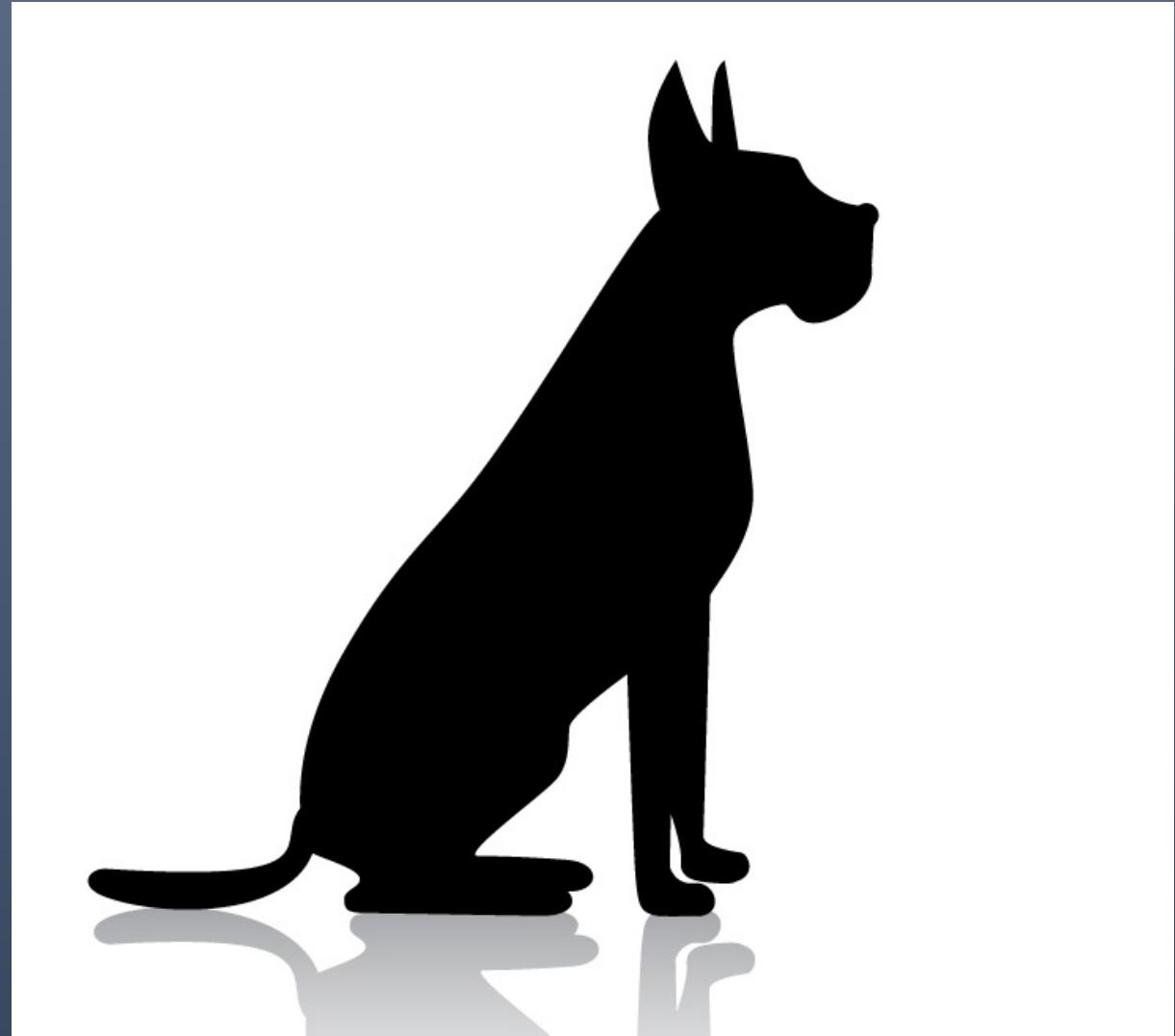


# Data-driven health care reporting

... or, Becoming a Better Watchdog

Sarah Cohen  
Walter Cronkite School of Journalism  
with thanks to Meghan Hoyer of the Associated Press



# What is data journalism?

# da·ta

/'dædə, 'dādə/ 🔍

*noun*

facts and statistics collected together for reference or analysis.

*synonyms:* facts, figures, **statistics**, details, particulars, specifics; **information**, **intelligence**, **material**, **input**; *informal* **info**

"a lack of data on the drug's side effects"

- **COMPUTING**

the quantities, characters, or symbols on which operations are performed by a computer, being stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media.

- **PHILOSOPHY**

things known or assumed as facts, making the basis of reasoning or calculation.



Transla

## What is journalism?

Journalism is the activity of gathering, assessing, creating, and presenting news and information. It is also the product of these activities.

