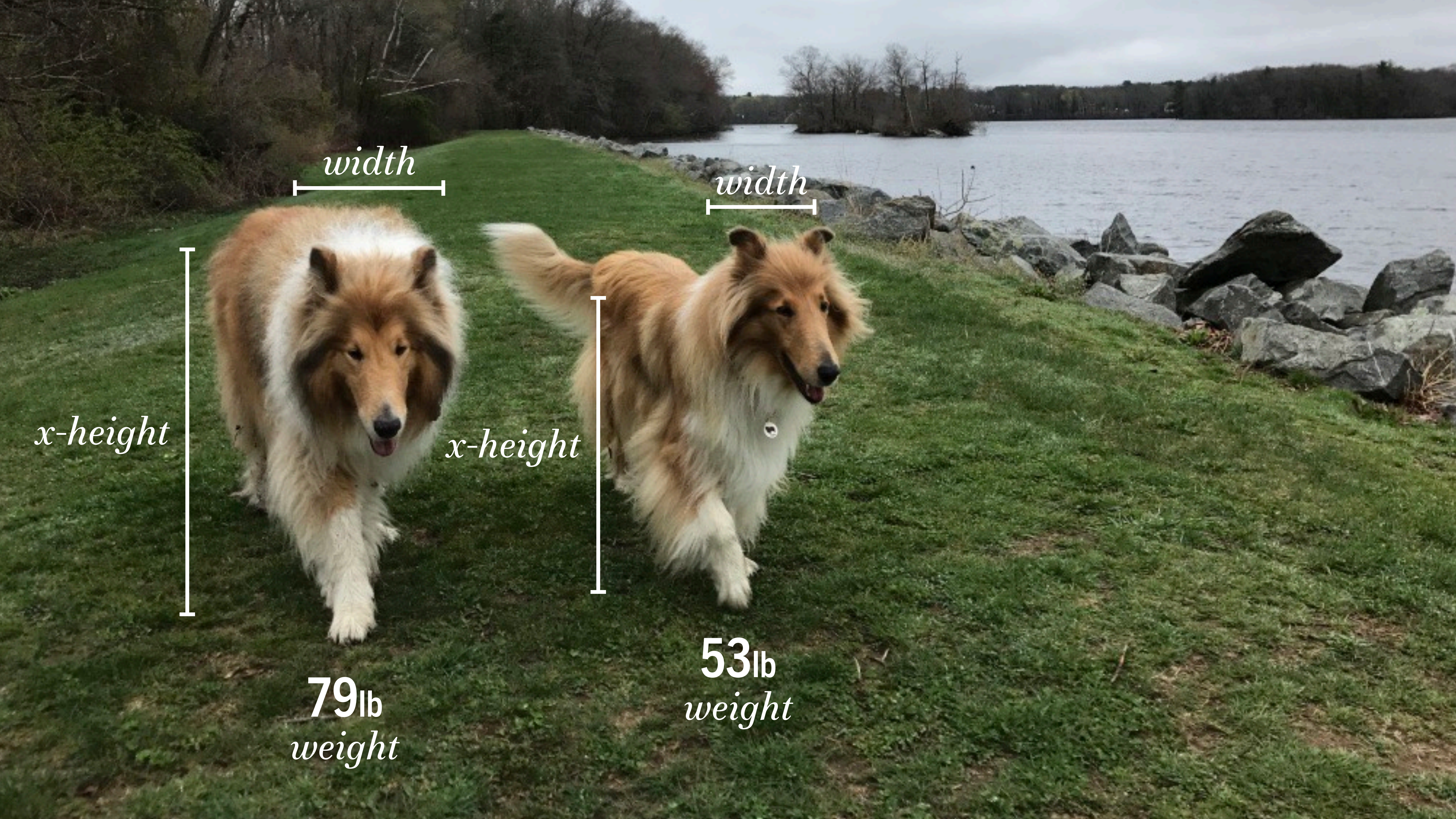


Variable Fonts & *the Future of Web Design*

a tale of slaying dragons, graphic design, and other improbable skills in designing for the digital world

Jason Pamental | @jpamental
Design/Technology Thinking & Tinkering
DrupalCon Baltimore





width

width

x-height

x-height

79lb
weight

53lb
weight



slant

Most of the web is words.

(and cat videos. but mostly words)

ps. Jpm. evorae. ^{do} ^{bn} ⁱⁿ **B**enedictus deus
 israel. ^{ca} Jpm. evorae. ^{mt} ^{ju} **I**ubitemus
 deo Salutar nro. ^{lit} Ut nō deliq̄. evorae.



Ora custodia vias meas:
 ut nō delinquā in lin-
 gua mea. **P**osui ori-
 meo custodiam: cū o-
 steret peccōr adūsū me.
Omnitui ⁊ humiliatus sū ⁊ filii
 a bonis: ⁊ dolor meus renouat' est.
Cōcaluit cor meū intra me: ⁊ i me-
 ditatione mea exardescet ignis.
Locutus sū in lingua mea: notum
 fac michi dñe finē meum.
Et numerū dierū meorū quis est:

ut sciam quid desit michi
Aecce mēsurabiles posuisti dies me-
 os: ⁊ substantia mea tanquaz
 nichilum ante te.
Verūptamen uniuersa uanitas:
 omis homo uiuens.
Verūptamen i ymagine p̄trāsit
 homo: s; ⁊ frustra sturbatur.
Melaureat: et ignorat cui
 congregabit ea.
Et nunc que ē expectatio mea.
 nōne dñs: ⁊ substantia mea
 apud te est
Ab omnib; iniquitatib; meis erue
 me: obprobriū insipienti dedisti me.
Omnitui ⁊ nō aperui os meū: qm̄
 tu fecisti a moue a me plagas
 tuas.
A fortitudine manus tue ego de-
 feci i increpationib;: ppter ini-
 quitatē corripuisti homines.



Primo proœmium. Secũdo quẽad
tradẽda sint. Tertio utrum utiliu
diãtur. Quarto qua ratione in pa
& quæ tradẽda sint. Quĩto de gra
grãmatici. Septimo an oratori fun
artium sciẽtia. Octauo de musica. Nono de g
ma pronuniationis & gestus institutione. V
tempore doceri prima ætas possit.

Unicode is relatively new, but many of the resources it catalogues are ancient. Composition software, communication links and keyboards are just starting to catch up.

9.2 THE SUBSTANCE OF THE FONT

Type metal is typically 60% to 80% lead, 15% to 30% antimony and 5% to 10% tin. Some foundry also like to add a trace of copper.

Within the tiny confraternity of metal typefounders and letterpress printers there is a subtribe that can argue day and night about recipes for type metal. In such a company, the question of whether to add or subtract five per cent of tin or antimony, or one per cent of copper, can lead to a long and heated exchange. In the community of digital foundry and programmers, there is a corresponding subtribe capable of arguing till death about the merits of one digital format versus another.

Between 1980 and 2000, several digital font formats were introduced. Each one's sponsors claimed their product was superior to its predecessors, and sometimes they had grounds to make such claims. In every case, however, it has turned out that what genuinely matters is not the format used so much as the level of hands-on workmanship, good sense and attention to detail. In metal and digital founding alike, the standard is set by the human who does the work, not by the recipe or by the brand name of the tools.

Bitmapped fonts came into use in the 1970s. Fonts of this sort are defined by simple addition and subtraction: *this pixel on, that pixel off, these pixels on, those pixels off*. In 1982, with the introduction of PostScript, bitmapped printer fonts rapidly gave way to fonts defined as scalable outlines. A decade later came the TrueType format, which differs from PostScript in two essential respects. First, PostScript and TrueType take a quite different approach to hinting (that is, they have different ways of addressing the problems caused by inadequate resolution). Second, their descriptive mathematics are different. Both interpret letterforms in terms of Bézier splines (that is to say, they rely on algebraic techniques developed by Paul de Casteljaou and Pierre Bézier in

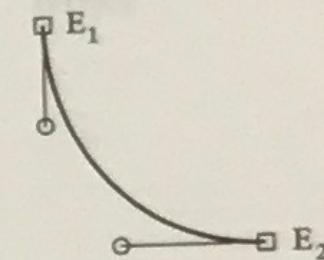
Think of a curve as a tensile line, bent by means of a lever attached to each end. Such a curve can be mathematically defined in terms of four points. Two of these are the *endpoints* of the curve. The other two, at the far ends of the levers, are known as the curve's *control points*. If the two imaginary levers can be controlled independently, then cubic equations [as for example, $f(t) = (1-t)^3E_1 + 3t(1-t)^2C_1 + 3t^2(1-t)C_2 + t^3E_2$] will be required to describe the curve, and it is called a cubic spline.

The levers themselves are *not part of the curve*, and the control points are usually off the curve. In the simplest case, however, these imaginary levers have a length of zero. Then the control points and the endpoints coincide, and the curve is a straight line.

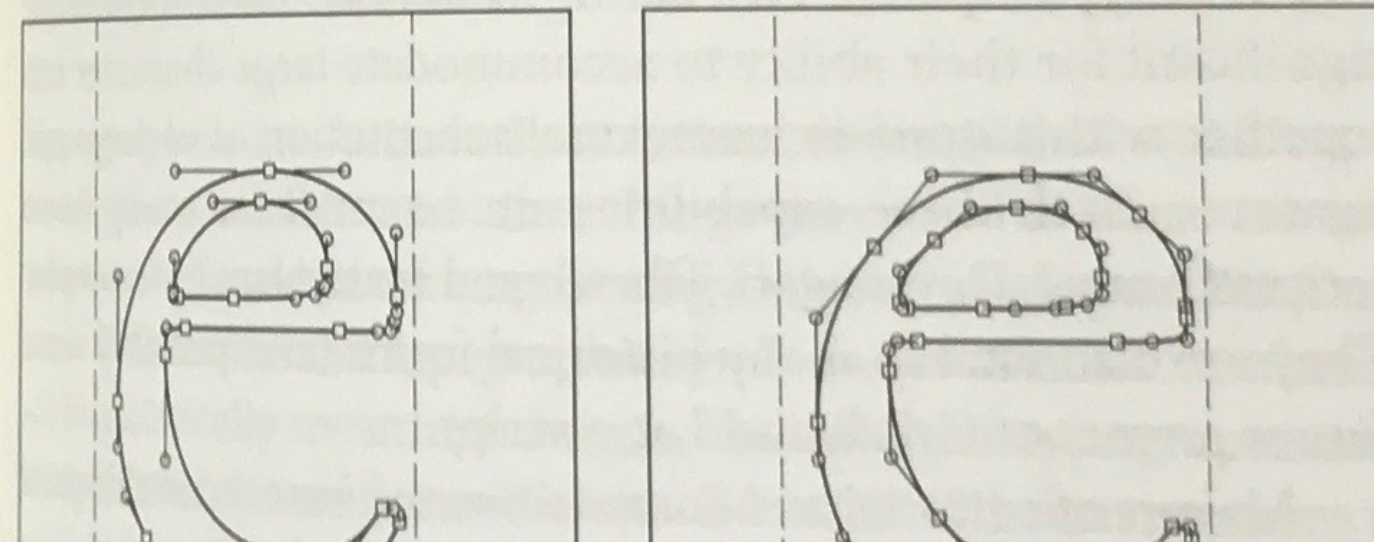
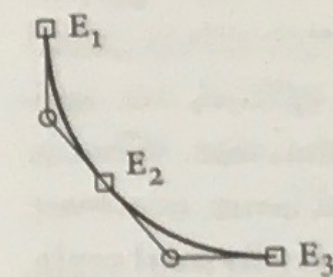
One way to simplify a cubic spline is to tie the levers together so that both control points coincide (or so that one control point has a fixed relation to the other). If that is done, the mathematical description can be simplified from cubic to quadratic [along the lines, $f(t) = (1-t)^2E_1 + 2t(1-t)C + t^2E_2$].

