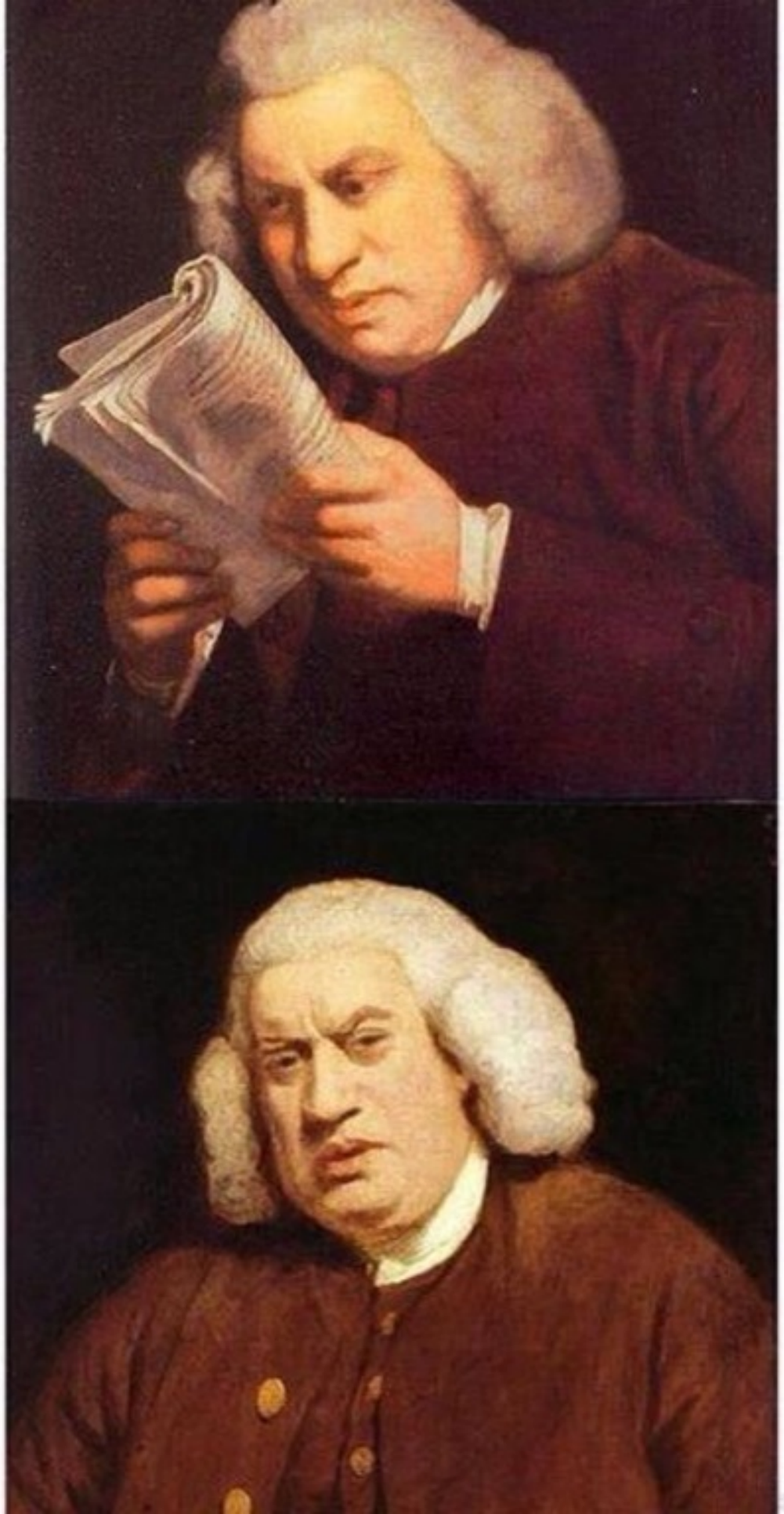
ЖУКОВА ЕЛЕНА

СВЕТЛОЕ БУДУЩЕЕ CUSTOM ELEMENTS



О ЧЕМ ЭТО?

ДМИТРИЙ ДИМАНД

DOM медленный

JSX лучше чем DOM API

Строковые атрибуты - отстой

РОБ ДОДСОН

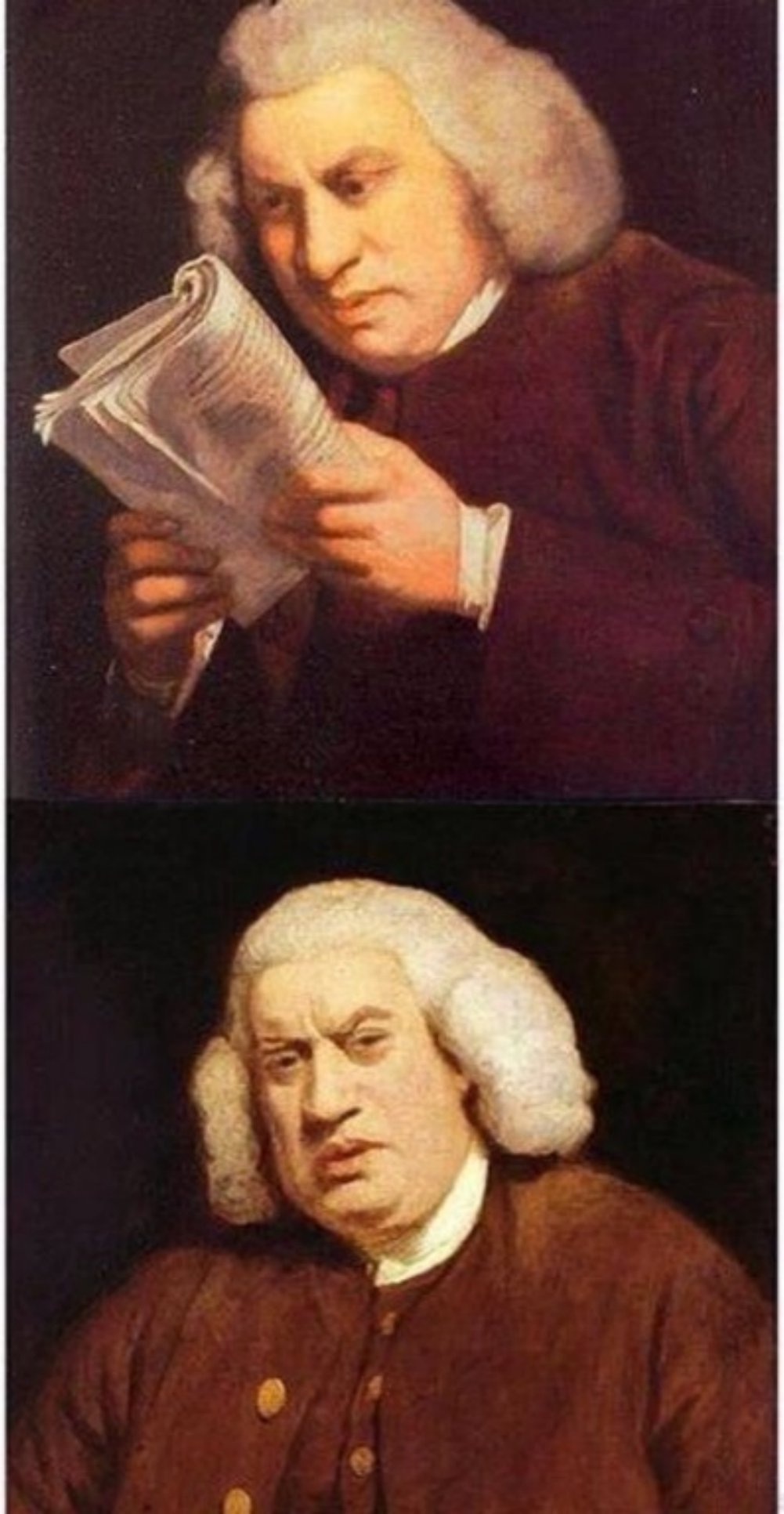
Ты медленный

JSX - это просто сахар

Используй атрибуты

* Нарушенное обещание Web Components (The broken promise of Web Components)

** О нарушенном обещании Web Components (Regarding the broken promise of Web Components)



ИСТОРИЯ

РОЖДЕНИЕ

- Игрушечный язык
- Язык-прокладка для дизайнеров и программистов-любителей
- Писать на JavaScript значило быть не серьезным программистом

МОНСТР?

- Совместимость в браузерах
- Манипуляция DOM
- Отсутствие объектно-ориентированного стиля
- Проблемы с масштабированием
- Сложная поддержка