# DATA JOURNALISM AWARDS 2017 WINNING PROJECTS



## Data Visualisation of the Year

The Rhymes Behind Hamilton, The Wall Street Journal, United States

## Investigation of the year

Unfounded, The Globe and Mail, Canada

## News Data App of the Year

Electionland, ProPublica and The Electionland Coalition, United States

## Open Data

Database of Assets of Serbian Politicians, Crime and Corruption Reporting Network – KRIK, Serbia

## Data Journalism Website of the Year

Rutas del Conflicto, Rutas del Conflicto, Colombia

## The Chartbeat award for the best use of data in a breaking news story, within first 36 hours

Fact Check: Trump And Clinton Debate For The First Time, NPR / NPR Visuals & NPR Politics, United States

## Best Individual Portfolio

John Burn-Murdoch, Financial Times, United Kingdom

## Best Team Portfolio

Berliner Morgenpost Interactive team, Germany

## Student and young data journalist of the year

Yaryna Serkez for portfolio, New York Times et al, Ukraine

## Small newsroom

Crime in Context, The Marshall Project, United States

## Small newsroom

Ctrl+X, Abraji – Brazilian Association for Investigative Journalism, Brazil

## Public choice

"Researchers bet on mass medication to wipe out malaria in L Victoria Region" by Nation Media Group in Kenya

# Storytelling with data

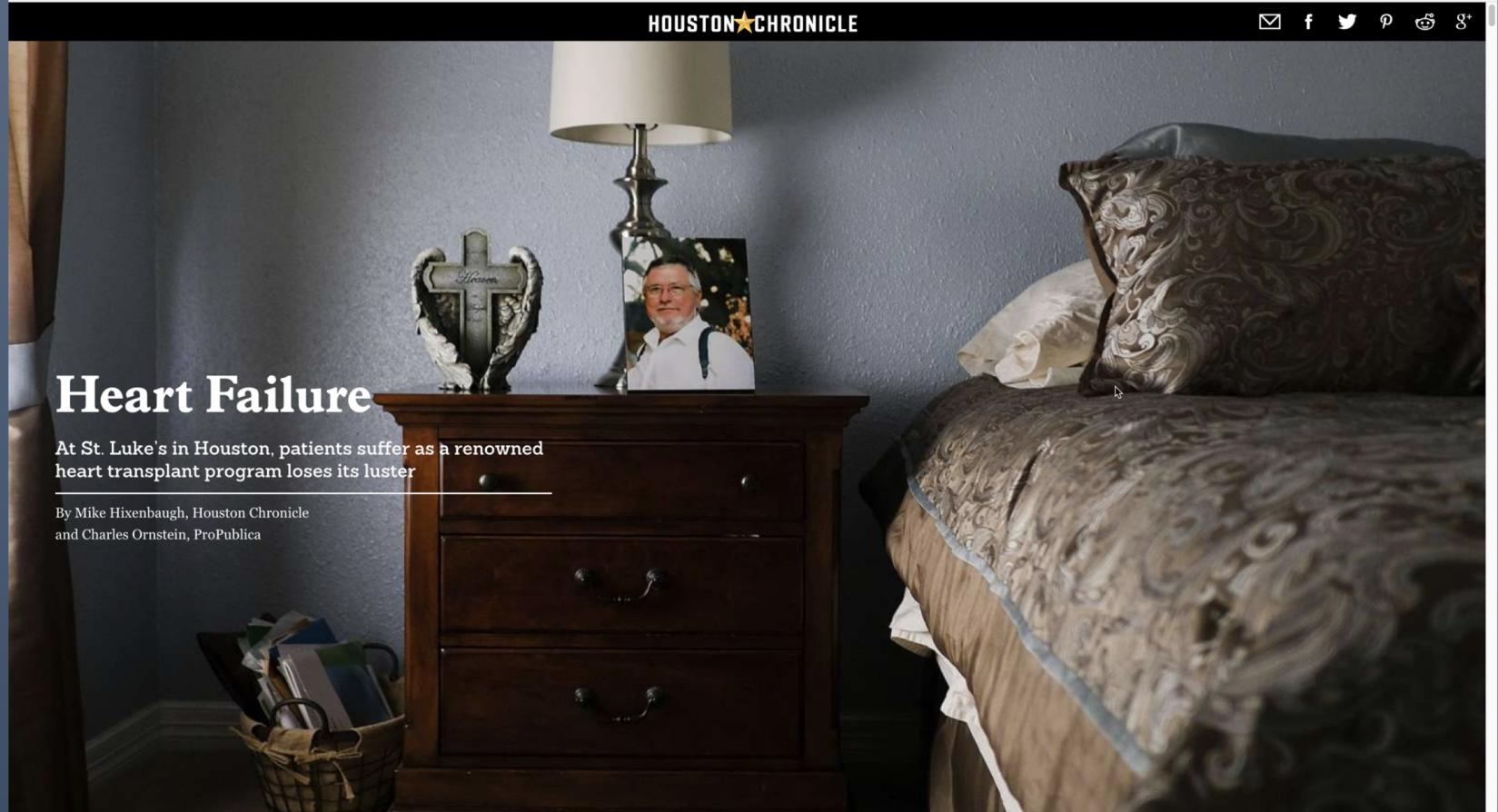
- Writing about data
- News applications / data as journalism
- Data visualization