There are some other complications. A cubic spline, for instance, can have additional anchors or points of inflection; a quadratic spline cannot. In brief, cubic splines can be simple or complex; quadratic splines can only be comparatively simple. So translating a cubic spline to quadratic form can mean converting one spline into several (and the translation even then may be imperfect). A TrueType letterform will therefore often have more splines than the equivalent form in PostScript, but these are usually defined by fewer points, and mathematically speaking, the points are usually simpler to describe.

The State of the Art



A simple cubic spline, above, and the same curve (more or less) reconceived as two quadratic splines, below.



All quadratic splines can be perfectly expressed as cubic splines, but *not vice versa*. In quadratic equations, the highest power is two (e.g., x squared: x^2): in

1



chapter number

A Clean Sheet: the invention of papyrus

chapter title

drop cap



E

ver since Napoleon swept into Egypt at the tail end of the eighteenth century, ushering in the modern era of Egyptology, the outside world has thrilled to successive revelations of golden death masks and boy kings; of beautiful queens and matchless libraries; and of million-ton pyramids aligned to the points of the compass with uncanny precision.¹

In spite of all this, ancient Egypt's most vital commodity is treated nowadays as little more than a souvenir. Papyrus, the paperlike material upon which the ancient world wrote its books and conducted its business, is every bit as Egyptian as the pyramids or mummies that have since eclipsed it—and it was, in its day, considerably more important than either. The intertwined stories of paper, the page, and the book begin not with the glittering wealth of god-kings or the grand mausoleums but with the weeds that grew abundantly along the marshy shores.

Cyperus papyrus has always been a common plant. It grows in swamps and along the banks of the Nile. To the south, beyond the White Nile and the sh

Dragon N° 1

The practice of typography for digital systems is *different*

Let's talk a little bit about why

How can't we control the web?

Let me count the ways

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Variable font and the future of

localhost/rwt-vf-demo/html/index_v1.html

Variable Fonts

[Menu](#)

- [Font Overload](#)
- [Variable Font Demo](#)

Variable fonts & the future of web design

Jason Pamental | Tuesday 02 October 2016 12:00 EDT

Our state of affairs

549k
amount of font data downloaded to render this page (18 different weights, widths & variants)

The current state of design on the web is stalled. We made a huge leap forward with the widespread availability of web fonts starting in 2009, and then were confronted with the advent of responsive design just a year or two later. While many interesting things have come from that evolution, we've also struggled with coming to grips with the complexity of designing for infinite screen sizes whilst being equally concerned with performance. Contending with ever-shortening attention spans ([Google research gives you about 3 seconds](#) before you lose half your audience) we've had to constrain our typographic systems to just a few fonts to keep the impact on load time to a minimum.

These constraints have forced us as designers to make compromises when considering type size, line length, and overall visual hierarchy and differentiation. Considering things like a narrower font on smaller screens to achieve a slightly longer line length without sacrificing size. Or utilizing ultra-thin or ultra-heavy weights for added emphasis and variety of expression—all luxuries we can't embrace due to the burden it would place on site visitors—particularly those on shaky wireless connections.

Evolutions in layout systems for the web like Flexbox and Grid are coming along, but with only incremental improvements in compression of font formats, we're left wanting for more freedom of expression through greater variety of type. This page has been designed purposely with every weight of Roboto and Roboto Condensed available through Google Web Fonts. The goal is to showcase the variety of typographic expression that can be achieved with only width, variant, and weight.

A sea-change on the horizon

On September 14th, 2016, at the ATypI conference in Warsaw a curious collection of representatives from Adobe, Apple, Google and Microsoft took the stage to announce the new evolution of font format known as OpenType 1.8. With that came the demonstration of central showpiece of the release: *variable fonts*. There was much rejoicing, and no small amount of jaw-dropping and applause. While this is undoubtedly a huge thing for type and type design, the implications for the web are only just beginning to be understood.

I'm just going to say it:

This may be the most significant development for design on the web *since responsive design itself*

Allow me to elaborate. Type is the voice of your words. If we can only use a limited set of weights and widths, we have a limited range of that voice. So our ability to modulate that voice is extremely curtailed. The power of typographic range is multiplied when we can expand that range from 2 or 5 or 6 fonts to 10 or 15 or more, and that range is what amplifies our message. With that, even a static design can achieve much greater

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Variable font and the future of

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Dragon N° 2

Unstoppable force, meet immovable object

or 'how content showing up at all trumps pretty much anything else in the way'

**In 3 seconds, 53% of your
mobile audience will leave**

it's been **2.9** seconds—do you know where your web fonts are?

Variable Fonts

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87k

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September 14th, 2016

ATypI Warsaw

Enter Sandman

Or at least **Variable Fonts**

2 dragons, 1 font

Variable Fonts

FONT OVERLOAD

VARIABLE FONT DEMO

Requires using the [Webkit Nightly build](#) on MacOS

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One

Number of font files called for the text on this page

U u u u u u u u

u u u u u u u u

u u u u u u u u

u u u u u u u u

u u u u u u u u

u u u u u u u u

u u u u u u u u

handglove

Straight outta Compton

Er, Webkit

If type is the voice of our words
that voice just became a chorus

but wait—don't forget

Dragon N° 5

Variable Fonts

MENU

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by Jason Pamental | Tuesday 02 October 2016 12:00 EDT

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```
... application content here -->
<header role="banner" class="banner clearfix" id="banner">...
</header>
<nav role="navigation" class="nav clearfix main-nav" id="nav">...</nav>
<main class="content-area clearfix"> == $0
  ::before
  <div class="section-content border-top">...</div>
  <!--/.section-content-->
  ::after
</main>
<footer id="footer" class=
```

body main.content-area.clearfix

Styles Event Listeners

margin -

border -

padding -

383 x 2693.500

padding-bottom: 5em;

padding-bottom: 5em;

Filter Show all

- box-siz... border...
- clear both
- color rgb(...)
- display block
- font-fa... Roboto...

Console What's New

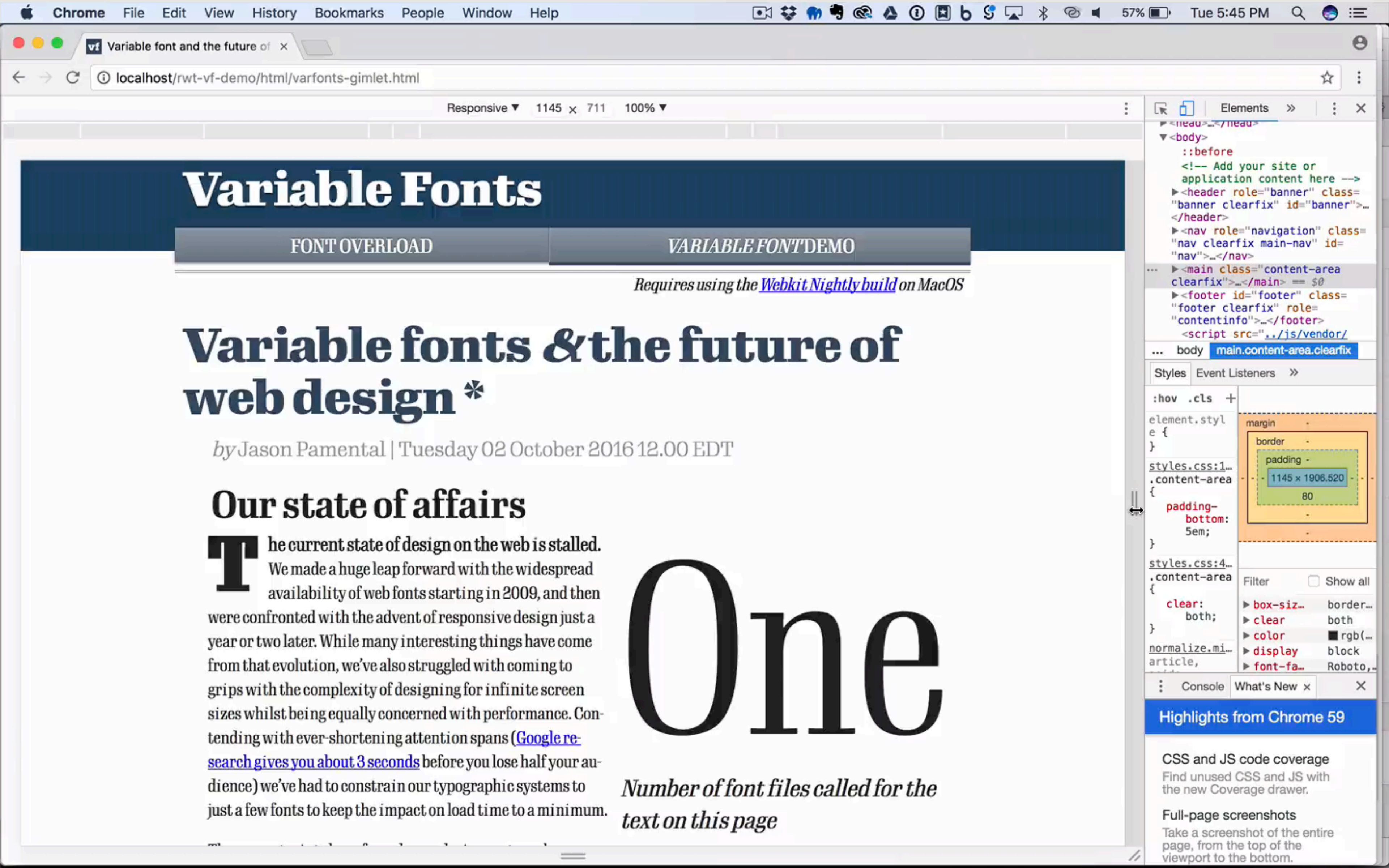
Highlights from Chrome 59

CSS and JS code coverage

Find unused CSS and JS with the new Coverage drawer.

Full-page screenshots

Take a screenshot of the entire page, from the top of the viewport to the bottom.



Variable Fonts

FONT OVERLOAD

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One

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Elements

```

<neau>...</neau>
<body>
  ::before
  <!-- Add your site or application content here -->
  <header role="banner" class="banner clearfix" id="banner">...</header>
  <nav role="navigation" class="nav clearfix main-nav" id="nav">...</nav>
  <main class="content-area clearfix">...</main> == $0
  <footer id="footer" class="footer clearfix" role="contentinfo">...</footer>
  <script src=".../js/vendor/...>

```

body main.content-area.clearfix

Styles Event Listeners