ОРУЖИЕ

- jQuery
- Backbone
- Knockout
- Ember
- Angular
- React
- Vue

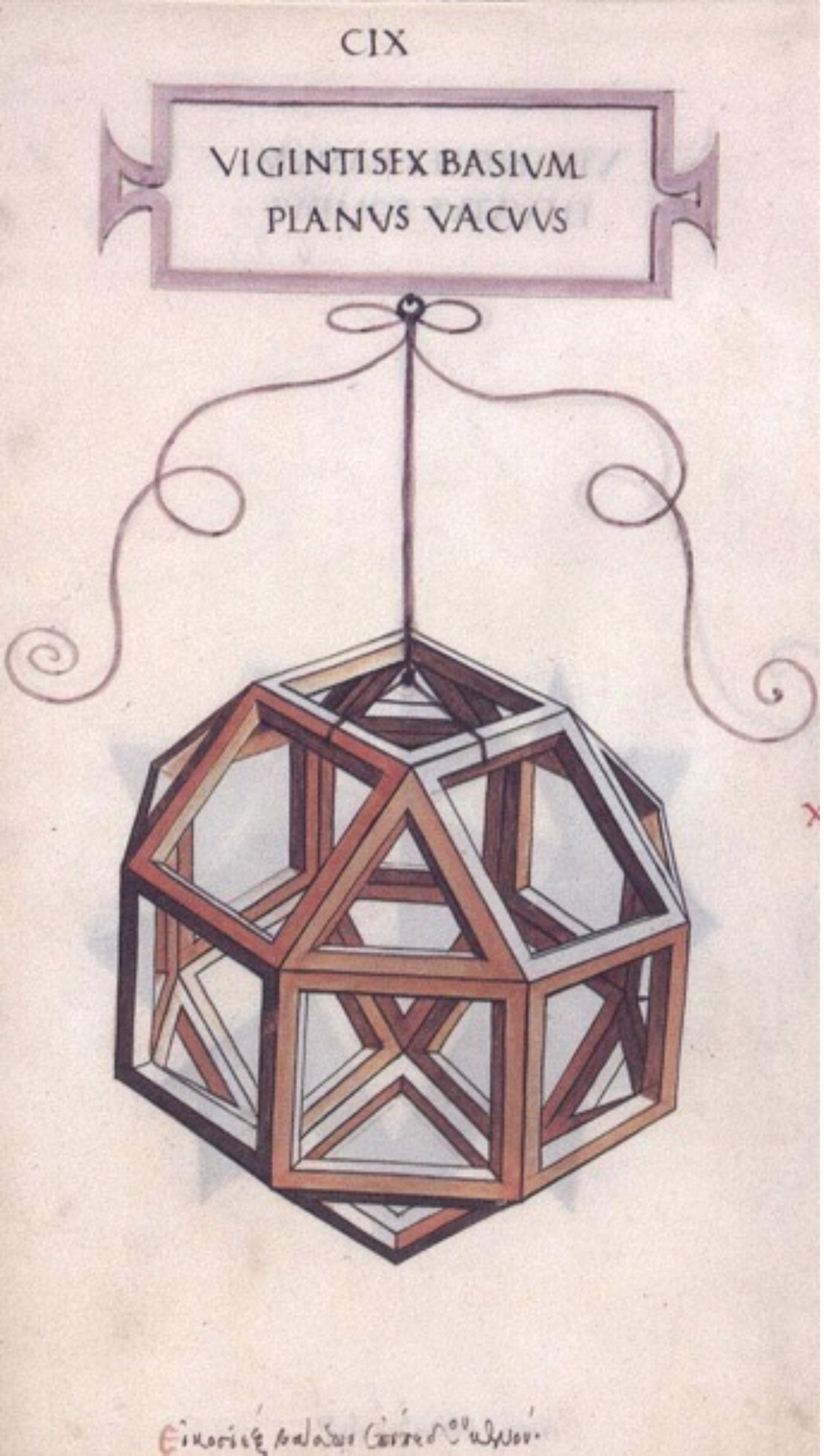
ДОСПЕХИ

- Webpack
- Browserify
- Babel
- Gulp
- и еще 100500 других

HOLLY WARS

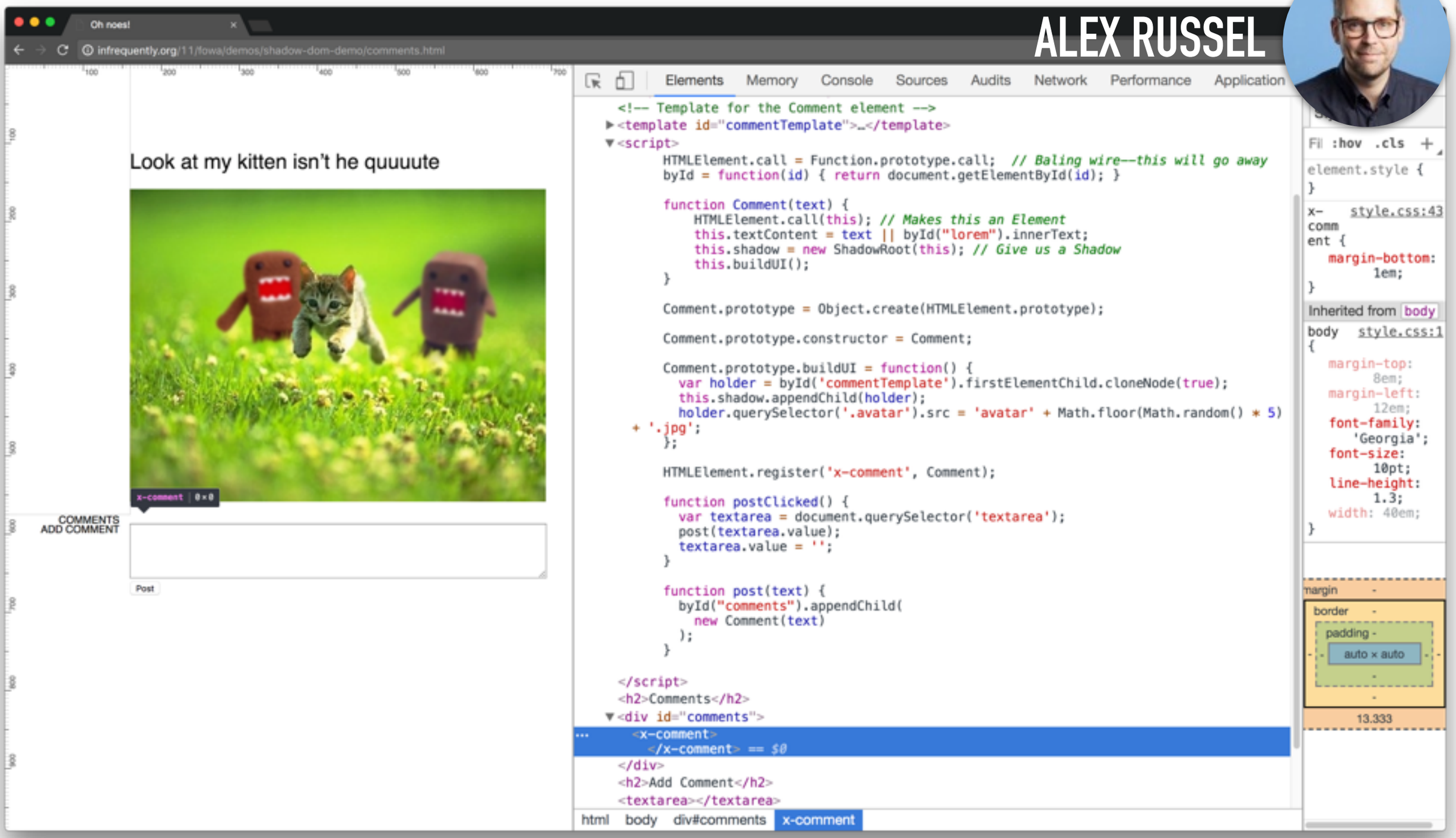
СТАНДАРТЫ

- ES6
- Shadow DOM
- Template strings
- Custom elements
- <script type "module">



CUSTOM ELEMENTS

WEB COMPONENTS AND MODEL DRIVEN VIEWS 2011



CUSTOM ELEMENTS ИСТОРИЯ ПУБЛИКАЦИЙ

2016-10-13	Working Draft
2016-10-02	Working Draft
2016-08-30	Working Draft
2016-07-21	Working Draft
2016-06-21	Working Draft
2016-06-09	Working Draft
2016-05-23	Working Draft
2016-05-17	Working Draft
2016-02-26	Working Draft
2016-01-19	Working Draft
2014-12-16	Working Draft
2013-10-24	Last Call
2013-05-14	First Public Draft

CUSTOM ELEMENTS 2013

old-way.js — ~/Documents/custom elements

old-way.js

```
1  (function() {
2      // Creates an object based in the HTML Element prototype
3      var element = Object.create(HTMLElement.prototype);
4      // Fires when an instance of the element is created
5      element.createdCallback = function() {};
6      // Fires when an instance was inserted into the document
7      element.attachedCallback = function() {};
8      // Fires when an instance was removed from the document
9      element.detachedCallback = function() {};
10     // Fires when an attribute was added, removed, or updated
11     element.attributeChangedCallback = function(attr, oldVal,
       newVal) {};
12     // Registers custom element
13     document.registerElement('my-element', {
14         prototype: element
15     });
16 }());
17
```

0 0 demo1/old-way.js 12:32 LF UTF-8 Babel 0 files

CUSTOM ELEMENTS 2016

index.html — ~/Documents/custom elements

index.html

```
6     <title>Custom elements</title>
7   </head>
8
9   <body>
10    <app-drawer></app-drawer>
11    <script>
12      class AppDrawer extends HTMLElement {
13        constructor() {
14          super();
15        }
16      }
17      window.customElements.define('app-drawer', AppDrawer);
18    </script>
19  </body>
20
21  </html>
22
```

0 0 demo1/index.html 15:8 LF UTF-8 HTML 0 files

SHADOW DOM

index.html — ~/Documents/custom elements

index.html

```
8
9   <body>
10    <app-drawer></app-drawer>
11    <script>
12      class AppDrawer extends HTMLElement {
13        constructor() {
14          super();
15          this.attachShadow({
16            mode: 'open'
17          });
18          this.shadowRoot.innerHTML = `<style></style>`;
19        }
20      }
21      window.customElements.define('app-drawer', AppDrawer);
22    </script>
23  </body>
24
25  </html>
26
```

scoped style

CUSTOM ELEMENTS LIFE CYCLE

index.html — ~/Documents/custom elements

index.html

```
 9   <body>
10     <app-drawer></app-drawer>
11     <script>
12       class AppDrawer extends HTMLElement {
13 ›       constructor() {⋯
20         connectedCallback() {
21           console.log("We are in");
22         }
23         disconnectedCallback() {
24           console.log("We are out");
25         }
26       }
27       window.customElements.define('app-drawer', AppDrawer);
28     </script>
29   </body>
30
31   </html>
32
```

Life cycle

CUSTOM ELEMENTS OBSERVING ATTRIBUTES

index.html — ~/Documents/custom elements

index.html

```
<body>
  <app-drawer></app-drawer>
  <script>
    class AppDrawer extends HTMLElement {
      constructor() {…
      static get observedAttributes() {
        return ['attr'];
      }
      attributeChangedCallback(attrName, oldVal, newVal) {
        //attr update
      }
      connectedCallback() {…
      disconnectedCallback() {…
    }
    window.customElements.define('app-drawer', AppDrawer);
  </script>
</body>

</html>
```