# Reporting with data

- Precision journalism / empirical journalism
- Computer-assisted reporting
- Analyzing documents and records at scale

# Why data?

*Because you  
want better  
questions for  
your sources*



*Because officials  
won't engage or  
answer your  
calls*

## CDC cracks down on communications with reporters

SE  
**AXIOS**



*Because you want  
anecdotes AND  
evidence*

DOW JONES, A NEWS CORP COMPANY ▾

DJIA 24706.41 -0.78% ▾ S&P 500 2711.45 -0.68% ▾ Nasdaq 7351.63 -0.81% ▾ U.S. 10 Yr -21/32 Yield 3.078% ▾ Crude Oil 70.95 -0.50%

# THE WALL STREET JOURNAL.

U.S. Edition ▾ | May 15, 2018 | Today's Paper | Video

Home World U.S. Politics Economy Business Tech Markets Opinion Life & Arts Real Estate WSJ. Magazi

BUSINESS  
Why Empty Seats at Taylor Swift's Concerts Are Good for Business

OPINION  
What Interest Do Health GPOs Really Serve?

U.S. NEWS  
A Crime Problem on the Upper West Side: Shoplifting at Duane ...

WSJ. MAGAZINE  
Where Graduates Move After College

**U.S.**

## Taxpayers Face Big Medicare Tab for Unusual Doctor Billings

More Than 2,300 Providers Earned \$500,000 or More From a Single Procedure or Service, Data Show

By [John Carreyrou](#), [Christopher S. Stewart](#) and [Rob Barry](#) 161 COMMENTS

June 9, 2014 10:00 p.m. ET

Ronald S. Weaver isn't a cardiologist. Yet 98% of the \$2.3 million that the Los Angeles doctor's practice received from Medicare in 2012 was for a cardiac procedure, according to recently released government data.

Ronald S. Weaver  
Los Angeles internist  
**Received \$2.27 million from Medicare in 2012 for 'enhanced external counterpulsation'**

Most Popular

1. Clash, Embassies Leave
2. Drawing Health With F
3. Two T Are Co Nafta
4. A Con Malay Minist Mohan
5. What Trade Worke

*Because records are  
contemporaneous  
and don't forget*



*Because  
government is good  
at vacuuming  
information with no  
time to analyze it*

The screenshot shows the Arizona Department of Health Services (ADHS) website. At the top, there is a navigation bar with links for HOME, AUDIENCES, TOPICS, DIVISIONS, and A-Z INDEX. To the right of the navigation is a search bar labeled "Google Custom Search" with a magnifying glass icon. The main content area features a large title "Arizona Immunization Program". Below the title, a breadcrumb trail shows the path: ADHS Home / Public Health Preparedness / Epidemiology & Disease Control / Arizona Immunization Program - Statistics & Reports - Immunization Coverage Levels. On the left, there is a sidebar with links for Home, Get Vaccinated, Child Care, School & College, Vaccines for Children (VFC), Healthcare Professionals, ASIIS, Get your Immunization Records with MyIR, AIPO Train - Provider Training, Statistics & Reports (which is expanded to show "Immunization Coverage Levels" and "National Immunization Survey"), and Home. The main content area contains a section titled "Statistics & Reports - Immunization Coverage Levels" with a sub-section titled "Trends in Immunizations". It also includes a paragraph about the annual Immunization Data Report and a list of links for immunization coverage levels by county or school, trends in immunizations, and immunization coverage level summaries for 2016-2017.

Arizona DEPARTMENT OF HEALTH SERVICES  
*Health and Wellness for All Arizonans*

HOME AUDIENCES TOPICS DIVISIONS A-Z INDEX

Google Custom Search

Arizona Immunization Program

ADHS Home / Public Health Preparedness / Epidemiology & Disease Control / Arizona Immunization Program - Statistics & Reports - Immunization Coverage Levels

Home

Get Vaccinated

Child Care, School & College >

Vaccines for Children (VFC) >

Healthcare Professionals >

ASIIS >

Get your Immunization Records with MyIR

AIPO Train - Provider Training

Statistics & Reports

Home

Immunization Coverage Levels

National Immunization Survey

Statistics & Reports - Immunization Coverage Levels

Trends in Immunizations

The immunization data is obtained through the annual Immunization Data Report. The Immunization Data Report is a self-report survey that each school is required to complete and submit to the Arizona Department of Health Services Immunization Office by November 15th each year per Arizona Administrative Code R9-6-707. It assesses the coverage and exemption data from the following grades: Child care/Preschool; Kindergarten; and 6th grade.

