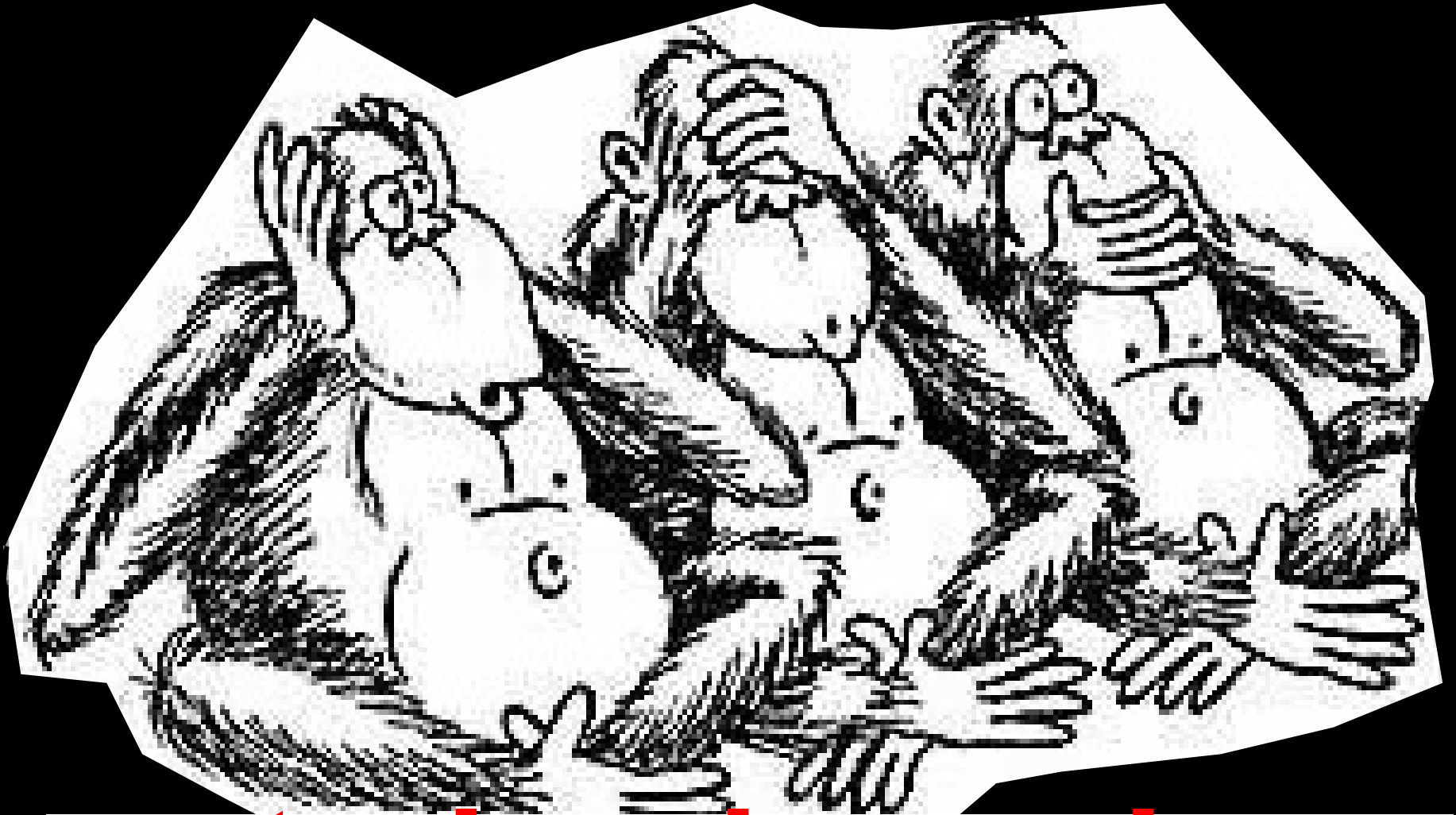


Standard Penetration Test (SPT)