```

:hov .cls +
element.styl
e {
}
styles.css:1...
.content-area
{
padding-
bottom:
5em;
}
styles.css:4...
.content-area
{
clear:
both;
}
normalize.mi...
article,

```

margin -

border -

padding -

1145 x 1906.520

80

Filter Show all

- box-siz... border...
- clear both
- color rgb(...)
- display block
- font-fa... Roboto...

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This changes *everything*

But what about the future?

Unreleased Tax Returns May Doom Trump's Overhaul Effort

By ALAN RAPPEPORT

- Democrats have pledged not to cooperate on rewriting the tax code unless they know how it would benefit the billionaire president and his family.
- Republicans, more than a dozen of whom are also calling for President Trump to release his taxes, remain sharply divided on possible legislation.

584 Comments

- Spicer Argues Public Disclosure Is Unnecessary, Even Harmful

Trump Drifts Away From Populism, to Supporters' Dismay



Todd Heisler/The New York Times

Patrolling the Border on Four Legs

The Times tagged along for a shift of Border Patrol agents on horseback, who play an essential role in detecting illegal activity near hard-to-patrol areas along the Rio Grande.

Text by RON NIXON and Photographs by TODD HEISLER

Your Tuesday Briefing

By CHRIS STANFORD 7:22 AM ET

Here's what you need to know to start your day.

- New York Today: A Holocaust Survivor's Story, on Stage



The Opinion Pages

EDITORIAL

Democracy Loses in Turkey

The country's fate will be in the hands of an erratic and vengeful man.

- Editorial: A Stronger Transit Web, on the Water
- Brooks: How to Leave a Mark on People
- Leonhardt: You're Too Busy. You Need a 'Shultz Hour.'
- Have These Been the Best Two Weeks of Trump's First 100 Days?
- How America Is Losing the Credibility War
- What's Next After Turkey's Referendum?



BRITTANY BRONSON

What Happens When Women Legislate

Nevada shows why the gender makeup of state-level politics matters.

TIMES INSIDER »

My Own Private Easter Egg-Gate

THE CROSSWORD »

Play Today's Puzzle



1h

The Indian tycoon Vijay Mallya was arrested in London on Tuesday. He fled his home country more than a year ago under an avalanche of unpaid bills and fraud allegations.





'Big announcement' on tax reform unlikely to reveal details, official says

President Trump's statement indicated he is trying to accelerate one of his most ambitious campaign promises — though specifics remain undetermined — and it caught many aides off guard. A White House official said although an announcement is coming, it will be broad.

By Damian Paletta

@PKCapitol Analysis

History tells us the GOP is taking on too much this week — and it isn't likely to end well

Lawmakers face a Friday deadline to keep federal agencies funded through the year. Yet President Trump is also pushing for revisions on health care and the tax code.

By Paul Kane · 2 hours ago

At least 160 dead after Taliban attack on Afghan army base, official says

A group of 10 fighters raided the base in the bloodiest single incident involving the militants since the war began in 2001. Authorities said the massacre targeted people at mosque for prayer, but the Taliban denied killing soldiers inside the mosque.

By Saved Salahuddin

March for Science



Listen

(Video: Earth Day Network; photo: Astrid Riecken for The Post)

March for Science brings out demonstrators on six continents: 'There is no Planet B'

Thousands gathered on the grounds of the Washington Monument: "The very idea of evidence and logic and reason is being threatened by individuals and interests with the power to do real harm," one of the rally emcees said. The crowd in the District will march down Constitution Avenue to the foot of Capitol Hill.

By Joel Achenbach, Ben Guarino and Sarah Kaplan · 43 minutes ago

• **Photos: The scene in Washington**

Here are some of the best signs people are carrying around the world

Funny, serious or geeky, the March for Science — which coincides with Earth Day — prompted people to head into the streets to share their opinions.



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Video

The Festival of Books is here!

Updates »

- 10:30 A.M.** Name that voice: George Saunders' 'Lincoln in the Bardo' audiobook
- 9:45 A.M.** Cesar Millan presents 'Lessons from the Pack' on the Hoy Stage at 12:30 p.m.
- 10:00 A.M.** Coming up this hour: Masha Gessen, Sherry Lansing, Tippi Hedren and more
- 9:30 A.M.** Kids' book author Jon Klassen reads from the Children's Stage at 12:30 p.m.



L.A. NOW

Giving driver's licenses to those here illegally transformed many lives. Then came Trump

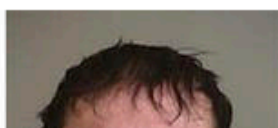
By Benjamin Oreskes and Ruben Vives

The president's crackdown on illegal immigration has spawned worries that the licenses will be used to identify and deport people.



SCIENCE 10:40 AM

L.A. March for Science updates: Thousands are expected in downtown. And they're not alone



L.A. NOW 9:35 AM

Teen allegedly kidnapped by teacher suffered 'severe

Weekend Report

LATEST HEADLINES >

WORLD 9:00 AM

Militants in army uniforms kill more than 100 Afghan soldiers at northern base, officials say

CLIPPERS 8:55 AM

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TRAFFIC Southbound I-5 lanes have reopened near NE 130th Street in North Seattle. Northbound lanes remain closed.

Police say robbery suspect was killed by Seattle officers' gunfire [WATCH](#)

Southbound lanes on Interstate 5 reopen in North Seattle, after power lines fall across highway [Updated 10:44 am](#)

With deadlock in Olympia, Inslee calls special session

Boeing issues new layoff notices to 429 workers in Washington state

Felony DUI bill and gun-safety measure pass Legislature

