

# Crowdsourcing and the NIST Digital Archives

Using the “crowd” to describe  
NIST Museum artifacts

Eastern CONTENTdm Users Group

August 2, 2011

Towson University, Towson, MD

# Introduction

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# National Institute of Standards and Technology

- Founded in 1901, NIST is a non-regulatory agency within the U.S. Department of Commerce.
- NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

# Information Services Office

ISO provides professional scientific and technical research assistance through three primary programs:

- Research Library Information Program
- Electronic Information and Publications Program
- NIST Museum and History Program

# NIST Digital Archives





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## NIST Digital Archives

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### About the Collections

The NIST Digital Archives (NDA) present images of NIST Museum artifacts and full-text NIST publications. NIST (the National Institute of Standards and Technology) is a non-regulatory agency within the U.S. Department of Commerce.

The images showcase the scientific instruments on display in the NIST Museum located on the NIST campus in Gaithersburg, Maryland. The publications include the *Journal of Research of the National Institute of Standards and Technology*, which covers the broad range of research undertaken by NIST research staff, focusing on measurement methodology.

These collections continue to grow as more images and full-text publications are added to the NDA. Future NDA collections will include images of photographs from the NIST Archives, NIST Oral Histories and video recordings of selected NIST Colloquia.

**You can help identify NIST Museum artifacts!**

Sometimes we have only minimal information about the artifacts we receive for the NIST Museum. Please browse these artifacts and tell us if you have more information on any of them. With your help, we can enhance the NIST Museum experience!

<http://nistdigitalarchives.contentdm.oclc.org>

# Why Museum artifacts?

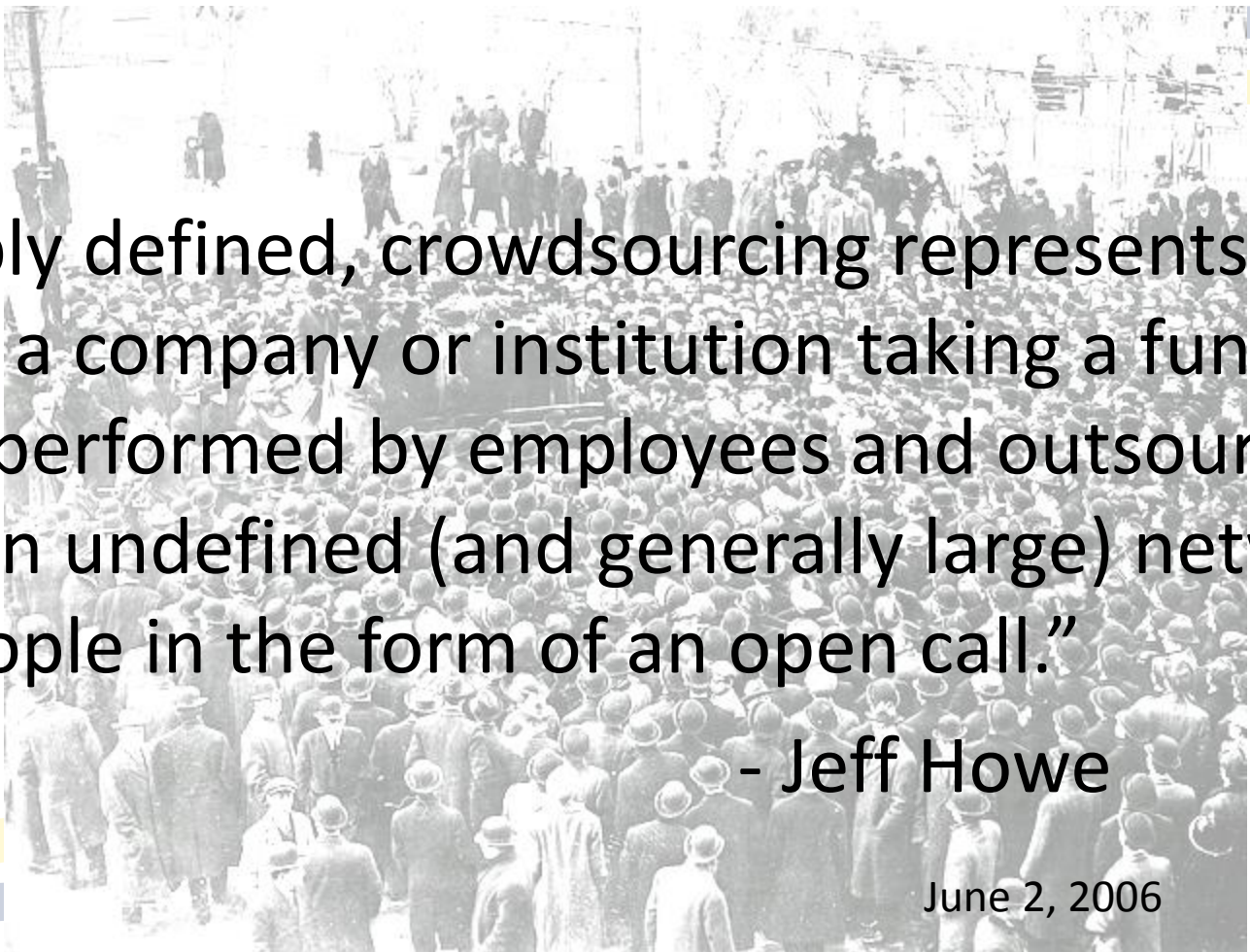
- Complements ISO efforts to tell NIST's story through publications and museum & history program to increase NIST's impact
- Fulfilled long-term goal of creating digital surrogates to increase visibility of scientific instruments developed and used by NBS/NIST scientists
- Coincided with need to conduct inventory of NIST heritage assets and to move artifacts from storage into space within the Library