0 0 demo1/index.html 24:22 LF UTF-8 HTML 0 files

CUSTOM ELEMENTS TEMPLATES

index.html — ~/Documents/custom elements

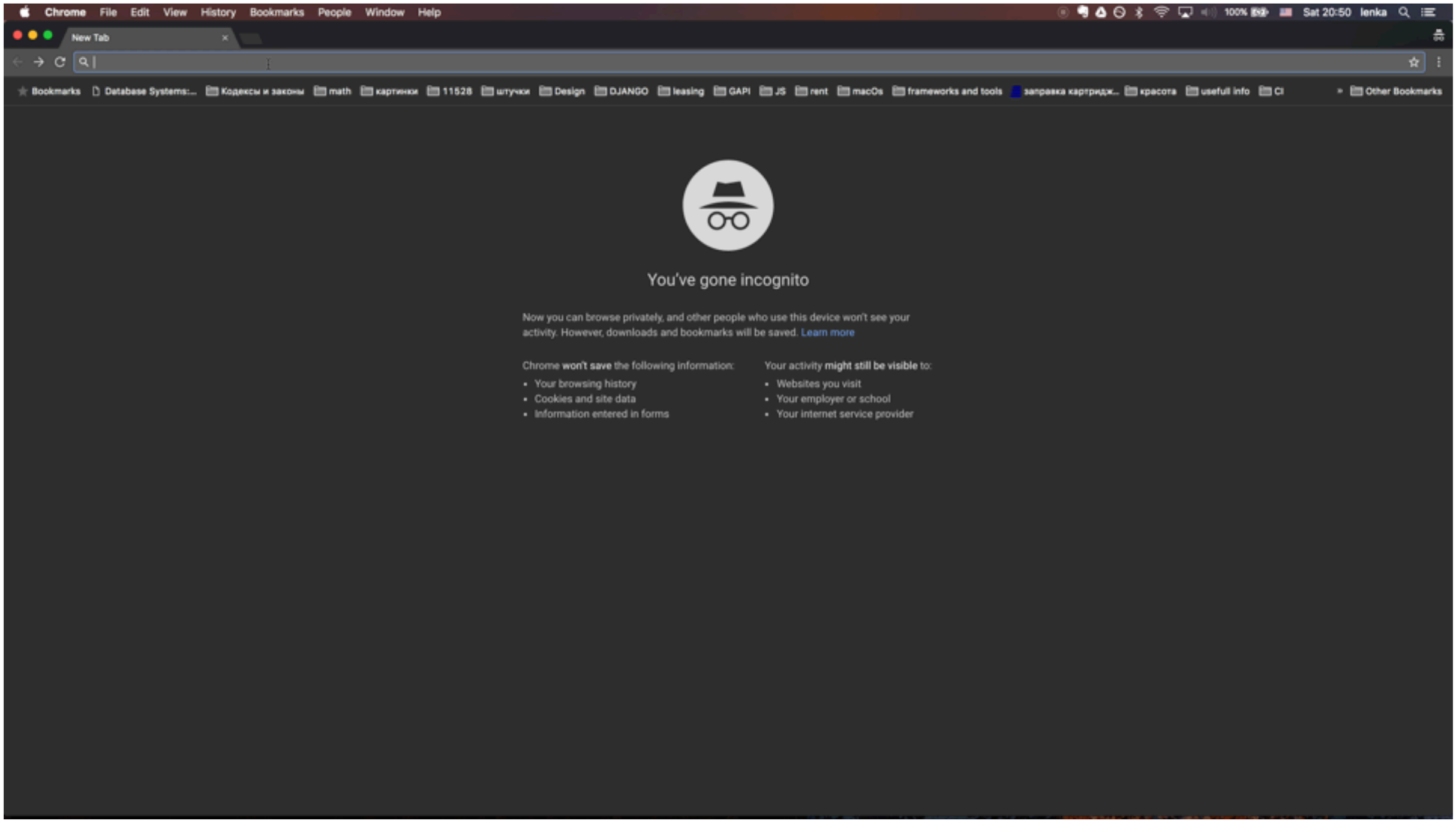
index.html

```
10      <app-drawer></app-drawer>
11      <template id="template">
12          <style>p { color: orange; }</style>
13          <p>Template content</p>
14      </template>
15      <script>
16        class AppDrawer extends HTMLElement {
17
18          constructor() {
19            super();
20 ›          this.attachShadow({…
23            const t = document.querySelector('#template');
24            const instance = t.content.cloneNode(true);
25            shadowRoot.appendChild(instance);
26          }
27
28 ›        static get observedAttributes() {…
31 ›        attributeChangedCallback(attrName, oldVal, newVal) {…
34 ›        connectedCallback() {…
```