- [Search Immunization Coverage Levels by County or School \(2010 - present\)](#)
- [Trends in Immunizations](#)

Immunization Coverage Level Summaries

2016-2017

- [Arizona Reporting Schools Coverage](#)
- [County Kindergarten Coverage](#)
- [Kindergarten Measles Coverage](#)
- [County 6th Grade Coverage](#)
- [School Measles](#)

*Because no  
one else will  
count*

JOURNAL SENTINEL



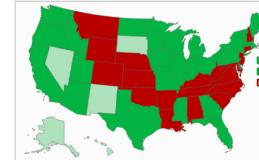
A JOURNAL SENTINEL WATCHDOG REPORT

## Deadly Delays

The nation's newborn screening programs depend on speed and science to save babies from rare diseases. But thousands of hospitals fall short, deadly delays are ignored and failures are hidden from public view — while babies and their families suffer.

Published Nov. 16, 2013

Delays at hospitals across country  
undermine newborn screening programs



Interactive: See how states compare and search for problem hospitals



Colton Hidde: Testing delay puts newborn's life in jeopardy



Lack of weekend lab hours adds to delay, putting babies at risk

*Because it  
sometimes really  
isn't a few bad  
apples*



*Because we want to report on what officials and institutions do, not what they say*



One by one, nearly all the state psychiatric hospitals were boarded up or bulldozed, but Massachusetts leaders broke their promise to replace them with something better — or much of anything at all. The failed mental health care system has led to a public safety crisis, including scores of murders by disturbed people, police shootings, and embattled institutions from courts to hospitals confronting a tidal wave of mentally ill people.



*Because,  
well,  
dogs*

# The Yorkie's Dominance: We Analyzed Every Dog Registration in New York

Downtown poodles. Uptown pit bulls.

A Xoloitzcuintli on the block. To understand  
New York real estate, follow Fido.

By STEFANOS CHEN FEB. 10, 2018



As old as the republic

TRUTH WILL OUT!

THE FOUL CHARGES

OF THE

TORIES

AGAINST THE

*EDITOR* of the *AURORA*

REPelled by POSITIVE PROOF and PLAIN TRUTH.

AND

HIS BASE CALUMNIATORS PUT TO SHAME;

Benj. F. Bache

[Price—Two Cents.]