More traffic snarls this weekend, and westbound I-90 is the hot spot

American flight attendant to angry passenger: 'Hit me'

[Updated 10:19 am](#)



The rebuilding of 23rd Avenue in Seattle's Central District is among the projects that benefited from the Move Seattle transportation levy. (Ken Lambert / The Seattle Times)

Traffic Lab

Seattle transportation levy spending less than projected, but city says no problem

After voters passed the Move Seattle transportation levy in 2015, Seattle spent less than half the money planned for levy projects last year. But the city says it's still on track to complete projects on time.

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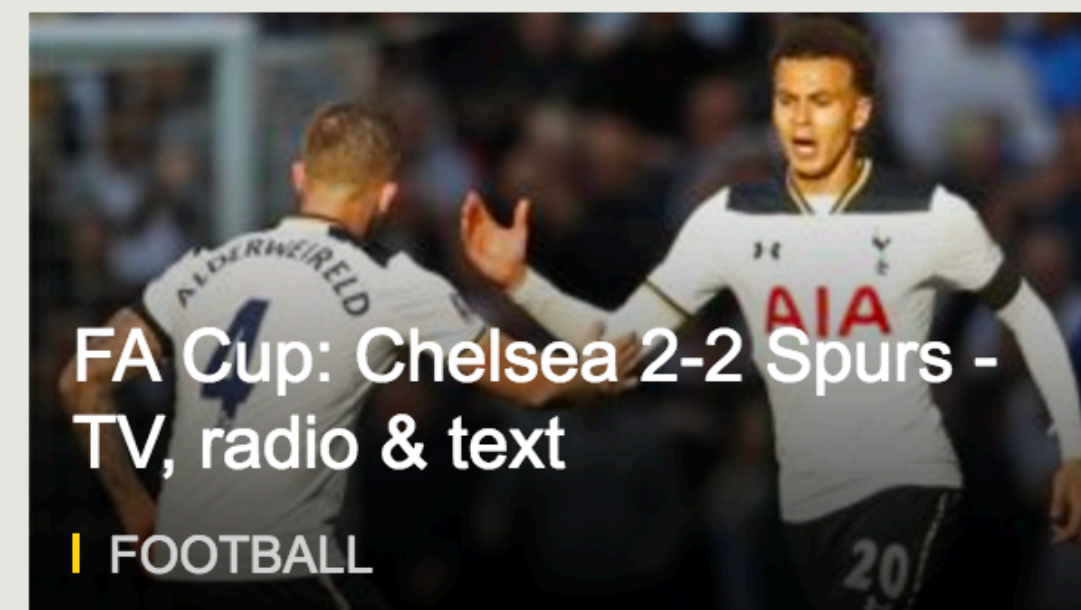


Welcome to BBC.com

Saturday, 22 April



Afghan army base casualties pass 100
Taliban fighters went through checkpoints dressed in army uniforms before attacking on Friday.
| ASIA



FA Cup: Chelsea 2-2 Spurs - TV, radio & text
| FOOTBALL



Why reality is too strange for satire
| DID YOU MISS?



What to eat for a workout
| GOOD FOOD



A secret tunnel to New York's best view
| TRAVEL

News



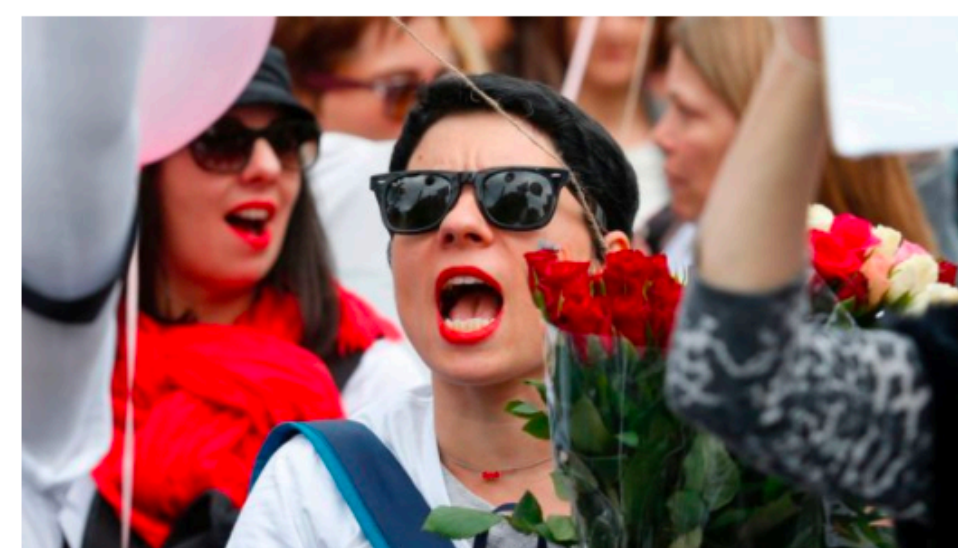
Tension as German right-wingers meet

Thousands of leftwing demonstrators



Airline apologises after clash over pram

An American Airlines employee is



'Angry Police Wives' protest in Paris

More than 100 wives and partners

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headlines

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22 April 2017

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East Providence



March for Science puts Earth Day focus on global opposition to Trump

More than 600 marches held around the world, with organizers saying science 'under attack' from a White House that dismisses the threat of climate change

44

Photos / Ten of the best March for Science signs



Bill Nye on Trump / 'We are in a dangerous place'

Opinion / Science is threatened. Protest is the right response



Congress / Daunting tasks include avoiding shutdown and an angry Trump

The first 100 days of
Trump

[Read more](#) →

Nights spent at White House

73



France's identity crisis / 'People don't know what to think any more'

France votes on Sunday in a presidential election shaped by economic insecurity, cultural paranoia and terrorism. **Natalie Nougayrède** travels to the south-west to try to make sense of the most important vote of her life



Rodney King riots 25 years later / A view from the corner where it all began

Blame Canada / Trudeau forced on defensive as Trump targets trade

Theresa May / Election 'power grab' slammed by EU's

Afghanistan / US forces say Taliban 'target of interest' since 2011 killed

American Airlines / Company apologises to woman hit with buggy by crew member

Bonobos / As more buy clothes online, Walmart eyes a piece of the action

Declaration of Independence / Rare parchment copy found in England

115

All system, no soul

Let's get graphic design back in the room

ps. Jpm. exorae. ^{do} ^{bn} ⁱⁿ **B**enedictus deus
 israel. ^{ca} Jpm. exorae. ^{mt} ^{ju} **I**ubilemus
 deo Salutar nro. ^{lit} Ut nō deliq̄. exorae.



Ora custodia uias meas:
 ut nō delinquā in lin-
 gua mea. **P**osui ori
 meo custodiam: cū o-
 steret peccōr adūsū me.
Omnitui ⁊ humiliatus sū ⁊ filii
 a bonis: ⁊ dolor meus renouat' est.
Cōcaluit cor meū intra me: ⁊ i me
 ditatione mea exardescet ignis.
Locutus sū in lingua mea: notum
 fac michi dñe finē meum.
Et numerū dierū meorū quis est:

ut sciam quid desit michi
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 os: ⁊ substātia mea tanquaz
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 congregabit ea.
Et nunc que ē expectatio mea.
 nōne dñs: ⁊ substātia mea
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 feci i increpationib;: ppter ini-
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Typography is design

Typography is **communication**

Typography is an *intentional* act

FINANCE & MARCHÉS

+ 1,61 %

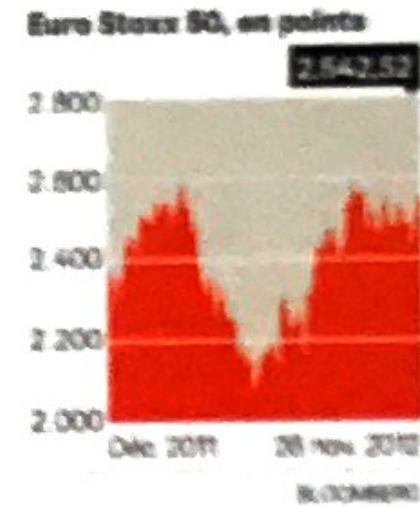
EN HAUSSE VIRBAC
Les investisseurs ont salué le rachat par la société de 51 % du chilien Centrowet, spécialiste des soins aux poissons d'élevage.

- 4,35 %

EN BAISSSE BARCLAYS
La banque britannique a chuté après que Qatar Holding a monétisé des bons de souscription sur les titres Barclays (des warrants) qu'il détenait.

LES BOURSES EUROPÉENNES REPRENENT LEUR SOUFFLE

Les principaux marchés européens ont fini en repli. L'Euro Stoxx 50 a perdu 0,57 %. Hier, Les investisseurs étaient prudents dans l'attente de la conclusion d'une réunion des ministres des Finances de la zone euro consacrée à la Grèce. Les marchés reprenaient leur souffle après la forte hausse de la semaine dernière : l'Euro Stoxx 50 avait gagné plus de 5 %.



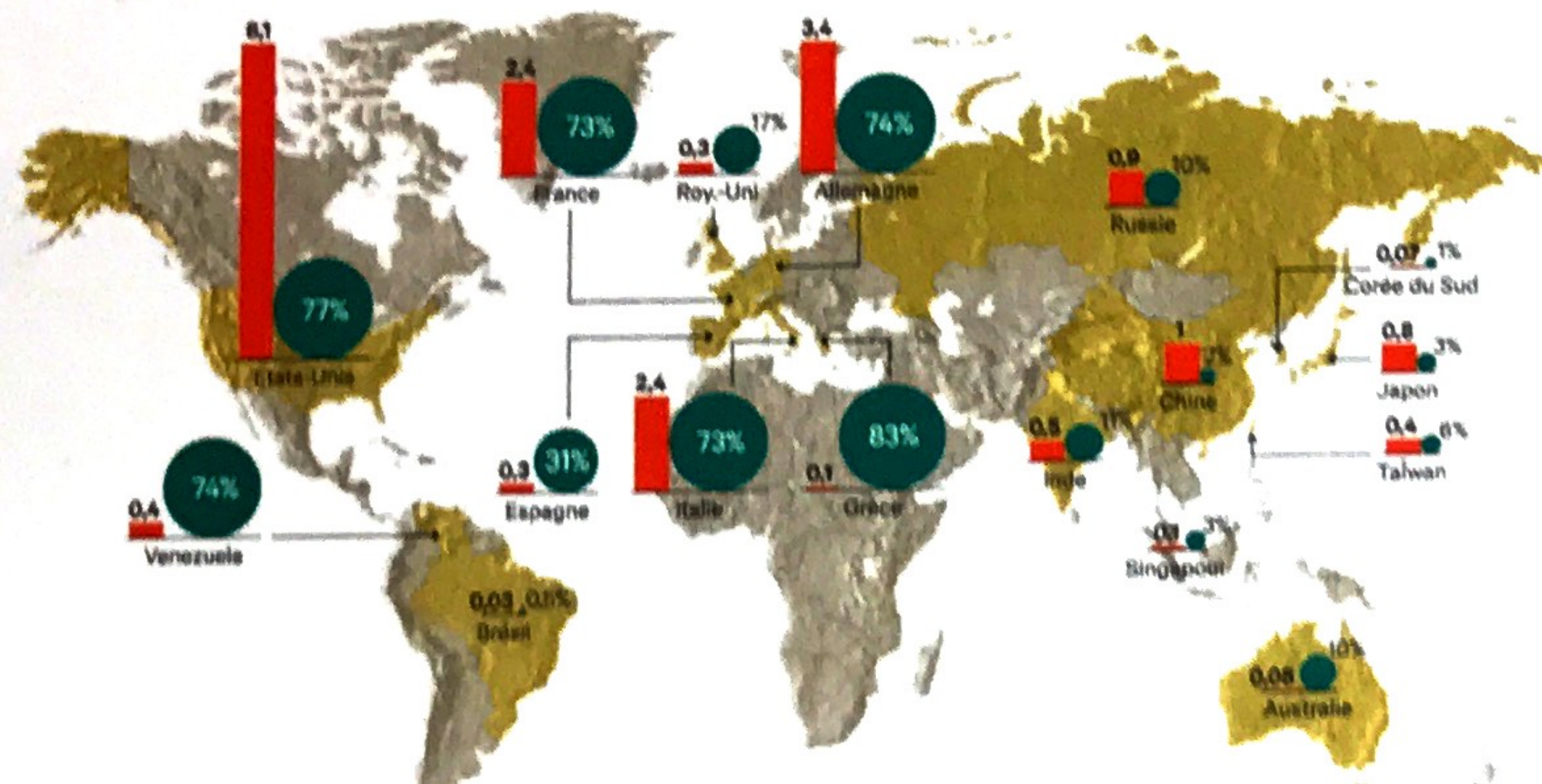
indices

L'or superstar de la crise : douze ans de croissance ininterrompue des cours

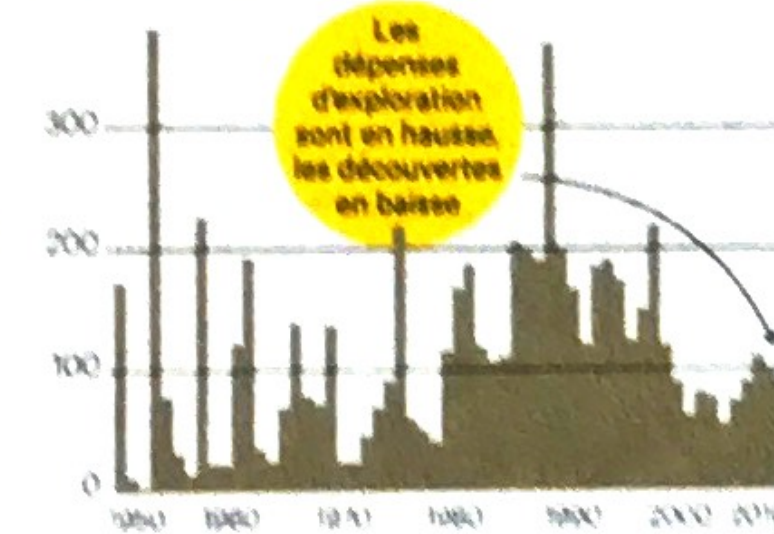
- Le prix de l'or a été multiplié par 6,5 en douze ans alors que la demande mondiale a doublé.
- Presque tous les feux sont au vert pour une treizième année de hausse de l'once d'or en 2013.

Réserves d'or : les pays émergents doivent rattraper leur retard

Les réserves des Banques centrales... ■ en milliers de tonnes ■ en % des réserves des Banques centrales, pour chaque pays



Les nouvelles découvertes d'or



Le prix de l'or



Exil fiscal : Depardieu répond à Ayraut en rendant son passeport



Le député-maire de Valenciennes Gérard Philouze, qui a été l'un des premiers à rendre son passeport français, a été rejoint par l'acteur Gérard Philouze. Ce dernier a rendu son passeport français en faveur de son pays d'origine, l'Alsace, après avoir été accusé de fraude fiscale. Philouze a déclaré qu'il ne voulait pas être considéré comme un fraudeur et a choisi de renoncer à sa nationalité française.