# Crowdsourcing



# What is crowdsourcing, anyway?



“Simply defined, crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call.”

- Jeff Howe

June 2, 2006



# What does crowdsourcing do?

- Correction & Transcription Tasks
- Contextualization
- Collecting
- Classification
- Co-curation



# Who's using crowdsourcing?



# community

[http://farm6.static.flickr.com/5012/5471838255\\_ec7522db98.jpg](http://farm6.static.flickr.com/5012/5471838255_ec7522db98.jpg)

# Why did NIST choose crowdsourcing?

Wood box with one dial at top



# Great marketing tool



## Crowdsourcing Science History: NIST Digital Archives Seeks Help in Identifying Mystery Artifacts

From **NIST Tech Beat**: April 12, 2011

**Contact:** Ben Stein  
301-975-3097

SHARE   

Do you hold the key to solving some gadget mysteries from the last century of U.S. science and technology? In its 110 years, the National Institute of Standards and Technology (NIST) has made many innovations in the way we measure things, from basic quantities like the volt and nanometer to specialized questions like the purity of sugar.

A new website, the NIST Digital Archives (<http://nistdigitalarchives.contentdm.oclc.org/>), is exhibiting images of historically significant scientific instruments used to obtain these measures, in addition to providing access to full-text publications from the agency's history. (To end the suspense, you measure sugar with a *saccharimeter*.) NIST is inviting enthusiasts to participate in describing some of the hundreds of historical objects collected through the decades. Some of the artifacts are unidentified or need more descriptive information. Visitors to the site can view the items and offer clues about the history and origins of some of these important artifacts.

The artifacts are in the collection of scientific instruments in the NIST Museum, located on the NIST campus in Gaithersburg, Md., and can be viewed on the NIST Museum Artifacts™ portion of the new Website. Most of the artifacts are well-documented, such as a 1950s creation known as the Project Tinkertoy Wafer Tube Amplifier. It is a 45 rpm record player built as a part of Project Tinkertoy, an endeavor to develop mechanical production methods for electronic equipment using standardized components. However, some artifacts remain a mystery, such as the enigmatic brass-colored, crank-like Metal Instrument in Wood Case.

"We have some artifacts in our collection we want to identify, so we thought we could exhibit them online and ask for help," says NIST Digital Services Librarian Regina Avila. "It was fun to photograph them, but challenging. Some artifacts were broken, others had missing pieces. Some were heavy and others were fragile." Currently, 137 artifacts are on the site, and hundreds more will be added in the coming months.