SURGO UT PROSIM

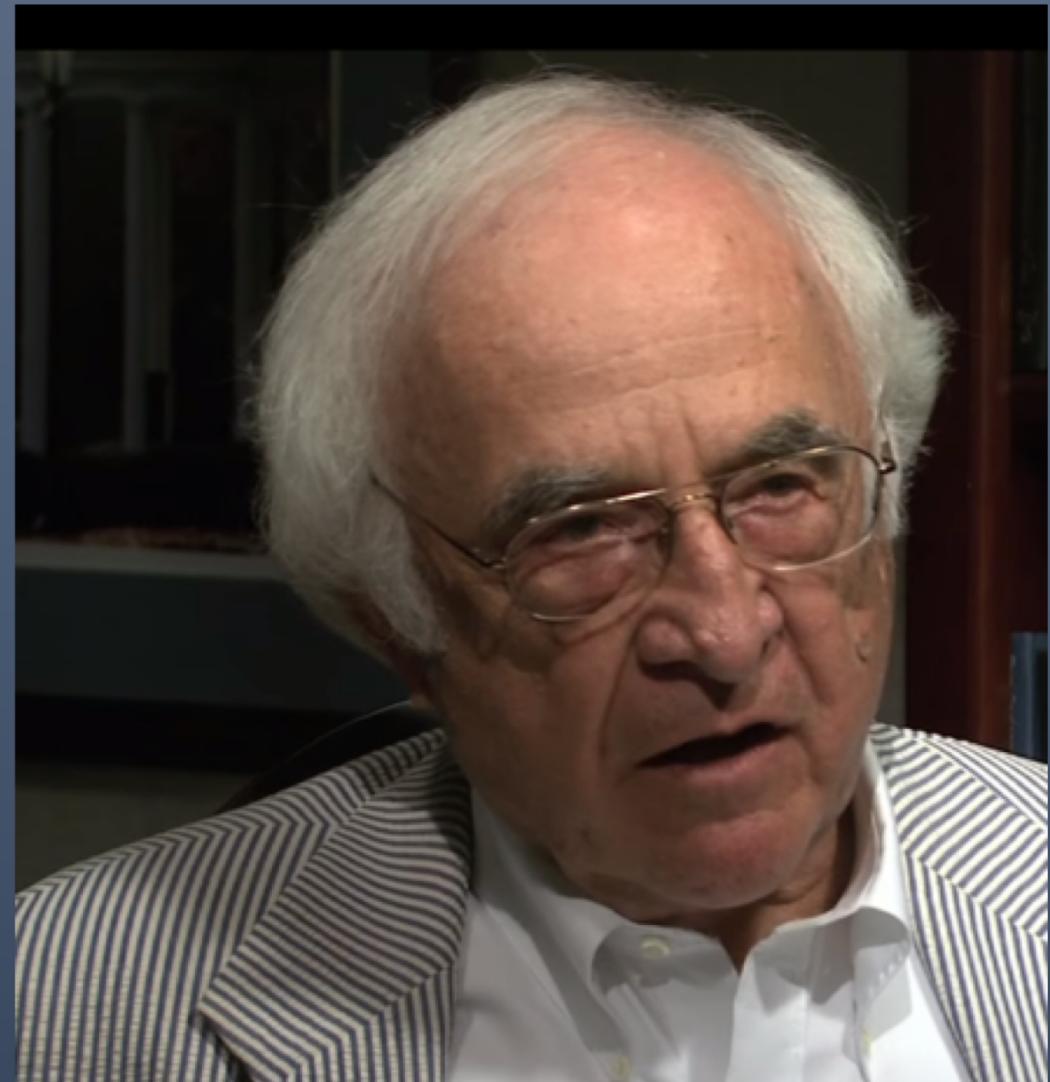
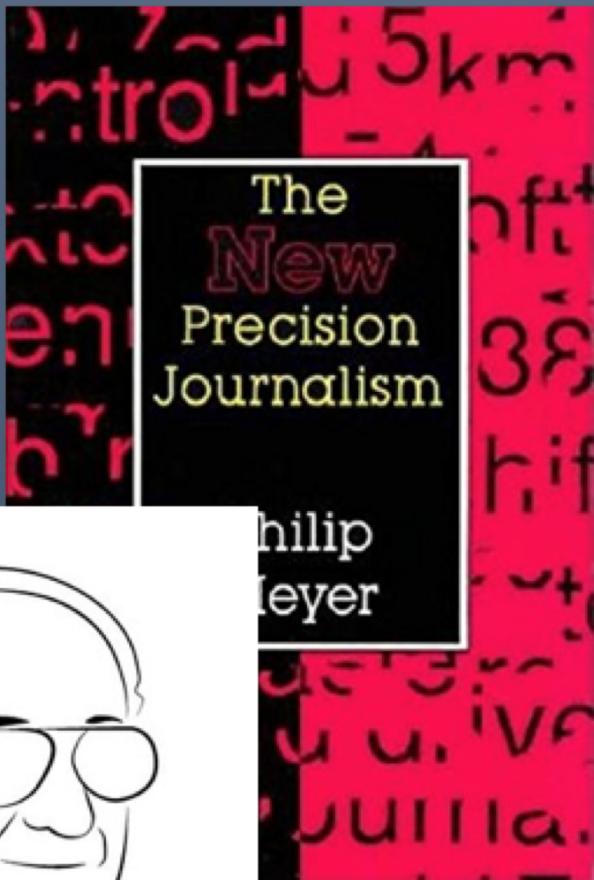
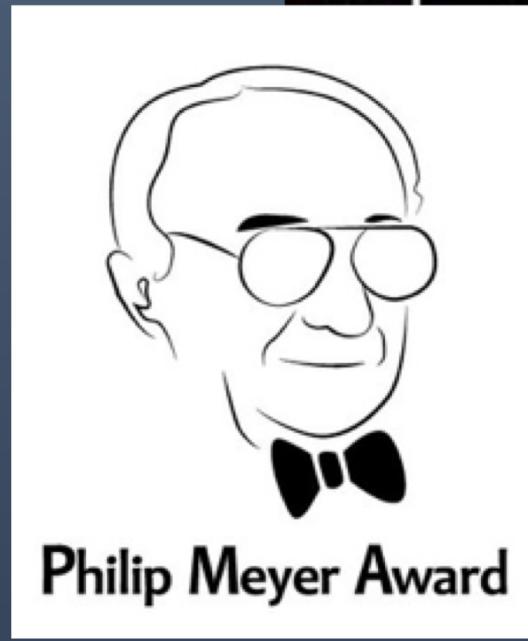
AURORA  
AND  
GENERAL ADVERTISER  
BENJ. FRANKLIN BACHE  
PUBLISHER  
NO. 112, MARKET-STREET



# *Frank Leslie's Illustrated Weekly swill milk investigation, 1858*



# *Precision journalism*



# Original reporting with data

*The old  
way*

# What computers do

- Store stuff
- Give you back stuff you stored
- Sort, count and match
- Repeat your instructions over and over
- Help you with some math



# What computers don't do

- Ask questions
- Get ideas
- Think
- Feel
- See
- Understand right from wrong



(They also don't complain when you ask too many questions)

# Three kinds of data sources

- Direct observation / surveillance / testing
- People
- Documents and other records



# POISON IN THE GROUND

## GHOST FACTORIES

# An invisible danger in our yards

A USA TODAY Investigation

In hundreds of neighborhoods across the United States, children are living and playing near sites where factories once spewed lead and other toxic metal particles into the air. The factories, which melted lead in a process called smelting, closed long ago but poisonous lead particles can still be found in the soil nearby. Families interviewed were unaware of the dangers posed by their yards – and the government has done little to warn them, a USA TODAY investigation has found.

