In this issue

CLAUDIA GOLDIN
On closing the gender pay gap.
The key is flexible work schedules.

LARRY FISHER
On hydrogen-powered cars.
Miracles sometimes happen.

FRANK ROSE
On the Internet battle for eyeballs.
Time is the scarce resource.

PALLAVI AIYAR AND CHIN HWE TAN
On comparing the Indian and Indonesian economies.
More alike than you think.

THOMAS HEALEY AND CATHERINE REILLY
On the coming global pension disaster.
Pay now or pay later.

TOMAS PHILIPSON
On financial engineering for pharmaceutical R&D.
Managing risk with derivatives.

MARSHA VANDERBERG
On China’s high-wire act.
Reform or growth – must they choose?

ALLEN SANDERSON AND JOHN SIEGFRIED
On the NCAA monopoly.
Pay players what they’re worth.

BILL FREY
On neighborhood desegregation.
The bonus from diversity.
Nearly a half-century ago, in a lecture sponsored by Johns Hopkins University and the Brookings Institution, the economist and future Nobel laureate Herbert A. Simon told a story about bunny rabbits. It seems his neighbors had purchased a pair of bunnies for their daughter as an Easter present, and since the rabbits were of different genders the neighbors soon found themselves living in, as Simon put it, “a rabbit-rich world.” This would have consequences not just for the neighbors but for the local food supply. “A rabbit-rich world is a lettuce-poor world,” Simon pointed out, “and vice versa.”

Alas for leporidologists, Simon was not giving a disquisition on rabbits. His actual topic was information, which even then appeared to be exploding, and he went on to make an observation that has been cited many times since:

In an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence, a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it.
And so, at the dawn of the information age, was born the notion that we live in an “attention economy” in which a glut of information leaves us with a deficit of attention. It was a radical idea, since for most of human history it has been information that’s in short supply and attention that’s abundant. But Simon was prescient. In a few quick sentences, he predicted a reversal of the economic relationship between media producers and media consumers. In the future, the value of information (the stuff being produced) would trend toward zero, while the value of attention, which is owned by consumers but can be leveraged by companies that help them allocate it, would only rise. Google, its founders as yet unborn, would triumph; newspapers would collapse.

Of course, it wasn’t quite that simple. There were other issues to be decided, chief among them the question of how to measure this newly identified resource called attention. Simon thought the answer was fairly obvious: attention should be measured by the amount of time an average business executive, a person he identified as having a bachelor’s degree and an IQ of 120, spends focused on something. Such “attention units” would capture the cost, in addition to any monetary outlay, of receiving information.

But Simon was a good 30 years ahead of his time. By the time the rest of the world caught up with his ideas, other, cruder, metrics had come into use – metrics that have so distorted the economics of the Internet that we find ourselves awash in information that’s useless, even predatory, while information that actually deserves our attention often goes begging. Fixing this won’t be easy, but it’s going to be critical to a functioning media industry – as a growing number of people are starting to point out.

**MAU-MAUING THE FLAK CATCHERS**

Last January, Evan Williams became the latest to speak up. Williams is a co-founder of Twitter, the microblogging service that went public in 2013, and more recently of *Medium*, an online publication that doubles as a blogging platform and has serious journalistic ambitions. In December, Facebook announced that Instagram – the popular photo-sharing app that it bought for $1 billion in 2012 – had 300 million “monthly active users” (MAUs, in the lingo of the trade). This was remarkable for a service that nine months earlier had only 200 million.

But commentators on Wall Street and in the media immediately ginned up a comparison with Twitter, whose user base, after an initial growth spurt, stood a little below 300 million – much to the Street’s distress. From CNBC to *Mashable* to *Adweek*, one outlet after another proclaimed Instagram to be “bigger than Twitter.” A Citibank analyst announced that Facebook’s not-yet-profitable photo app might be worth $35 billion, far more than Twitter’s market cap of $24 billion. A columnist for CNNMoney opined that Twitter should sell itself to the highest bidder.

Williams’s response, delivered to a *Fortune* reporter: “I don’t give a s***.” And for good reason. Aside from the fact that they’re interactive services that live on Internet-connected electronic devices, Twitter and Instagram have little in common. Twitter, as Williams pointed out, is a “realtime information network” where big news breaks first and world leaders and celebrities speak to global audiences. But while Twitter can be highly addictive to initiates, it has not made itself friendly to newbies – a failing that contributed to in-

---

**FRANK ROSE** is a senior fellow at the Columbia University School of the Arts and the author of *The Art of Immersion: How the Digital Generation Is Remaking Hollywood, Madison Avenue and the Way We Tell Stories.*
vestors’ feelings of relief when its CEO resigned in June. Instagram, on the other hand, is a fun and extremely well-executed app that encourages people to connect over photos.