The digital archive also contains some NIST publications, including the *Journal of Research of the*



Project Tinkertoy Wafer Tube Amplifier

# Press attention

- Wired.com
- Popular Science
- Information Week
- Government Computer News
- R&D Magazine
- ReadWriteWeb
- Smithsonian
- The Gazette (Montgomery County)
- Radio
- Several Blogs

# NDA “Compound” object

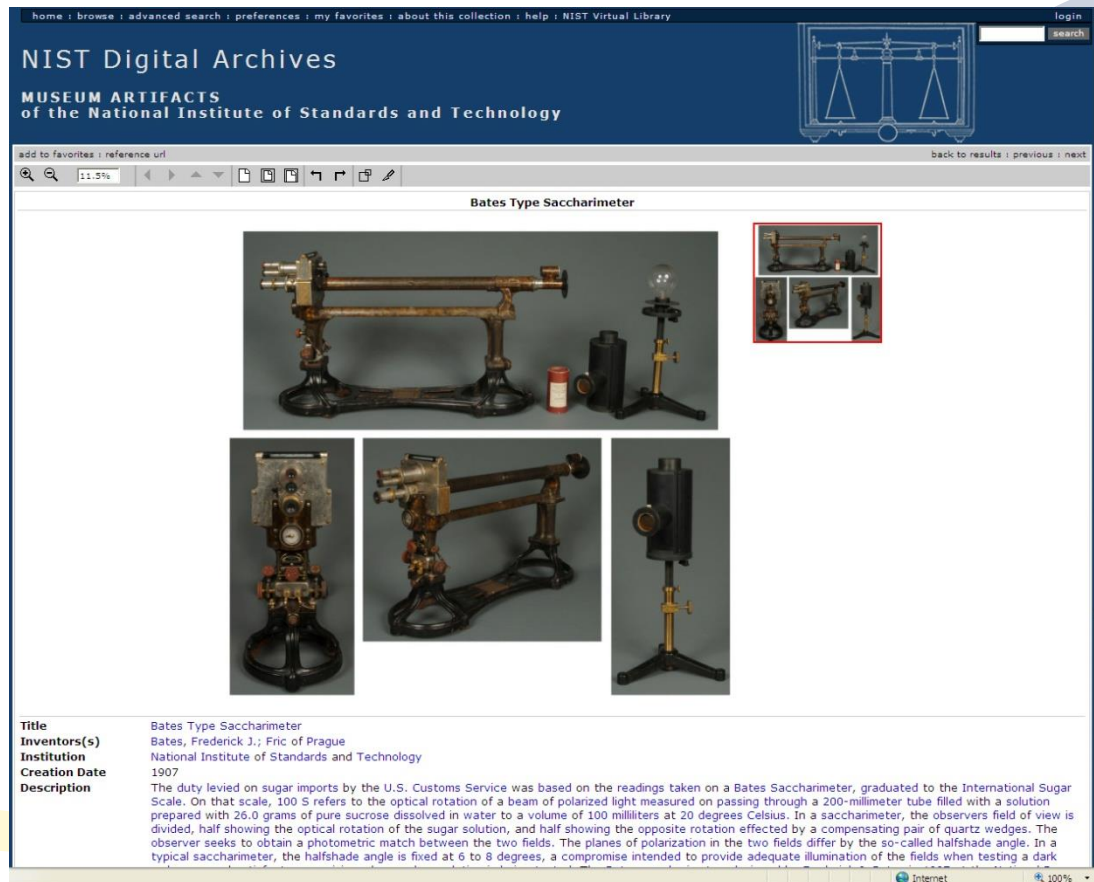
home : browse : advanced search : preferences : my favorites : about this collection : help : NIST Virtual Library

NIST Digital Archives  
MUSEUM ARTIFACTS  
of the National Institute of Standards and Technology

add to favorites : reference url

back to results : previous : next

Bates Type Saccharimeter



<b>Title</b>	Bates Type Saccharimeter
<b>Inventors(s)</b>	Bates, Frederick J.; Fric of Prague
<b>Institution</b>	National Institute of Standards and Technology
<b>Creation Date</b>	1907
<b>Description</b>	The duty levied on sugar imports by the U.S. Customs Service was based on the readings taken on a Bates Saccharimeter, graduated to the International Sugar Scale. On that scale, 100 S refers to the optical rotation of a beam of polarized light measured on passing through a 200-millimeter tube filled with a solution prepared with 26.0 grams of pure sucrose dissolved in water to a volume of 100 milliliters at 20 degrees Celsius. In a saccharimeter, the observers field of view is divided, half showing the optical rotation of the sugar solution, and half showing the opposite rotation effected by a compensating pair of quartz wedges. The observer seeks to obtain a photometric match between the two fields. The planes of polarization in the two fields differ by the so-called halfshade angle. In a typical saccharimeter, the halfshade angle is fixed at 6 to 8 degrees, a compromise intended to provide adequate illumination of the fields when testing a dark

<http://nistdigitalarchives.contentdm.oclc.org>



# Crowdsourcing

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☐ 9.