use template

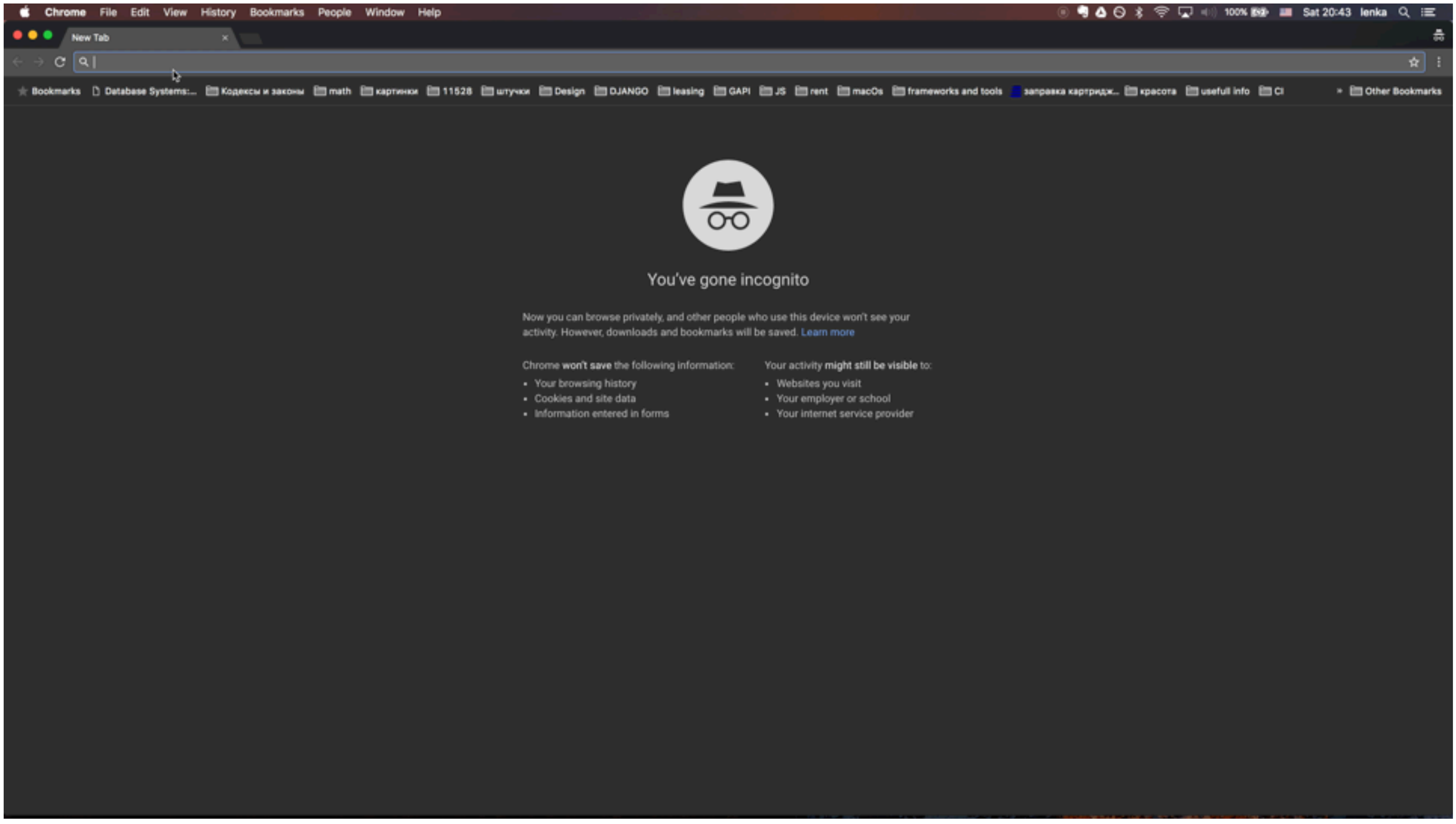
ЭКСПЕРИМЕНТЫ

CUSTOM ELEMENTS

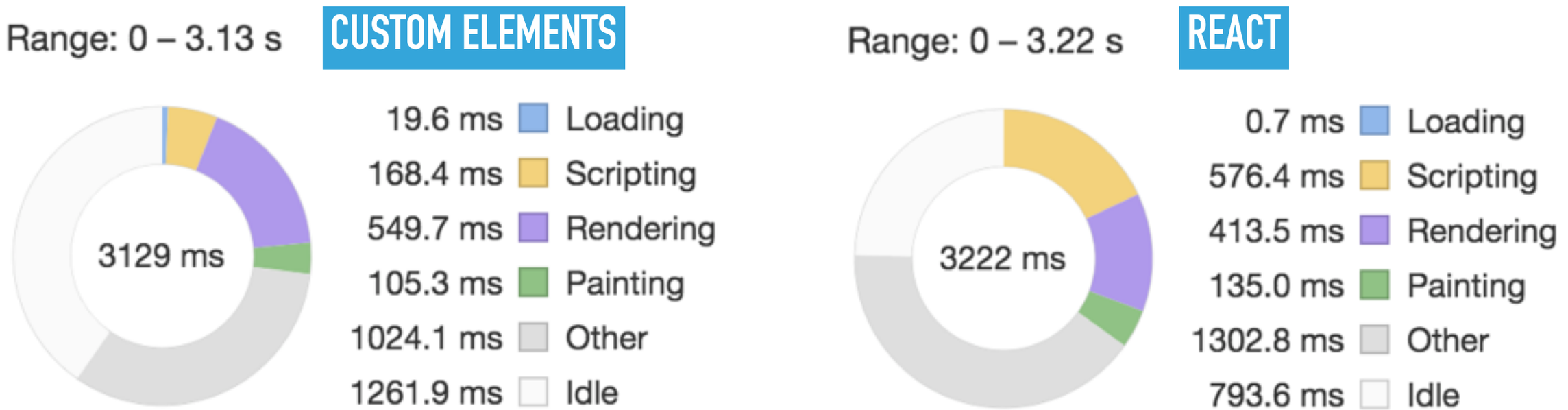


ЭКСПЕРИМЕНТЫ

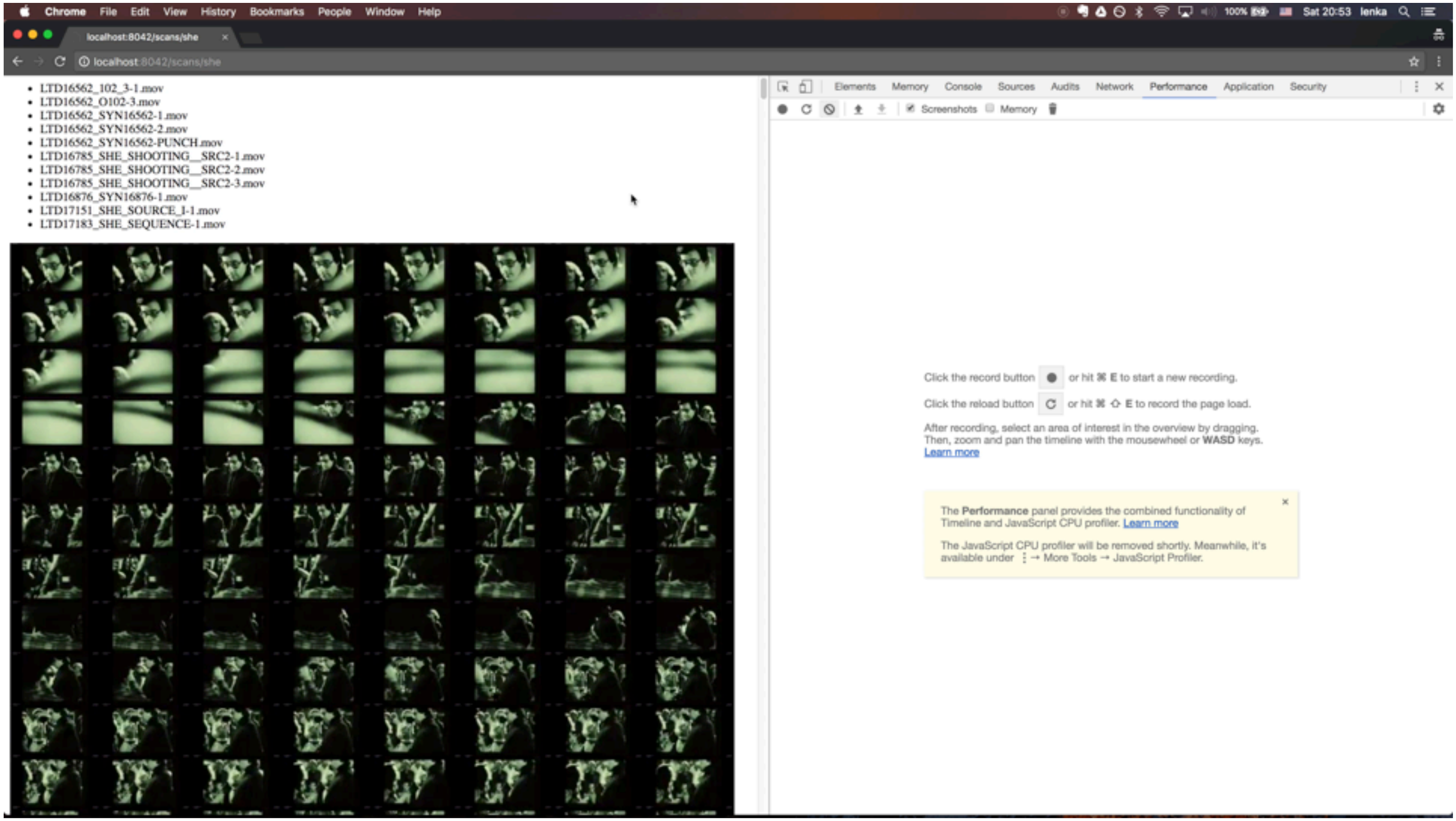
REACT



CUSTOM ELEMENTS VS REACT ЗАГРУЗКА

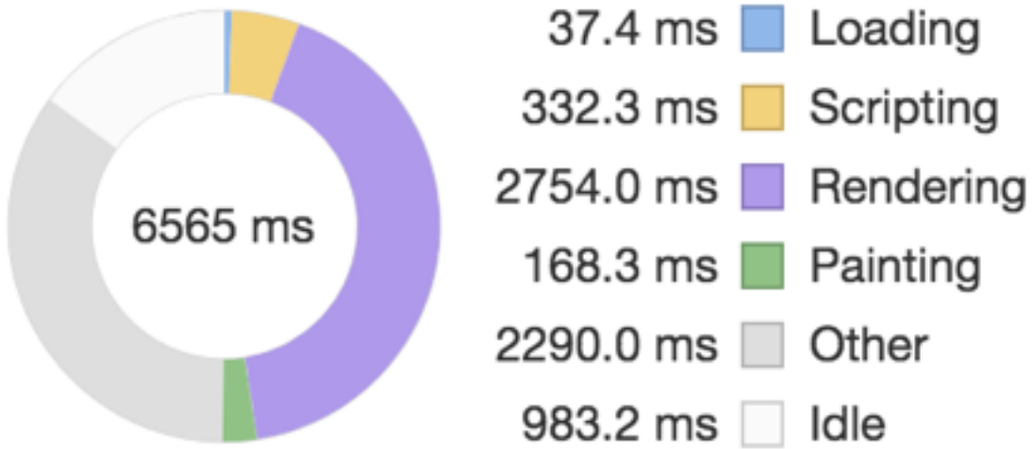


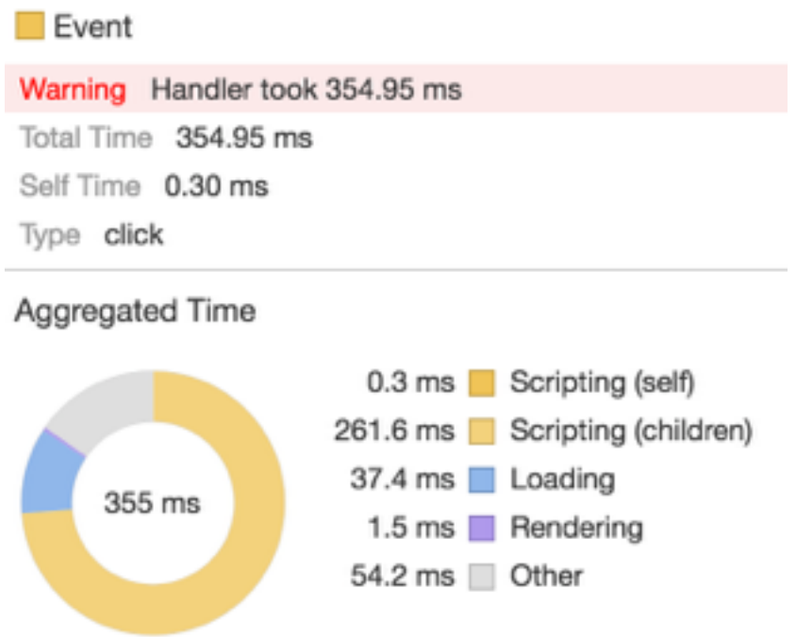
ЭКСПЕРИМЕНТЫ



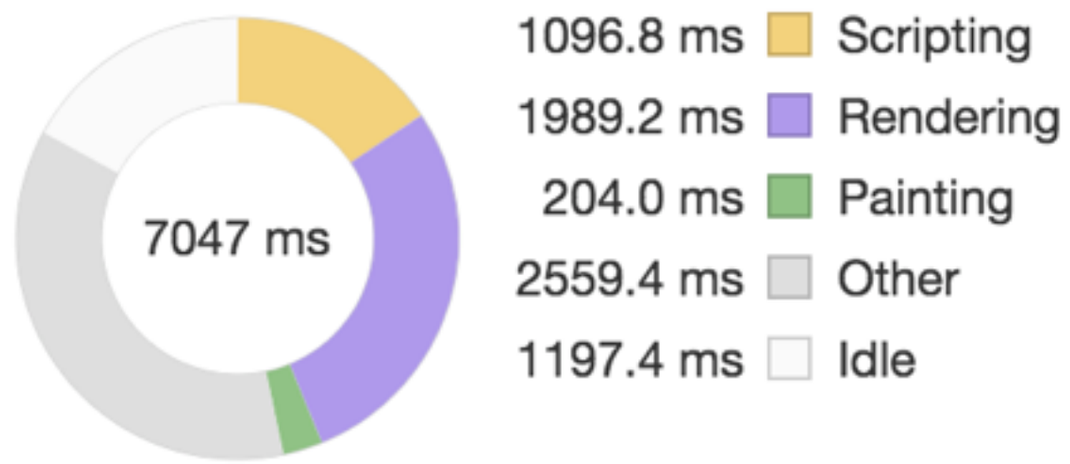
CUSTOM ELEMENTS VS REACT ПЕРЕРИСОВКА

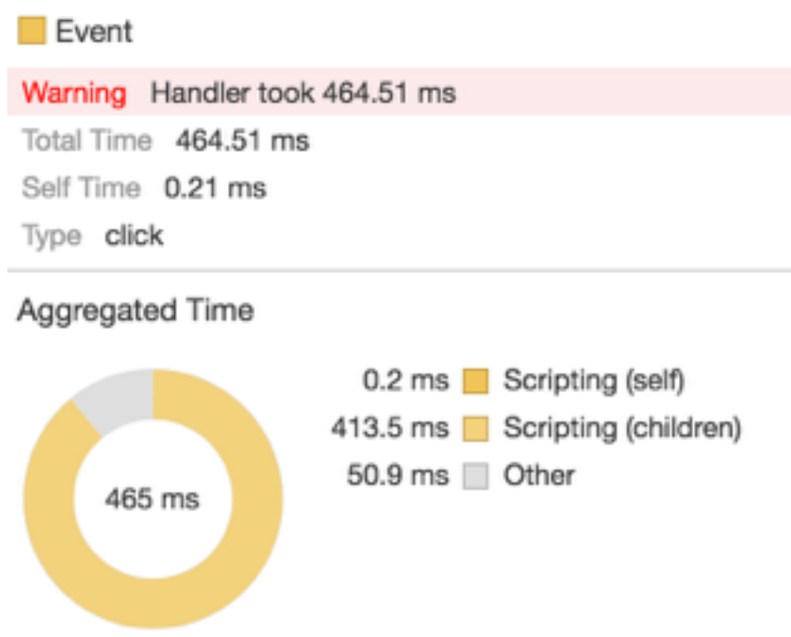
Range: 1.88 s – 8.45 s **CUSTOM ELEMENTS**