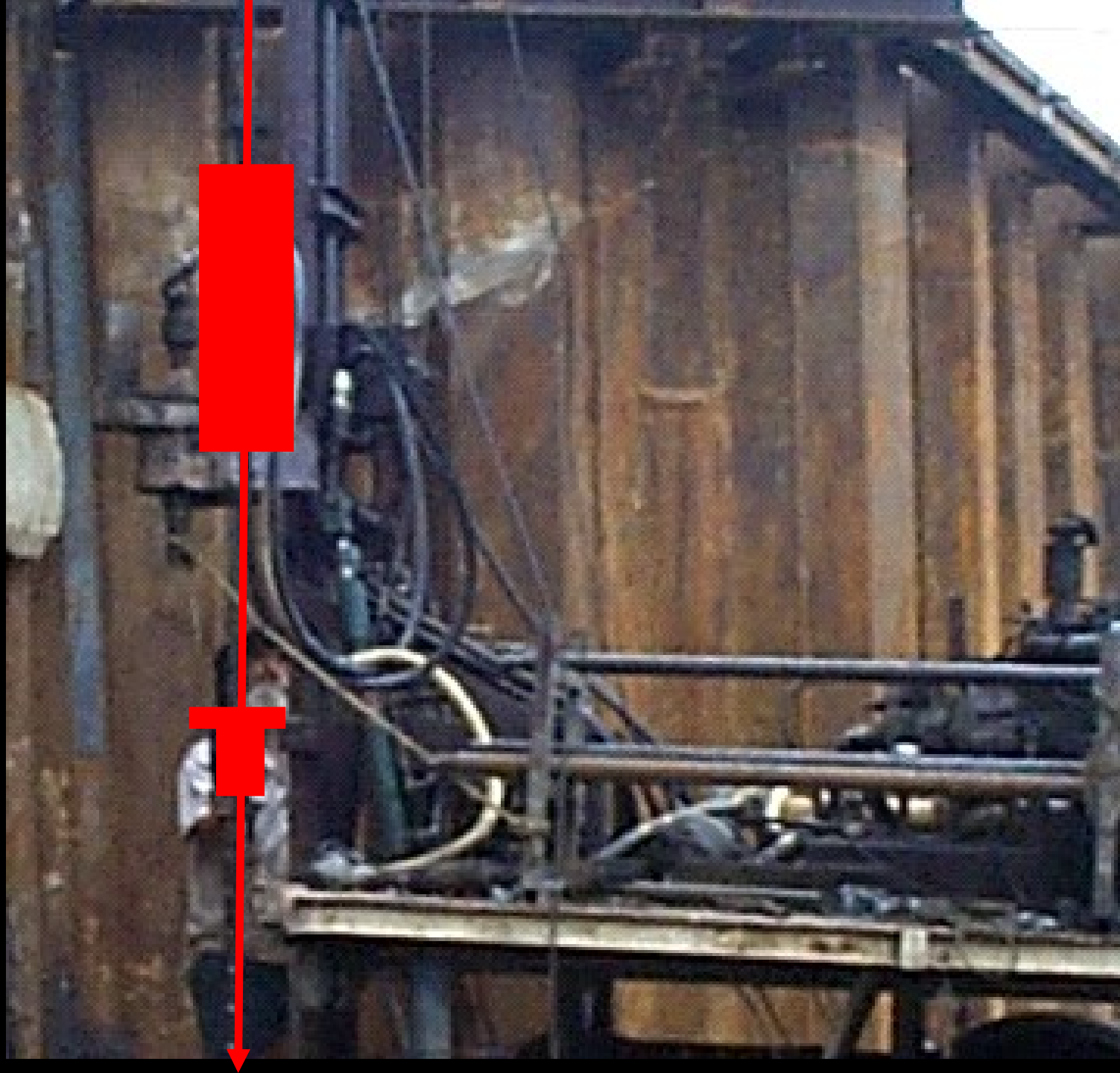


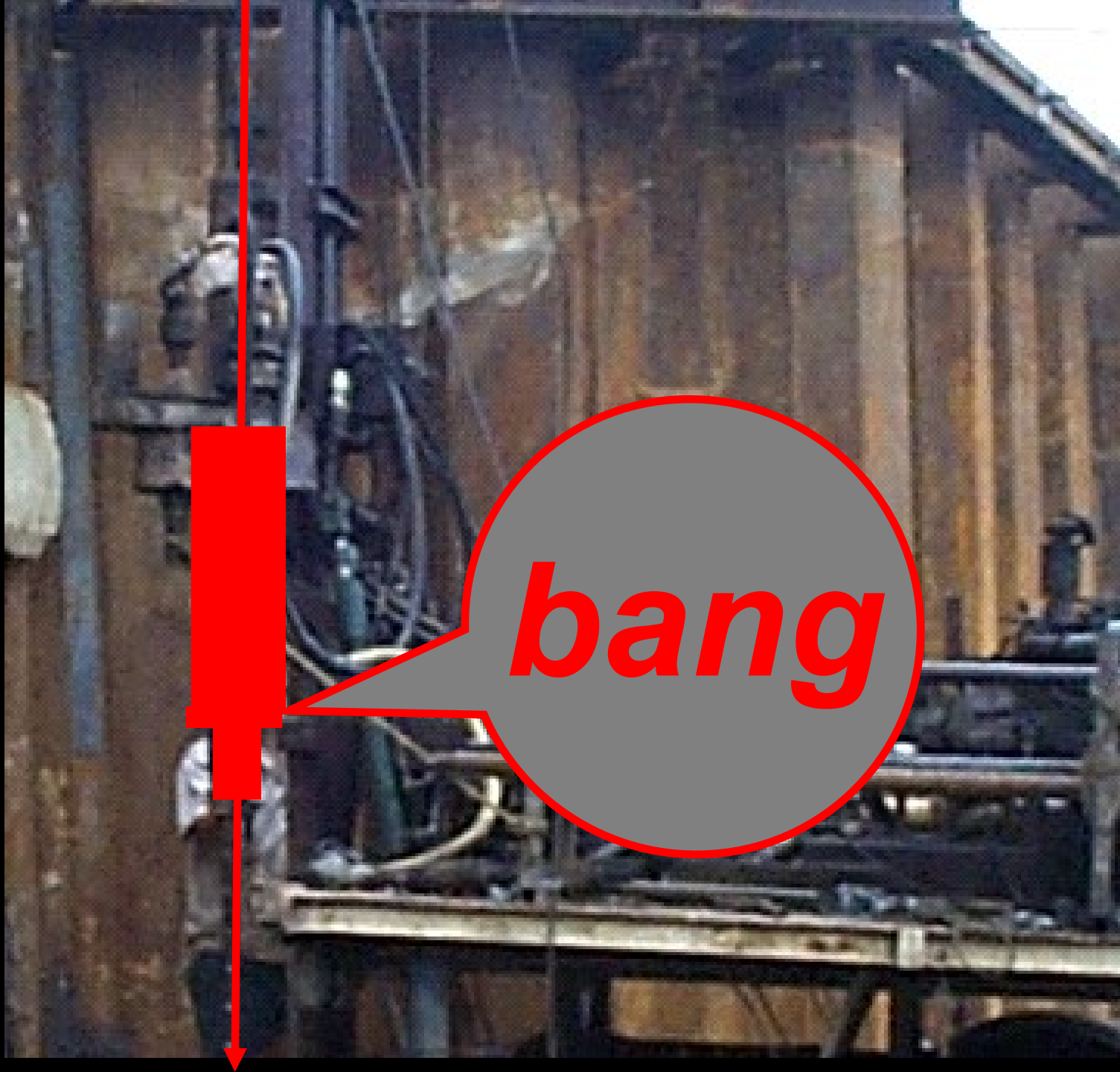


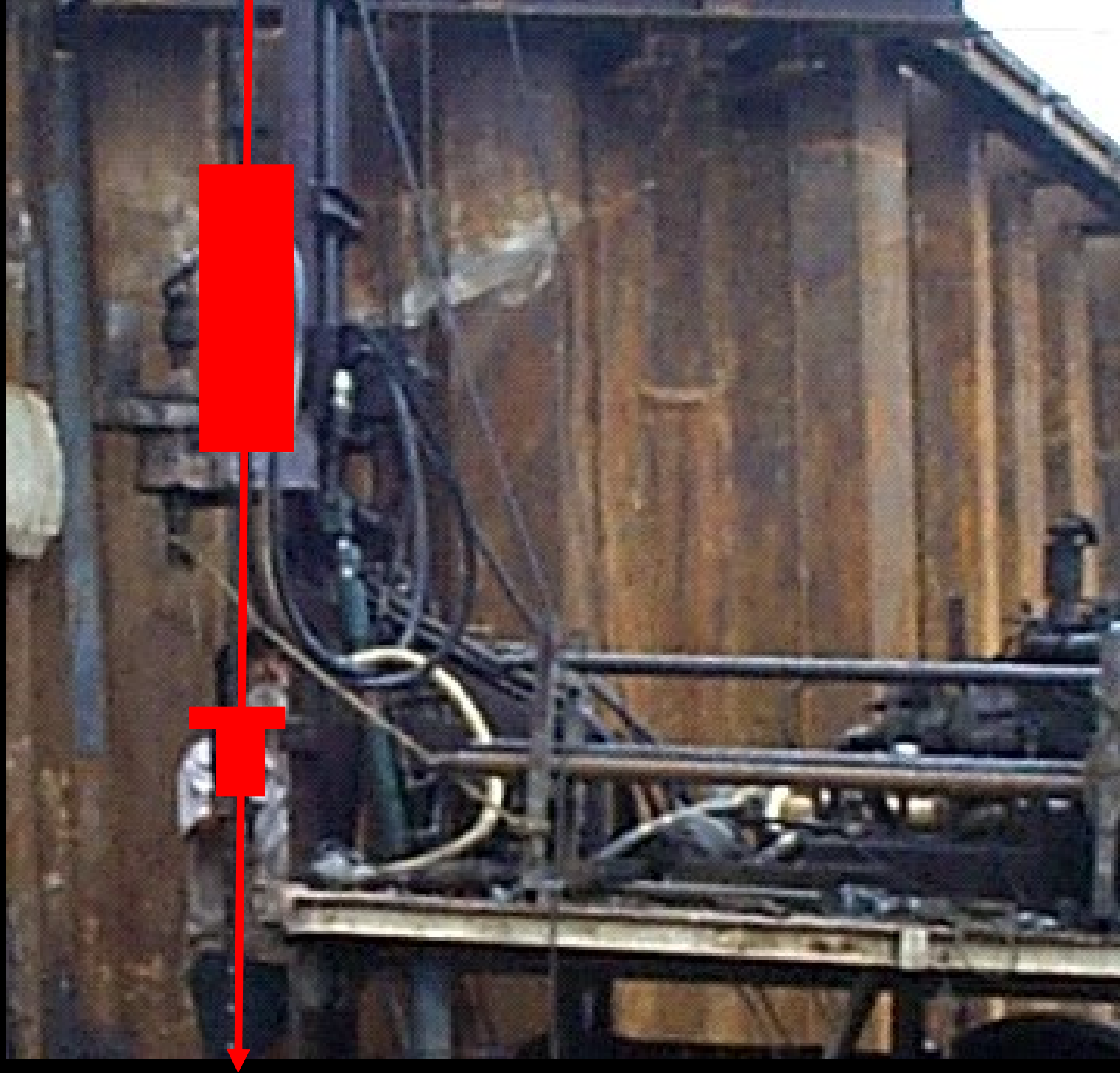


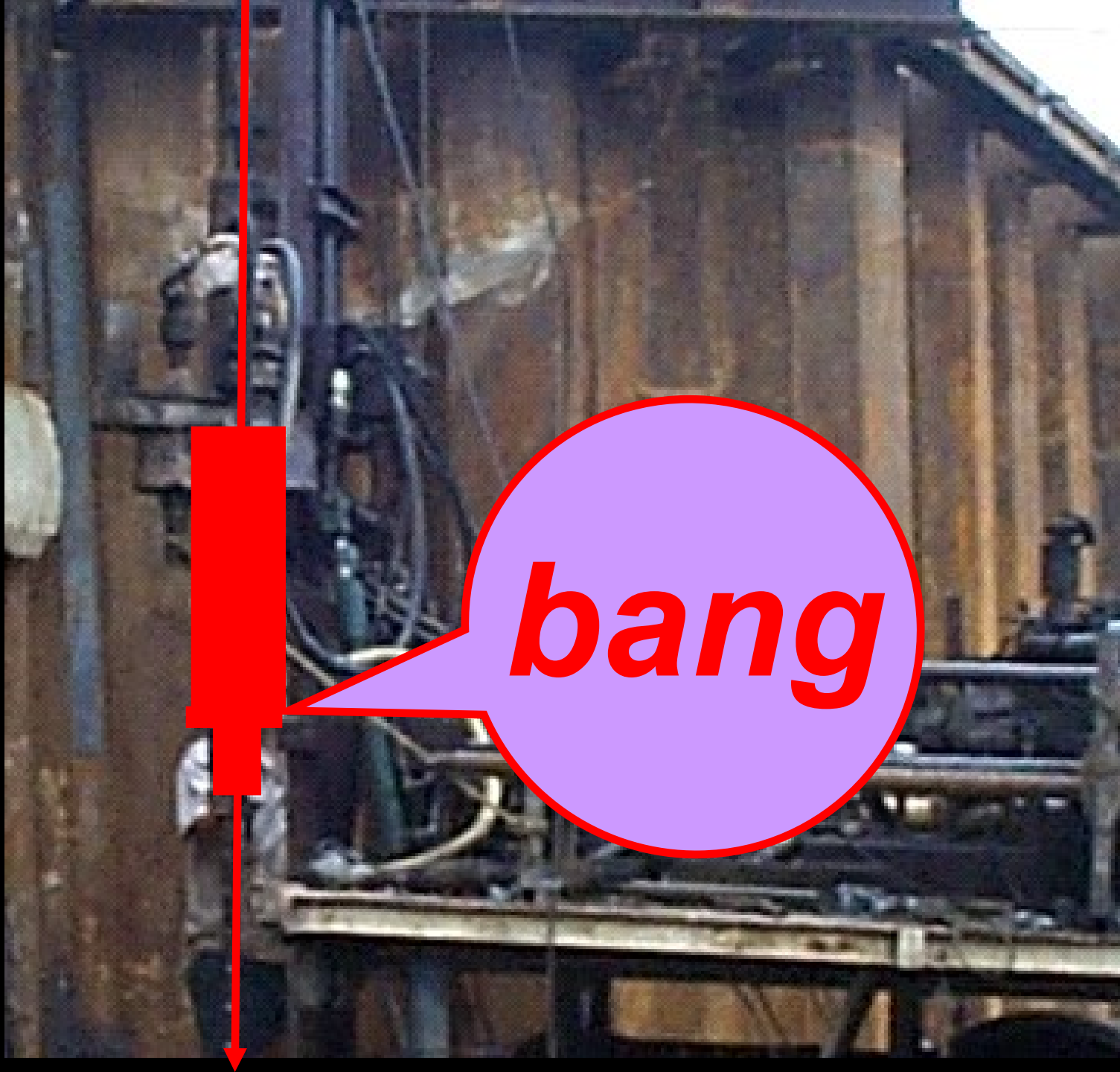


**a trained monkey
can do it**

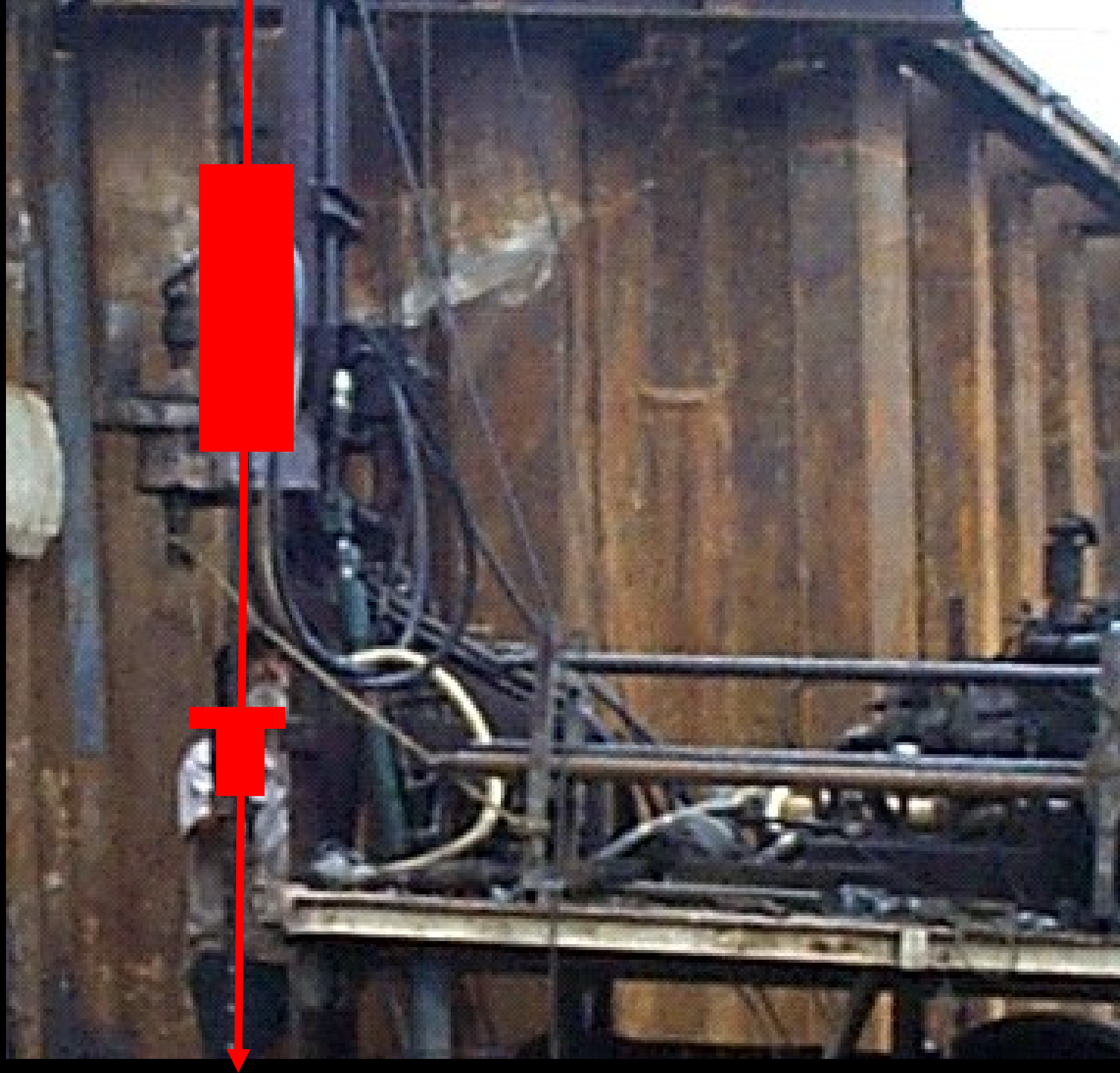


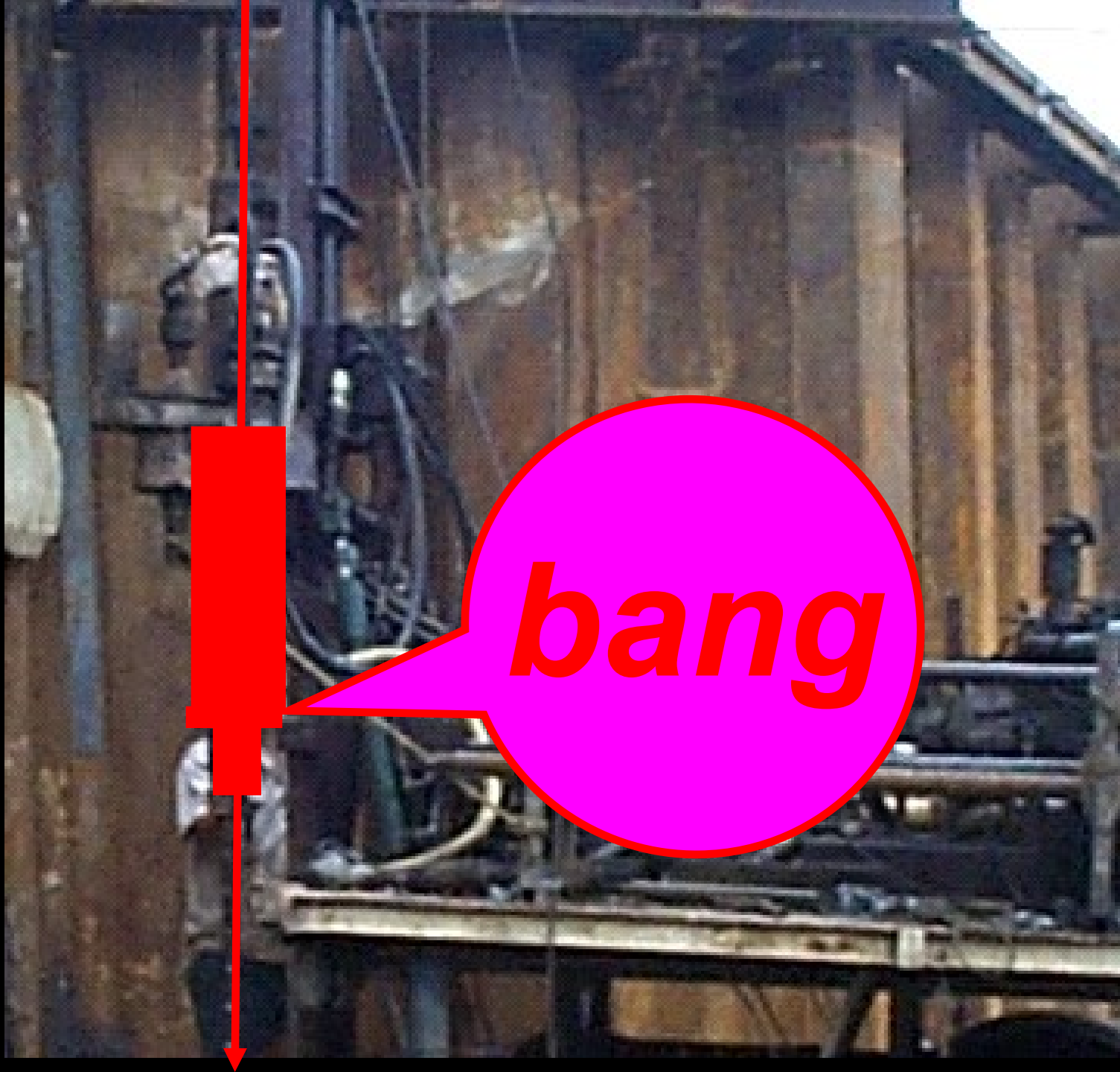




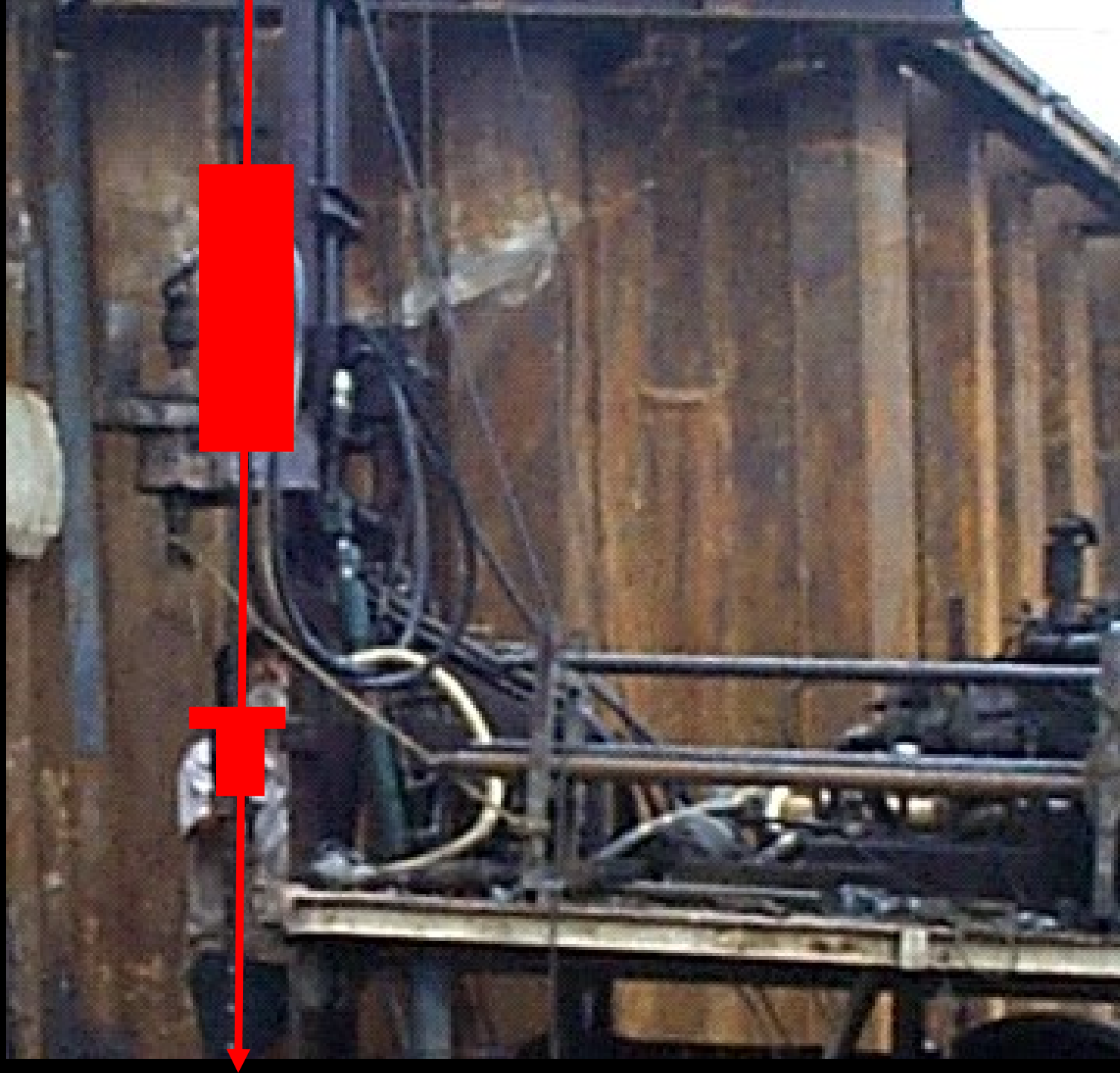


bang



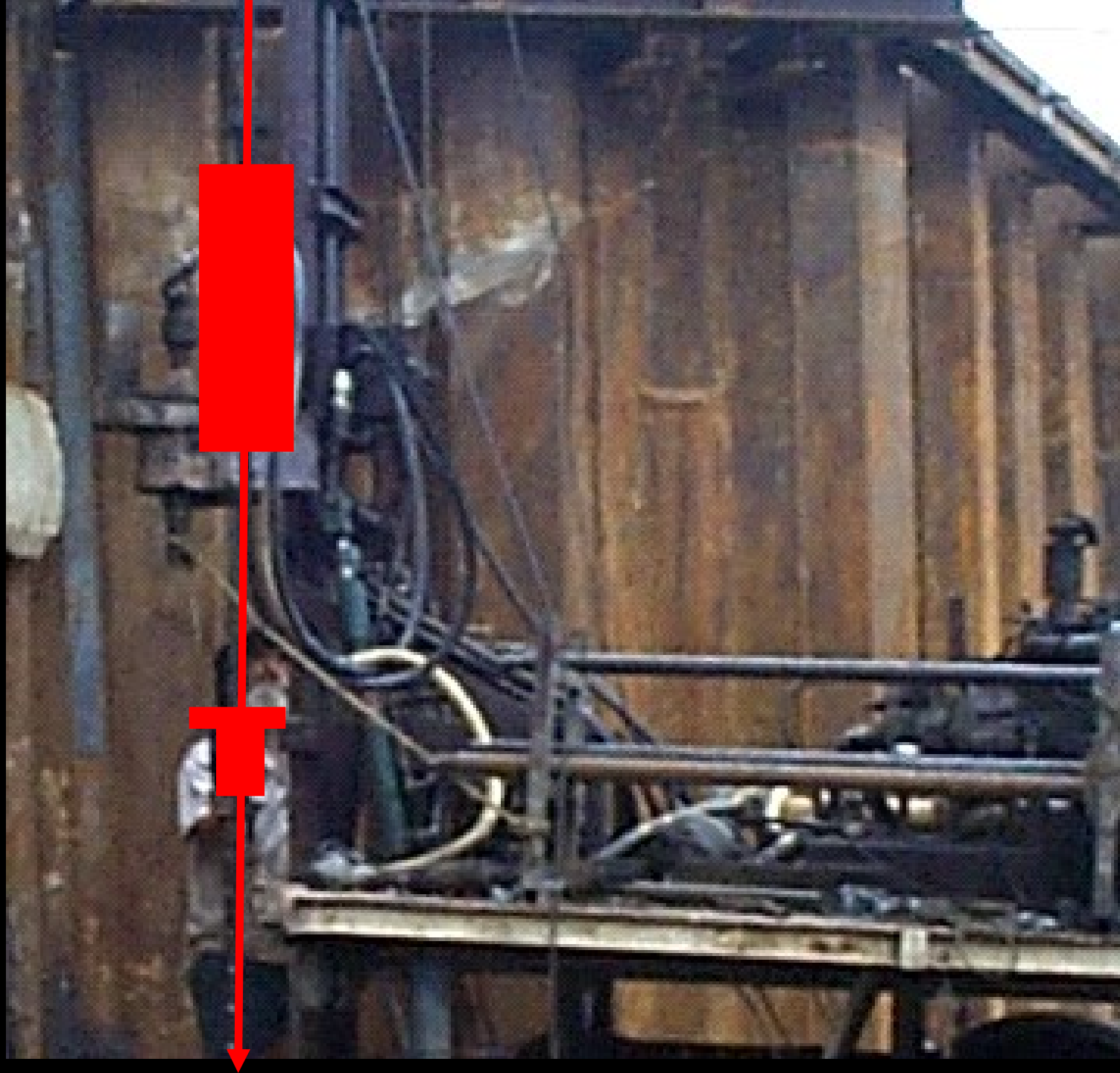


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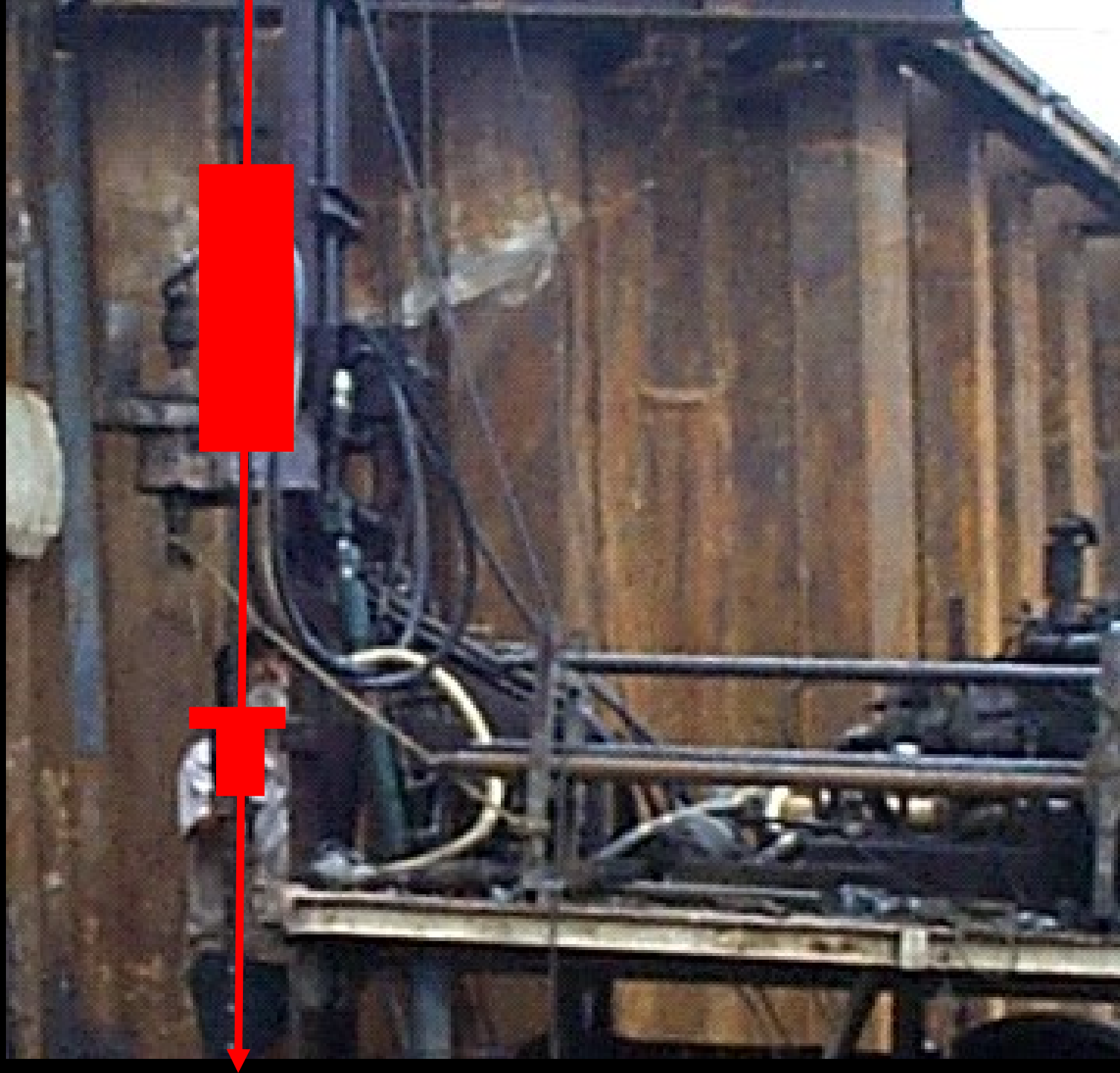


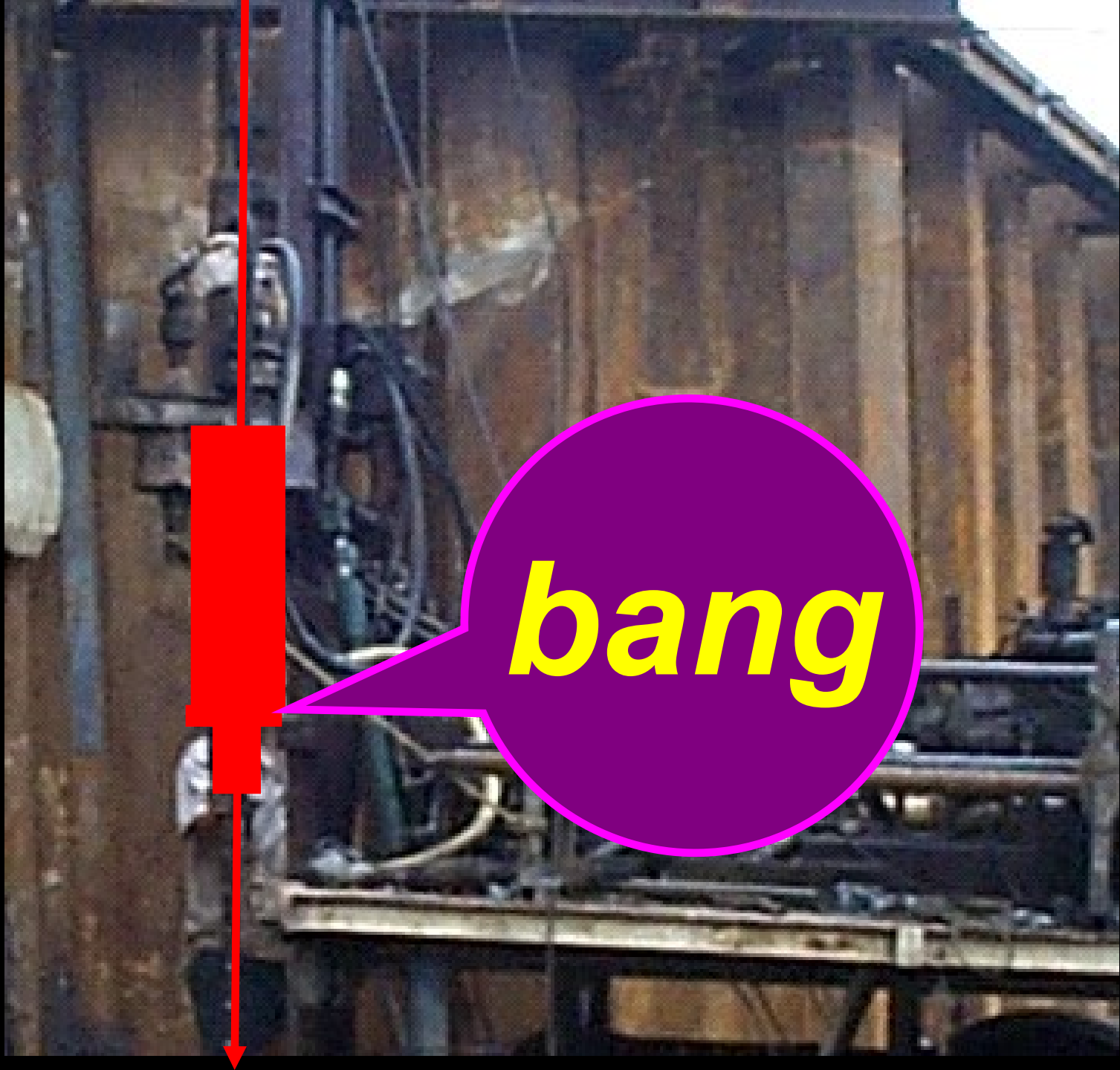
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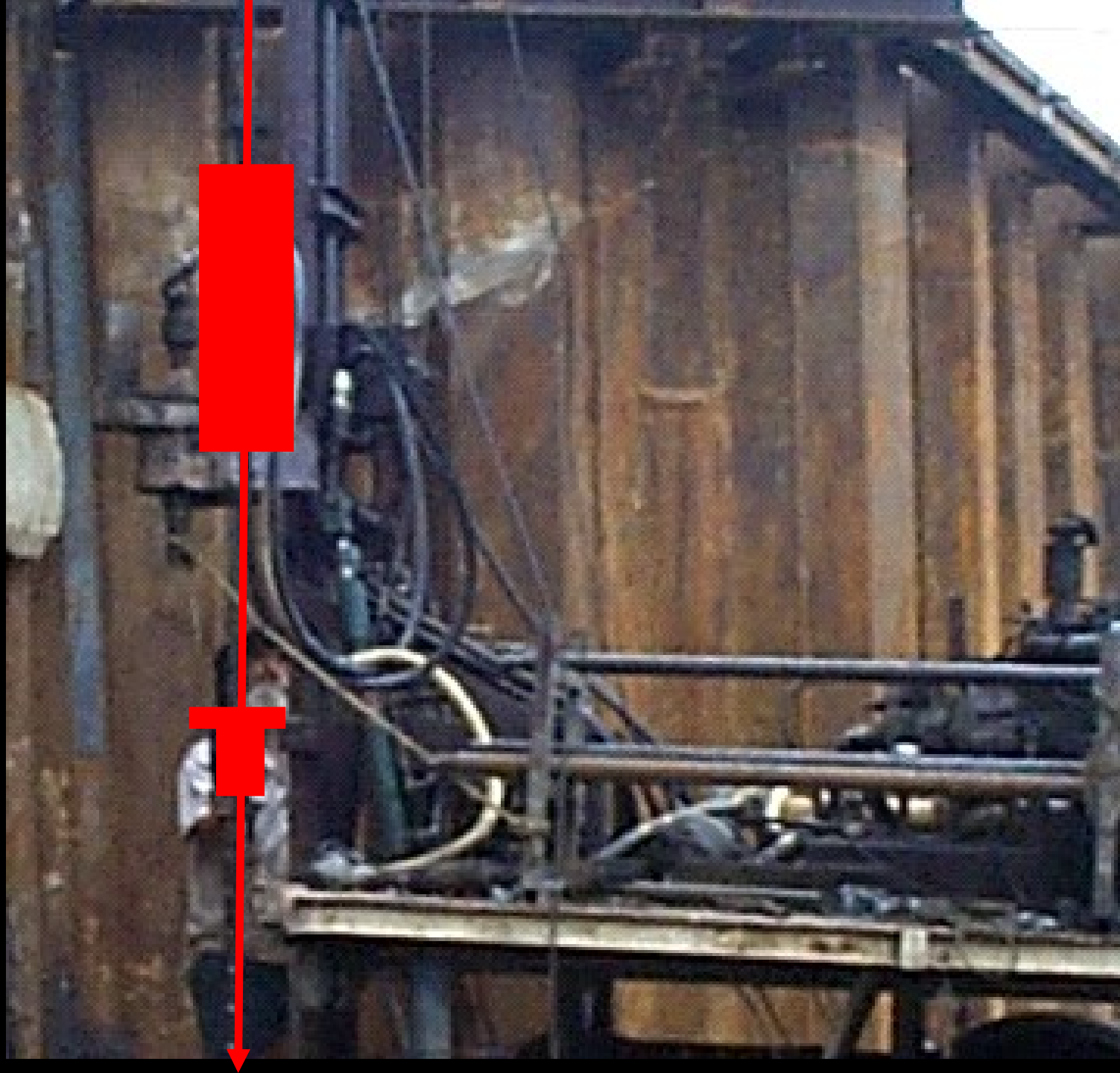