[VIDEO](#)

[PHOTOS](#)

[EXPLORE](#)

USA TODAY

### DANGER

An invisible and ignored danger

### FAILURE

A failure to protect the public

### TESTING

USA TODAY's soil test findings

### CASE STUDY

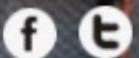
Tyroler Metals, Cleveland, OH

### TAKE ACTION

How you can make your home, yard safe

### EXPLORE

More than 230 former factory sites



THE JUDGE CLUB



# Friday justice

Despite a big backlog in cases, several criminal court judges play golf or go home early on many Fridays.



Superior Court judges Michael A. Kahan, left, Mark E. James, and Dennis Murphy are up to their ears in cases, but they still find time for Friday golf.

The series of reports was researched and written by Blasius

**O**n a typical Friday, Santa Clara County's Hall of Justice looks like the scene of a going-out-of-business sale. Some judges are riding away in their chambers, but, like the occupants of a fine hotel and inn, courtrooms

BEARING ARMS

## Seeking Gun or Selling One, Web Is a Land of Few Rules



The New York Times

Theresa O'Rourke talked about her friend Jitka Vesel, shown at right in photograph behind her. Ms. Vesel was killed by Dmitry Smirnov, who was stalking her and bought a gun online.

By MICHAEL LUO, MIKE McINTIRE and GRIFF PALMER

Published: April 17, 2013 | 371 Comments

The want ads posted by the anonymous buyer on Armslist.com, a sprawling free classified ads Web site for guns, telegraphed urgency.

### Bearing Arms

Articles in this series examine the gun industry's influence and the wide availability of firearms in America.

#### Previous Articles:

Seeking Gun or Selling One, Web Is a Land of Few Rules

In Some States, Gun Rights Trump Orders of Protection

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THE  
WAY WAY BACK

**FOR SALE: WTS/WTT 300 BLACKOUT PISTOL, 300 BLACKOUT NOVESKI AR, REMINGTON/AAC SD 300 BLACKOUT, AAC MICRO 7**

**Price:** \$ 2,550  
**Seller:** Private Party  
[Listings by this user](#)

**Listed On:** Saturday, June 29, 2013  
**Listed In:** Handguns  
**Location:** Springfield, Springfield, Missouri - Map

**Manufacturer:** Noveske  
**Caliber:** 300 Blackout (7.62x35mm)  
**Action:** Semi-automatic  
**Firearm Type:** Rifle

[Flag](#) | [Edit](#) | [Favorite](#)

[Contact Seller](#)

As new Noveski factor built 300 Blackout rifle, fired 60 rounds to function test since new, 16" stainless match barrel.

- 1.Larue front and rear folding backup iron sights
- 2.BCM gunfighter charging handle
- 3.AAC S1T flash hider
- 4.Magpul MIAD grip and stock
- 5.Troy Single point sling mount
- 6.Hard chrome bolt/carrier
- 7.Surefire 900V, LED/IR with white navigation lights
- 8.Aimpoint T1 micro sight, 4MOA, Larue tall throw lever mount
- 9.1 P Mag

## A CULTURE OF BIDDING

*Examining the growing art market in China*

## PART 1

Forging an Art Market

## PART 2

An Art Power's Rise

## PART 3

The New Collectors

A CULTURE OF BIDDING

# Forging an Art Market in China

**By David Barboza, Graham Bowley and Amanda Cox**

Additional Reporting by Jo Craven McGinty

BEIJING, October 28, 2013

[点击查看本文中文版 | Read in Chinese »](#)

W

hen the hammer came down at an evening auction during China Guardian's spring sale in May 2011, "Eagle Standing on a Pine Tree," a 1946 ink painting by Qi Baishi, one of China's 20th-century masters, had drawn a startling price: \$65.4 million. No Chinese painting had ever fetched so much at auction, and, by the end of the year, the sale appeared to have global implications, helping China surpass the United States as the world's biggest art and auction market.

But two years after the auction, Qi Baishi's masterpiece is still languishing in a warehouse in Beijing. The winning bidder has refused to pay for the piece since doubts were raised about its authenticity.