Monthly active users can be a helpful yardstick for such online services, but as Slate’s Will Oremus pointed out in one of the few informed appraisals of the Twitter/Instagram contretemps, “they aren’t the only one. Others might include the amount of time users spend on the network, the amount of content they post, and the number of people who see that content.” By those measures, Twitter far outstrips its so-called rival: 500 million tweets per day compared to 70 million photos posted to Instagram; 500 million people per month who visit the site but don’t log in (and therefore aren’t counted as “active users”); 185 billion impressions per quarter.

In Twitter’s case, a shortage of MAUs turned off advertisers, weighed on the stock price, and helped precipitate a change in leadership. But as misleading as the MAU metric can be for social sites, the monthly tally of “unique visitors” – typically used to gauge the importance of media sites – is worse, for the stock price and for ad rates alike. It assumes that if someone lands on a Web page, that person is going to stay there long enough to read or watch whatever is onscreen. The reality is quite different. According to the Web analytics firm Chartbeat, 55 percent of the people who visit a Web page stay there for less than 15 seconds. Yet the site with the most traffic wins, regardless of how fleeting that traffic might be.

We’ve been here before, of course. “Uniques” are the online equivalent of ratings on television. The fixation on ratings fed the lowest-common-denominator effect that held the industry in its grip from the late 1950s until just a few years ago, when the rise of pay-TV channels and the growing sophistication of audiences pushed television into a new

55 percent of the people who visit a Web page stay for less than 15 seconds. Yet the site with the most traffic wins, regardless of how fleeting that traffic might be.
that’s only as good as the next click. Which will be a problem since the Internet is where television is headed.

It doesn’t help that the Internet is essentially unaffected by physical constraints. Television, especially analog television, has discernible limits: there are only so many viewing hours in the day, only so many megahertz of bandwidth that can be devoted to broadcasting channels simultaneously, only so many minutes that can be devoted to ads without audiences tuning out completely. (The current rule of thumb in the United States is 8 minutes out of every 30.) Not so online, where the potential number of ad-carrying Web pages is effectively infinite.

At the same time, online distribution is largely controlled by users rather than publishers, either through search engine queries or by spreading information virally on sites like Facebook and Twitter. Marc Andreessen, a leading Silicon Valley venture capitalist, has been talking about “a golden age of journalism” that could follow a transition to a new-generation audience that’s mobile and always connected. But with users driving distribution and with infinite inventory pushing ad rates relentlessly downward, the focus on unique visitors and click-through rates has inspired a lot of Web publishers to try to game the system – to go big by providing junk content to go with the junk ad medium that serves it up.

**WHAT THE ALGORITHM SAID TO THE CONTENT FARM**

The first target for abuse was search. Through the miracle of search engine optimization, Web publishers can design their sites to attract notice from the bots that crawl the Net on behalf of Google and other search engines. Figure out how to take maximum advantage of this while delivering minimal value and you get something like Demand Media, the “content farm” that five years ago looked like the future of journalism.

And a dismal future it would have been: the idea was to pay writers and videographers a pittance – $15 or so – to churn out near-useless material on topics a computer algorithm said people wanted to know about, then lard it up with ads and rely on search engines to drive traffic. Most visitors would go straight back to Google, but who cared? A unique was a unique, no matter how fleeting the visit, and Demand Media was soon getting more than 100 million uniques a month, making it one of the top 20 Web properties in the United States.

Demand Media’s business model was stunningly cynical, though the company did try to dress it up with self-serving rhetoric about “publishing what the world wants to know and share.” More surprising was the number of tech-savvy individuals who bought in. “They really understand consumer behavior on the Web and how to build businesses on it,” Facebook COO Sheryl Sandberg said to Bloomberg Businessweek. Wired magazine concluded at the end of a lengthy profile that “the Demand way may be inescapable.”

Investors certainly seemed to think so. In January 2011, when Demand went public in an IPO led by Goldman Sachs, the market valued it at $1.9 billion on opening day. Never mind that it had lost money in each of its four years of existence; it was the first IPO to top $1 billion since Google itself went public in 2004. The New York Times Company, meanwhile, was valued at $1.55 billion.