Internet : France et États-Unis renouvellent le traité de l'OTC

Le traité de l'OTC (Over-the-Counter) entre la France et les États-Unis a été renouvelé. Ce traité vise à faciliter les échanges financiers et à protéger les investisseurs. Les deux pays ont convenu de renforcer leur coopération en matière de régulation des marchés financiers et de lutte contre la fraude.

Singapour et l'Union européenne concluent un accord de libre-échange

L'Union européenne et Singapour ont conclu un accord de libre-échange. Cet accord vise à éliminer les barrières tarifaires et non tarifaires entre les deux régions. Il couvre un large éventail de produits, y compris les services et les investissements. L'accord est considéré comme un succès pour l'UE et Singapour, car il ouvre de nouvelles opportunités commerciales.



FINANCE & MARCHÉS

indices

+ 1,61 %
EN HAUSSE
VIBAC

Les investisseurs ont salué le rachat par la société de 51 % du chilien Centrowet, spécialiste des soins aux poissons d'élevage.

- 4,35 %
EN BAISSE
BARCLAYS

La banque britannique a chuté

LES BOURSES EUROPÉENNES
REPRENNENT LEUR SOUFFLE

Euro Stoxx 50, en points

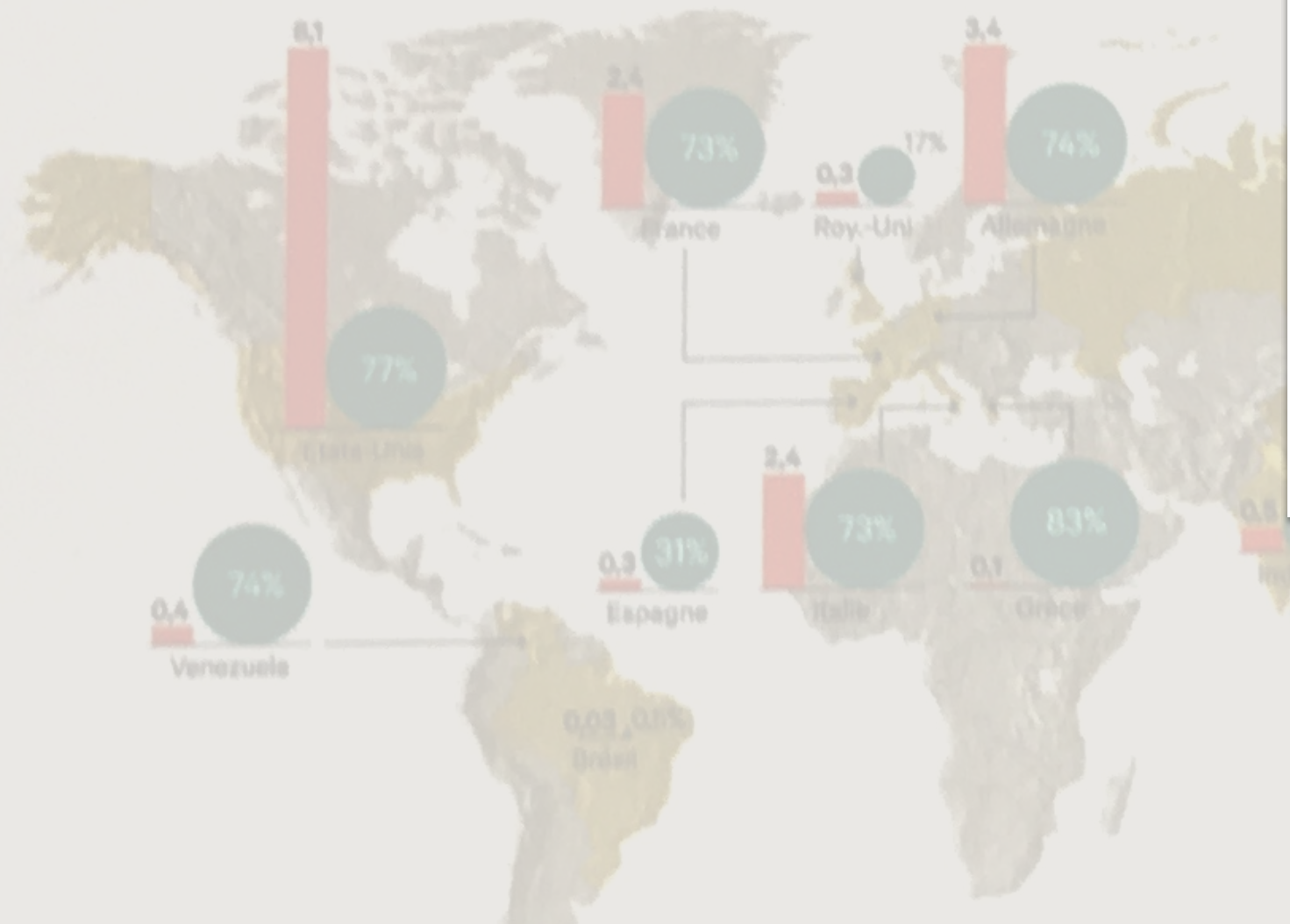
Les principaux marchés européens ont fini en repli. L'Euro Stoxx 50 a perdu 0,57 %, hier.

L'or superstar de la croissance ininterrompue

- Le prix de l'or a été multiplié par 6,5 en douze ans alors que...
- Presque tous les feux sont au vert pour une treizième année...

Réserves d'or : les pays émergents doivent rattraper leur retard

Les réserves des Banques centrales... en milliers de tonnes



The INDEPENDENT

Breast screening: the end of an era News, page 2

Inside the battle for Stamford Bridge Sport, pages 78-80

Is this TV's funniest couple? Arts, page 49

Osborne's anti-green agenda splits Coalition

By MICHAEL MCCARTHY and OLIVER WRIGHT

A sign of a Cabinet split over the environment will emerge today when the Climate Change Secretary attacks the Chancellor, George Osborne, for attempting to abandon the Government's green pledges.

The simmering feud between the Coalition partners on environmental policy will break out into the open as Chris Huhne, the Energy and Climate Change Secretary, launches an attack on Mr Osborne for working that the UK should not lead Europe in its efforts to cut carbon emissions.

Mr Osborne is the leader of an increasingly influential faction within the Cabinet willing to sacrifice green policies if doing so is deemed helpful to economic growth.

The Chancellor's hostile stance has prompted much new scrutiny of the Government's environmental record – and an audit of its green policies by The Independent strongly suggests that David Cameron's boast of running "the greenest Government ever" is now unsustainable. In a clear sign of these...

continued on PAGE 6



Last throw of the dice: leaders on edge for day of euro-reckoning

Hopes for today's eurozone summit on debt are waning thin after a preliminary meeting of finance ministers was called off. EU leaders (including Silvio Berlusconi, Angela Merkel and Nicolas Sarkozy) are none the less expected to thrash out an emergency plan in Brussels. Report & analysis, PAGE 12

Special phone for hacking in 'NOTW' newsroom

EXCLUSIVE

By CABAL MILMO and JAMES CUSICK

Scotland Yard's investigation into phone hacking has found the existence of a mobile phone nicknamed "the leak" hidden in the offices of the News of the World and allegedly used by executives to make illegal voice-mail interceptions on a "national scale". The discovery is the strongest evidence yet of hacking in the heart of the paper's newsroom. PAGE 3

Monday SPORT 31/10/2011



Bale's brilliance lights up the Lane

VETTEL WINS AGAIN. MASSA AND HAMILTON CRASH AGAIN

German takes first Indian Grand Prix as old rivals collide on and off the track once more

F1, P12-13

Defeat in Indian one-dayers cannot mask reality of a breakthrough year for national side

DOMINANT ENGLAND CAN LOOK FORWARD TO A GOLDEN ERA CRICKET, P16-17

Cardinals win World Series – and restore America's faith in the national pastime

RUPERT CORNWELL – THE GRAND OLD GAME HAS ENJOYED THE GREATEST OF SEASONS P18-P19

Spurs turn on the style in beating QPR 3-1 at White Hart Lane where Gareth Bale scores twice

FOOTBALL, P2-3

The Boston Globe

Saturday

APRIL 22, 2017

PARIS STAYS ON HIGH ALERT

The terror attack threatened to shake up the tumultuous presidential race, with conservatives poised to stoke hostility toward immigrants and Muslims. A Globe editor staying in Paris tells of her experience near the scene of the assault. World, 7.

SANCTUARY CITIES WARNED

The White House intensified its threats, saying law enforcement grants would be lost. Nation, 6.

CELTICS BOUNCE BACK

Boston came to life in Game 3 and hammered the Bulls, 104-87. It now trails the series 2-1. Sports.



LUDOVIC MARIN/AFP/GETTY IMAGES

'A lot of good things are happening.'

PRESIDENT TRUMP

Trump shrugs off the 100-day milestone

Calls it 'ridiculous' but scrambles on taxes, health care

By John Wagner
WASHINGTON POST

WASHINGTON — President Trump scrambled Friday to show progress on two leading priorities — health care reform and tax cuts — ahead of his 100th day in office, even as he dismissed that marker as a "ridiculous standard" and suggested the media would judge him un-

fairly when he reaches it next week.

Trump told the Associated Press in an interview that he would release a tax package next week that would include reductions "bigger, I believe, than any tax cut ever." He provided no specifics but said he would outline his plan "Wednesday or shortly thereafter." He later sounded firmer about a Wednesday release dur-