Wood Heads

Wood models of human heads. Inscription on bottom of models reads "National Bureau of Standards 6-1-1946. Size 7". Some heads are also inscribed "Size 7.5". These model heads may be a "95% profile model"....

☐ 10.



D'Arsonval Galvanometer Movement

A D'Arsonval Galvanometer Movement, used to measure DC current.

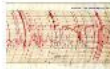
☐ 11.



National Bureau of Standards Stamp Dies

Two National Bureau of Standards stamp dies.

☐ 12.



Frequency Analysis Recording on 17 Year Cicada

"A cardboard tube holds a frequency analysis chart on the 17 year cicada. The chart is dated June 1936 and is labeled "'Radio Section'". This most likely refers to the radio research section of the National...

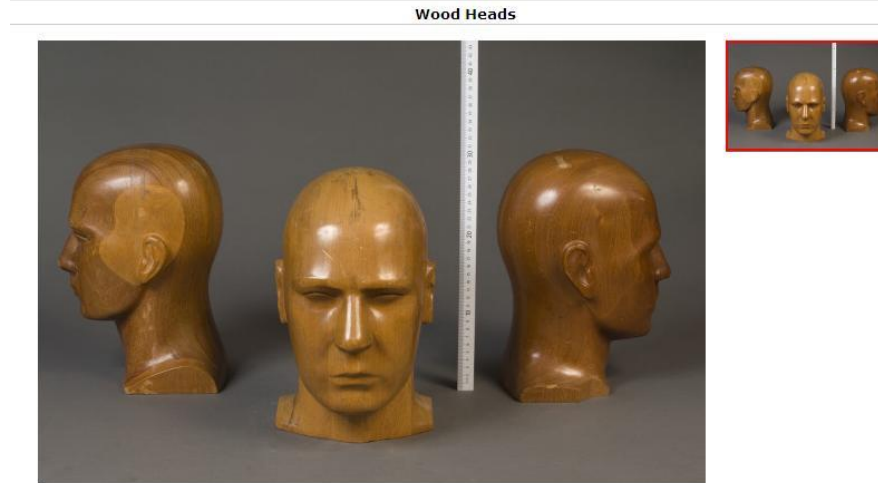


Direct response: [nda@nist.gov](mailto:nda@nist.gov)

Wood Heads

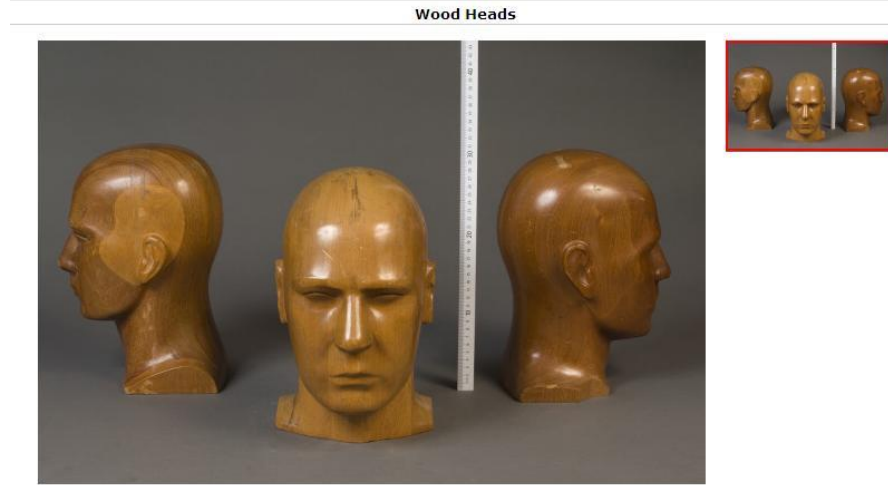


# Some very helpful



“Test apparatus for respirator masks. Such masks had to be designed to fit a large number of facial structures, so a ‘95% profile model’ was developed. The contours of this model were said to be common to 95% of the population. When designing a respirator mask, you need to have the edges seal tightly against the face, so possibly these wooden heads quantified what a ‘face’ is.”