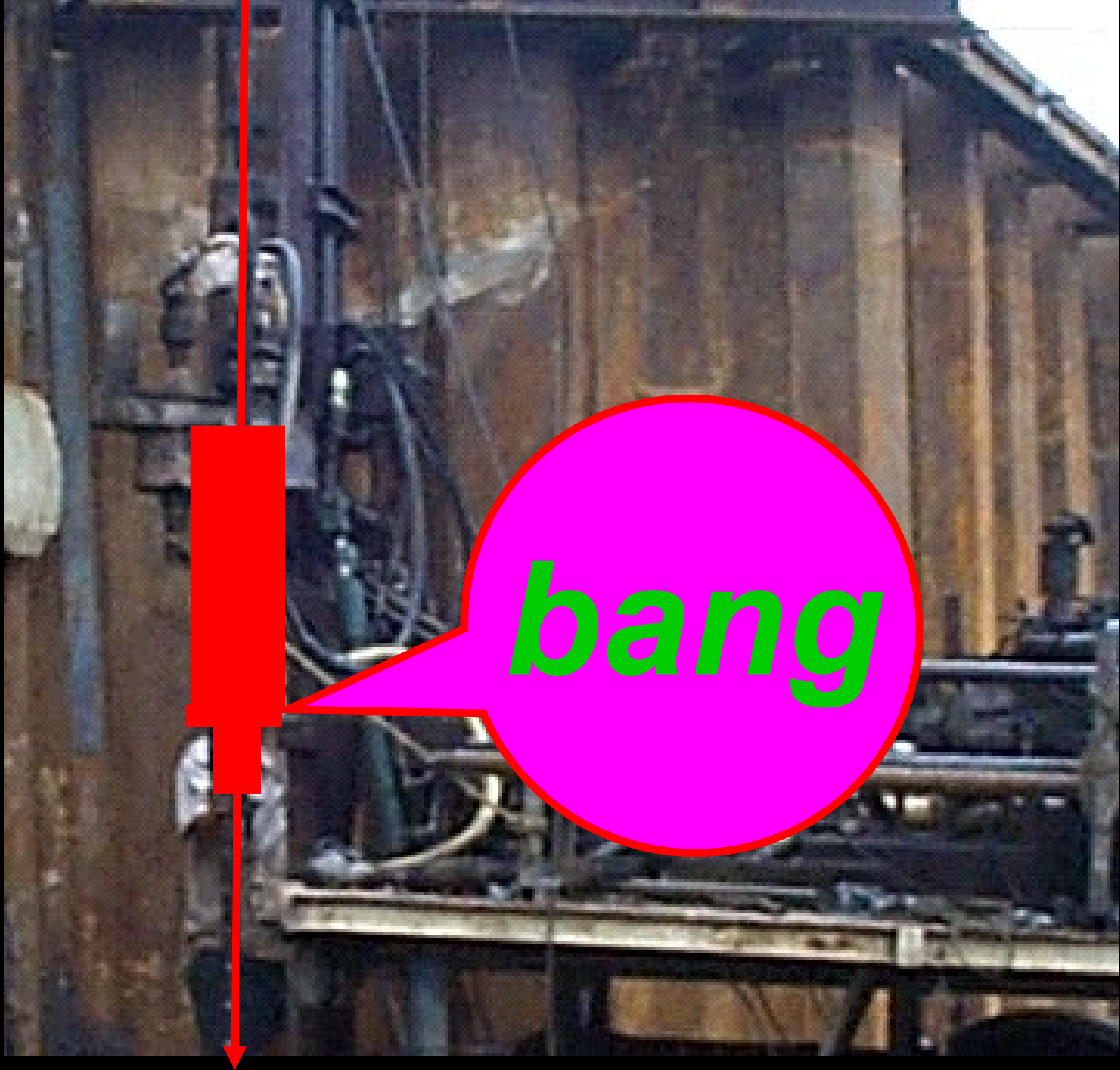
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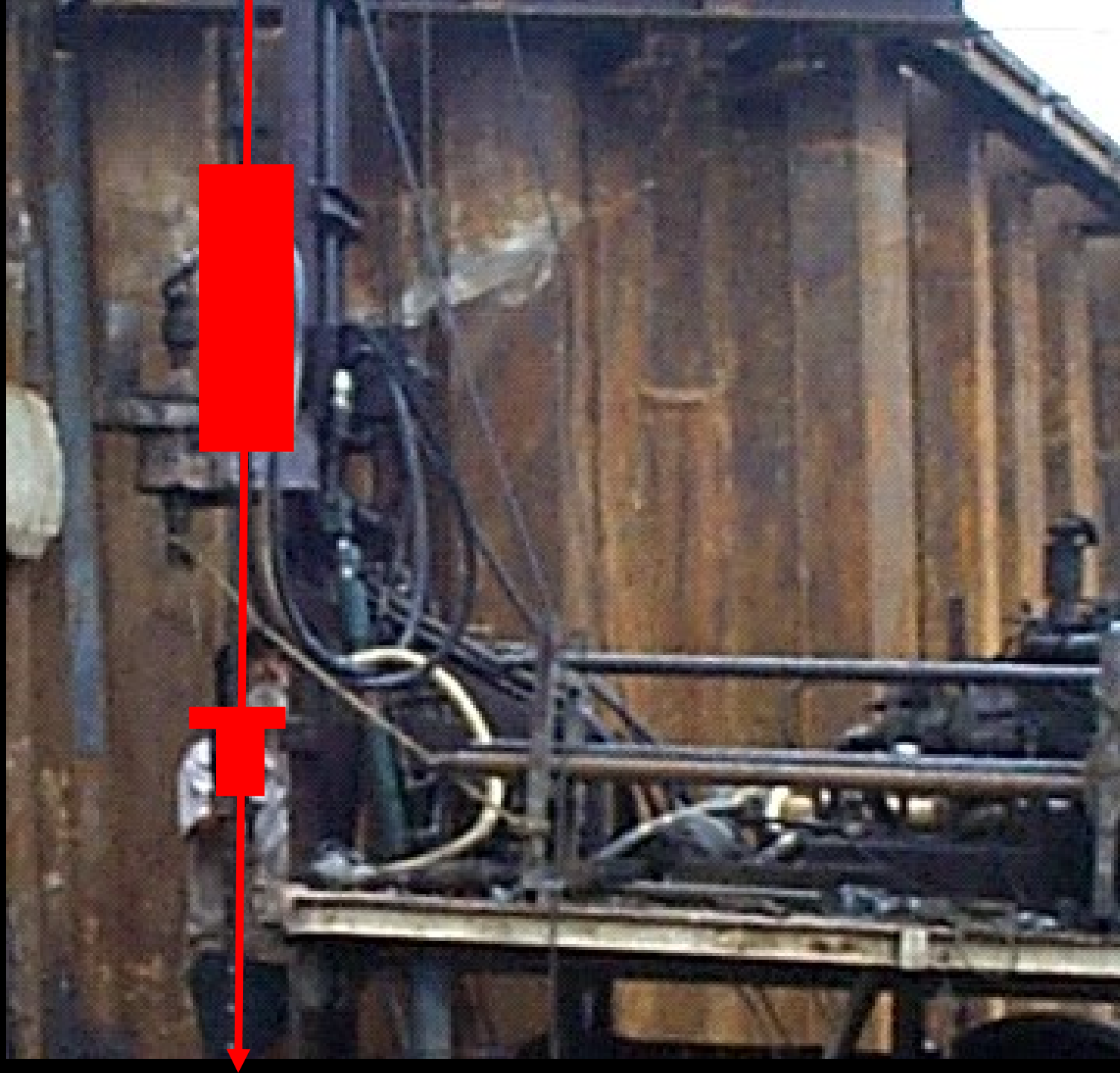


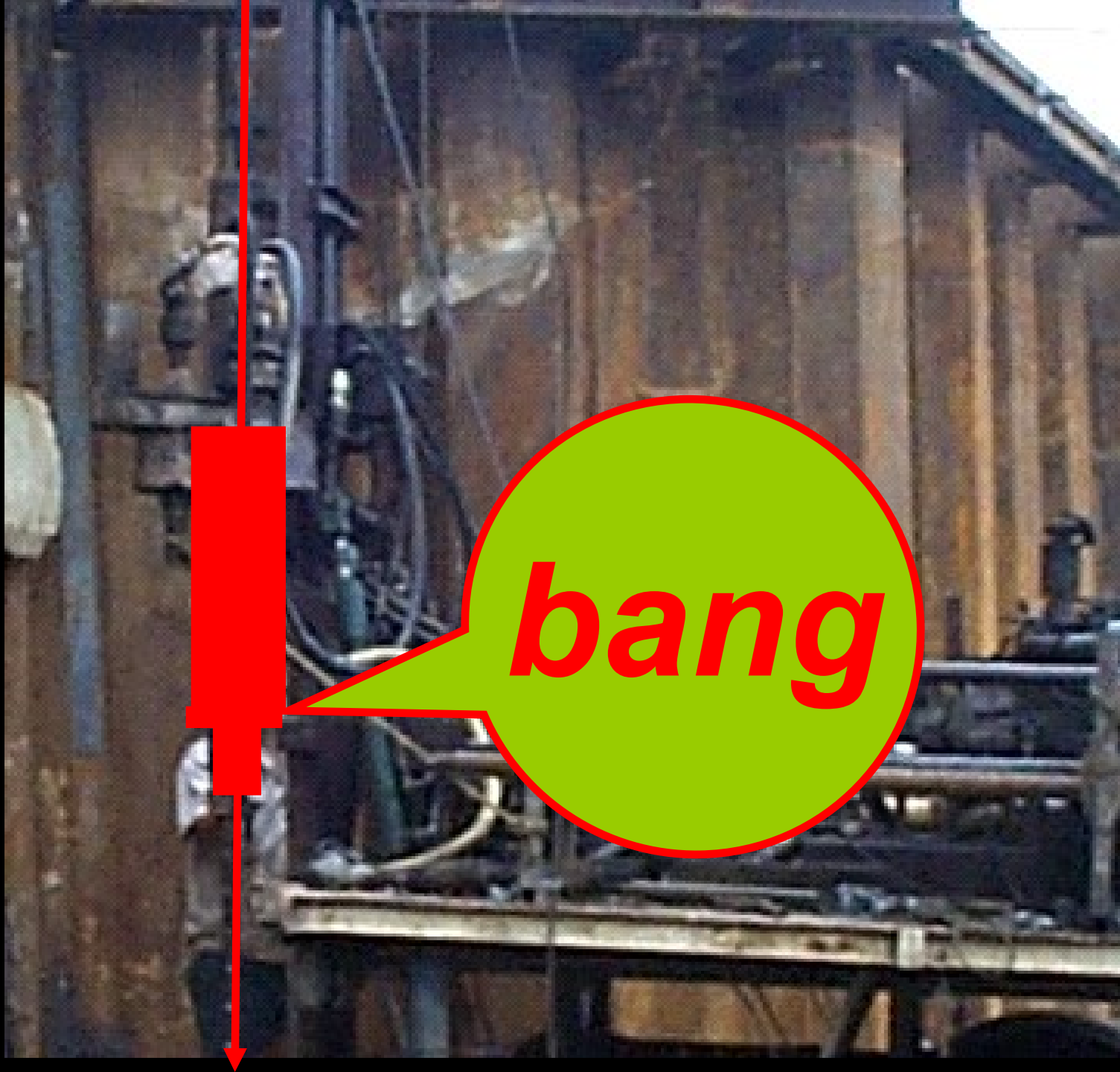
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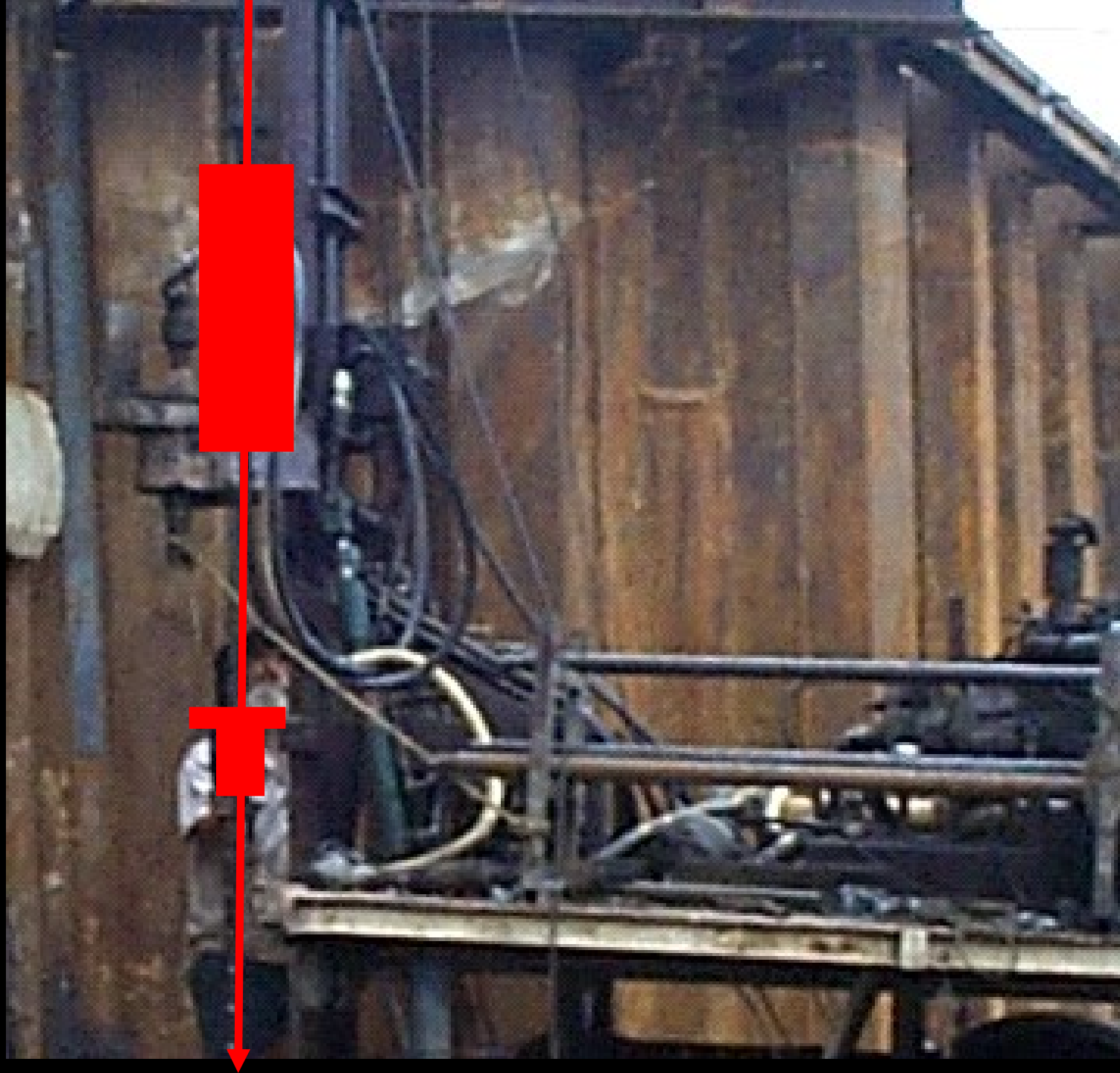


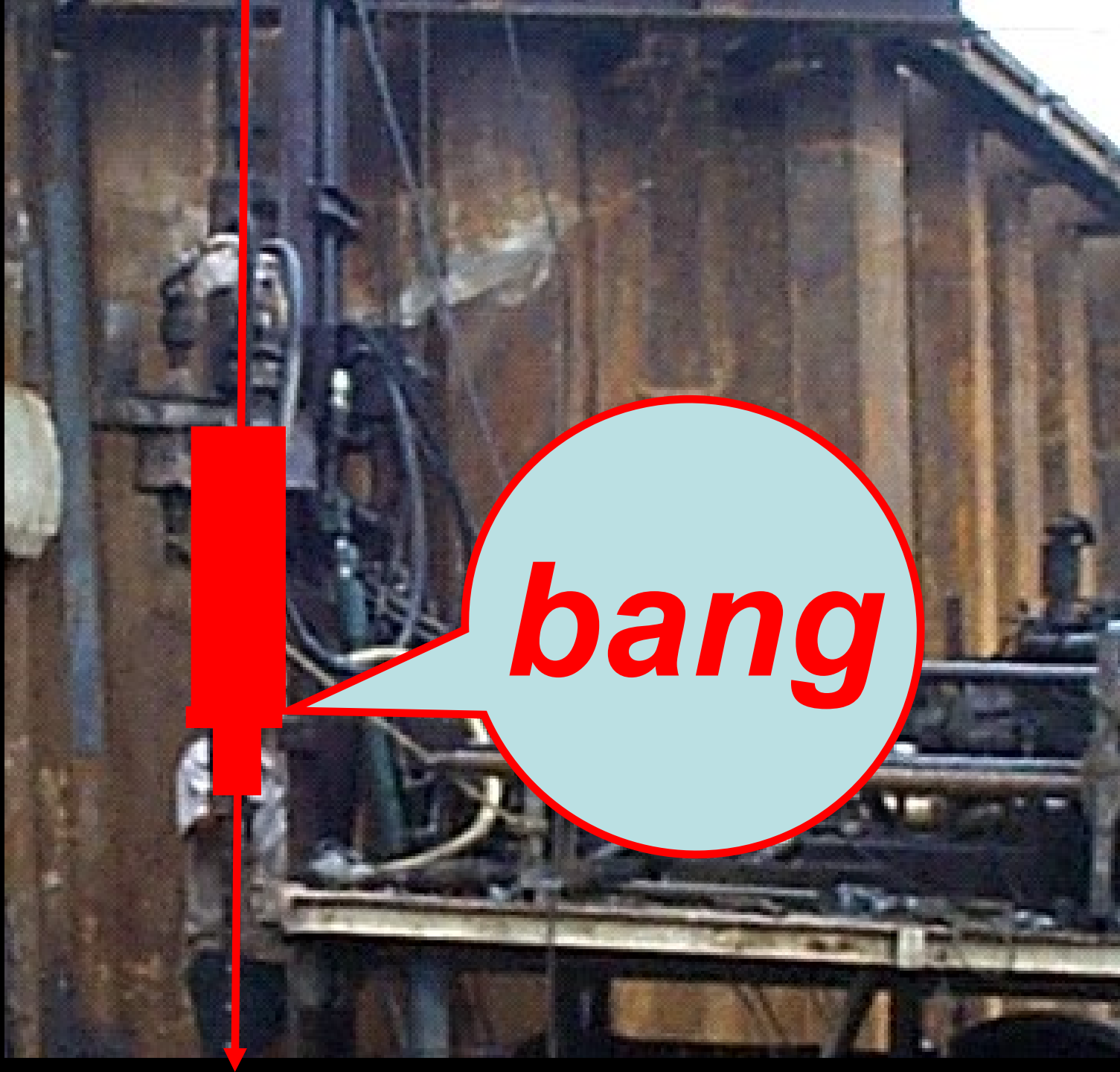
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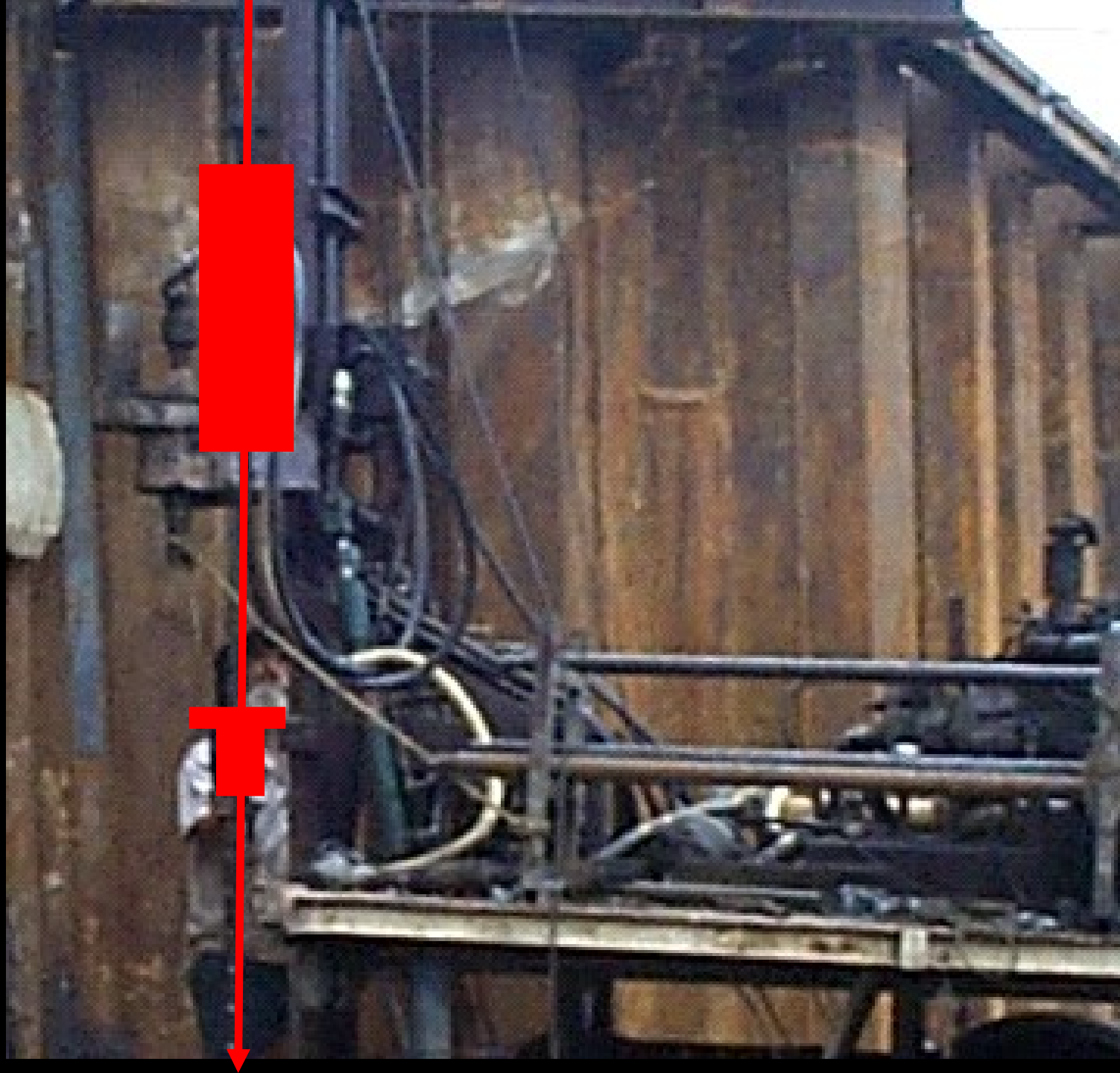