ing an event at the Treasury Department.

That's just three days ahead of Trump's 100th day in office, a standard by which presidents are often measured for their immediate impact. Trump is also pushing the House to quickly pass a revised version of a bill to replace the Affordable Care Act, another Trump campaign promise that collapsed in stunning fashion last month.

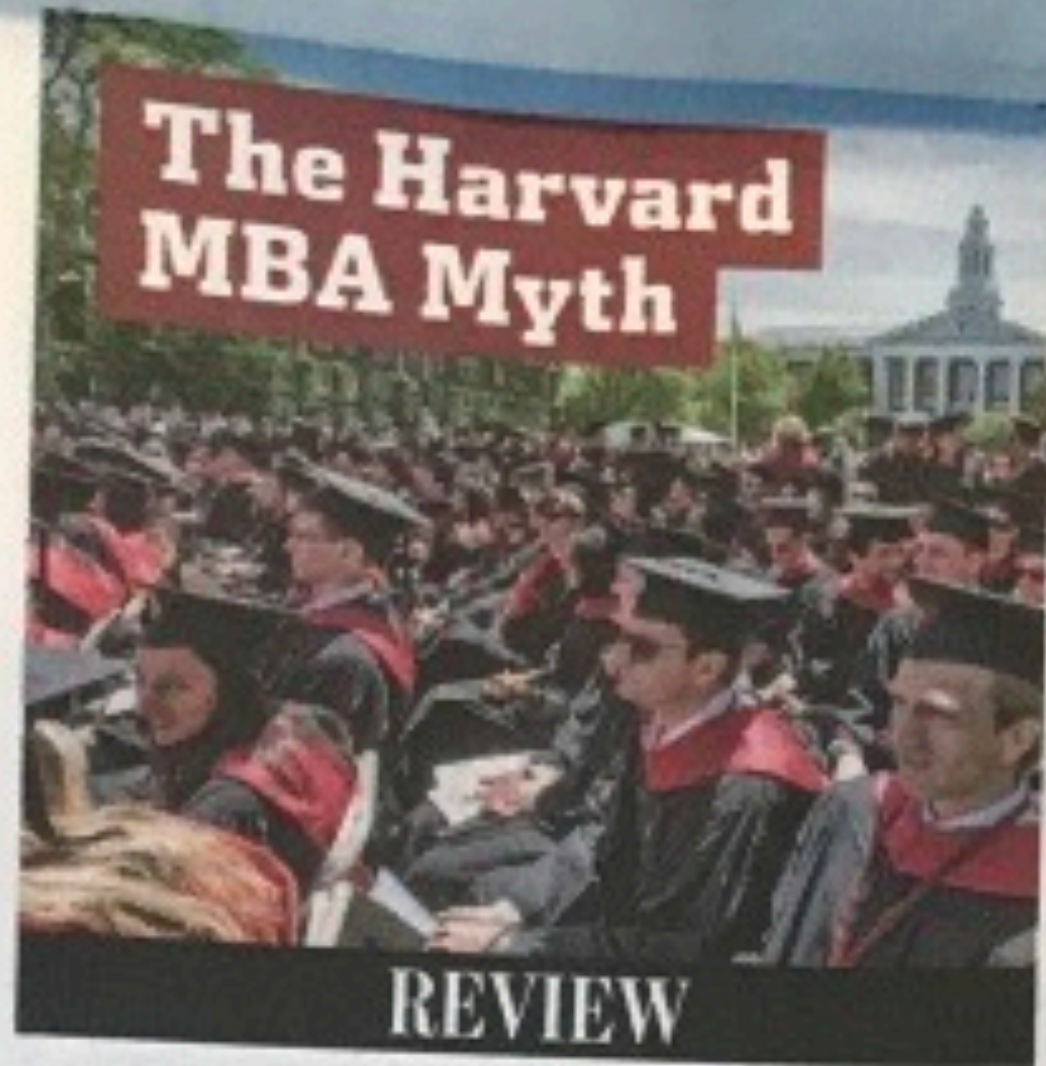
TRUMP, Page 10

State told to preserve Hernandez evidence

Family of former Patriot considers suing officials over his prison suicide

By Travis Andersen, Evan Allen,
and John R. Ellement

GLOBE STAFF



The Harvard MBA Myth

REVIEW

THE WALL STREET JOURNAL.

WSJ

Sailboats That Really Fly



OFF DUTY

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WEEKEND

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SATURDAY/SUNDAY, APRIL 22 - 23, 2017

WSJ.com

What's News

World-Wide

French authorities questioned the suspect in the Paris police shooting two months ago, officials said. The attack has jolted the presidential race. **A1**

◆ The Justice Department threatened to withhold funds from sanctuary cities if they don't cooperate with immigration officials. **A3**

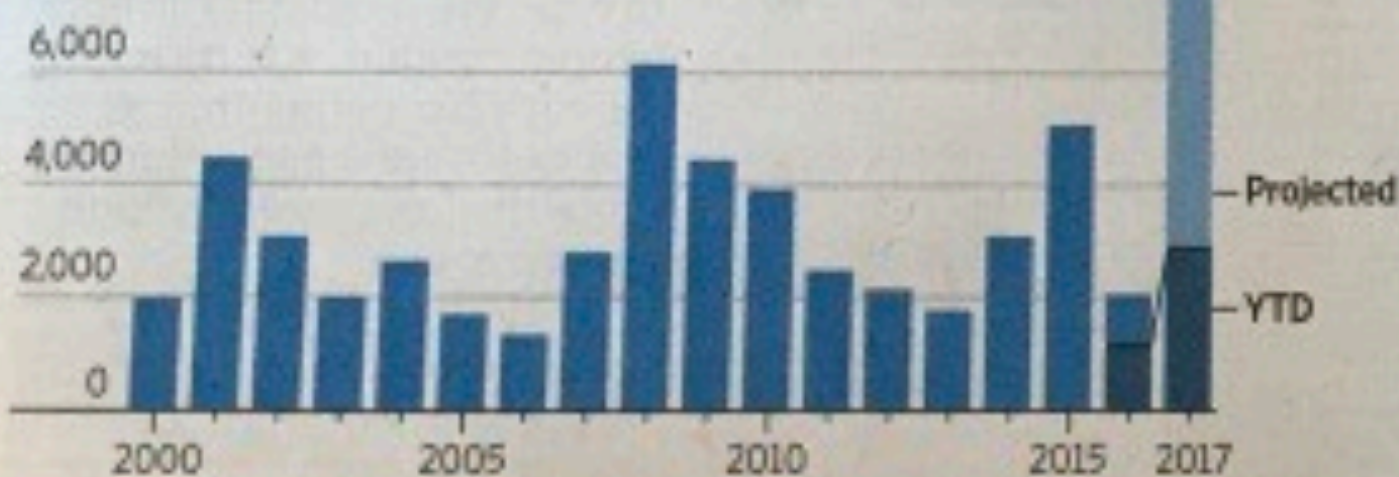
◆ No lawmakers from the Southwest border region

Retail Reeling

U.S. retailers are on pace to close the most stores in more than a decade.

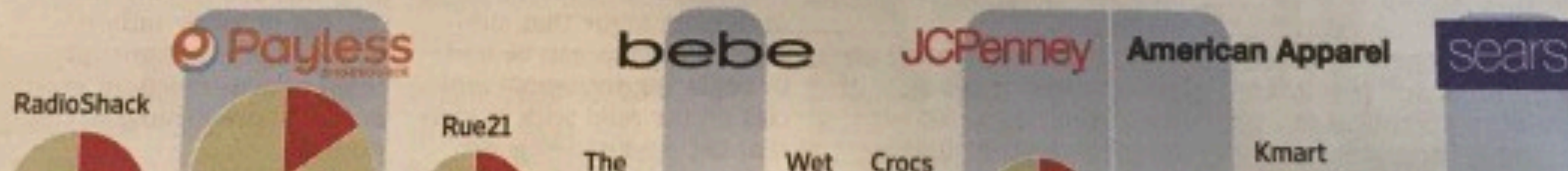
U.S. store closings

8,000 stores



Smaller specialty chains such as Bebe and American Apparel are closing all their stores, while larger chains such as J.C. Penney and Sears are scaling back their footprint.

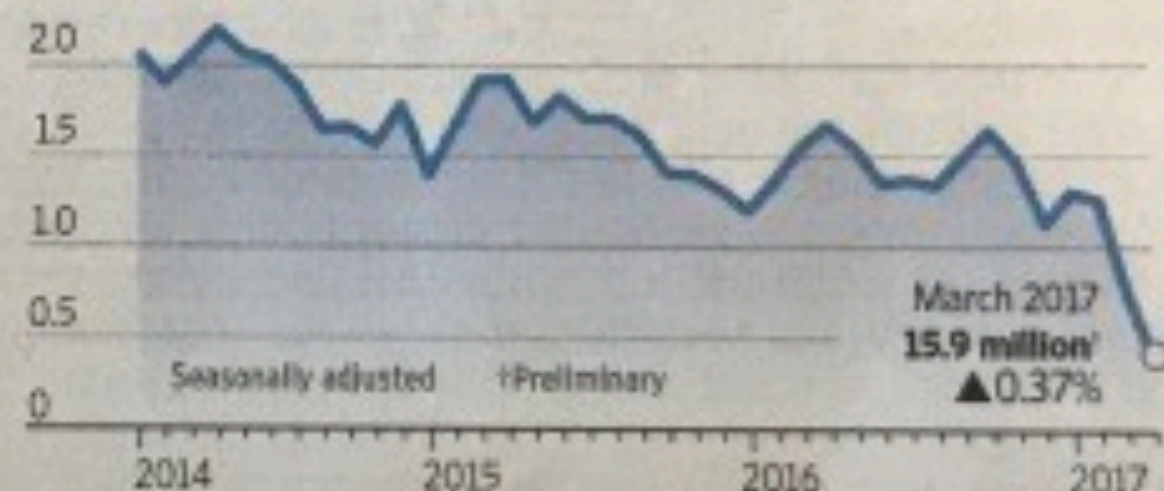
Selected 2017 store closings, estimated



...and they are adding fewer jobs.

U.S. retail employment, change from previous year

2.5%



Total stores (blue) Stores closed (red)

Trump Rebuffs Exxon on Russia

By Jay Solomon and Bradley Olson

WASHINGTON—President Donald Trump, whose family and political aides have faced scrutiny over their ties to Russia, rejected a bid by Exxon Mobil Corp. to sidestep U.S. sanctions against Moscow and resume an oil venture with a politically powerful Russian energy firm.

"All the News
That's Fit to Print"

The New York Times

New England Edition

Today, stray morning showers, cloudy, seasonable, high 55. Tonight, mostly cloudy, low 42. Tomorrow, clouds break for sunshine, high 56. Weather map appears on Page A15.

VOL. CLXVI . . . No. 57,575

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SATURDAY, APRIL 22, 2017

\$2.50

ATTACK IN PARIS CASTS A SHADOW ON FRENCH VOTE

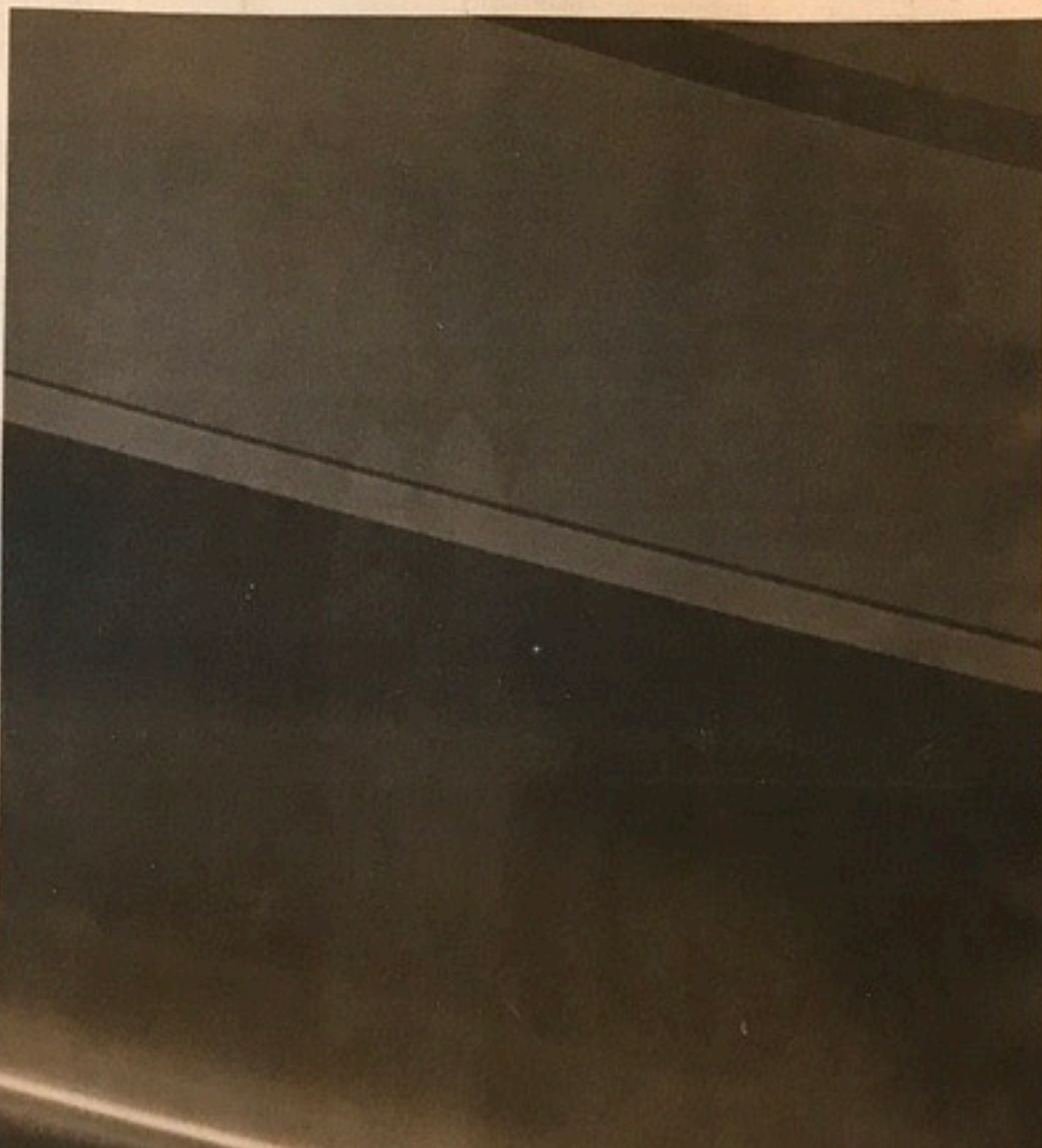
TOP CANDIDATES JOCKEY

Le Pen Seizes Moment, but Others Could See Gains

By ADAM NOSSITER

PARIS — It has almost become routine in France: A terrorist attack shatters the rhythms of daily life, bringing bloodshed and anguish. The assailant turns out to be someone known to the authorities. What is different now is the timing, as Paris is again on high alert, less than 36 hours before the country goes to the polls on Sunday in one of the most tumultuous and unpredictable presidential races in memory.

The brazen assault on Thursday by Karim Cheurfi, 39, a French national with a history of violence, left one police officer dead on the sidewalk of the Champs-Élysées. It has also provided a potent opportunity for conservatives, primarily Marine Le Pen, leader of the far right National Front, to use the violence to try to stoke hostility toward immi-



Nebraska Race Reveals Divide For Democrats

Economic Issues Versus Abortion Rights

By JONATHAN MARTIN

WASHINGTON — Rarely has a municipal election in a midsize city ignited such a fierce national debate over what defines a Democrat. But the election this spring for mayor of Omaha is pitting abortion rights activists against economic populists and threatening the party's unity as it regroups to confront President Trump.

Part of the twist: The populist side's standard-bearer, Senator Bernie Sanders of Vermont, is not even a Democrat.

"This is very raw," said Randi Weingarten, the head of the American Federation of Teachers, conceding that "after the presidential election, there is still this ongoing debate about identity politics versus economic opportunity."

Mr. Sanders and the new leadership of the Democratic National Committee touched a party sore spot this week when they took their "Unity Tour" to Omaha to rally for a mayoral candidate who opposes abortion rights. Mr. Sanders, repurposing the themes of his presidential bid, told a crowd of about 6,000 on Thursday

TRUMP PROMISES TAX PLAN IN DAYS, SURPRISING STAFF

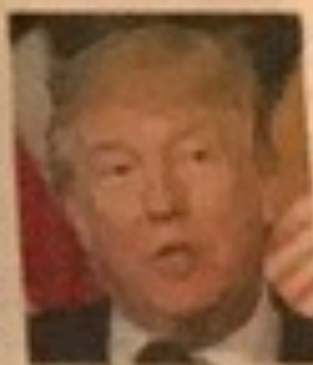
VOWING A 'MASSIVE' CUT

No Details — Officials Try to Temper Hopes as Fight Looms

By ALAN RAPPEPORT
and MICHAEL D. SHEAR

WASHINGTON — President Trump promised on Friday that he would unveil a "massive" tax cut for Americans next week, vowing a "big announcement on Wednesday," but he revealed no details about what is certain to be an enormously complicated effort to overhaul the nation's tax code.

Mr. Trump offered his tax tease in an interview and again during remarks at the Treasury Department on Friday afternoon as he raced to stack up legislative accomplishments before his 100th day in office at the end of next week.



Trump



ONVEILIG INTERNET?
KETNET.BE PAST
OP UW KINDEREN

► CULT 4-6

CIRCUS MAXIMUS
 Malter failliet,
 en toch booming
 business in de piste



Cannabis voor
MS-patiënten
 Nathalie De Meyer:
 'Nu sta ik er elke dag
 voor mijn zoon'

► 6



EU deliberaert Belgische