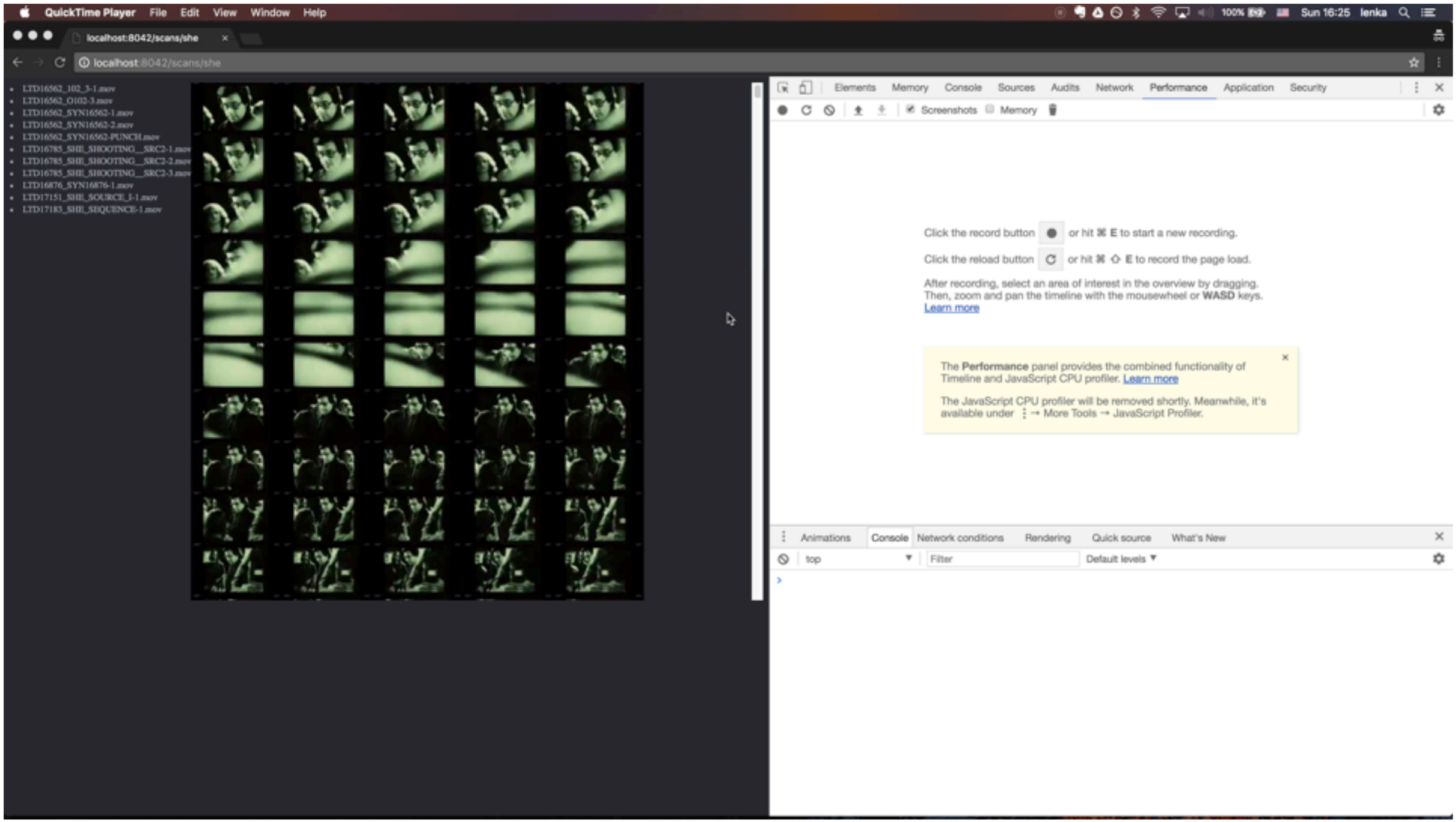


Range: 2.78 s – 9.83 s **REACT**



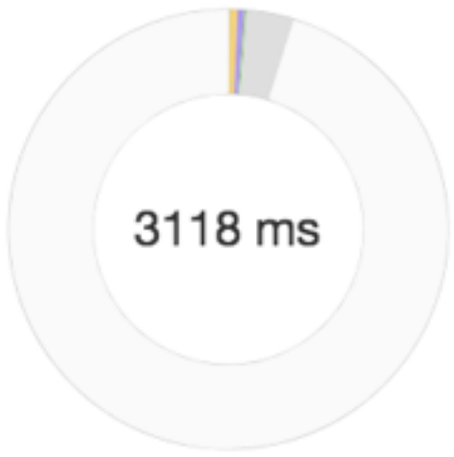


ЭКСПЕРИМЕНТЫ



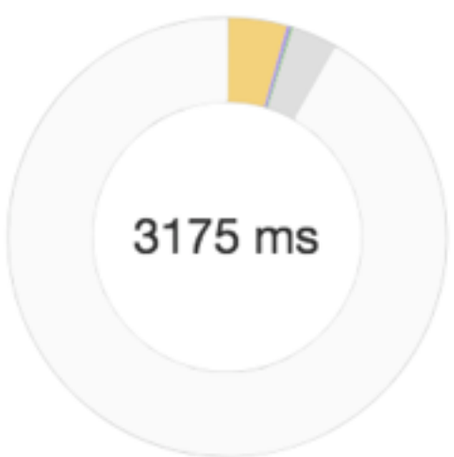
CUSTOM ELEMENTS VS REACT

Range: 0 – 3.12 s **CUSTOM ELEMENTS**



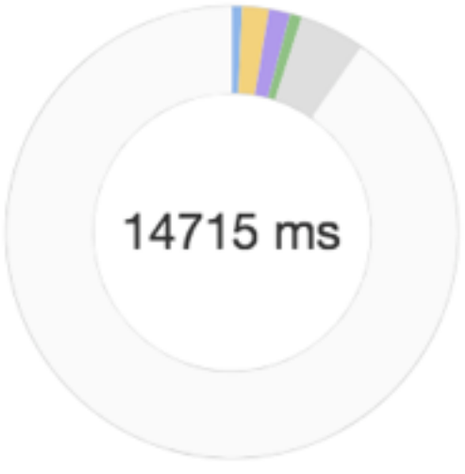
2.1 ms Loading
19.0 ms Scripting
14.7 ms Rendering
5.8 ms Painting
109.2 ms Other
2967.2 ms Idle

Range: 0 – 3.17 s **REACT**



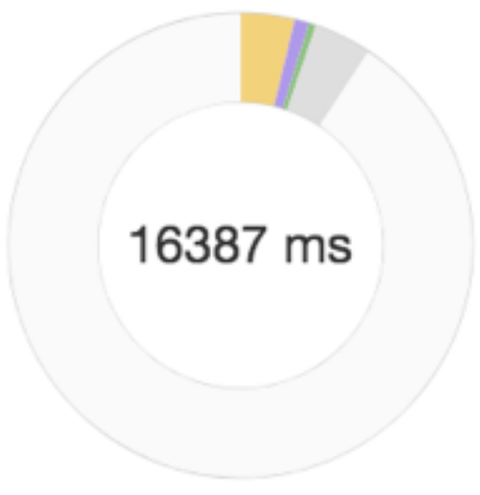
2.2 ms Loading
137.7 ms Scripting
9.0 ms Rendering
5.6 ms Painting
107.7 ms Other
2912.3 ms Idle

Range: 0 – 14.72 s **CUSTOM ELEMENTS**



106.0 ms Loading
279.9 ms Scripting
224.0 ms Rendering
126.0 ms Painting
690.8 ms Other
13288.3 ms Idle

Range: 0 – 16.39 s **REACT**



615.6 ms Scripting
164.0 ms Rendering
81.5 ms Painting
662.3 ms Other
14863.4 ms Idle

УДОБСТВО РАЗРАБОТКИ

video-item.js — ~/vg-brain

video-item.js

```
3   export default class VideoItem extends FileItem {
4   ›     /**⋯
16  ›     constructor (file) {⋯
20
21  ›     set file (file) {⋯
27
28        render () {
29            let file = this._file;
30            return `<div>
31                        <img src="${this.thumb}" alt="${file.id}">
32                    </div>
33  ›                 <div>⋯
42                    </div>`;
43        }
44  }
45
46  window.customElements.define('video-item', VideoItem);
47
```

template string

bigfoot/src/main/resources/static/js/components/video-item.js 29:31 LF UTF-8 Babel scans-test 3 1 file

УДОБСТВО РАЗРАБОТКИ

video-files.js — ~/vg-brain

video-files.js

```
33
34  export default class VideoFiles extends FileList {
35 ›      constructor (files) {…
39
40      render () {
41 ›        if (!this._files) {…
44          const fragment = document.createDocumentFragment();
45          this._files.forEach(file => {
46              let fileItem = new VideoItem(file);
47              //...
48              fragment.appendChild(fileItem);
49          });
50          this.fileList.appendChild(fragment);
51      }
52  }
53
54  window.customElements.define("video-files", VideoFiles);
55
```