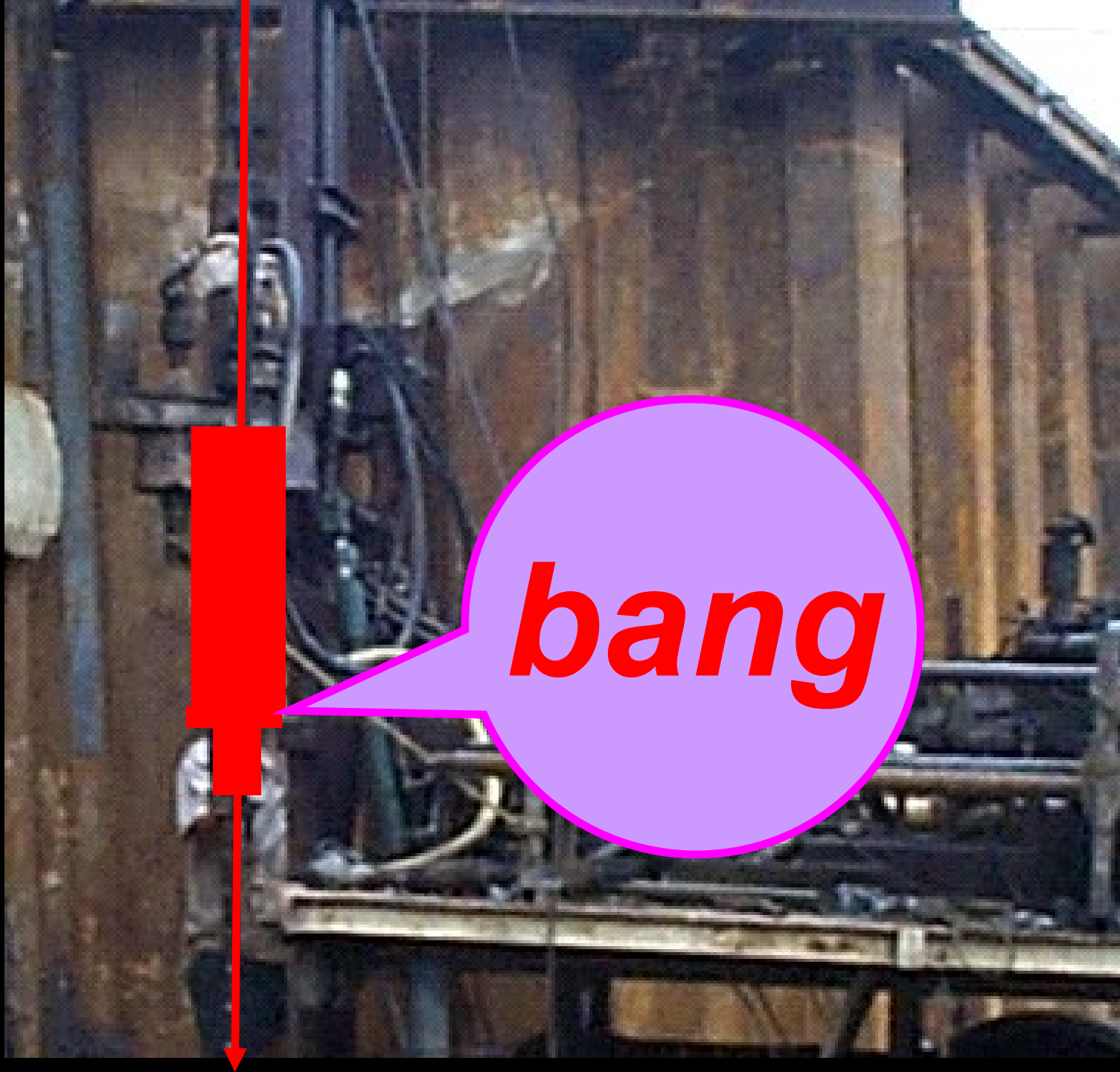


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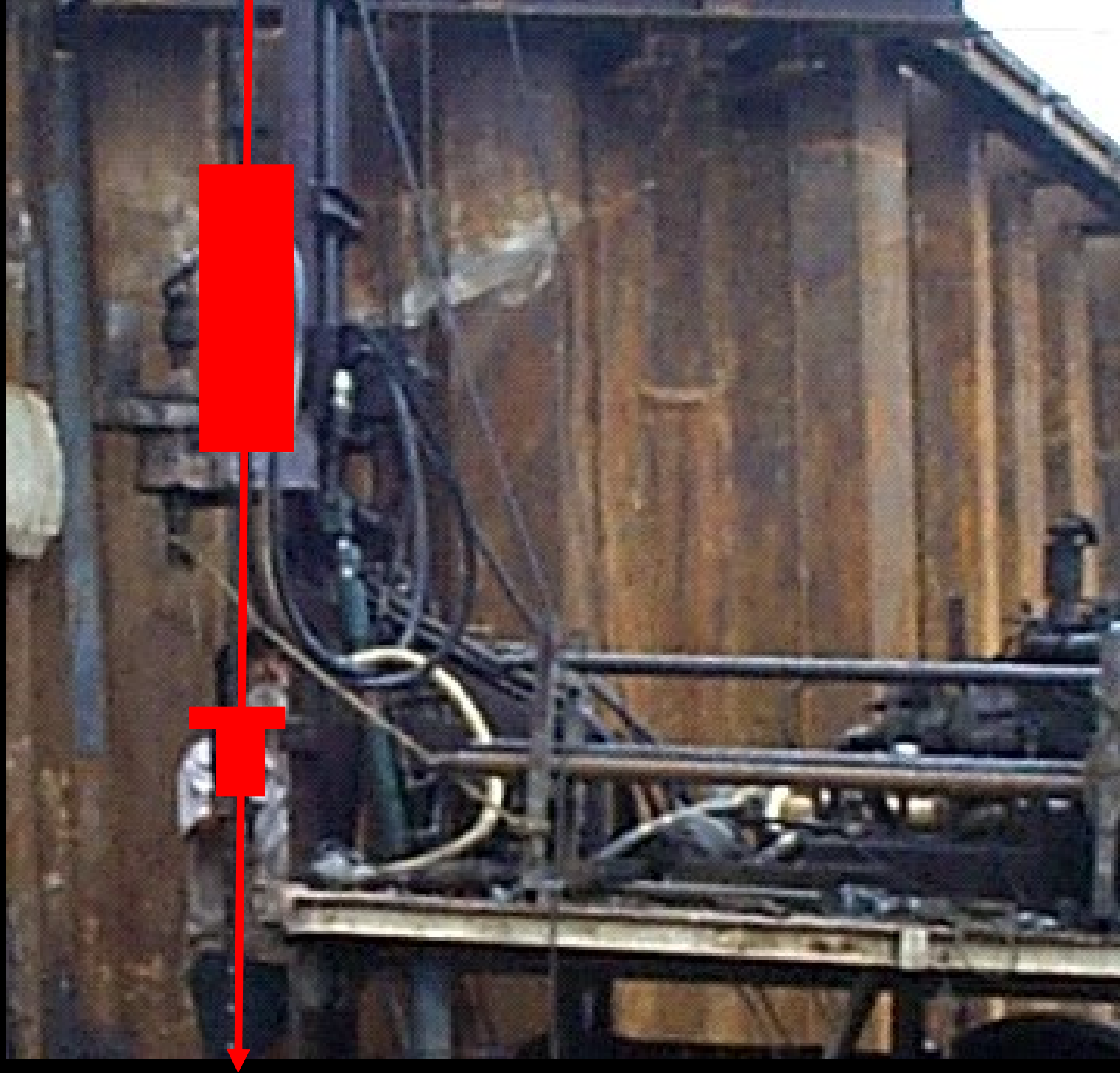