begroting na smeekbede

Regering engageert zich voor
structurele hervormingen

Toegeven aan sociaal
protest lijkt nu onmogelijk

En nu ook betogen tegen Europa?

Nieuwe vakbondsacties na Nieuwjaar

De kans is groot dat er na de nationale stakingsdag op 15 december nieuwe vakbondsacties volgen. Dat zeggen bronnen bij zowel het ACV als het ABVV. De bonden staan open voor overleg, maar ze maken zich weinig illusies dat de werkgevers en de regering bereid zijn een opening te maken. De tijd is beperkt, want de eerste actiegolf loopt binnen een tweetal weken af. Een eerste ronde kan...

"Als de zaken blijven zoals ze nu zijn, hebben we geen andere keuze dan onze acties verder te zetten", zegt Ferre Wyckmans van ACV. Wat de acties zullen inhouden is nog niet bekend, maar een tweede stakingsgolf is twijfelachtig. "Wie gaan ook niet woekeren met onze krachten", zegt een ABVV-topper. De liberale vakbond wil nog geen uitspraken doen over wat er na de nationale stakingsdag moet volgen.

pliance', vrij vertaald: met de hakken over de sloot, zonder procedurele gevolgen. "Er zal wel een strikte opvolging gebeuren van de engagementen", klinkt het.

Strengere bondgenoot

Dat strenge Europese toezicht heeft ook binnenlandse gevolgen. Het geeft de federale regering immers amper marge om het sociale protest tege...

Met de kwalificatie 'At risk of non-compliance' verkeert ons land in het gezelschap van nog zes andere lidstaten: Frankrijk, Italië, Spanje, Malta, Portugal en Oostenrijk. Al bij het indienen van de begrotingen midden oktober was al duidelijk dat Frankrijk, Italië en België onder de loep zouden worden genomen. Parijs ziet zijn financieringsstekort dit jaar op zowat 4,5 procent uitkomen, ruim boven het plafond van 3 procent. Rome kijkt...

LIEVEN DESMET EN BART EECKHOUT

België krijgt vandaag van Europa groen licht voor zijn begroting, zo bevestigen bronnen binnen de Belgische regering én de Europese Commissie. Daarvoor heeft het vorige vrijdag nog wel een 'smeekbede' moeten schrijven aan de Commissie met nadruk op de hervormingen die de...

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WOCHENZEITUNG FÜR POLITIK WIRTSCHAFT WISSEN UND KULTUR



28. NOVEMBER 2013 N° 49

Lesen im Winter

Das Vermächtnis des Kulturautors Wolfgang Herrndorf,
das fantastische Leben des Richard Burton
und die besten Bücher zu Weihnachten

Literaturmagazin

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56 Seiten
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GROSSE KOALITION

Ahoi Freunde!

SPD und CDU sind sich einig. Unfassbar, wofür so ein Koalitionsvertrag alles gut sein soll VON BERND ULRICH

DER WESTEN UND TEHERAN

Aus Schwäche stark

Auch wenn Netanjahu die Einigung mit dem Iran kritisiert: Israel hat den Durchbruch erst möglich gemacht VON JÖRG LAU

»Krebs – das hat mir noch gefehlt«



Helmut Dietl über seinen Kampf um Leben und Tod

Dossier, Seite 15



Anna Netrebko, Placido Domingo: »Oper macht glücklich«

Feuilleton, Seite 49



*This is where graphic design
gets involved*

The Winter Olympics Gear Guide



The New York Times has been doing a great job covering the 2014 Winter Olympics, but also a spectacular job of giving the games a bit more context. Their [Interactive Stories](#) help explain the details of the events, especially for ones that can feel a bit more cryptic. I also really enjoyed their



MONKEY NUTS, BARMBRACK AND APPLES

by JEREMY KEITH

2

I grew up in Ireland, the home of Halloween.

I know that it seems like a quintessentially American holiday, but Halloween has its roots in the Celtic feast of Samhain. The Americans embraced and extended Halloween, adding the tradition of trick-or-treating, which in turn made its way back to Ireland.

I spent many of my childhood Halloweens trick-or-

And what of this [barmbrack](#) of which I speak? That was a cakey bread that my aunt would bake. It was filled with raisins and much more besides. An inventory of the ingredients would reveal such incongruous items as a pea, a coin, a stick, a rag, and a ring. If you found one of those items in your slice of barmbrack, it prophesied your future. The rag meant that you would be poor, but the coin promised a life of riches. If you got the ring, you would be getting married soon, but if you got the pea, then your marriage prospects were bleak. Oh, and the stick: that meant you were going to beat your wife.

Apples were omnipresent at Halloween, which is unsurprising given that it was apple season. Of course we indulged in the game of bobbing for apples, but there was another game we played in Kerry called [Snap Apple](#). In this game, an apple was suspended from a string. Holding your hands behind your back,

chunky in Fury

by MIKE MONTEIRO

It's January of 1979 and we're
sitting inside the Plymouth Fury
outside an AM/PM Mini Market

CHOCOLATE IS FOR GIRLS



by JESSICA HISCHE





An altar in Jameelah El-Shabazz's apartment in the Bronx. El-Shabazz had to repeatedly fight to keep her apartment after police mistook crushed seashells for cocaine. (Edwin Torres for

Shabazz, her teenaged sister Najah El-Shabazz, and Shakoor, then 21, and took them outside past the handcuffed residents of four other apartments that were raided that morning.

Najah was released, court filings say, but Jameelah El-Shabazz and Shakoor sat in cells on Rikers Island for the next week awaiting the results of police lab tests. Finally, the results confirmed what she had told the officers all along: the wooden tray and the 45 paper cups of powder were drug-free. Jameelah El-Shabazz and Shakoor were released from Rikers and fully exonerated.