OOP style

УДОБСТВО РАЗРАБОТКИ

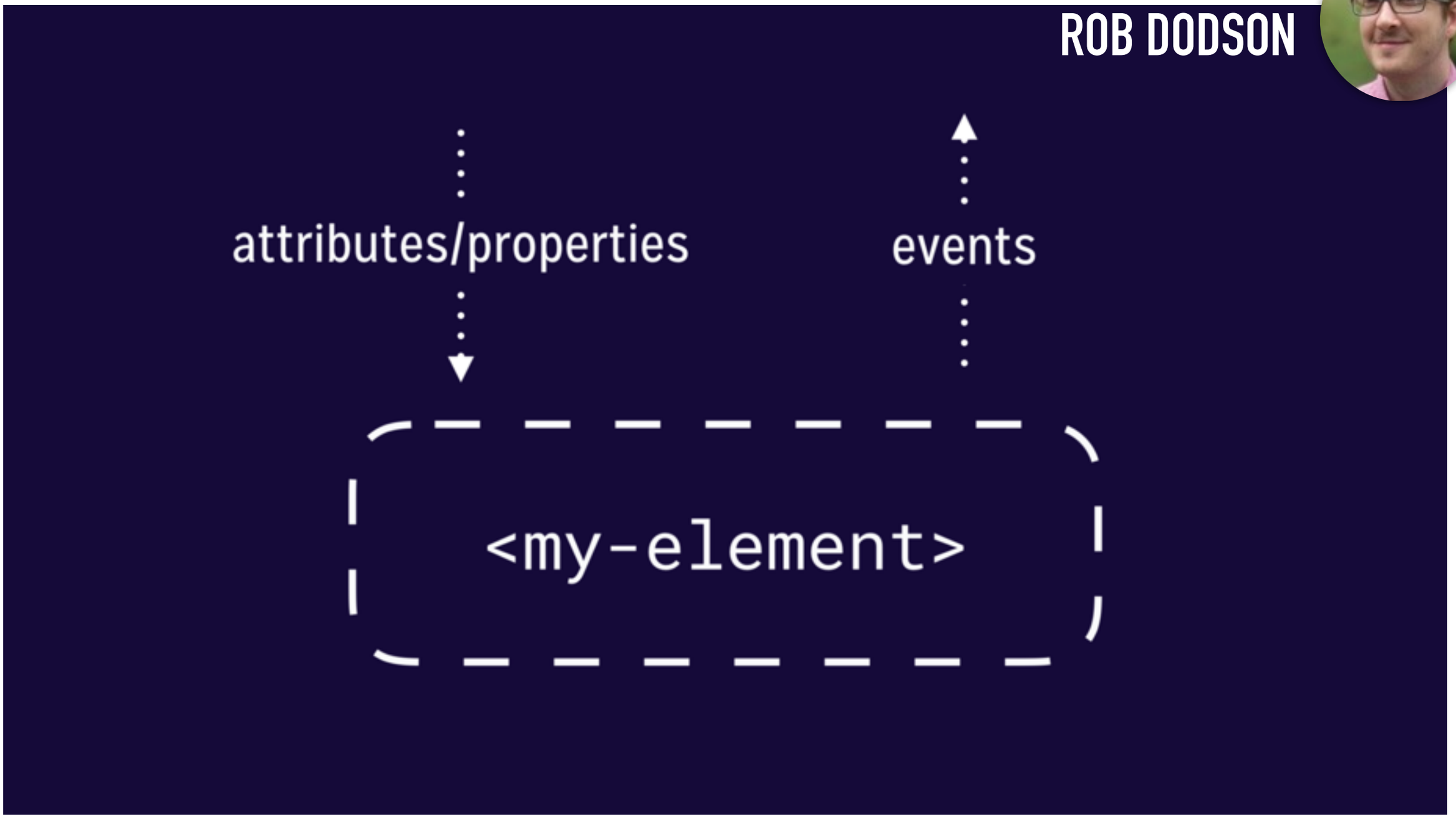
video-files.js — ~/vg-brain

video-files.js

```
5   const WIDTH = 120.0;
6   const HEIGHT = 68.0;
7   const template = document.createElement('template');
8   template.innerHTML = `
9   <style>
10  ›     :host{⋯
13  ›     video-item{⋯
18  ›     video-item:hover{⋯
21  ›     video-item[selected=true]{⋯
25  ›     video-item img {⋯
31
32  </style>`;
33
34  › export default class VideoFiles extends FileList {⋯
54
55  window.customElements.define("video-files", VideoFiles);
56
```

CSS with CSS

ПЕРЕДАЧА ДАННЫХ



CUSTOM EVENTS

file-list.js — ~/vg-brain

file-list.js

```
12  export default class FileList extends HTMLElement {
13      constructor (files) {…
22
23      set files (files) {…
27
28      selectFile (item, file) {
29          if (this._selectedFileItem) {…
34          this.dispatchEvent(new CustomEvent('file-select',
                {bubbles: true, composed: true, detail: file}));
35      }
36
37      render () {…
49
50  }
51  window.customElements.define('file-list', FileList);
52
```

0 0 bigfoot/src/main/resources/static/js/components/file-list.js 34:57 LF UTF-8 Babel scans-test 3 3 files