Qi Baishi's shrimp



Images via Artron

Scholars say he was prolific and estimate he produced between 10,000 and 15,000 works in his lifetime. Of those, about 3,000 are in the collections of major museums and some are assumed to have been destroyed during the Japanese invasion in the 1930s or during the Cultural Revolution, when Red Guards looted and occupied his family's home.

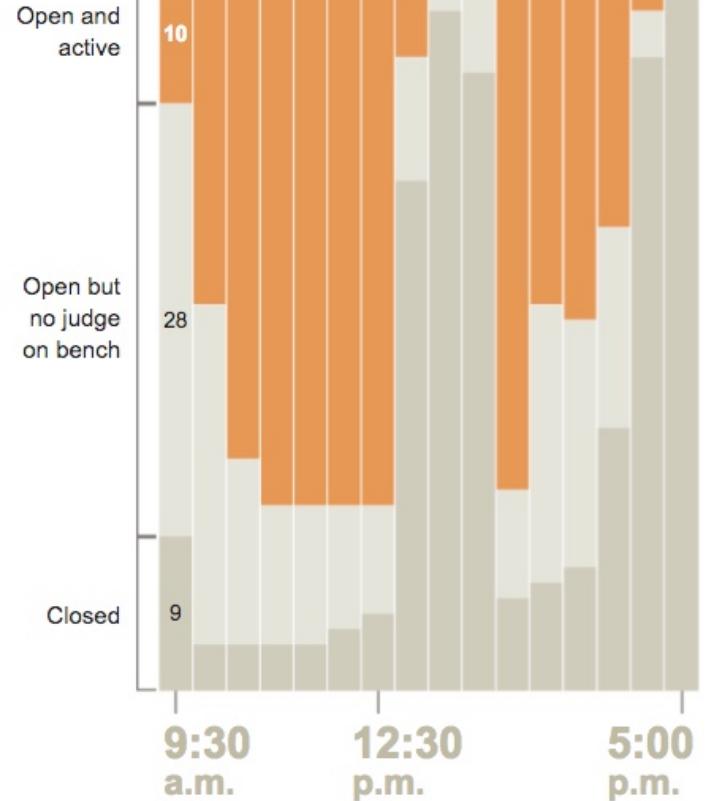
Auction records, though, show that more than 18,000 distinctive works by Qi Baishi have been offered for sale since 1993, an impossible number, if the expert estimates are right.

# Faltering Courts, Mired in Delays



Michael Appleton for The

The delays in the Bronx court system are apparent even before entering the criminal courts building. Victims, defendants, witnesses and relatives often face long lines to go through security.



On March 13, The Times visited all 47 courtrooms at the Bronx County Hall of Justice in 30-minute intervals to tally how many were open and actively in session, open but without a judge on the bench, or closed. More than half of the courtrooms were either closed or idle for the majority of the day.



# *The Disproportionate Risks of Driving While Black*

An examination of traffic stops and arrests in Greensboro, N.C., uncovered wide racial differences in measure after measure of police conduct.

Documenting racial profiling in police work is devilishly difficult, because a multitude of factors — including elevated violent crime rates in many black neighborhoods — makes it hard to tease out evidence of bias from other influences. But an analysis by The New York Times of tens of thousands of traffic stops and years of arrest data in this racially mixed city of 280,000 uncovered wide racial differences in measure after measure of police conduct.

WEDNESDAY NOV. 15, 2017

TRENDING SPORTS OPINION EVENTS+EATS LOCAL TODAY'S PAPER CLASSIFIED OBITUARIES

80°



News / Speeding Cops

# Cops among Florida's worst speeders, Sun Sentinel investigation finds



The Sun Sentinel's 2012 investigation of speeding cops found that more than 700 cops from 12 agencies drove 90 to 130 mph.

By **Sally Kestin and John Maines, Sun Sentinel**

**Today:** Partly sunny, breezy.  
High 53. Low 30.  
**Saturday:** Partly sunny.  
High 45. Low 29.

Details, B10

130TH YEAR NO. 122 S DC MD

# The Washington Post

FRIDAY, APRIL 6, 2007

**DISTRICT &  
MARYLAND  
HOME EDITION**

35¢

Prices may vary in areas outside metropolitan  
Washington. (See box on A2)