But El-Shabazz's battle with New York's legal system was only beginning. That September, another of her sons called to say the police were back, this time with a lawyer and a court order to seal the Bronx apartment. Her entire family had to leave — immediately.

El-Shabazz was facing a nuisance abatement action, a little-known type of lawsuit that gives the city the power to shut down places it claims are being used for illegal purposes. The case against her was based on the same drug allegations that had been dismissed in May. Incredibly, the filing, signed by a New York Police Department attorney, stated:

“recovered during the execution of the search

How might we do better?

The CMS can play a part in design, too

*And now for something
completely different*

it's demo time

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The Daily News

[With Ally in Oval Office, Immigration Hard-Liners Ascend to Power](#)

After sending more than 13,000 Twitter messages in less than three years, Jon Feere, an outspoken opponent of illegal immigration, suddenly went silent after Inauguration Day. As a legal policy analyst at the Center for... [read more](#)

[French Parties Unify Against Le Pen: 'This Is Deadly Serious Now'](#)

PARIS — Not since World War II has the anti-immigrant far right been closer to gaining power in France. With her second-place finish on Sunday in the first round of the presidential election, Marine Le Pen has dragged her... [read more](#)

[Emmanuel Macron and Marine Le Pen Advance in French Election](#)

PARIS — In France's most consequential election in recent history, voters on Sunday chose Emmanuel Macron and Marine Le Pen to go to a runoff to determine the next president, official returns showed. One is a political... [read more](#)



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The world's best blog post

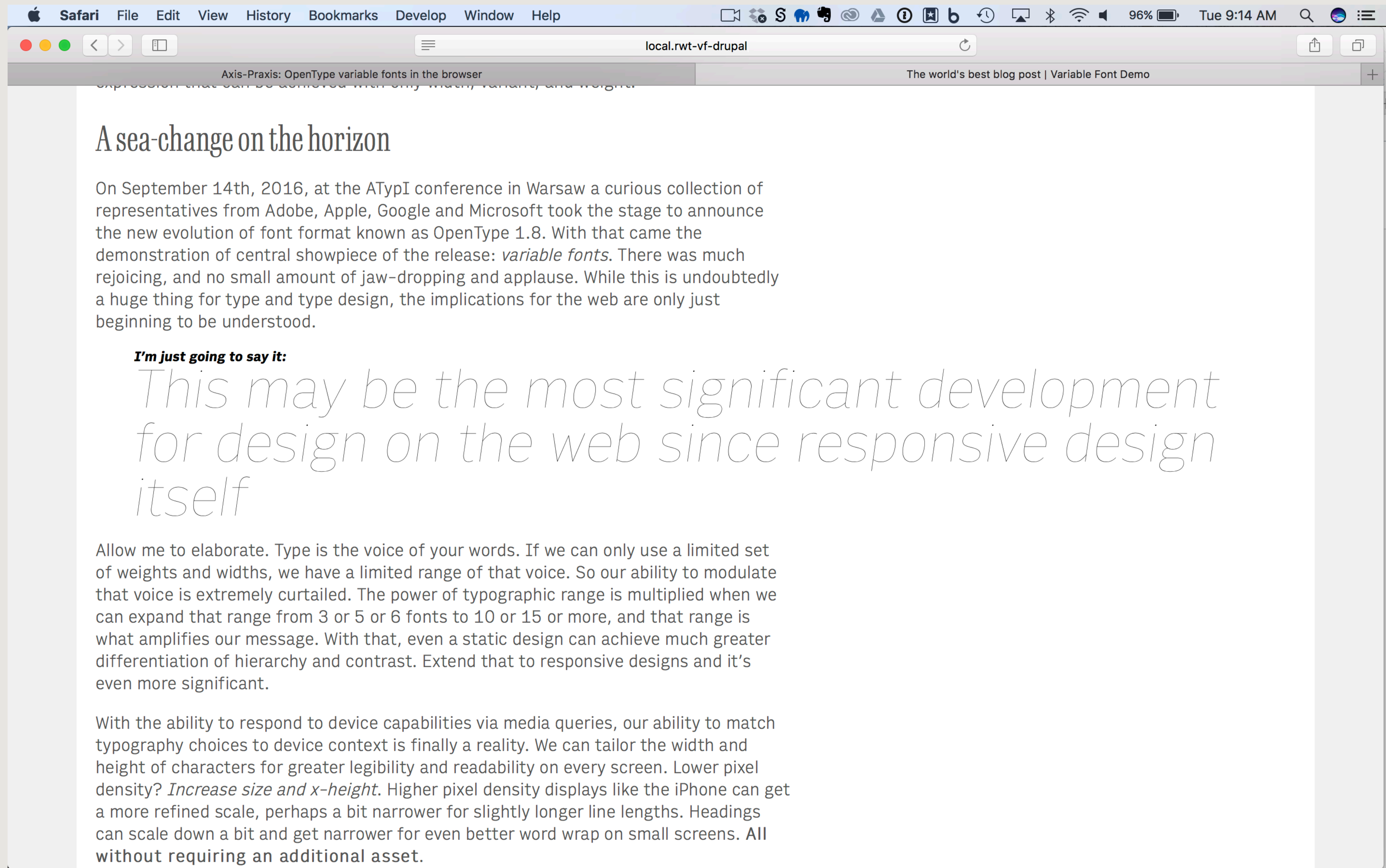
The current state of design on the web is stalled. We made a huge leap forward with the widespread availability of web fonts starting in 2009, and then were confronted with the advent of responsive design just a year or two later. While many interesting things have come from that evolution, we've also struggled with coming to grips with the complexity of designing for infinite screen sizes whilst being equally concerned with performance. Contending with ever-shortening attention spans ([Google research gives you about 3 seconds](#) before you lose half your audience) we've had to constrain our typographic systems to just a few fonts to keep the impact on load time to a minimum.

These constraints have forced us as designers to make compromises when considering type size, line length, and overall visual hierarchy and differentiation. Considering things like a narrower font on smaller screens to achieve a slightly longer line length without sacrificing size. Or utilizing ultra-thin or ultra-heavy weights for added emphasis and variety of expression—all luxuries we can't embrace due to the burden it would place on site visitors—particularly those on shaky wireless connections.

Evolutions in layout systems for the web like Flexbox and Grid are coming along, but with only incremental improvements in compression of font formats, we're left wanting for more freedom of expression through greater variety of type. This page has been designed purposely with every weight of Roboto and Roboto Condensed available through Google Web Fonts. The goal is to showcase the variety of typographic

One

Number of font files called for the text on this page



Add Long Text to Body Copy

VARIABLE FONT BLOCK

Show row weights

VARIABLE FONT LINES

+ Variable Font Line The	Edit	Remove
+ Variable Font Line World's	Edit	Remove
+ Variable Font Line BEST	Edit	Remove
+ Variable Font Line <i>Blog Post</i>	Edit	Remove

Add Variable Font Line

Save and keep published Preview Delete

317

1

s?ooy34o:61
l, sans-

0, 'width'

ss?ooy34o:2

a
DejaVu

ss?ooy34o:1

stylesheet

Variable Font Line World's

Edit Remove

Variable Font Line

Collapse

Text BEST

Font Family Gimlet

Font Size

Font Slant

Font Weight

Font Width

Variable Font Line

Edit Remove

Blog Post

Add Variable Font Line

317

1

.cls +

s?ooy34o:61

, sans-

0, 'wdth'

ss?ooy34o:2

DejaVu

ss?ooy34o:1

stylesheet

Variable fun :)

Play with sliders, edit text, choose fonts, change font size, colour, alignment, add textboxes and then save as a new specimen

Enjoy!

Version 1.8 of the OpenType font format specification introduces an extensive new technology, affecting almost every area of the format. An OpenType variable font is one in which the equivalent of

TEXTBOX

Textbox: heading
Font: GimletDisplay Light
Font size: slider
Line-height: slider
Alignment: icons

FONT VARIATION

Instance: Display Light (default)
Weight: slider (348.611)
Width: slider (100)
Optical Size: slider (40.084)

COLOUR



Variable fun :)

Play with sliders, edit text, choose fonts, change font size, colour, alignment, add textboxes and then save as a new specimen

Enjoy!

Version 1.8 of the OpenType font format specification introduces an extensive new technology, affecting almost every area of the format. An OpenType variable font is one in which the equivalent of

TEXTBOX

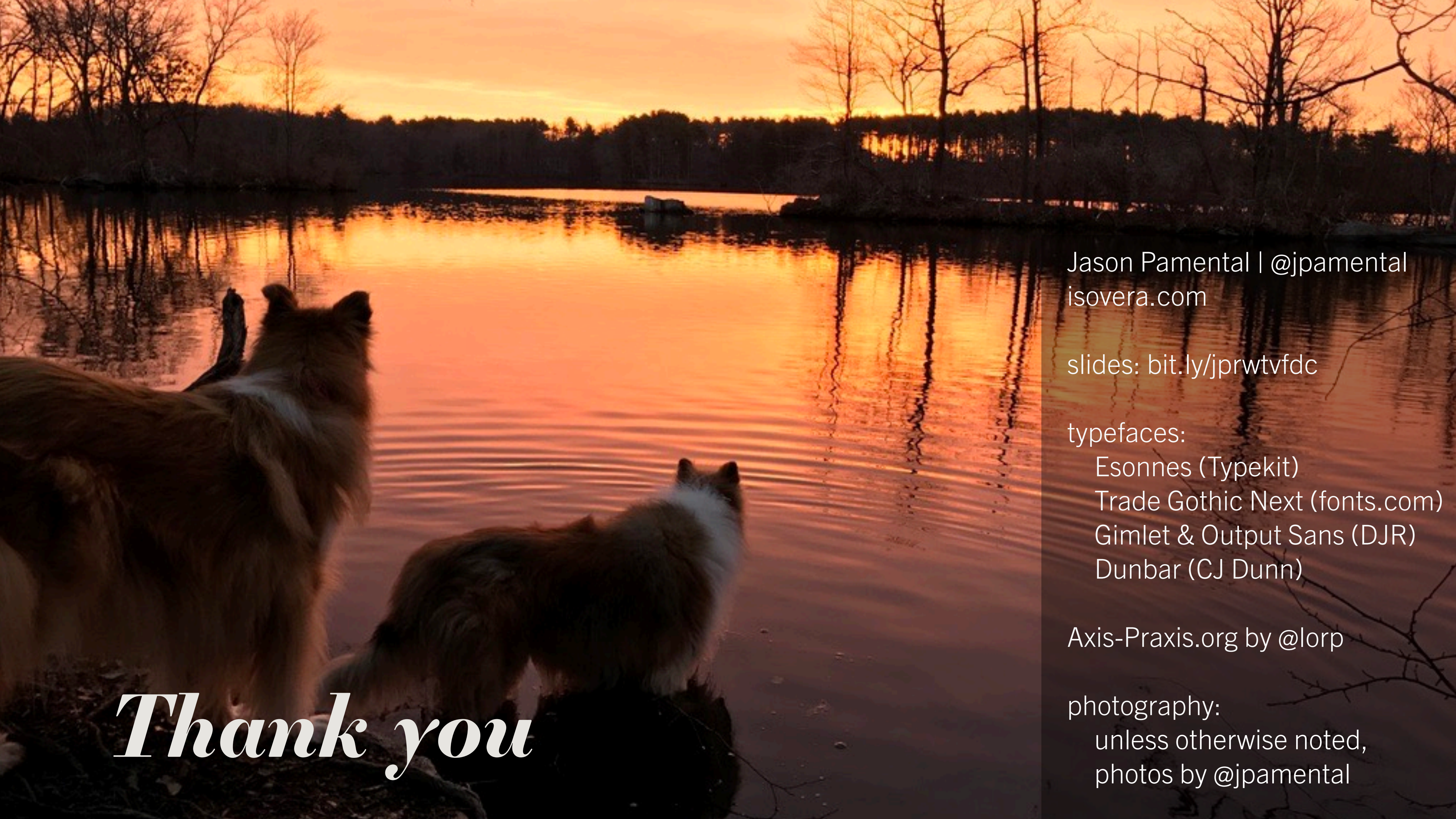
Textbox: heading
Font: GimletDisplay Light
Font size: slider
Line-height: slider
Alignment: icons

FONT VARIATION

Instance: Display Light (default)
Weight: slider (348.611)
Width: slider (100)
Optical Size: slider (40.084)

COLOUR





Jason Pamental | @jpamental
isovera.com

slides: bit.ly/jprwtvfdc

typefaces:

Esonnes (Typekit)

Trade Gothic Next (fonts.com)

Gimlet & Output Sans (DJR)

Dunbar (CJ Dunn)

Axis-Praxis.org by @lorp

photography:

unless otherwise noted,
photos by @jpamental

Thank you