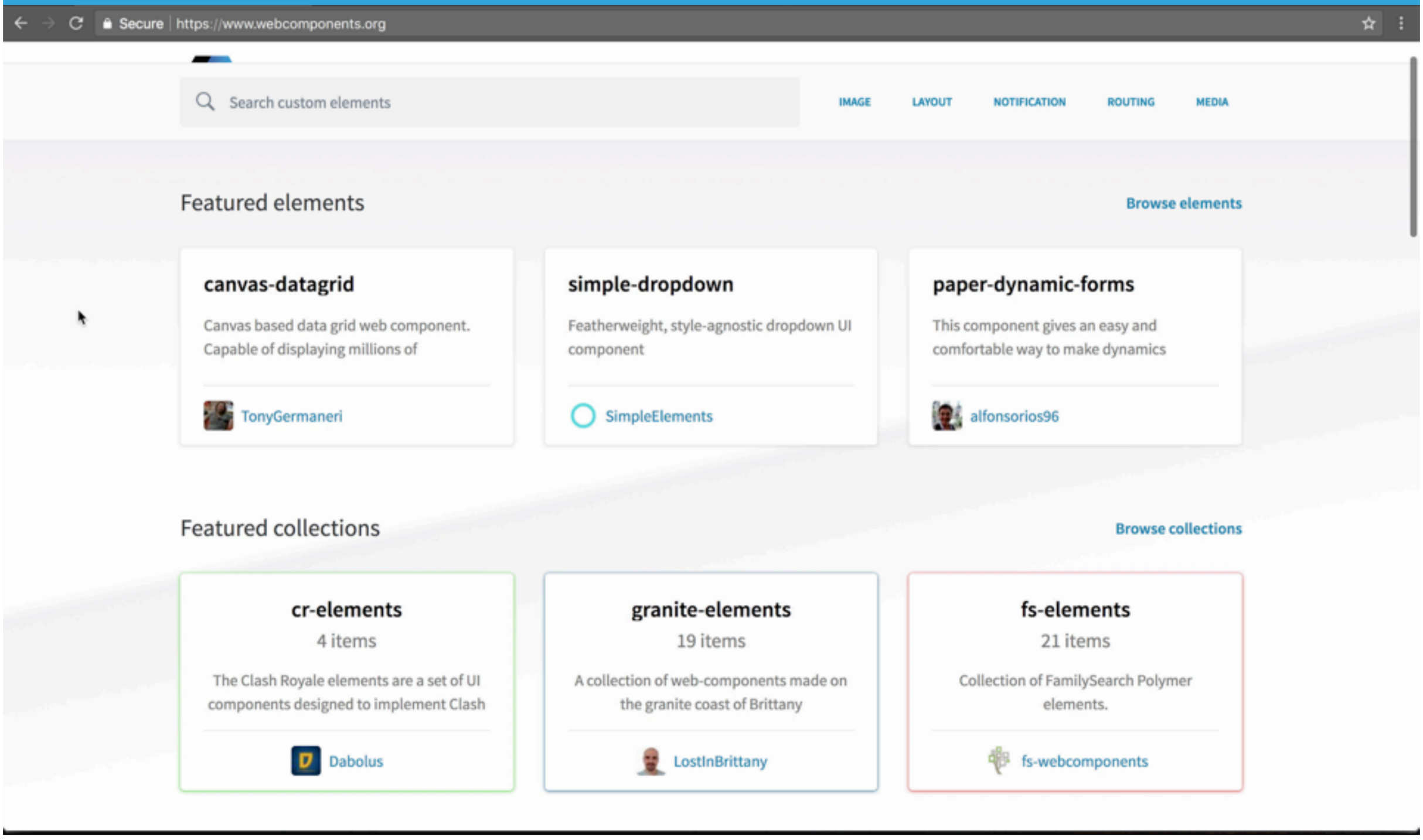
ЗАКЛЮЧЕНИЕ

Модульность	😀
Производительность	😀
Удобство разработки	😋
Кроссбраузерность	🤕

ИСТОЧНИКИ

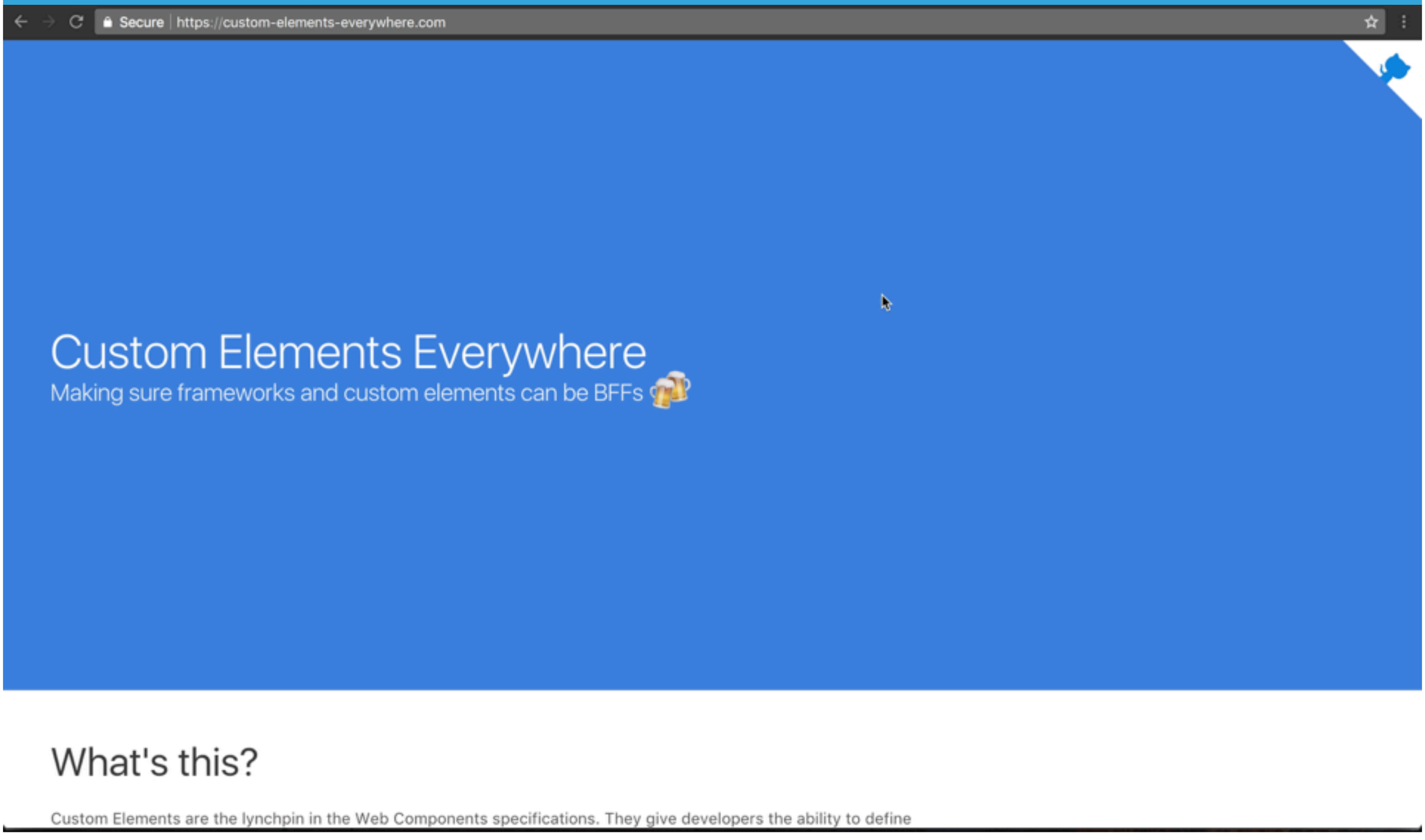
ИСТОЧНИКИ

WEBCOMPONENTS.ORG

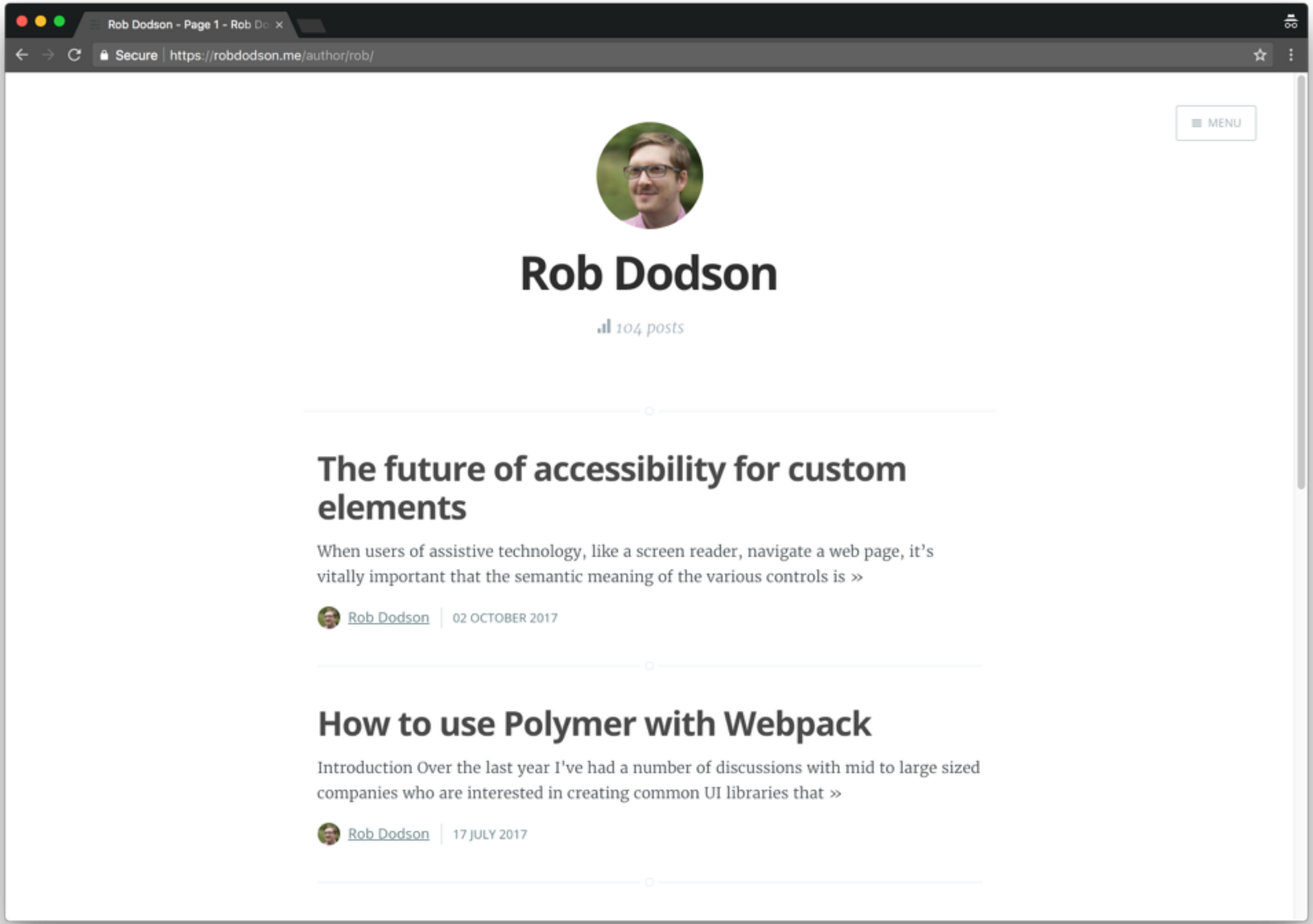


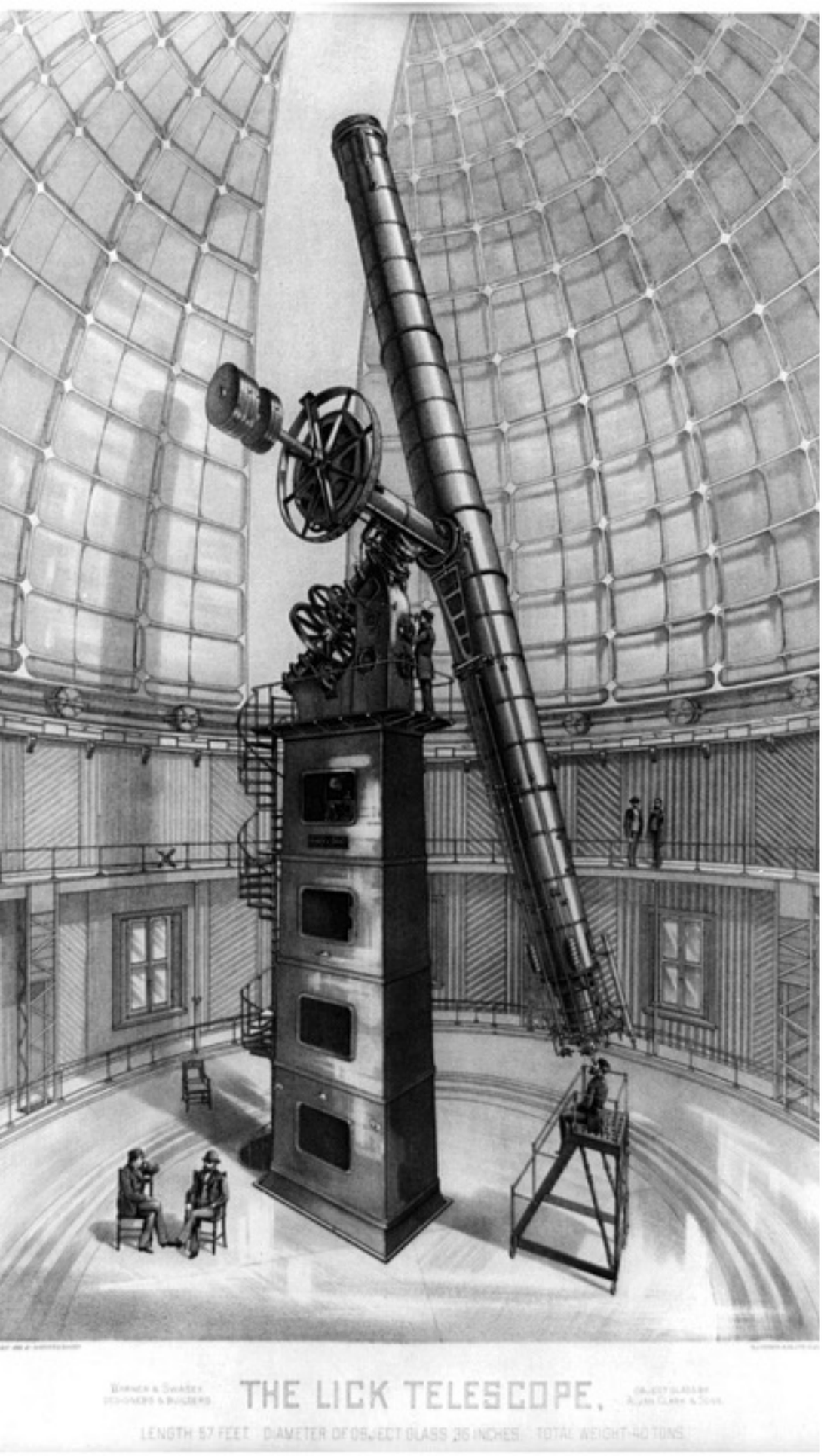
ИСТОЧНИКИ

CUSTOM-ELEMENTS-EVERYWHERE.COM



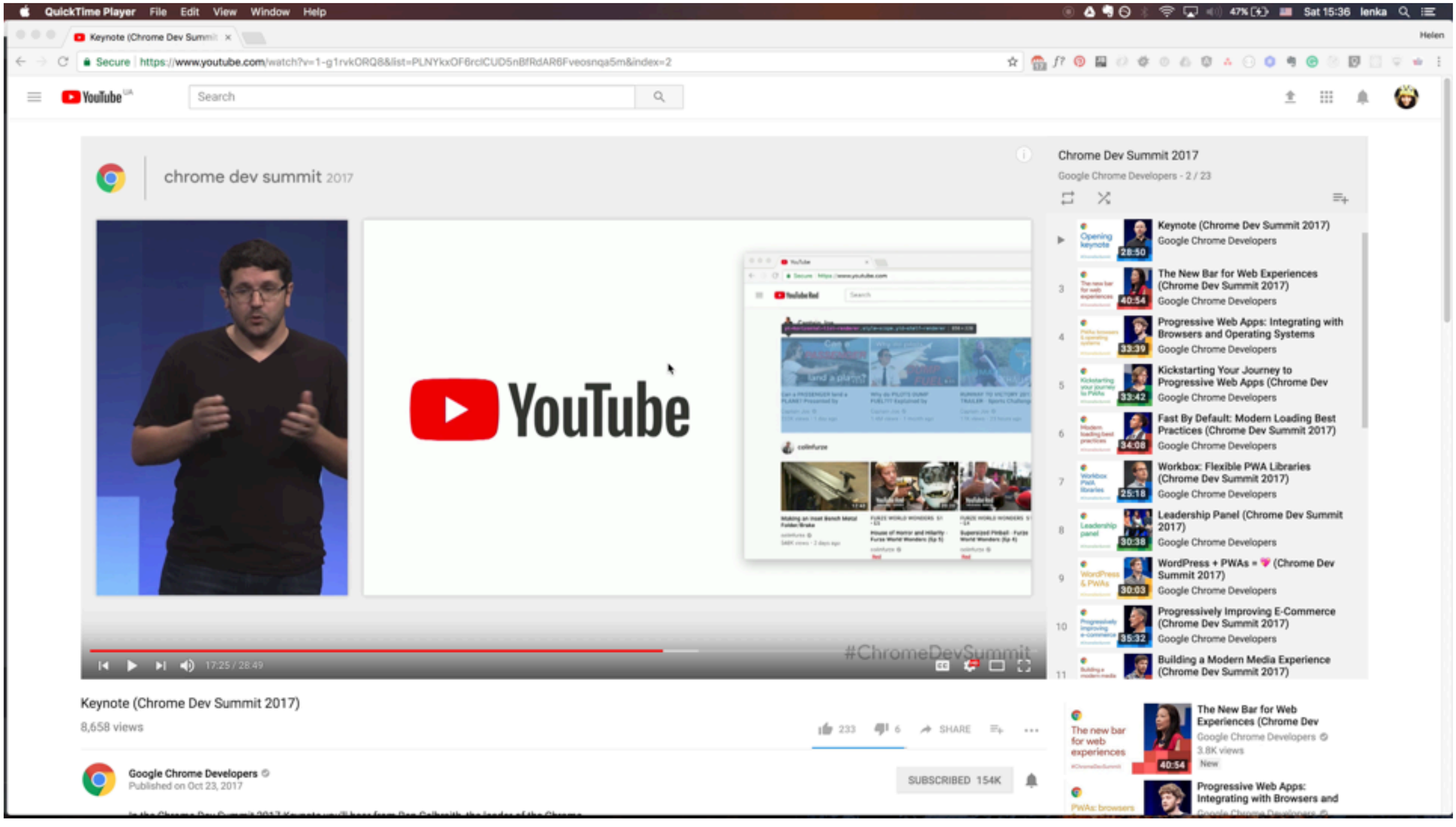
ИСТОЧНИКИ


Rob Dodson - Page 1 - Rob Do
Secure | https://robdodson.me/author/rob/
MENU
Rob Dodson
104 posts
The future of accessibility for custom elements
When users of assistive technology, like a screen reader, navigate a web page, it’s vitally important that the semantic meaning of the various controls is »
Rob Dodson | 02 OCTOBER 2017
How to use Polymer with Webpack
Introduction Over the last year I've had a number of discussions with mid to large sized companies who are interested in creating common UI libraries that »