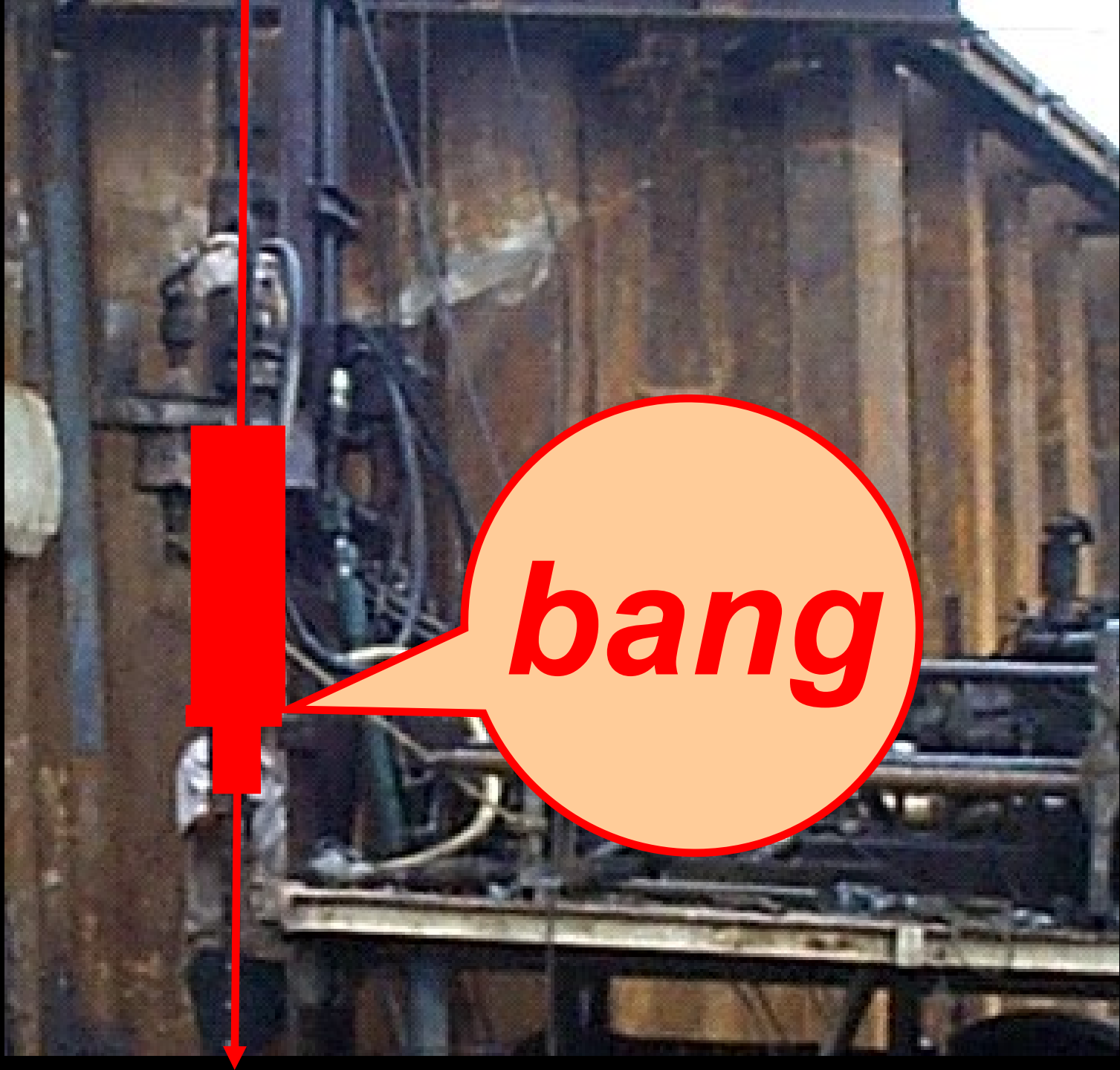




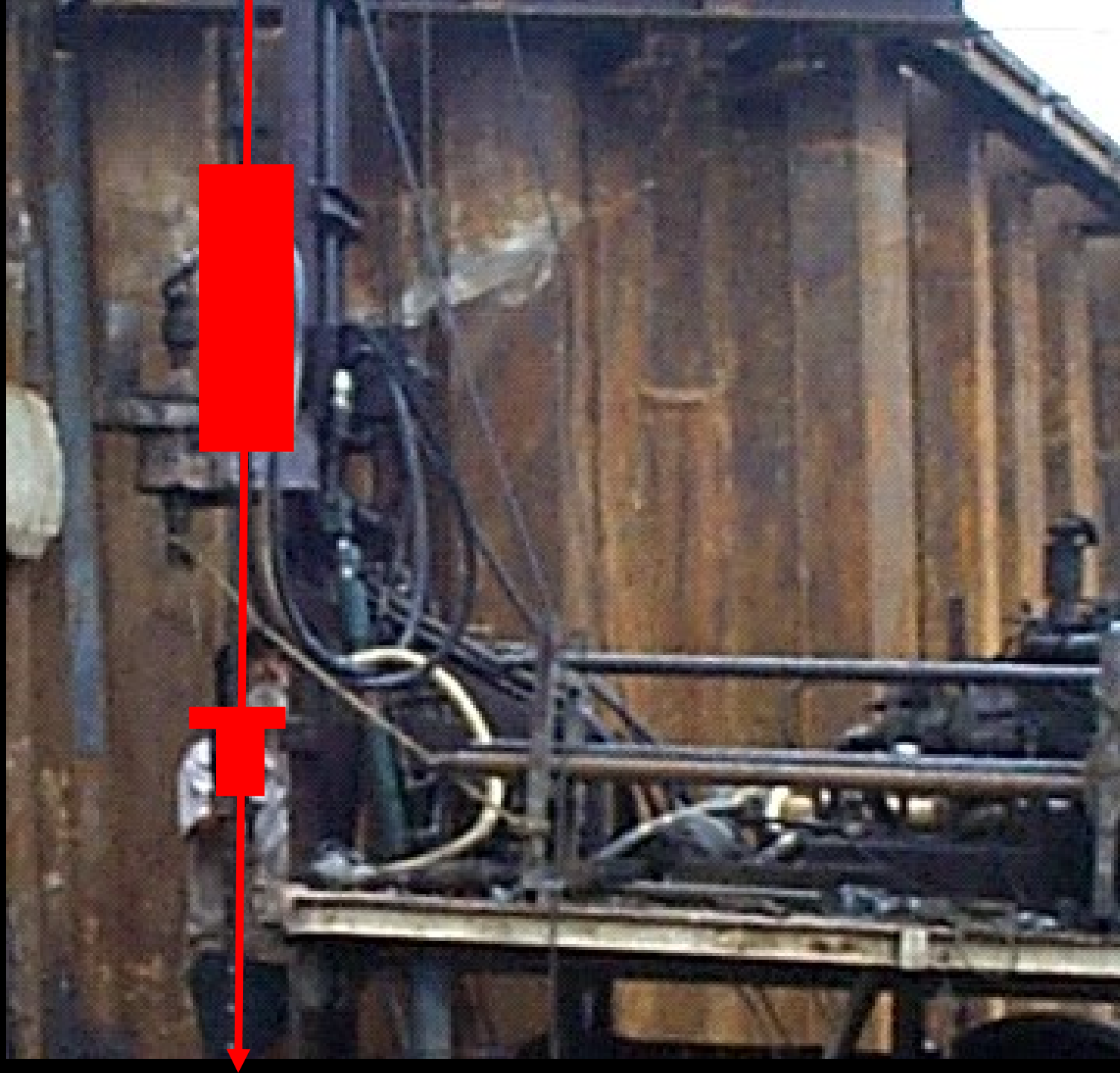


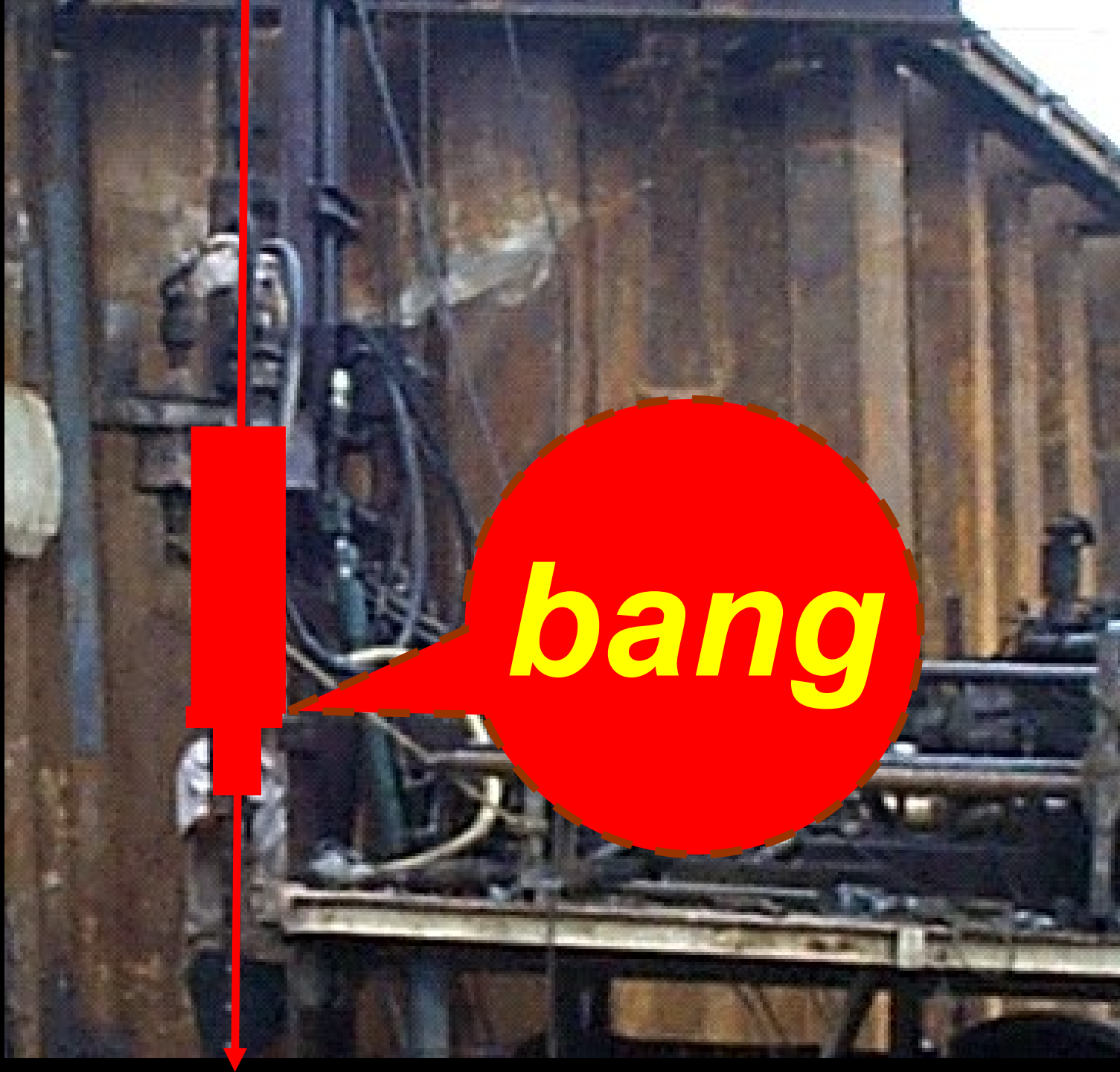
bang



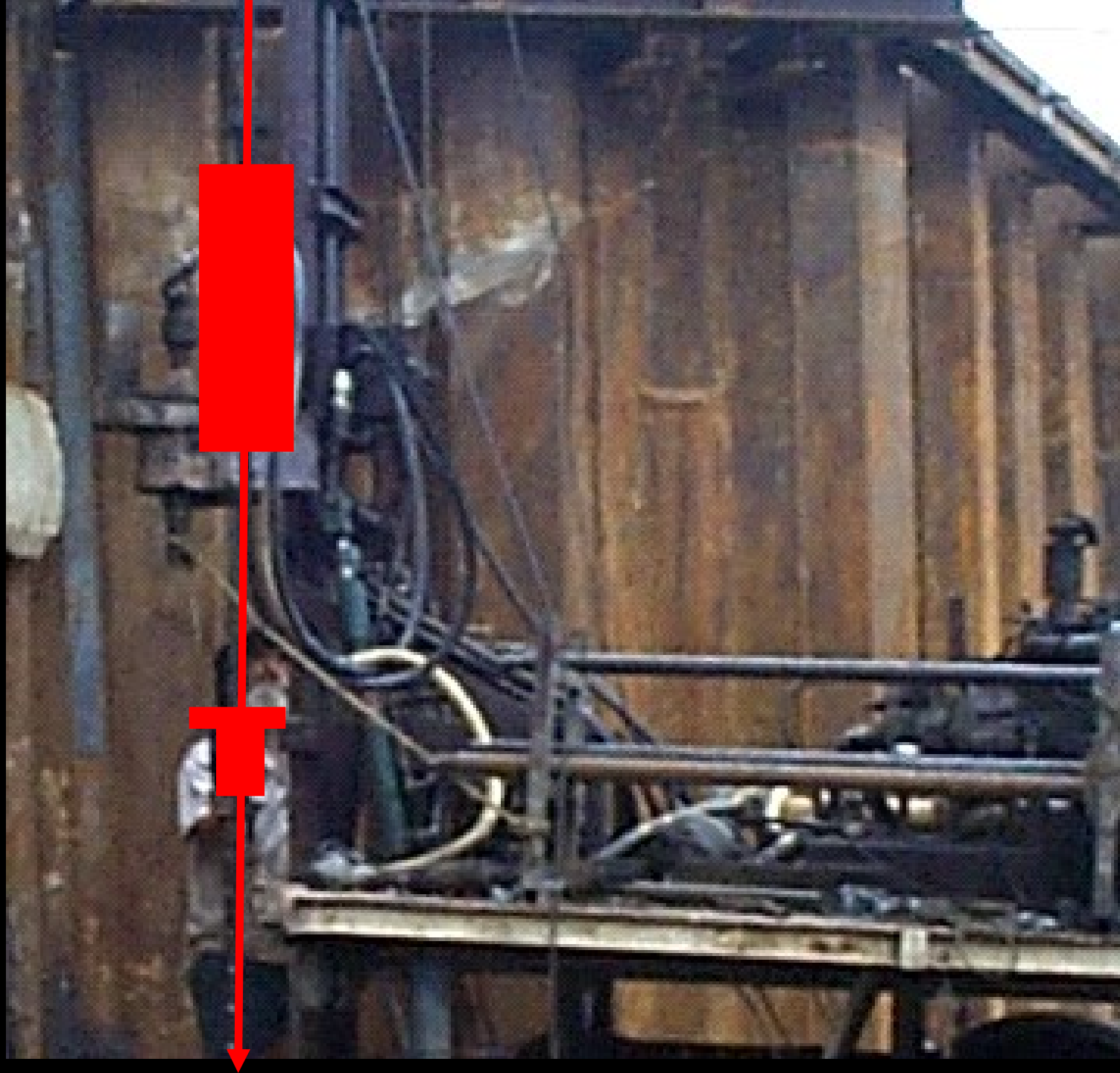


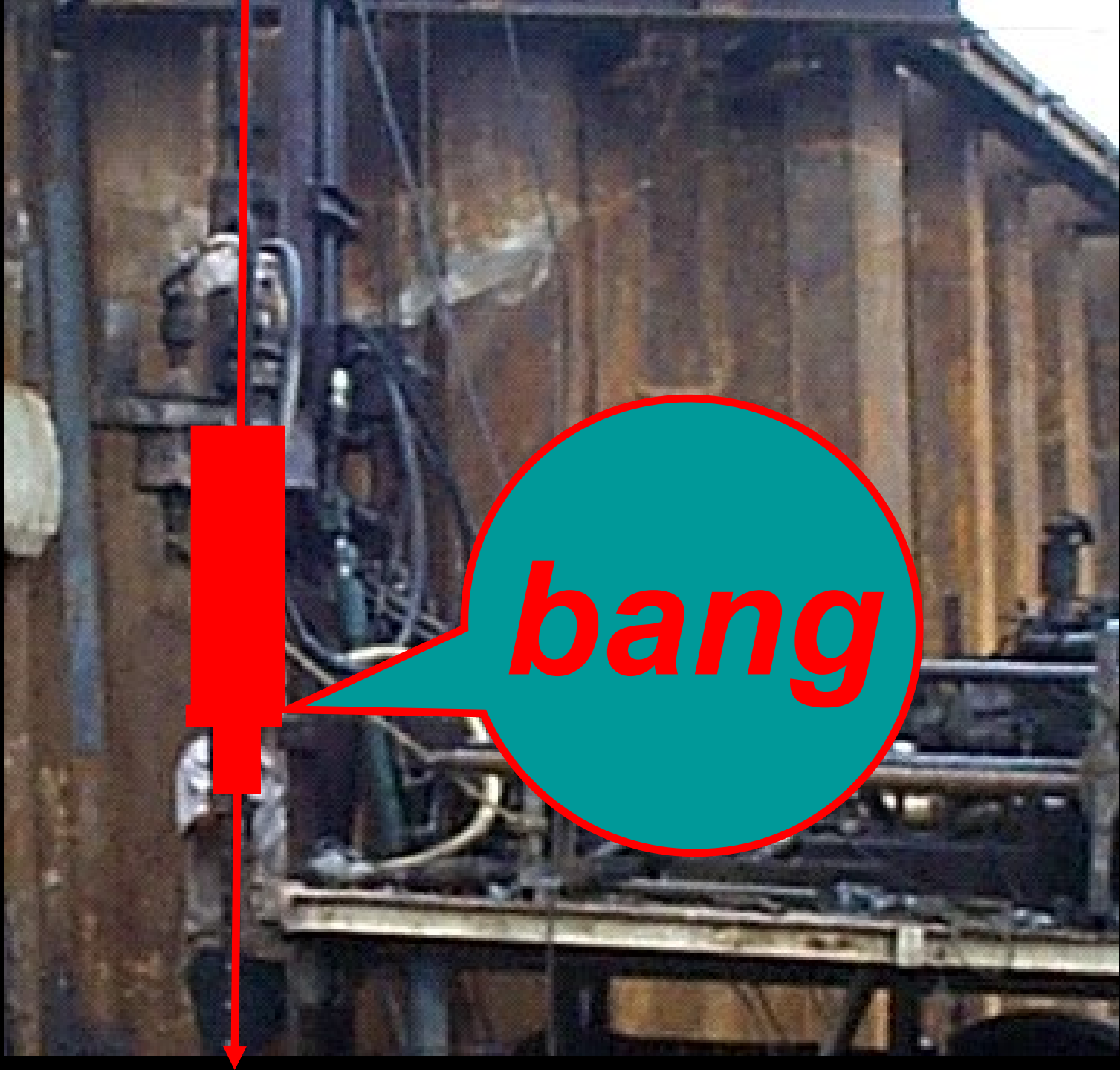
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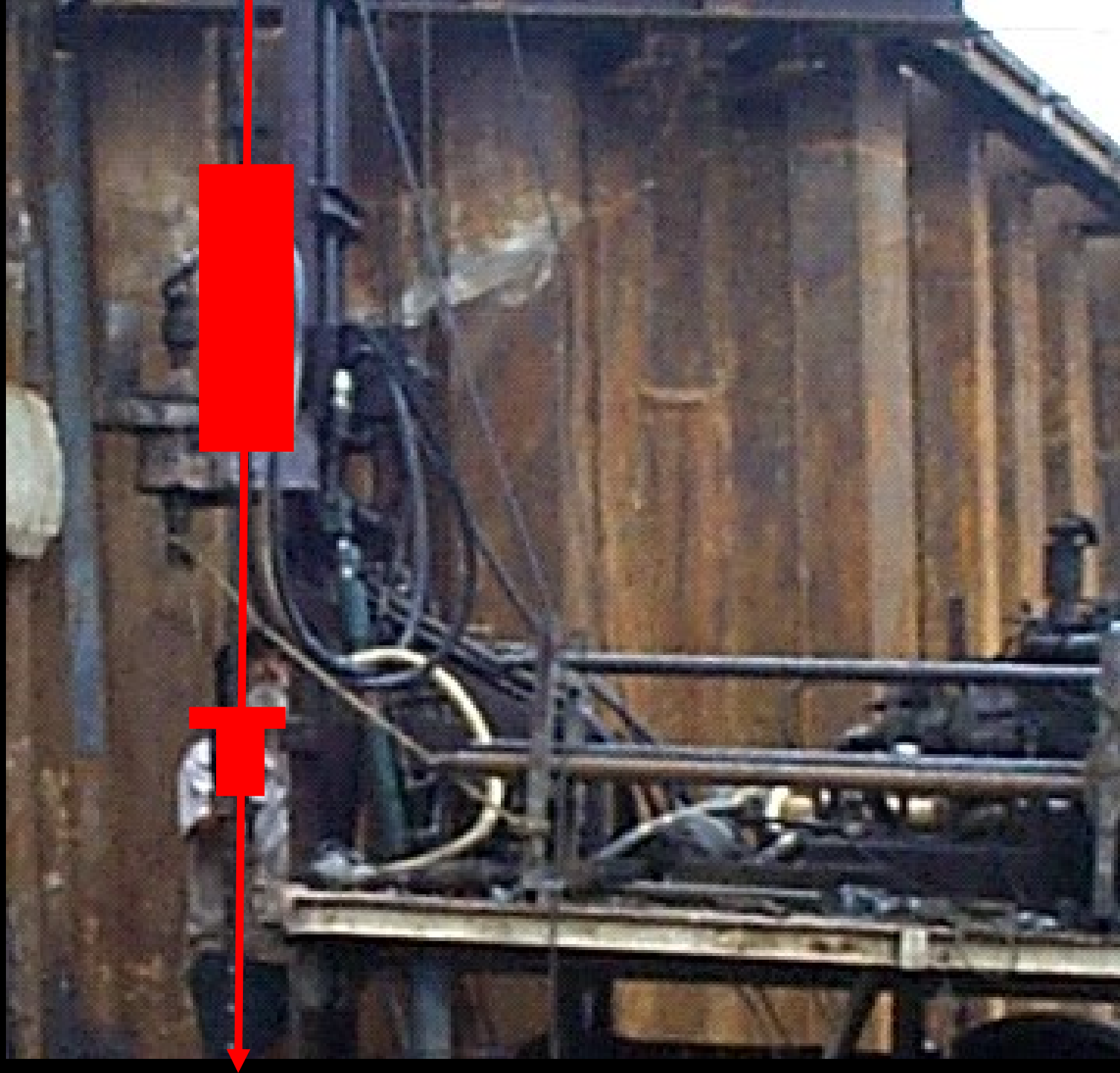


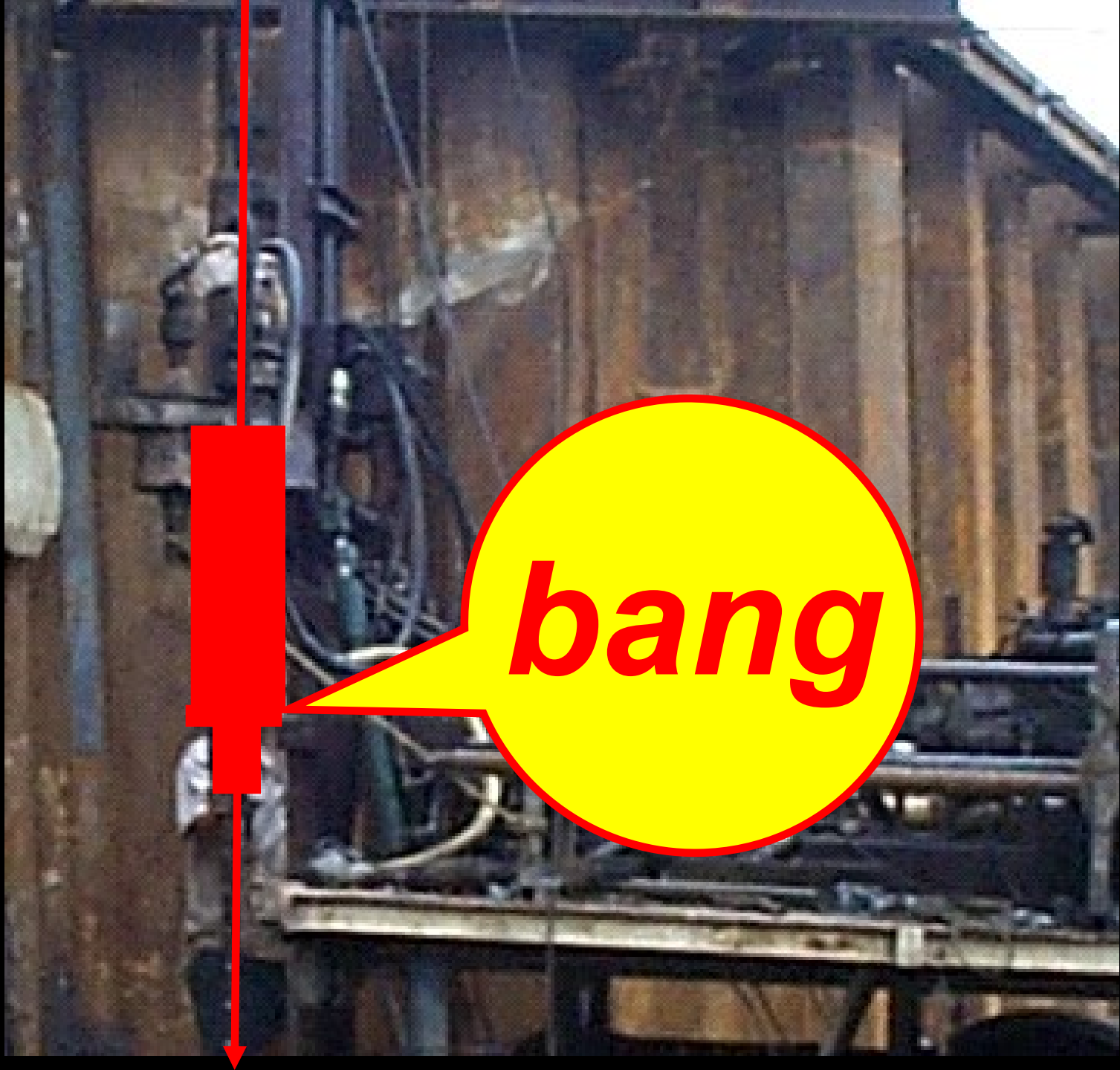


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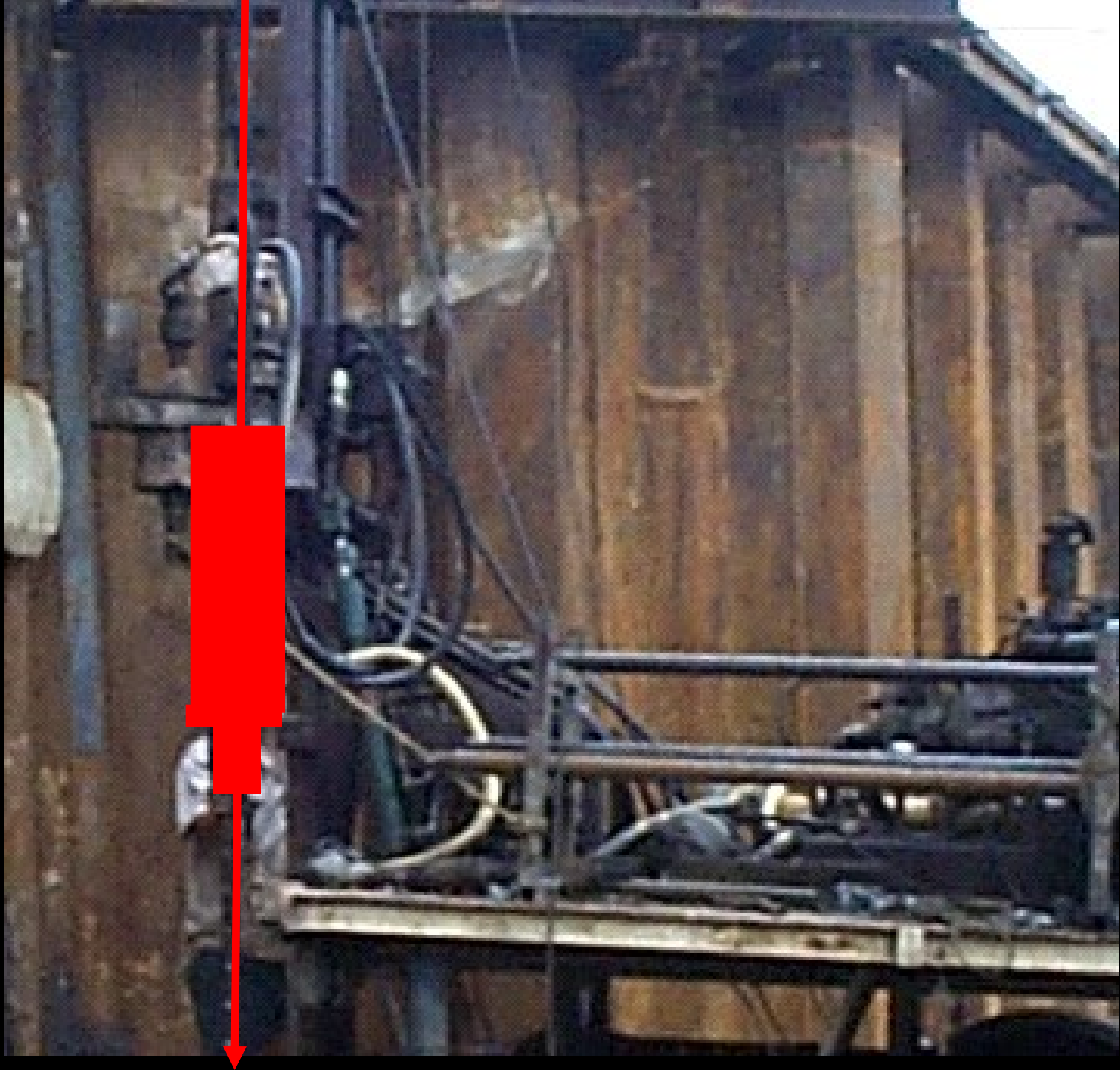








bang





**no
more
please**

Standard Penetration Test (SPT)



Split-Barrel Samplers



Standard Penetration Test (SPT)



Split-Barrel Samplers



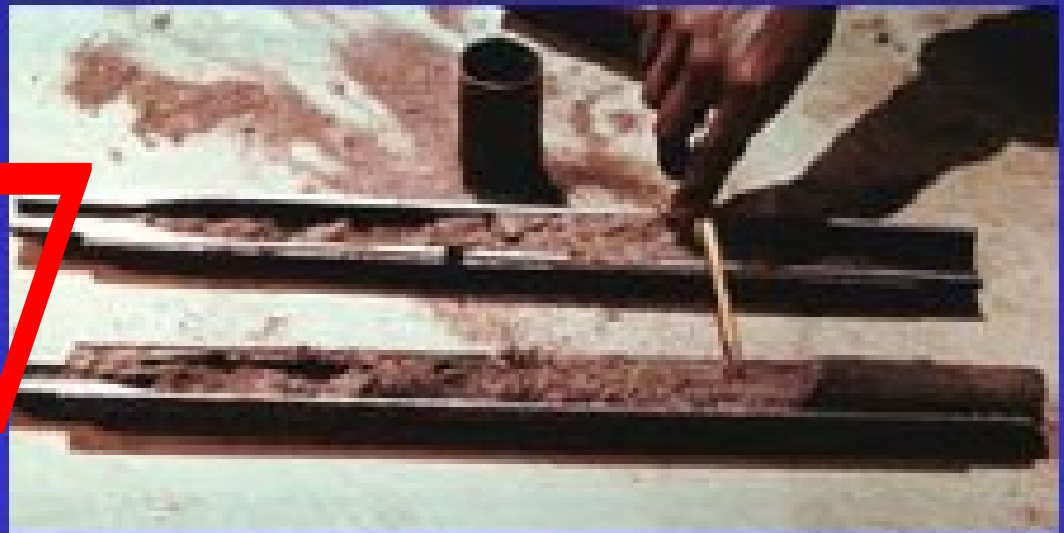
1902

Standard Penetration Test (SPT)



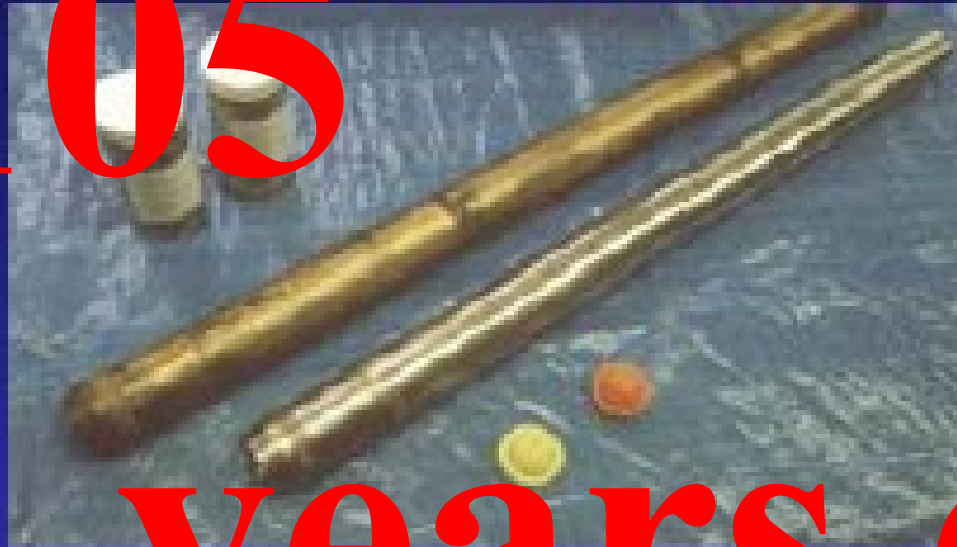
Split-Barrel Samplers

2007



Standard Penetration Test (SPT)

105



Split-Barrel Samplers

years of
evolution





SPT ANALYZER



PULSE DYNAMICS INC.
MADE IN U.S.A.

Standard Penetration Test (SPT)

Reality is



Split-Barrel Samplers

No



Evolution

Reason SPT is so useful is it never evolved!



For some purposes it's the right and best test.

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The most-used geotechnical test there is.

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Massive data-base of experience to call on to interpret.

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Lots of limitations.

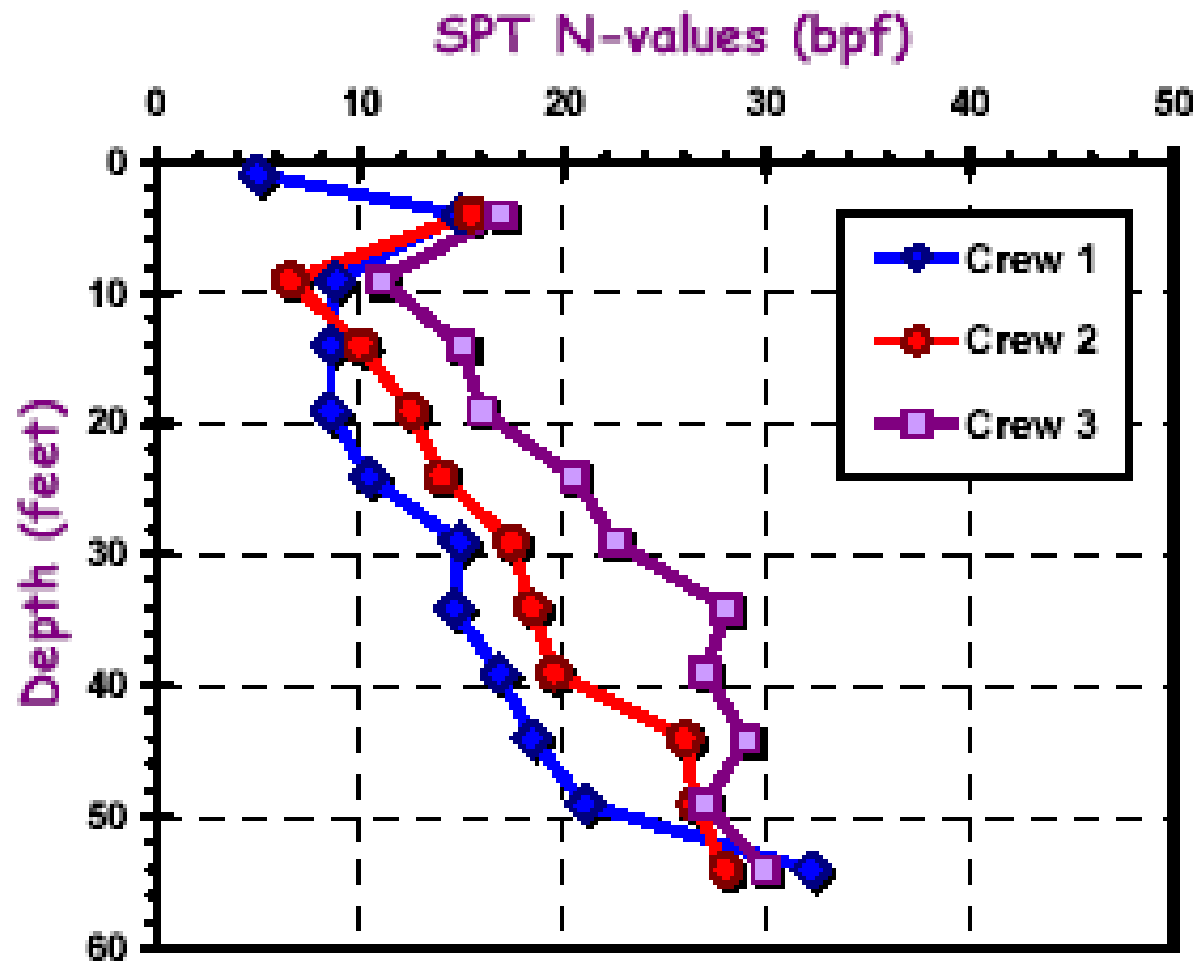
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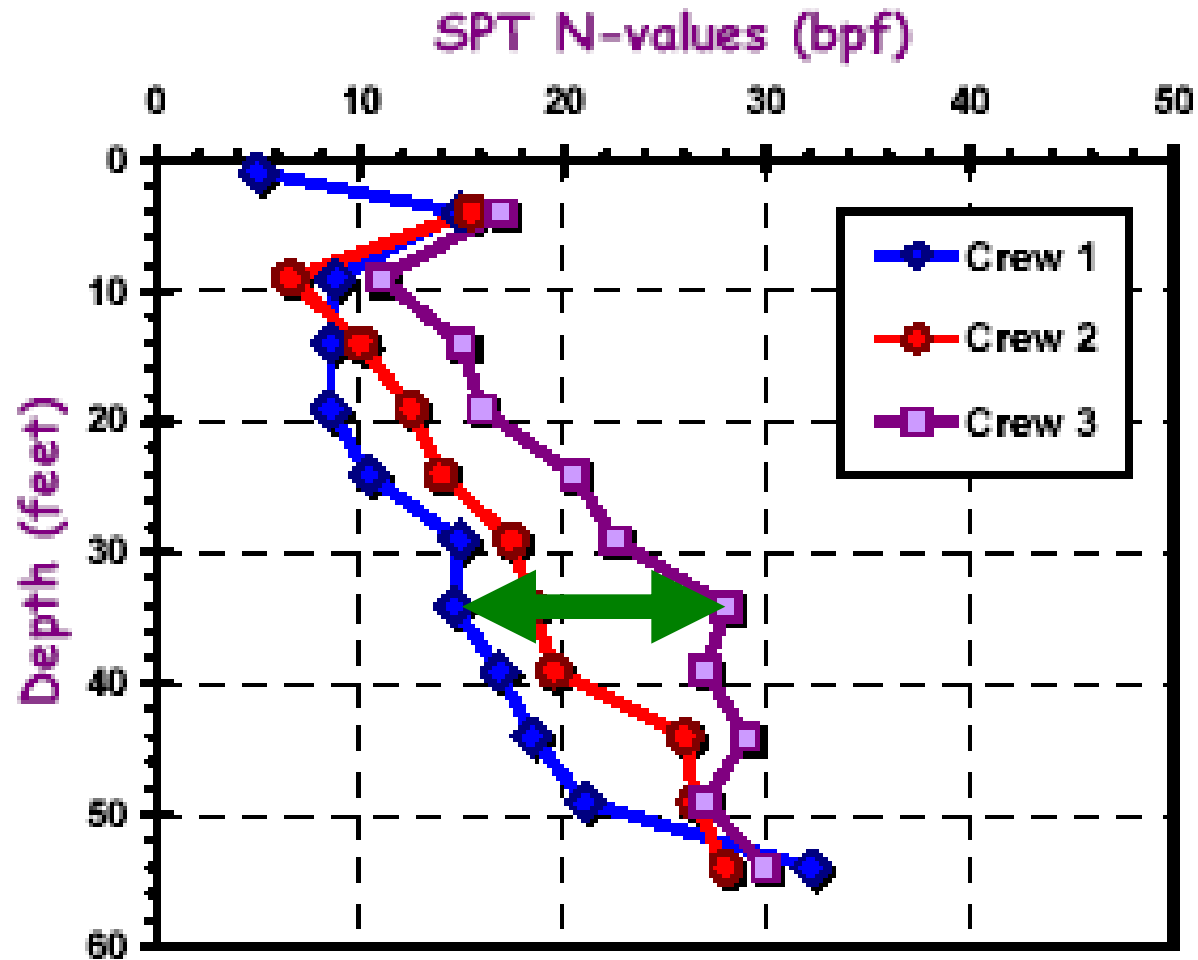
Massive data-base of experience to call on to interpret.

Lots of limitations. Most tests have limitations.

GT Load Test Site, West Campus



GT Load Test Site, West Campus





Very slow and very expensive



Very slow and very expensive (and boring)

What does the number really mean?

How sensitive is it?

How reliable, especially in clays?

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How reliable, especially in clays?