That was then. By November 2013, not quite three years later, Demand Media’s traffic had fallen by half, its CEO had resigned, and its stock price had dropped from a peak of $52.50 shortly after the IPO to somewhere around $5. What happened? Google.

Days before Demand’s initial public offering, Google’s engineer in charge of fighting
Web spam noted in a company blog post that users wanted it to take action against content farms and the like. His advisory was largely ignored in the froth of the IPO. But a few weeks later, Google made good on the threat by introducing a significant change in the way it tallied search results. Its new search algorithm, called Panda, specifically penalized low-quality sites — those with thin content and too many ads.

Demand Media’s traffic plummeted. By April 2011, outside analytic services were reporting that visits to its sites were down as much as 40 percent. The stock price started falling accordingly. Copycat sites, of which there was no shortage, suffered a similar fate. Google “wouldn’t give us any relief,” one competitor told an interviewer from Harvard’s Nieman Journalism Lab, “so I realized this was not a sustainable business.”

With search out, would-be media innovators turned to social. You would think that sharing through social media would be relatively immune to the gamesmanship that corrupted search, since for something to go viral it presumably has to deliver on some level. (There’s a reason that homemade cat videos tend to be insanely popular.) But that turned out not to be the case. No sooner did content farms implode than “clickbait” and “linkbait” took their place.

We’ve all seen them — headlines that stop at nothing to get us to drop everything so we can click on the story and then link to it:

- **32 Freaky Times the World Was Creepy in the Worst Ways Imaginable**
- **The Things You Can Find on These 25 Bizarre Islands Seem Too Freaky to Be Real**
- **She Was Hit by a Car, Struck With a Hammer, Buried...and She STILL Wags Her Tail**

And my personal favorite for at least the past five minutes:

- **He Thought He Could Be a Human Ant-eater, But What Happened Was...OMG**

These are all recent examples from ViralNova, a site most readers of this journal have probably never heard of. Nonetheless, in April 2014 *Bloomberg Businessweek* declared the year-old business “one of the defining media companies of this convulsive era.” What made it defining was the same thing that once made Demand Media defining, but with a twist. ViralNova lures millions of people to junk content, not through search but because it can induce people to link to it — mainly on Facebook, which accounted for 90 percent of the site’s 6.6 million monthly unique visitors.

ViralNova is headed by Scott DeLong, a 31-year-old entrepreneur who lives next to a cornfield in North Canton, Ohio (pop. 17,500). DeLong doesn’t have a huge news operation or a vast network of contributors; he doesn’t need them. All he requires is an eye for arresting video, the nerve to poach it from other online sources (many of which have themselves poached it from someone else), a savvy way with Facebook, and enough servers to keep the whole thing from crashing. This last appears to be his biggest problem.

DeLong is not alone. Upworthy, founded by the former MoveOn organizer Eli Pariser and the former *Onion* editor Peter Koechley, pioneered the genre in 2012. After six months online, it could (and did) boast of 8.7 million uniques, with every post being shared an average of 25,000 times. Ashton Kutcher’s new site, A+, has 27.5 million monthly uniques in the United States alone and was recently hailed on the news site Business Insider as “one of the most important media companies in America” — even though, as the writer admitted later in the same sentence, “almost no one knows it exists.”

And then there’s Emerson Spartz, a 27-year-old Chicagoan who created a hugely pop-
ViralNova lures millions of people to junk content, not through search but because it can induce people to link to it—mainly on Facebook, which accounted for 90 percent of the site’s 6.6 million monthly unique visitors.

ular Harry Potter fan site at 12 and now runs a potpourri of ad-laden websites that repurpose and repackage content for maximum virality. In a recent *New Yorker* profile, Spartz made it clear he thinks originality is for chumps: it takes too much time, and people are no more likely to click on the result. So he and his peers feed off each other while frequently harvesting the value of information other people have painstakingly gathered.

All this is possible because we no longer have to wonder why one story or video goes viral and another does not. What used to be viewed as a crapshoot is now almost a science. Jonah Berger of the Wharton School wrote a best seller called *Contagious* after he and a colleague, Katherine Milkman, analyzed 7,000 *New York Times* articles that ran in the fall of 2008. The study showed that a key factor in getting people to email stories to friends and colleagues was emotional arousal.