Rob Dodson | 17 JULY 2017



СВЕТЛОЕ БУДУЩЕЕ?

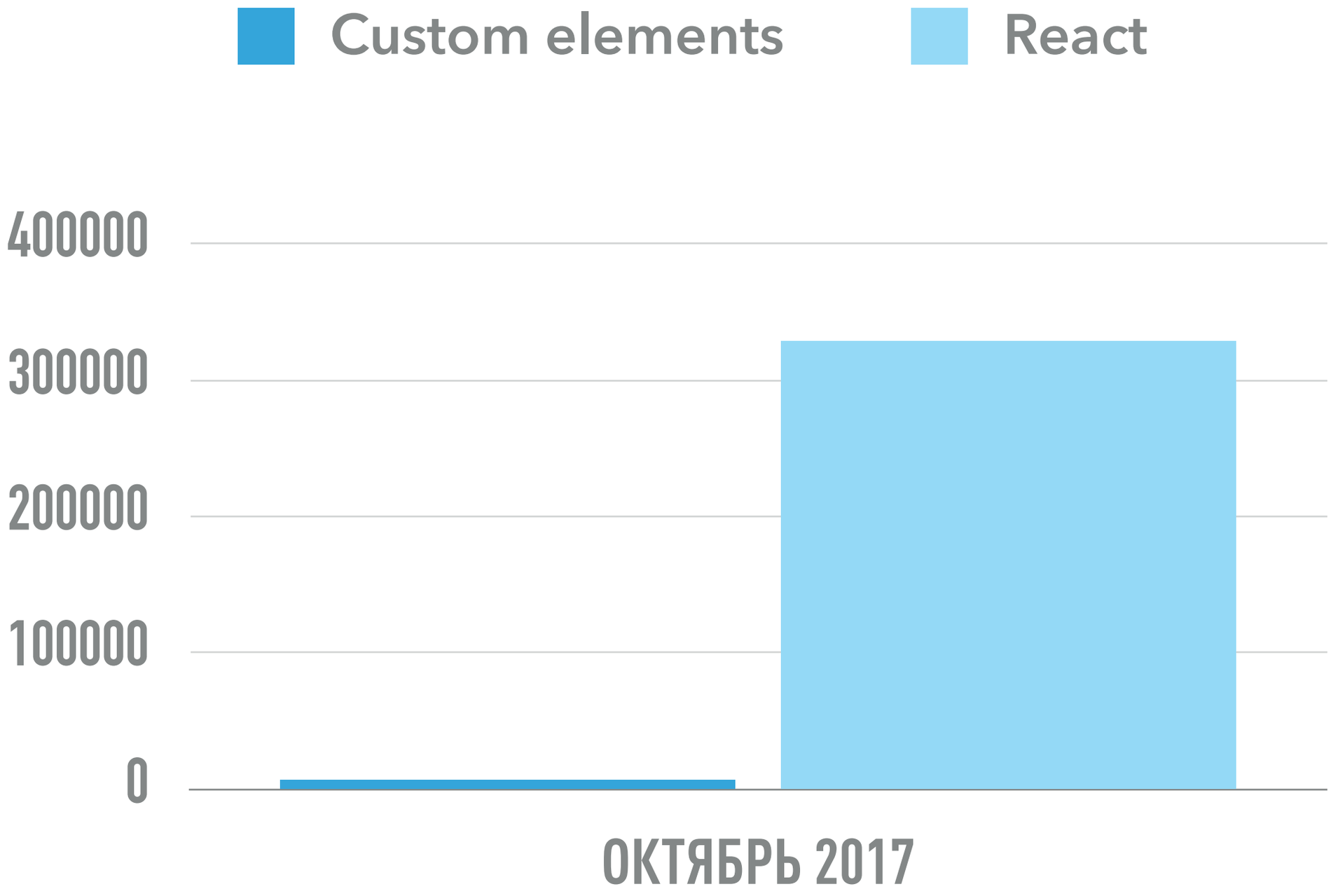
СВЕТЛОЕ БУДУЩЕЕ?



СВЕТЛОЕ БУДУЩЕЕ?

Browser support	CHROME	OPERA	SAFARI	FIREFOX	EDGE
TEMPLATES	STABLE	STABLE	STABLE	STABLE	STABLE
CUSTOM ELEMENTS	STABLE	STABLE	STABLE	POLYFILL DEVELOPING	POLYFILL CONSIDERING
SHADOW DOM	STABLE	STABLE	STABLE	POLYFILL DEVELOPING	POLYFILL CONSIDERING
<SCRIPT TYPE="MODULE">	STABLE	STABLE	10.1	FLAG IN 54	FLAG IN 15
HTML IMPORTS	STABLE	STABLE	POLYFILL ON HOLD	POLYFILL ON HOLD	POLYFILL CONSIDERING

СВЕТЛОЕ БУДУЩЕЕ?



https://bigquery.cloud.google.com/savedquery/563055368311:016eb3605ca44e5da4f9e2b358809927

2006

jQuery

2009

ANGULARJS by Google

2010

BACKBONE.JS

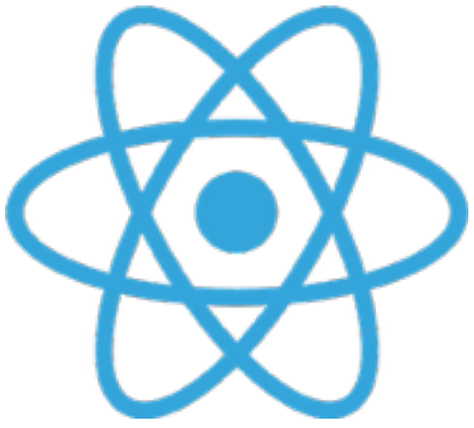
2011

ember

2012

METEOR

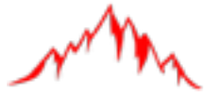
2013



2014

2015

2016



SWITZERLAND

2017

NGULAR2