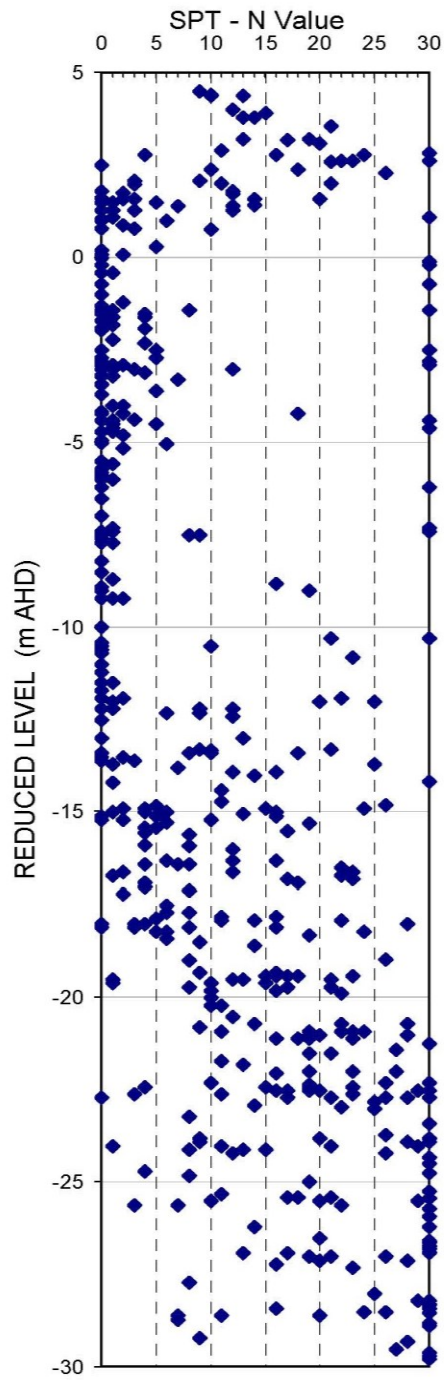
Is $N=1$ 50% of $N=2$?

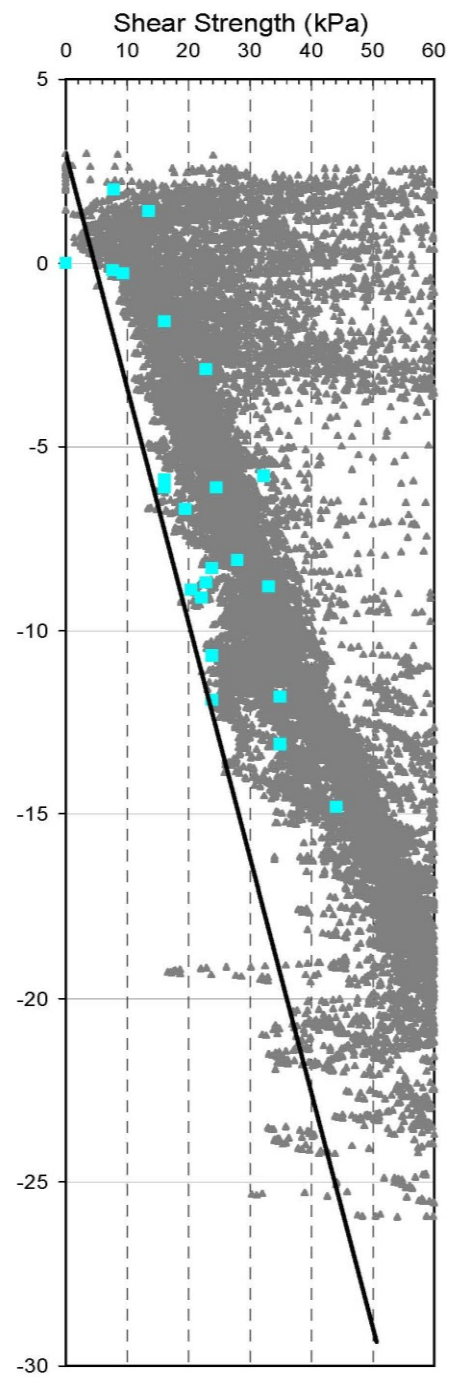
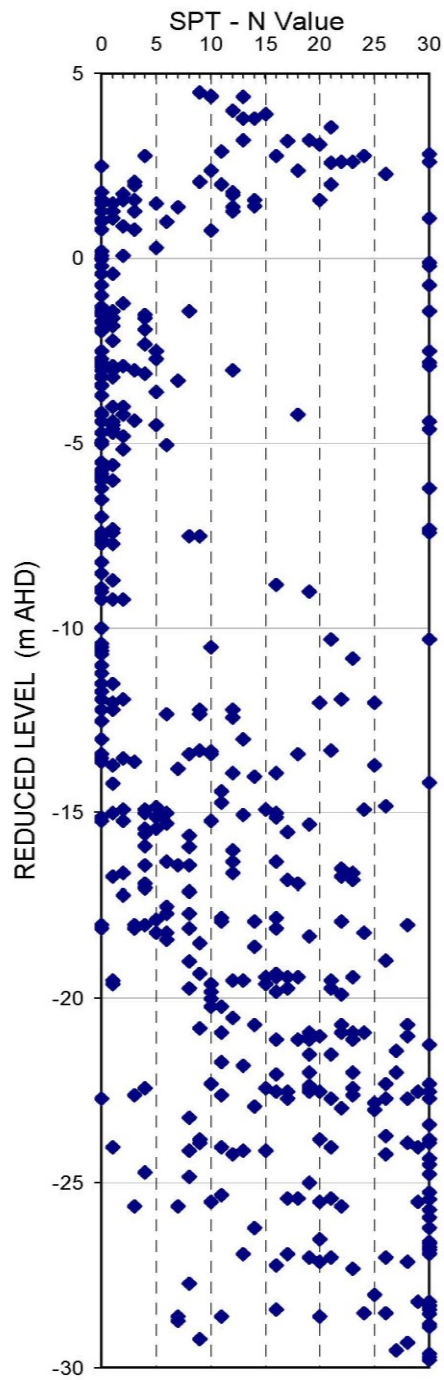
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How sensitive is it?

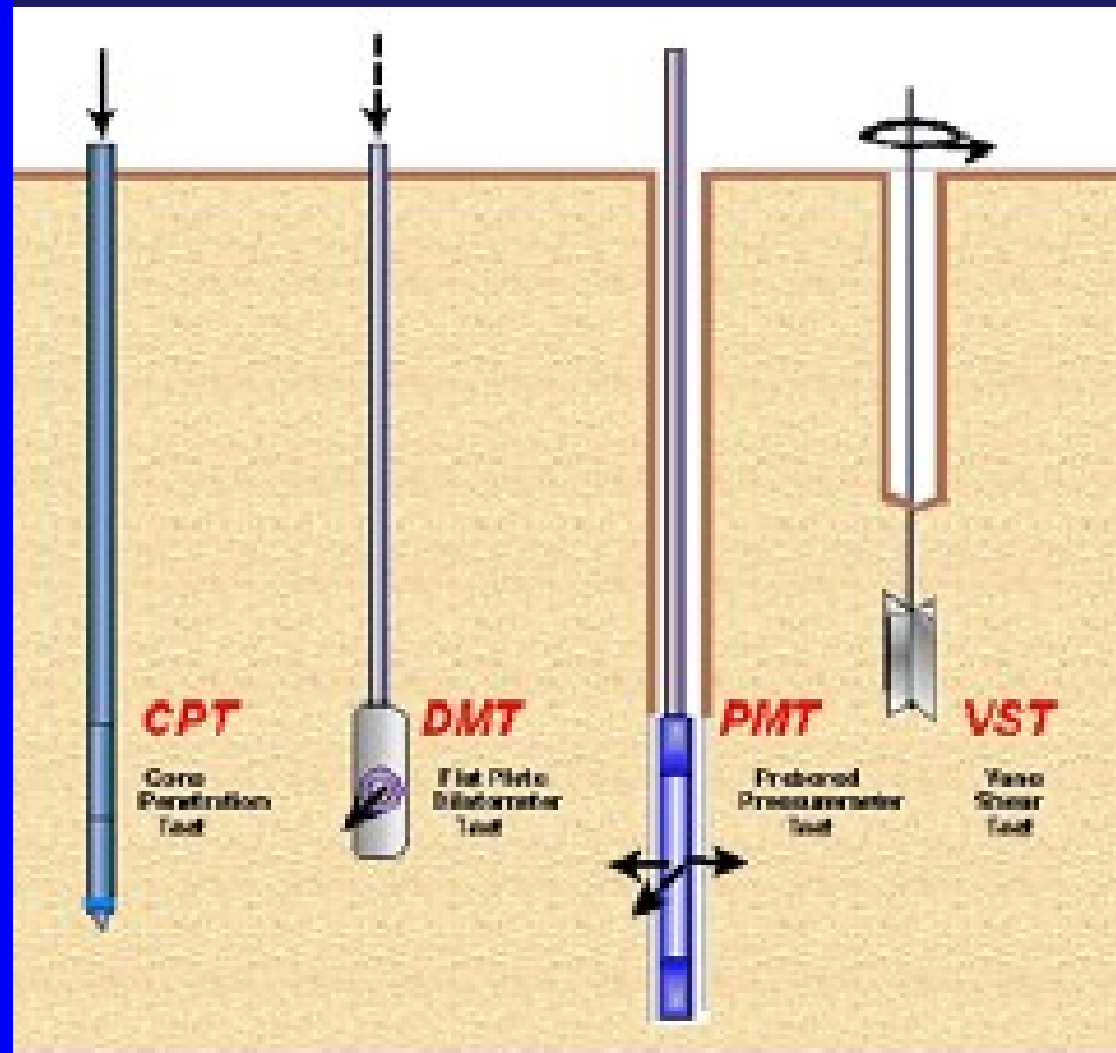
How reliable, especially in clays?

Is $N=1$ 50% of $N=2$? What about $N=0$?

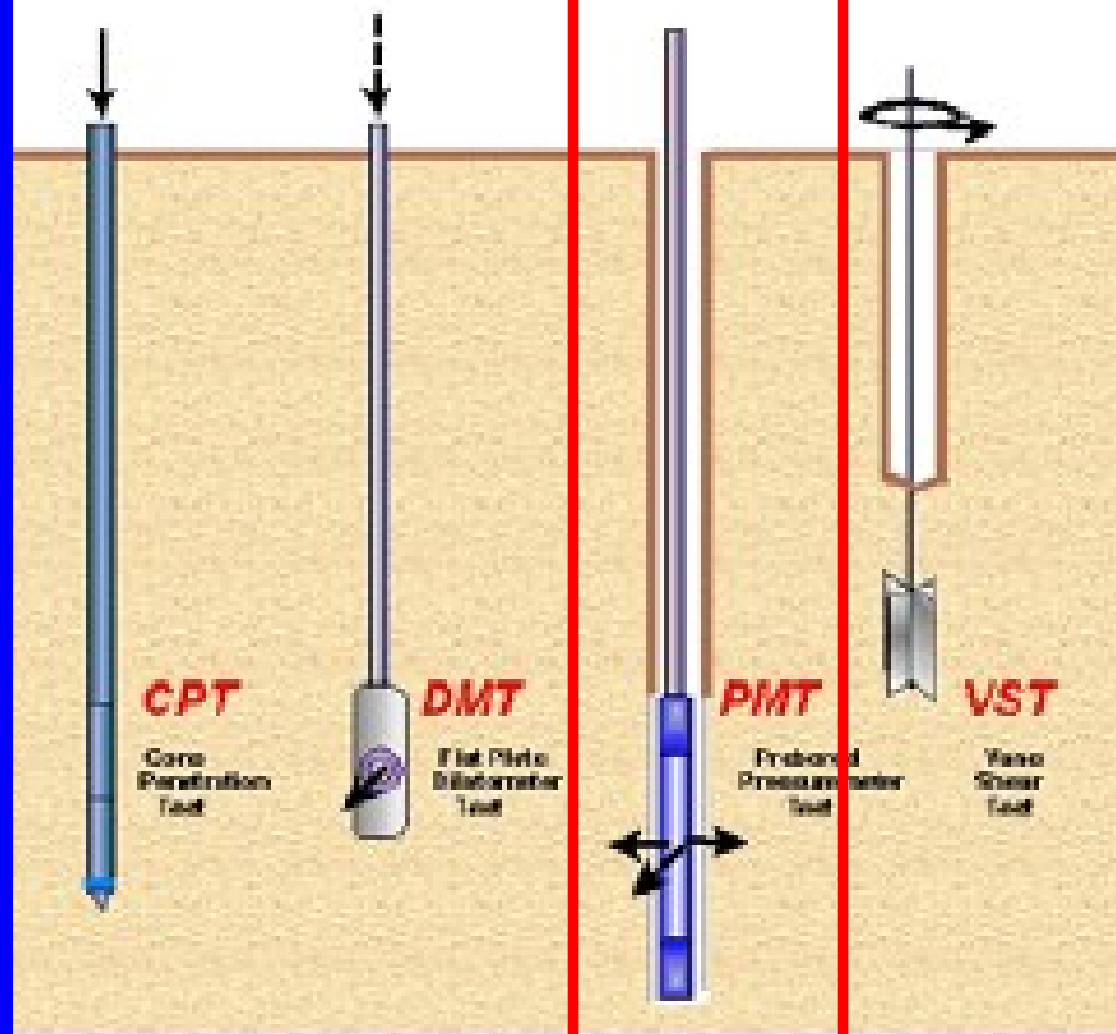




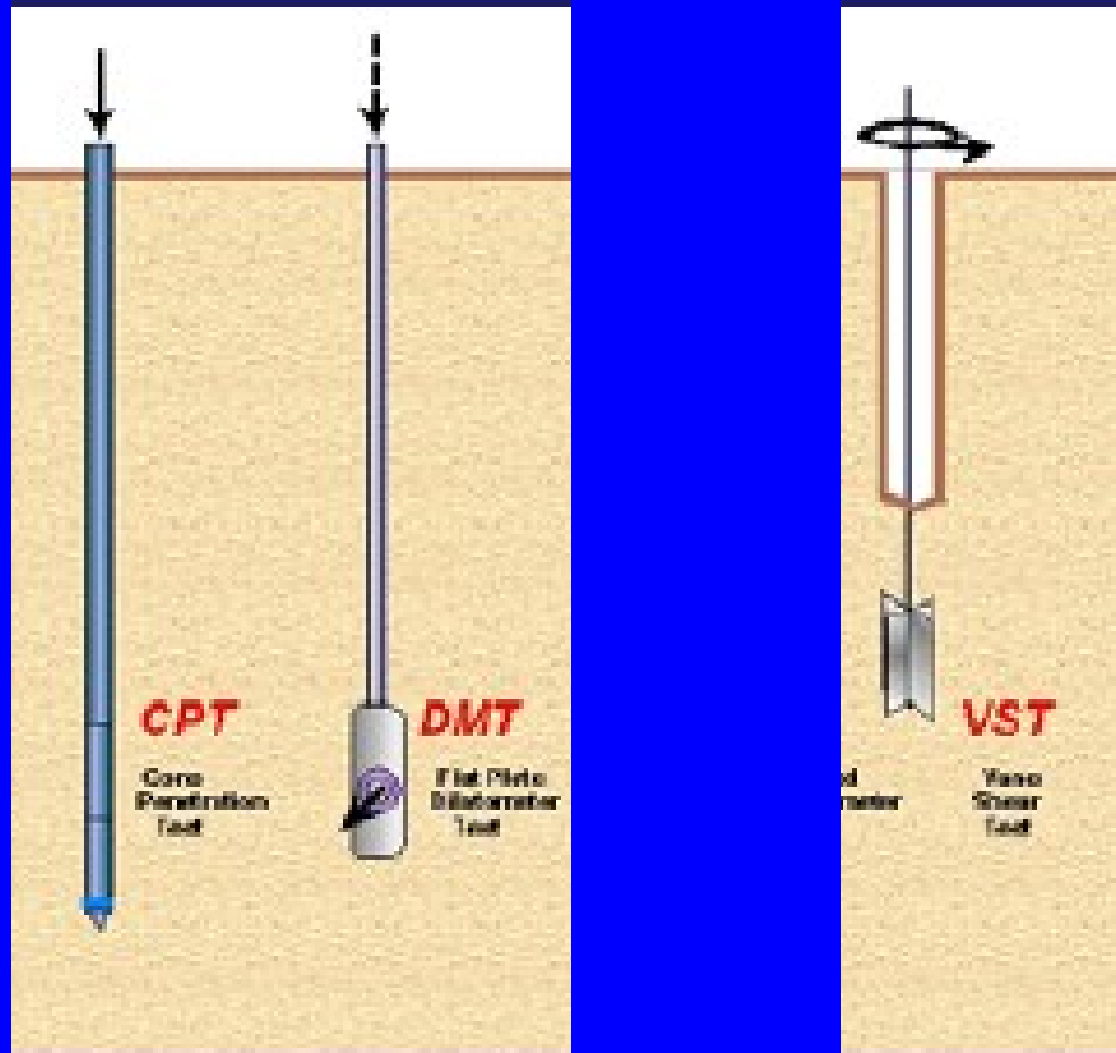
In-Situ Geotechnical Tests for Soils



In-Situ Geotechnical Tests for Soils



In-Situ Geotechnical Tests for Soils



Company & Base	In Situ Tests Offered	Comment
GeoPave, Melbourne	CPT, CPTu, DMT	Division of VicRoads, truck rig
NewSyd, Newcastle (research & contracting)	CPT, CPTu, Seismic CPT, Conductivity Cone	Collaboration between University of Newcastle and Sydney University, truck rig
Insitu Geotech Services (IGS), Brisbane	CPT, CPTu, DMT, Vane Shear (2006), Seismic DMT (2006)	All-terrain balloon tyred testing machine
Cone Penetration Testing Services (CPTS), Brisbane	CPT, CPTu, Seismic CPT, Vane Shear	Truck rig and all-terrain track rig

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NEWSYD

GEOTECHNICAL
TESTING

RESEARCH FACILITY

<http://www.newsyd.newcastle.edu.au>

Phone
0249 218978

Mobile
0408 292638

NEWSYD
GEOTECHNICAL
TESTING



UNI 034

Company & Base	In Situ Tests Offered	Comment
GeoPave, Melbourne	CPT, CPTu, DMT	Division of VicRoads, truck rig
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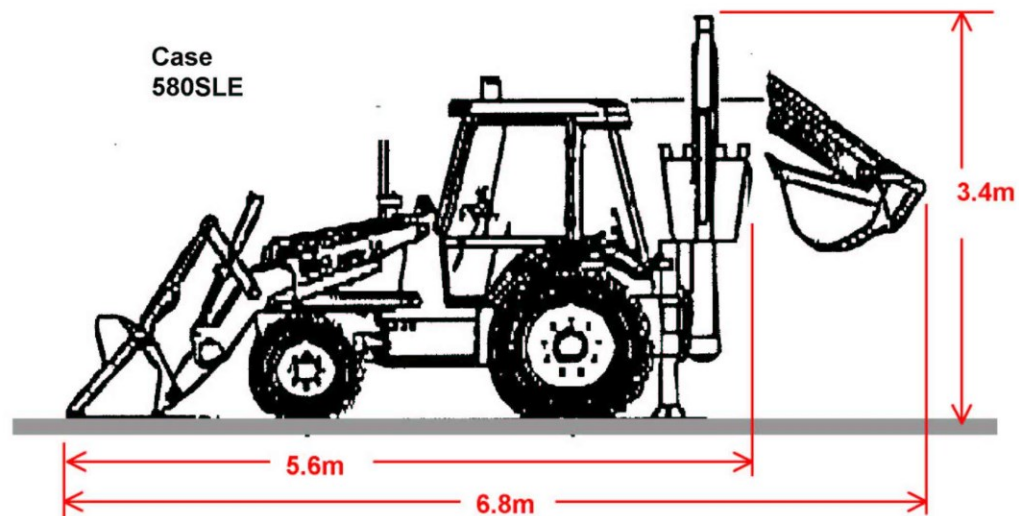


26 11 2004

weight is adjustable from 6t to 20t via moveable lead weights



And we can fit into small spaces - (eg) compare us to a backhoe























31 01 2004







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Insitu Geotech Services (IGS), Brisbane	CPT, CPTu, DMT, Vane Shear (2006), Seismic DMT (2006)	All-terrain balloon tyred testing machine 4WD Truck Rig (soon)
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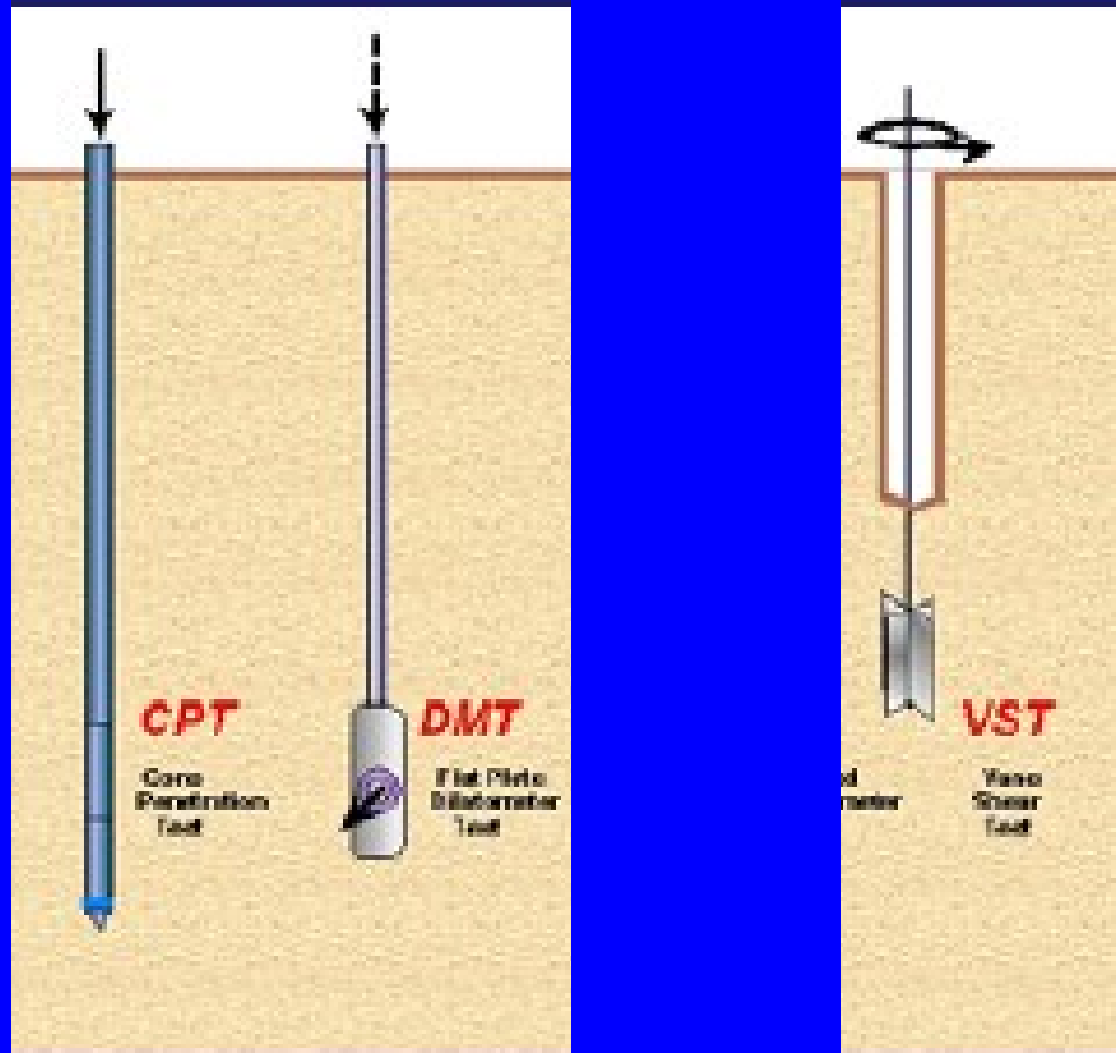
CPTS Ph: 0407 375 977