In general, people were more likely to email positive stories than those that generated negative emotions like anger or anxiety. But intensity mattered, too. Stories that sent readers into a rage were more likely to go viral than those that evoked emotions that were only mildly positive, or that were negative in a deactivating way, like sadness. In the book, Berger cites a handful of other factors as well, among them social currency, practical usefulness and good storytelling. Much less important, as Duncan Watts, a Microsoft researcher and former Columbia professor, has shown, are “influentials,” the highly connected individuals singled out in Malcolm Gladwell’s best seller *The Tipping Point*. Opinion leaders, contrary to popular opinion, aren’t nearly as critical to spreading information as ordinary people who are easily persuadable.

Unruly, a London-based company that specializes in delivering highly shareable ad videos, offers a far more granular approach to virality. Its proprietary ShareRank algorithm, developed from more than 100,000 viewer reactions, gauges the likelihood that a given ad video will be shared, depending on (among other things) the psychological response it generates and the social motivation it appeals to. Celebrities don’t have much impact, but friends do; according to co-founder Sarah Wood, an ad that’s recommended by a friend is up to 50 percent more likely to trigger a purchase than an ordinary recommendation. But while the rate of online video sharing kept doubling for years, it has recently started dropping off. The problem, Wood says, is sheer volume: “We can’t take any more and pay attention to it.”

Which gets to the heart of the issue. There’s nothing wrong with virality—it’s how news and ideas spread in the Internet age. The problem is with how we measure success and what kind of behavior those metrics encourage. The focus on uniques and click-throughs assumes that value online is where it has always been in the media business, in ad inventory. But Web pages can multiply like
bunny rabbits – and the more they do, the less valuable each ad opportunity becomes. What’s needed is an injection of scarcity – and “the only unit of scarcity on the Web,” as Chartbeat’s CEO, Tony Haile, recently told Advertising Age, is time. Herb Simon would approve.

**In Search of Lost Time**

It follows that, as with any scarce resource, those who capture users’ time should be able to charge a premium. The question is, how do you capture it? Time online is owned by users, not publishers, so it’s theirs to spend. But if they spend it on your content, then it should be yours to monetize – or so argues Haile, whose company measures traffic for clients ranging from the Financial Times to Gawker Media. Haile evangelizes for what he calls the Attention Web, a Web that looks beyond clicks, links, uniques, and monthly active users to actual engagement – something that no longer has to be guessed at, now that companies like his can capture it on a user-by-user, second-by-second basis.

Last September, Chartbeat became one of several ad tech companies whose metrics for time spent and other not-yet-common factors are accredited by the Media Rating Council, the industry body in charge of such things. Meanwhile, research by Chartbeat and other companies – among them Google, Microsoft and Yahoo – has demonstrated that the longer an online display ad is in view, the higher the brand recall. This challenges the myth that banner ads don’t work. True, they don’t get a lot of click-throughs – but neither do highway billboards or 30-second TV spots or double-truck magazine spreads. Just because a banner ad can be clicked on doesn’t mean it needs to be. Done well, display ads online should be as effective at brand-building as television spots have been. The difference is that, unlike television, the Internet can actually tell advertisers if anybody is looking.

The brand issue is critical, and not just for advertisers. When a publisher relies on transient traffic from Google or Facebook and tries to maximize uniques at the expense of delivering a satisfying experience, it’s never going to develop brand loyalty. So publishers have to make a choice: what kind of site do they want to run?

Upworthy’s founders say they’ve decided to mend their ways, focusing on engagement factors like comments and time spent reading. Instead of optimizing for Facebook shares and page views, they plan to return to their original mission, helping people “find important content that is as fun to share as a FAIL video of some idiot surfing off his roof.”

For people like Upworthy’s Peter Koechley, Chartbeat’s Tony Haile and Twitter’s/Medium’s Evan Williams, attention metrics are a make-or-break proposition. “We are in an all-out war for attention between the forces of inanity and the forces of things that actually matter to society,” Koechley told The Guardian before speaking at its annual Changing Media Summit last spring. “We feel like people paying attention and being aware of important issues is one of the big roles of media.”

Implicit in this critique is the idea that short-attention-span behavior is neither the users’ fault nor the result of shallowness endemic to the Web. Television didn’t have to be the “vast wasteland” that Newton Minow decried in the 60s, and neither does the Internet. Wastelands happen when advertisers, publishers and investors allow shallow metrics to guide their decisions. We reward what we measure, and we get what we reward. No one wants to turn the Web into some endless educational TV channel, all uplift and gruel. There’ll be room for LOL cats and listicles galore. The question is, what else will we get?