# Some not as useful ... but funny



“These items are middle managers. You can distinguish them from upper management which are made of bone instead of wood.”

# Indirect Response: Answers from outside sources



Разгребая завалы на чердаке, музейщики национального института стандартов и технологий (NIST) натыкаются под час на весьма хитроумные приборы и механизмы. Утраченная документация и мануалы повергают ученых в уныние, ведь назначение этих приборов зачастую не определить с первого взгляда (а часто бывает, что и со второго). Вот поэтому они и обращаются к тебе, %username%, за помощью в идентификации всяческих пыльных железяк.

80 лет в интернете

теплый ламповый звук

Пост-загадка

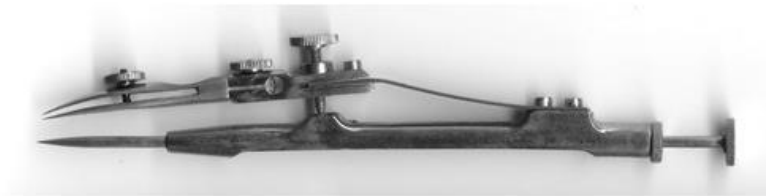
Коломбо выходит на след



**Google translation: “Raking piles in the attic, museum workers of the National Institute of Standards and Technology (NIST) stumble under an hour on a very sophisticated instruments and mechanisms. Lost documentation and manuals plunged scientists in gloom, because the purpose of these devices often do not identify at first glance (and it often happens that in the second). That's why they turn to you for help in identifying every piece of iron dust.”**

# Russian website

oxygen: There is no classical "[balerinki]".



23  Wrote [Akula](#), 20.04.2011 into 17.52 ↑.

Akula: **thus, and where my drawing instruments?**

\*[prishla] into the head the idea to draft anything, to [otskanirovat] and on the outlines to bring on the computer (I write "on the computer" in order not to separate [khollivarov] "in than more conveniently to draw") \*

0  Wrote [DrStep](#), 20.04.2011 into 19.31 ↑.

Akula: It is not above to the left similar?

5  Wrote [KEMBL](#), 21.04.2011 into 00.53 ↑.

KEMBL: On the classical entire mechanism freely moves along the long axis with the needle of [vverkh]-[vniz], which makes it possible to conveniently raise the drawing part above the whatman, without inclining entire tool.

0  Wrote [Akula](#), 21.04.2011 into 05.28 ↑.

# Metafilter

**MetaFilter**

community weblog

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## It's a finglonger, obviously

April 14, 2011 6:56 AM [Subscribe](#)

The **NIST Digital Archives** is an online collection of scientific instruments from the **National Institute of Standards and Technology**. But even the experts don't always know what it is they've got, and **they'd like your help**. Any idea what you're supposed to do with **Eight Dials Set in a Wooden Frame**? How about **Metal Instrument in Wood Case**?

posted by **Horace Rumpole** (20 comments total) [11 users marked this as a favorite](#)

Eight Dials Set in Wooden Frame is almost certainly a variable current shunt used for measuring the current flowing in a system using a volt-meter. There is **another device** on their site which has the same purpose and is more easily identifiable.

"Int Ohm" stands for "**International Ohm**" which was the International unit of resistance before the adoption of SI units, in use between 1893 and 1948.

Manganin is an alloy with non-temperature-variable resistance properties (perfect for a current shunt).

**Here** is a current version of such a device.

posted by **Morbuto** at **9:18 AM** on April 14



# Tapping the experts

Current and  
Retired NIST  
Employees

Standards  
Alumni  
Organization



Photo credit: Chris Rossi/The Gazette

# Usage stats

- End of March to mid-April went from 1,165 Visits, 135 Unique hosts to 23,283 visits, 16,606 unique hosts
- Continued responses, press coverage
- “Long tail” effect



Argentina  
Australia  
Belarus  
Belgium  
Brazil  
Canada  
Chile  
Colombia  
Denmark  
Egypt  
Finland  
France  
Germany  
Greece  
Guatemala



The slide features decorative curved lines in the corners. In the top right, there are two overlapping arcs, the top one in light blue and the bottom one in light yellow. In the bottom left, there are also two overlapping arcs, the top one in light yellow and the bottom one in light blue. The text "Questions?" is centered in a dark blue font.

Questions?

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