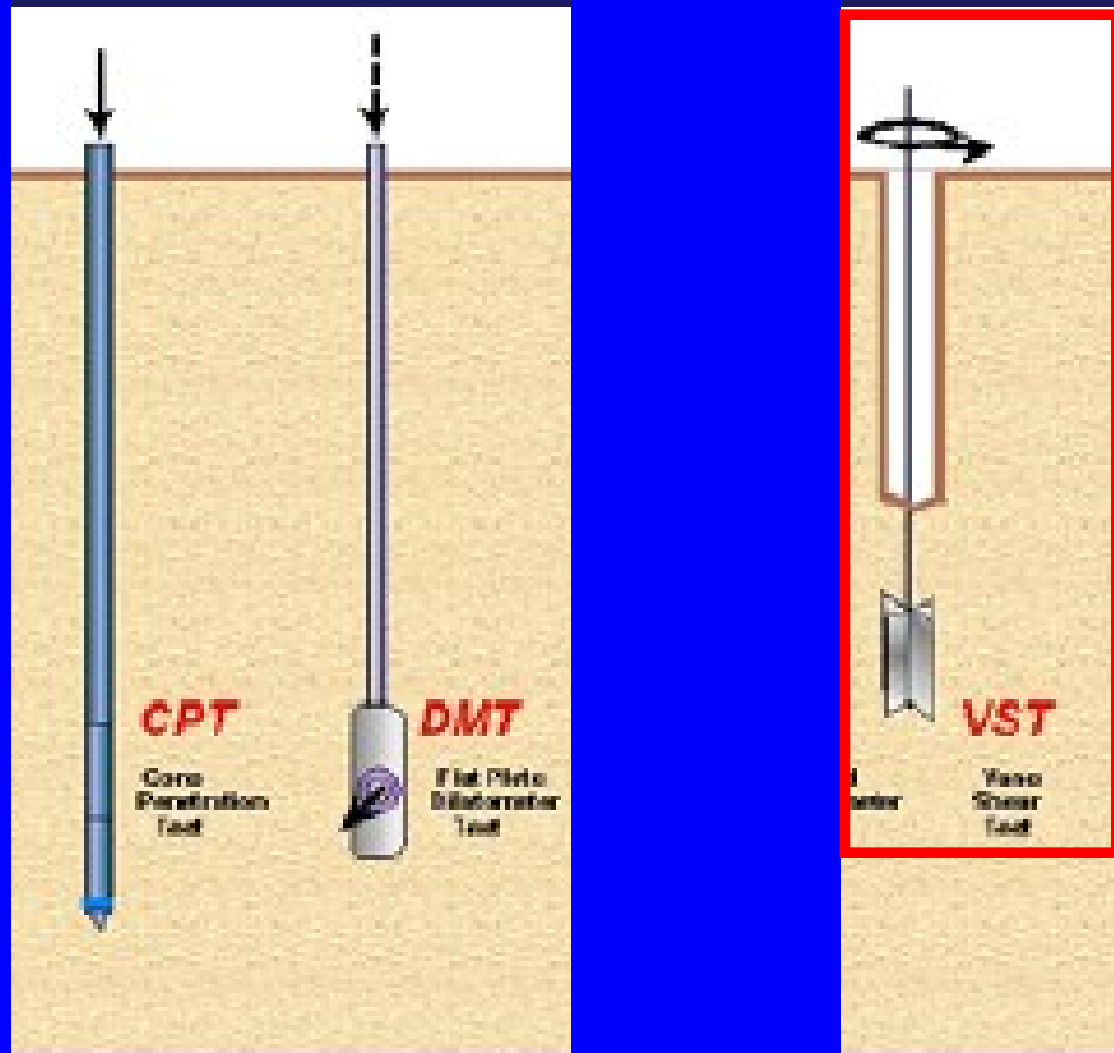


CPTS Ph: 0407 375 977

In-Situ Geotechnical Tests for Soils



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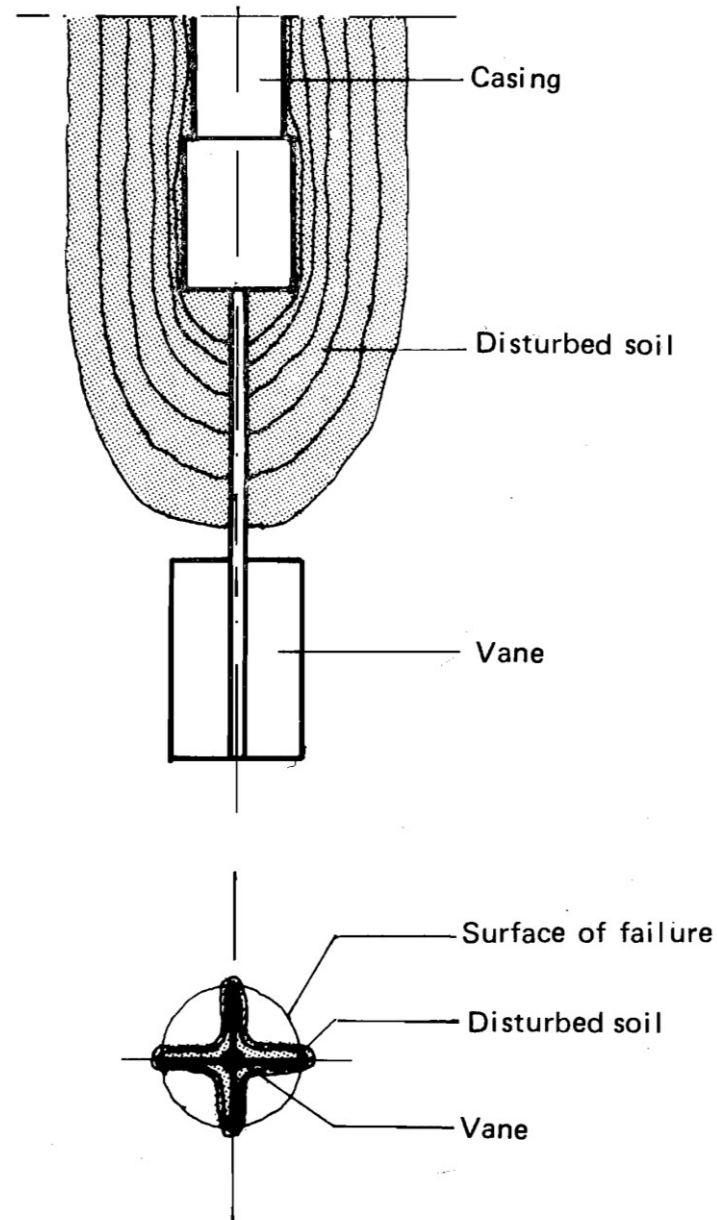
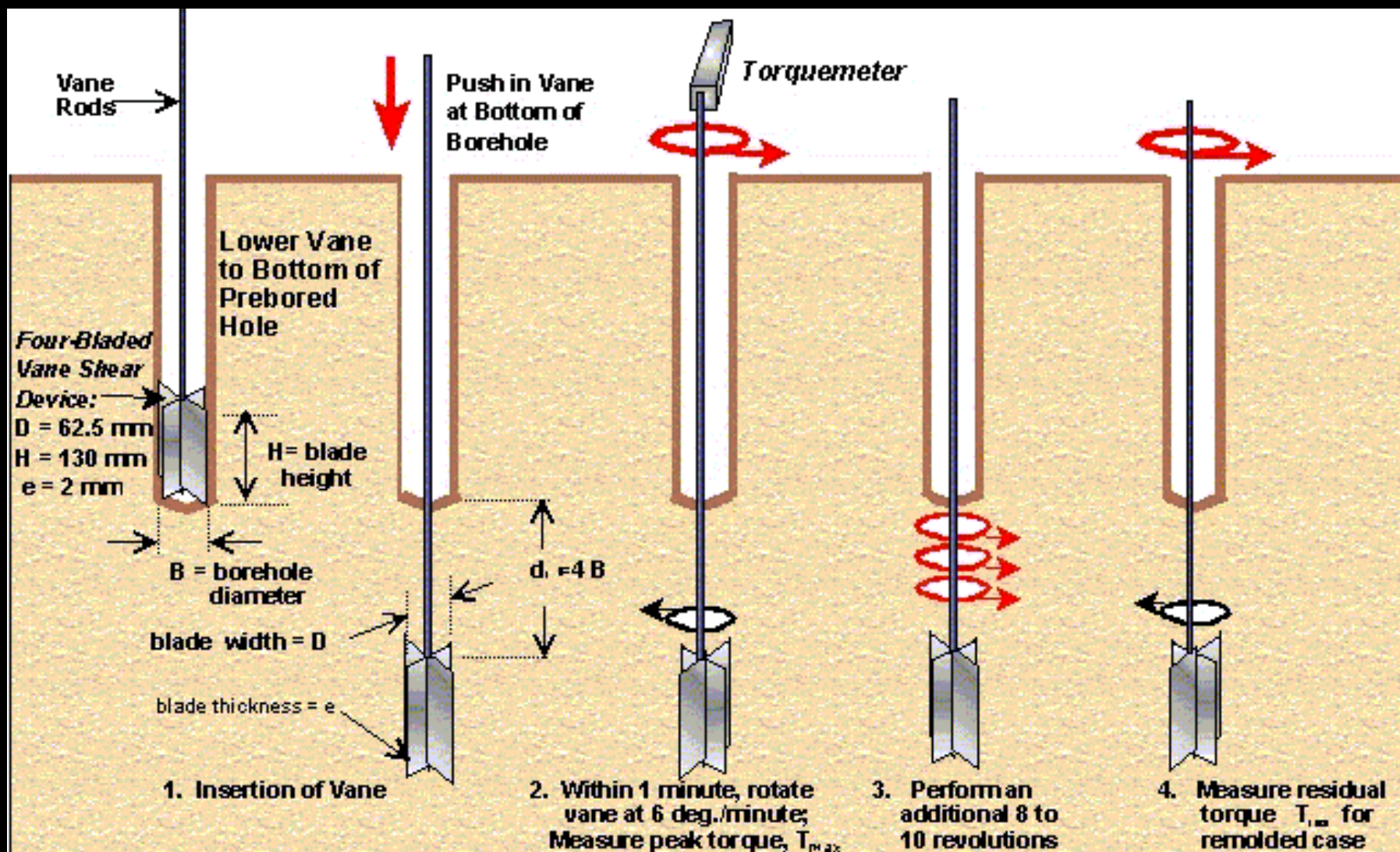


Fig. 3.47. Disturbance during penetration of a vane borer.



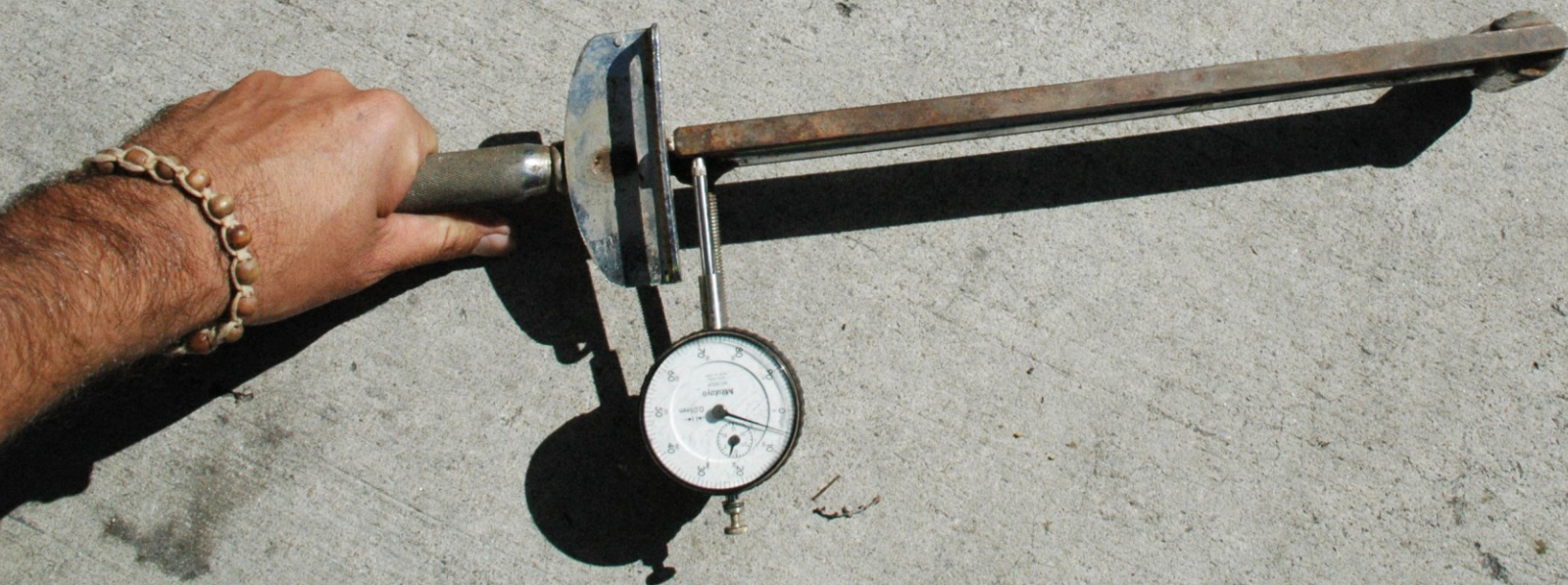
Vane Shear Test (VST) per ASTM D 2573:

Undrained Shear Strength: $S_{uv} = 6 T / (7 \pi D^3)$ For $H/D = 2$

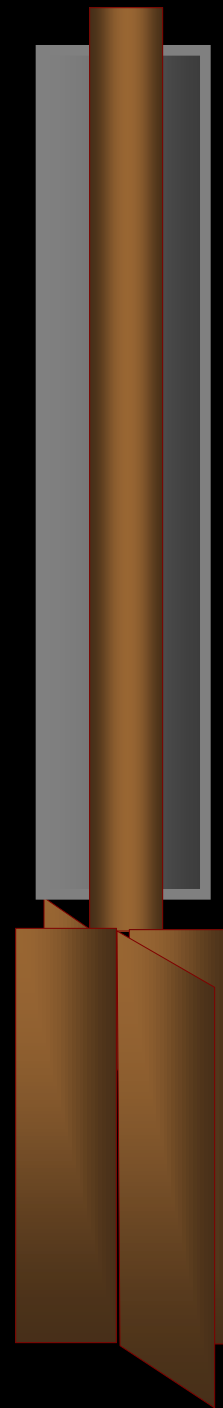
In-Situ Sensitivity: $S_t = S_{uv} (\text{peak}) / S_{uv} (\text{remolded})$

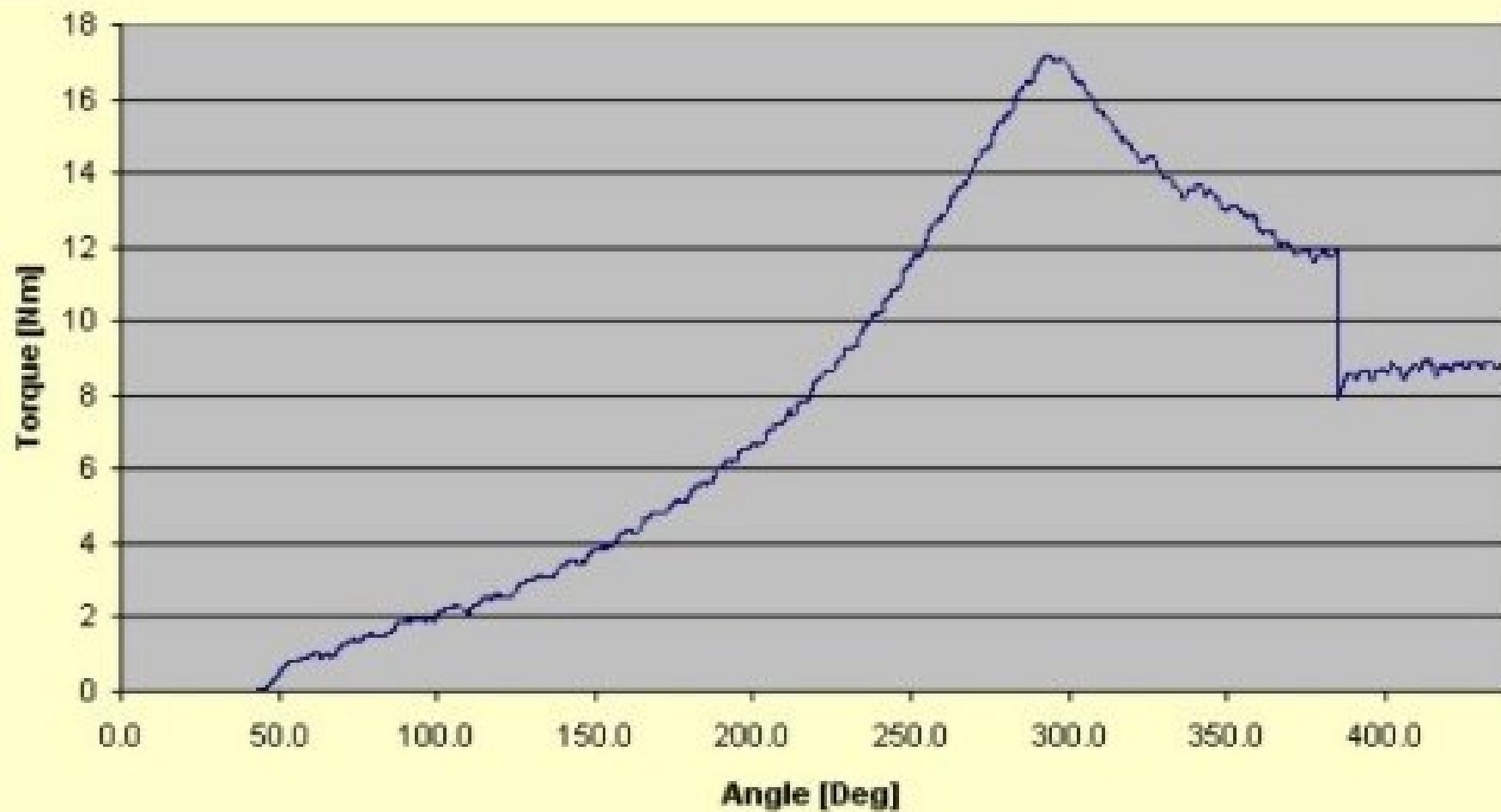
Photo by: D. P. Zeccos
Geoengineer Website
<http://www.geoengineer.org>











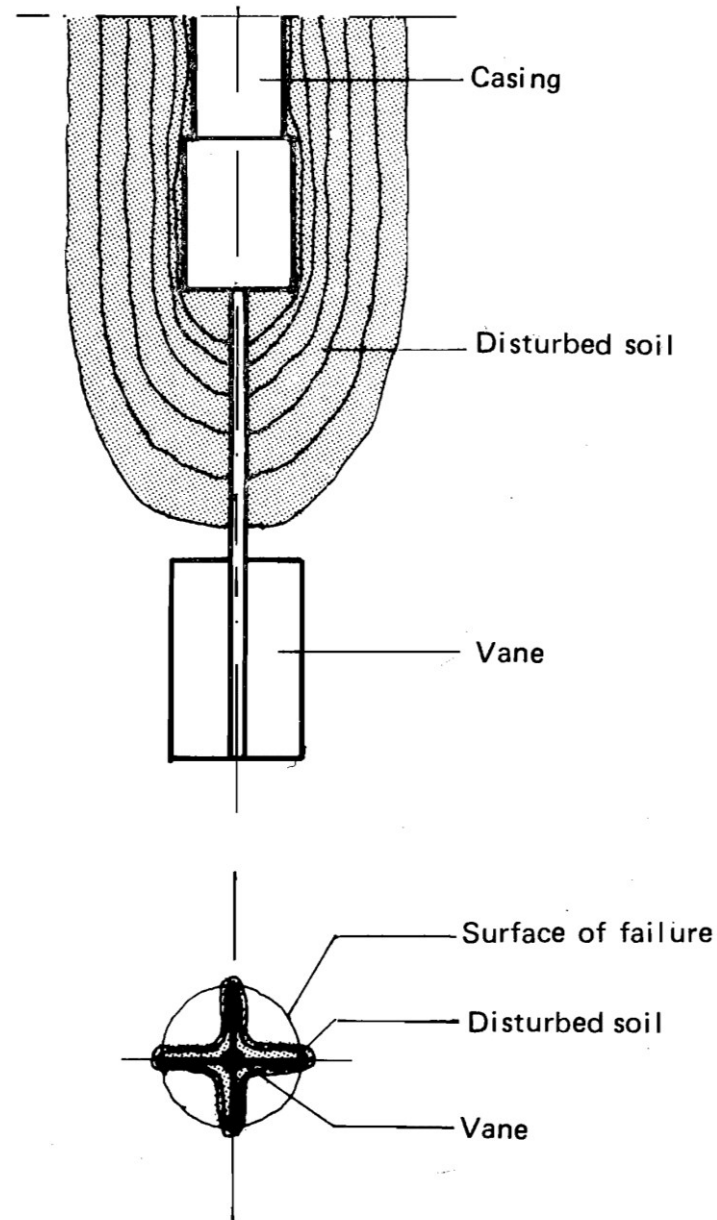


Fig. 3.47. Disturbance during penetration of a vane borer.

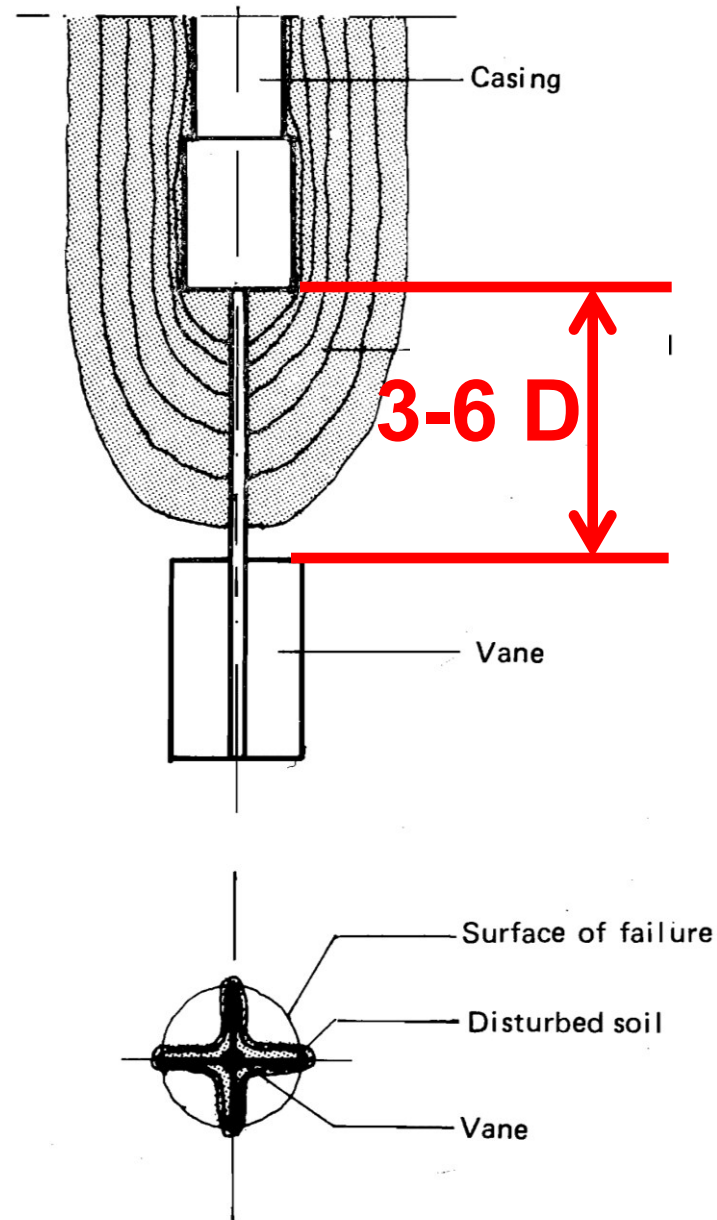


Fig. 3.47. Disturbance during penetration of a vane borer.