Mi Ma Me Mi Vi Vs Vs Vs

## Fairfax Man Whose Son Killed Police Is Arrested

*Father Possessed Guns Illegally, Charges Say*

By JERRY MARKON and TOM JACKMAN  
*Washington Post Staff Writers*

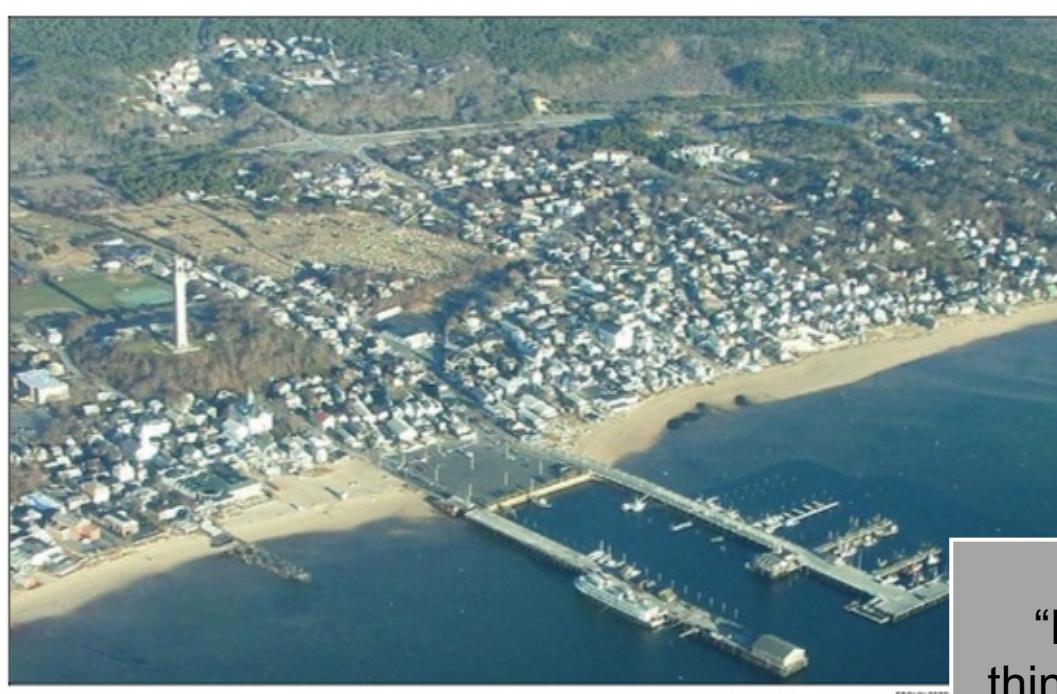
The father of the teenager who killed two Fairfax County police officers outside a police station last year was charged yesterday with illegally helping his son obtain the arsenal of guns used in the rampage, including an AK-47 assault rifle.

Brian Kennedy, 50, who lives in Centreville near the Sully District police station, is accused of lying on federal forms to obtain the AK-47 and illegally possessing the six other guns that his mentally troubled son, Michael, took to the station in May. Michael Kennedy, 18, fired more than 70 rounds that day before police mortally wounded him.

A 21-page indictment, unsealed late yesterday in U.S. District Court in Alexandria, portrays a family caught up in a world of guns and drugs. It alleges that Brian Kennedy smoked marijuana with his son and his son's teenage friends and that Michael Kennedy's mother, Margaret, took the teens to a shooting range to practice firing assault rifles.

Authorities found guns and marijuana throughout the family's home, and the indictment quotes Brian Kennedy as telling a friend that the 7.8 grams of marijuana police found in a wooden box in the living room was "chump change."

Kennedy was arrested late yesterday at



In 2003, the Agriculture Department gave a \$1.95 million loan to help rebuild a Cape Cod pier. Provincetown, Mass., a village with soaring property values and moderate taxes, says that "the business of the harbor is now largely related to tourism."

## Rural Aid Goes to Urban Areas

*USDA Development Program Helps Suburbs, Resort Cities*

By GILBERT M. GAUL  
and SARAH COHEN  
*Washington Post Staff Writers*

PROVINCETOWN, Mass. — In a few

backwoods areas that were isolated and poor, struggling to keep their heads above water.

"Provincetown is many things to many people, and to USDA we're rural," said



## Hussein's Prewar Ties To Al-Qaeda Discounted

*Pentagon Report Says Contacts Were Limited*

By R. JEFFREY SMITH  
*Washington Post Staff Writer*

Captured Iraqi documents and intelligence interrogations of Saddam Hussein and two former aides "all confirmed" that Hussein's regime was not directly cooperating with al-Qaeda before the U.S. invasion of Iraq, according to a declassified Defense De-

"Provincetown is many things to many people, and to USDA, we're rural...We'll take it

...under the direction of Abu Musab al-Zarqawi, the terrorist killed last June.

"This is al-Qaeda operating in Iraq," Cheney told Limbaugh's listeners about Zarqawi, who he said had "led the charge for Iraq." Cheney cited the alleged history to illustrate his argument that withdrawing U.S. forces from Iraq would "play right into

**BUYING POWER**

Here are 120 million  
Monopoly pieces, roughly  
one for every household  
in the United States.

# Thank you!

Sarah Cohen

Knight Chair in Data Journalism

Walter Cronkite School of Journalism / Arizona State University

[sarah.h.cohen@asu.edu](mailto:sarah.h.cohen@asu.edu) / @sarahcnyt