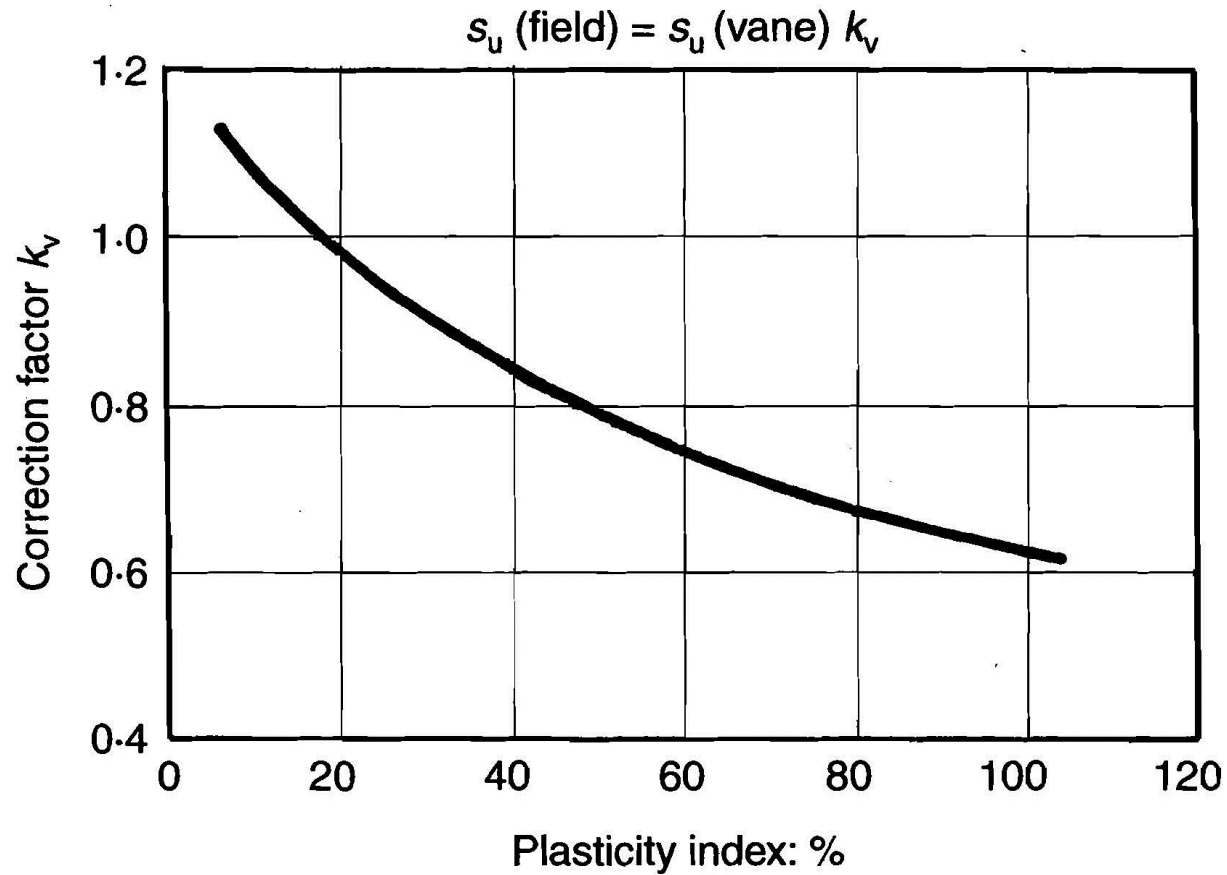


Fig. 2.24 Vane strength correction factor for soft clays, after Bjerrum (1973)

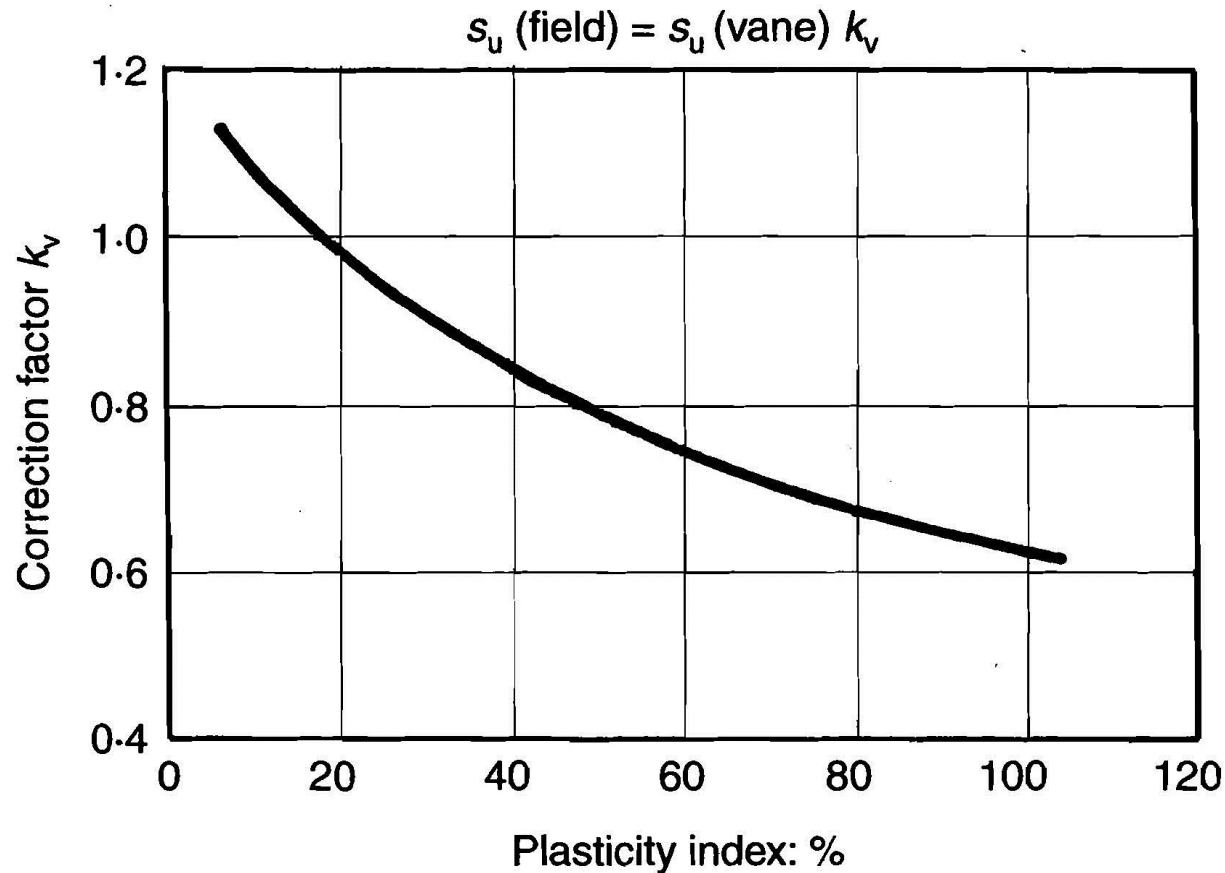
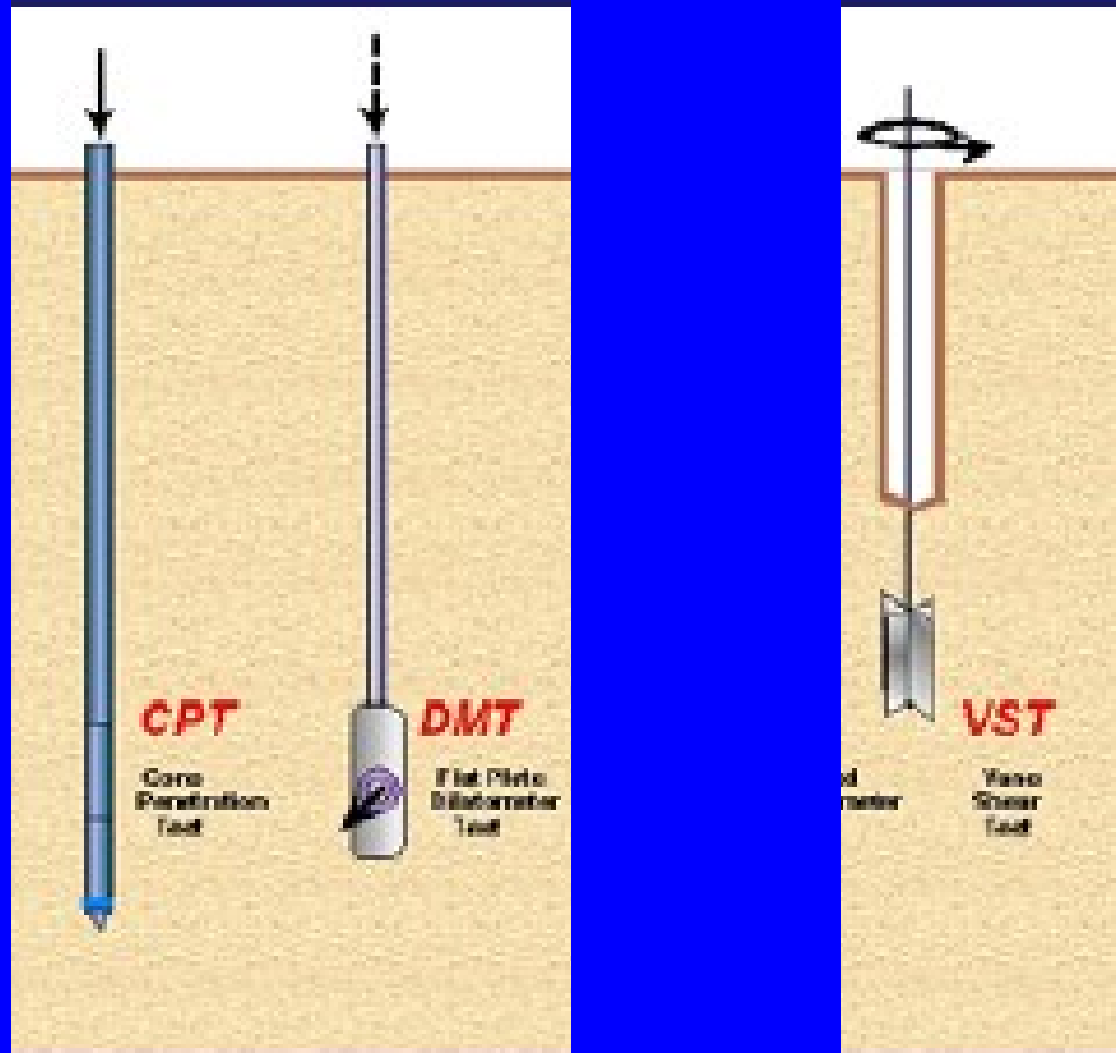


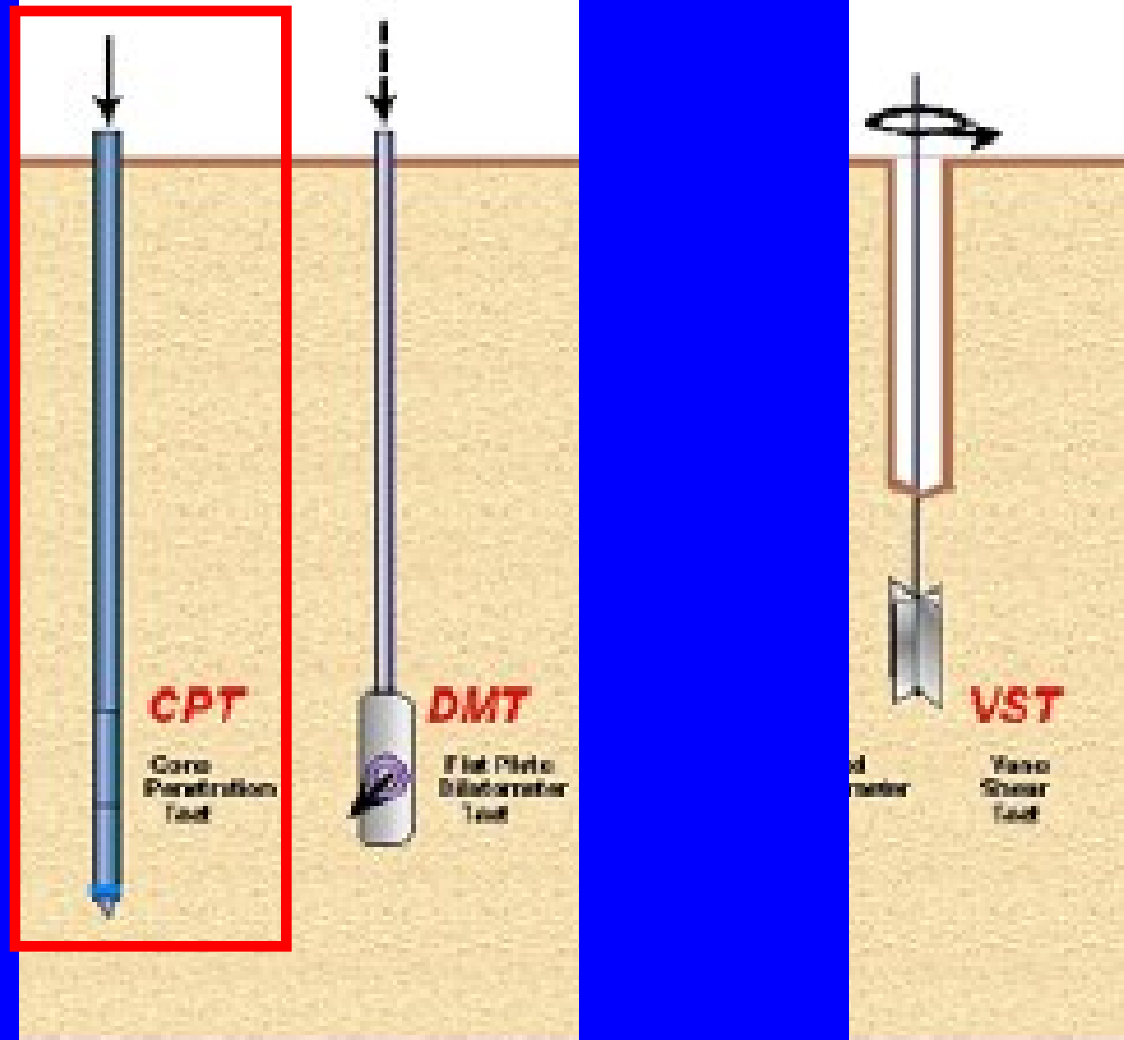
Fig. 2.24 Vane strength correction factor for soft clays, after Bjerrum (1973)

A Serious Note of Caution

In-Situ Geotechnical Tests for Soils



In-Situ Geotechnical Tests for Soils



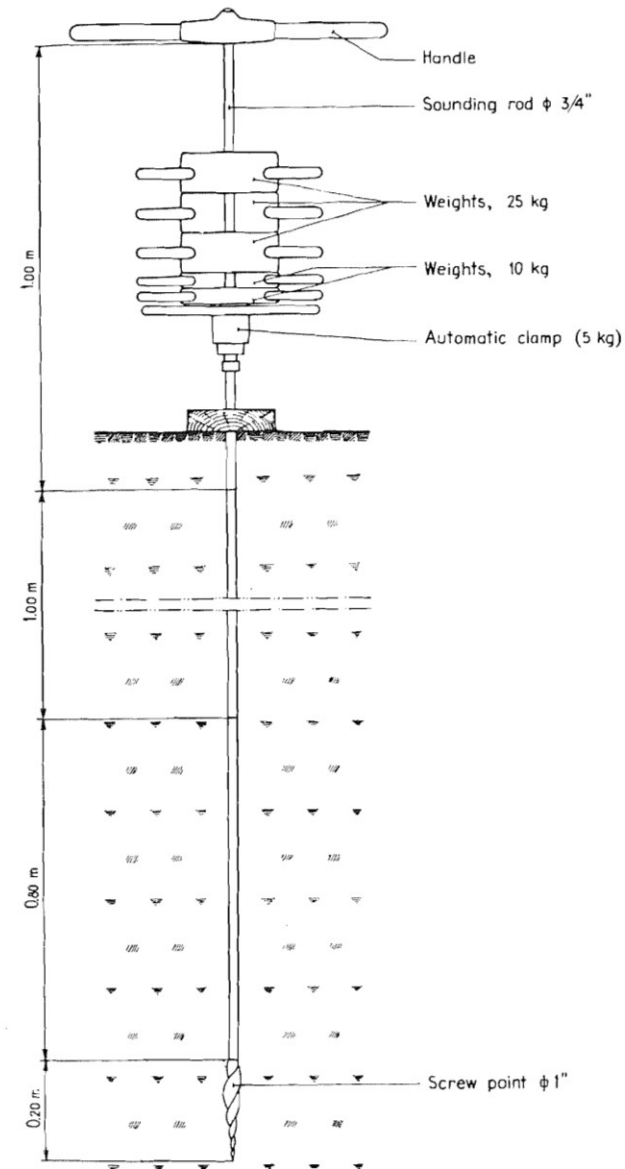


Fig. 1.21. Swedish Weight Sounding Method. (The photograph was taken about 1920 and is from the files of the Swedish State Railways).

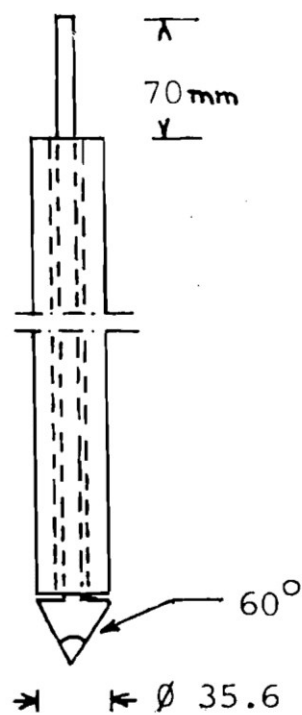
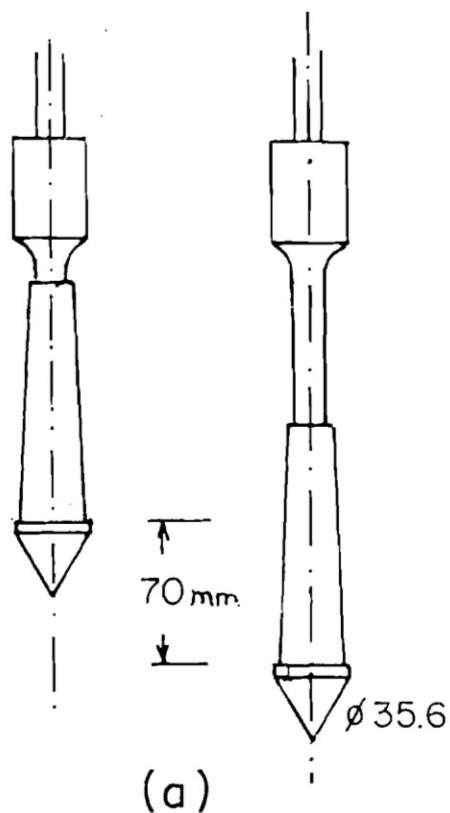
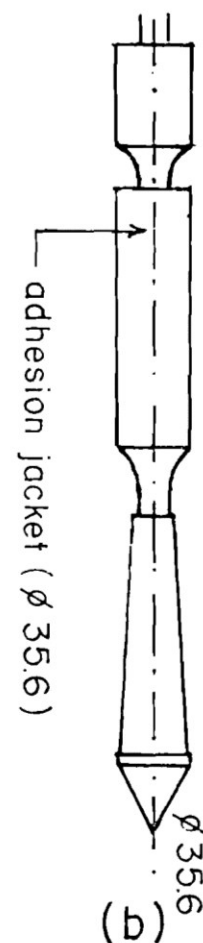


Fig. 3.64. Original Dutch cone (Vermeiden, 1948).



(a)



(b)

Fig. 3.65. Present form of Dutch cone: (a) mantle cone, (b) adhesion jacket cone (Begemann, 1953).

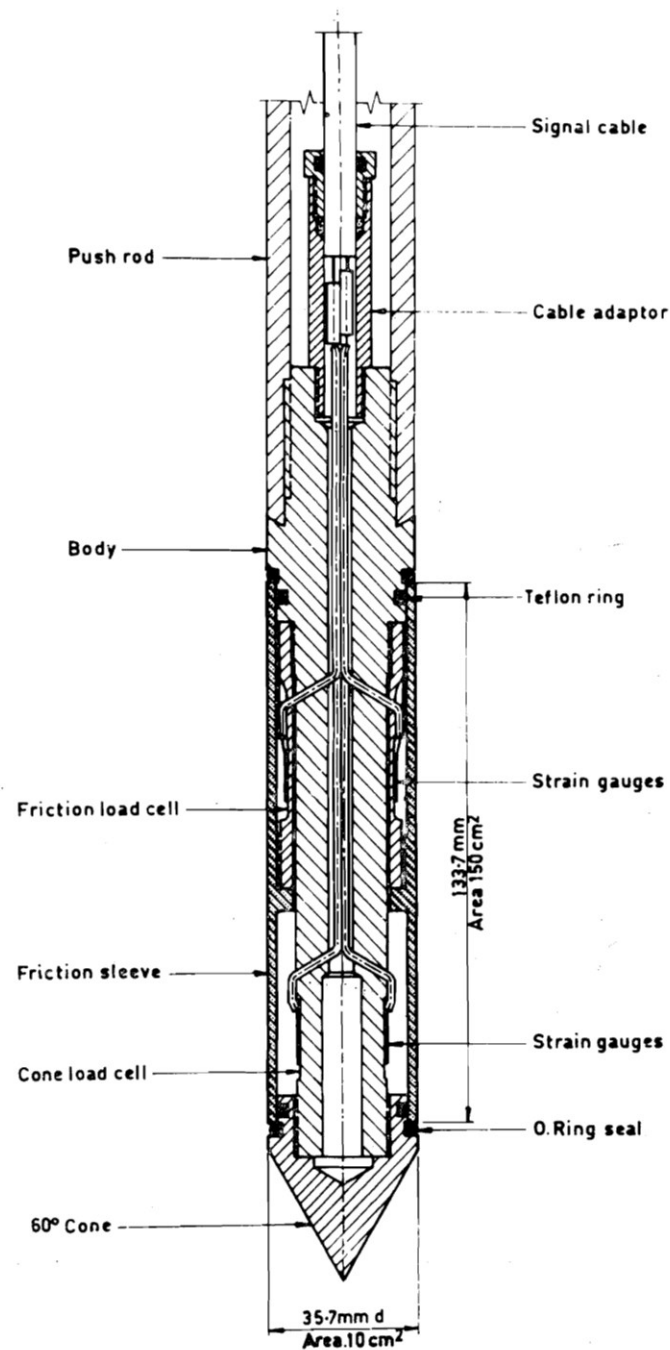


Fig. 3.66. Electric penetrometer of the Australian Country Roads Board (Holden, 1974a).



First CPT Rig In Queensland



data acquisition system



