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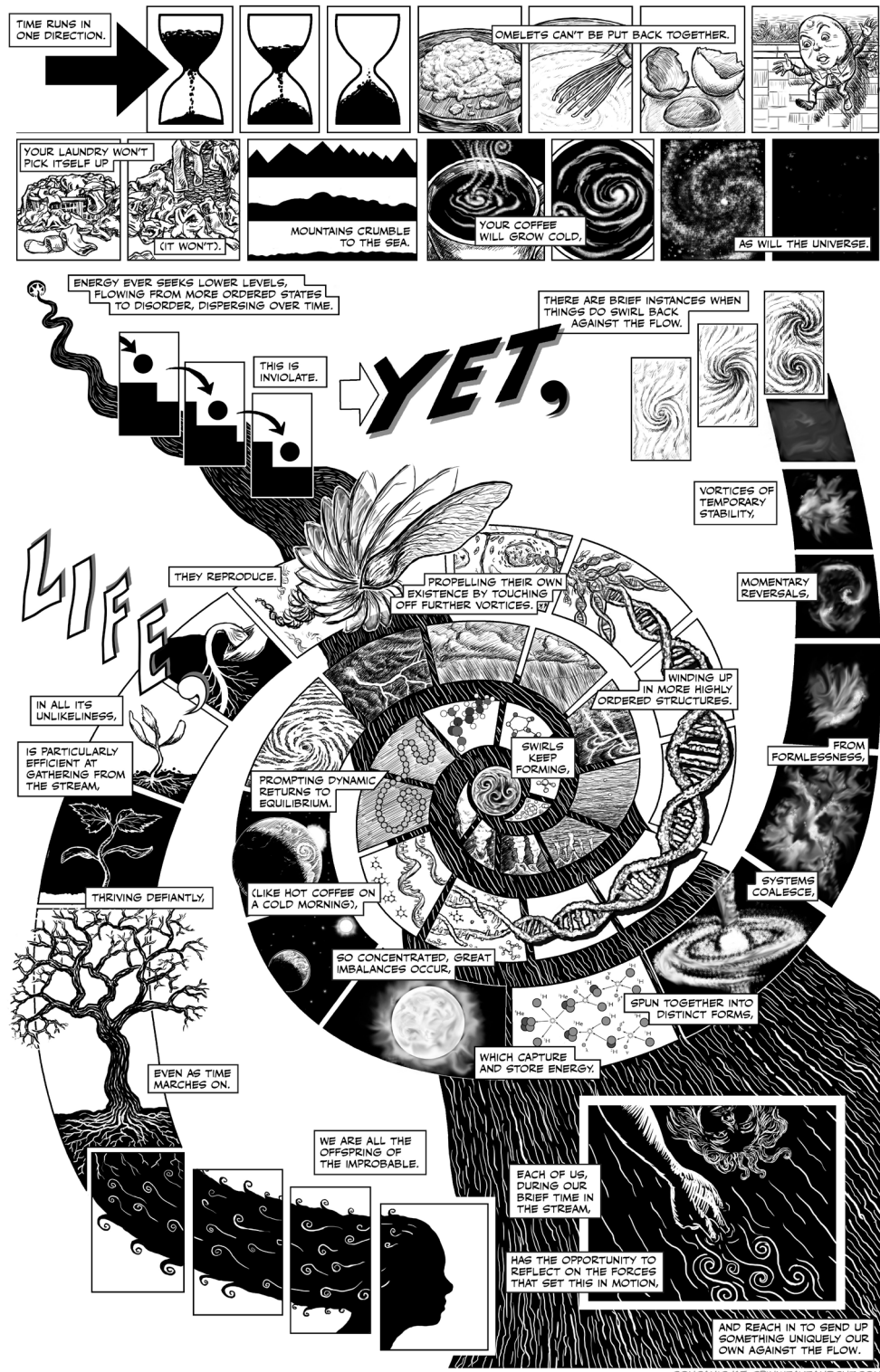
Nick Sousanis

Beyond Illustration

Sophisticated science reported on in comics. The once unthinkable is here as comics are being leveraged and enthusiastically welcomed into forums that would have been off limits not long ago. It's an exciting time of change. But in this headlong dash forward, I want to offer a pause for consideration, and suggest that we ask, what are the things that comics do uniquely compared to other forms of representation? And from there, let us explore how we can best take advantage of comics' particular affordances to do with comics things only comics can do.

The most common approaches to informational comics often come filled with talking heads, visible narrators, something familiar to explain (in words) something less so. It's perhaps not all that different than what has come before, only dressed up in pictures. But is this the only way forward? Can we move past more narrowly conceived notions of explanatory narratives to imagine comics that thrive in the visual, and do less telling, and more showing? (This is not necessarily a call for fewer words, rather a deep consideration of how text is incorporated into the visual ecosystem that is the comics page.)

I see in this nascent moment for comics, an opportunity to expand the possibilities going forward and experiment with just what a comic can be. Key to this is recognizing that making science and other complex subject matter into comics is not a simple matter of translation: adding illustrations to existing text. Rather, this is a different kind of thinking altogether, one necessarily immersed in the visual from the ground up. As the cartoonist Seth I think quite correctly observed, comics are less a combination of prose and illustration, but instead better thought of as a blending of poetry and graphic design. This kind of spatialized thinking that defines comics is particularly well-suited to wrestle with complex and abstract concepts, where their capacity to simultaneously present multiple perspectives can be used to bring great depth to our investigations far exceeding the apparent limitations of their static form. From drawing styles to vastly different methods of blending image and text (and certainly no text at all), comics encompass a broad range of approaches – and informational comics should be just as widely situated throughout that diverse environment. Even as we look inward at contemporary and past comics masters as models to borrow from, we can also leap outward beyond even the usual suspects of film and literature, and find inspiration from designers, those working in data visualization, and more to create new approaches on the page.



Excerpt from Sousanis, N. (2015). *Unflattening*. Harvard University Press, Cambridge, Massachusetts

Making complex subject matter accessible is only part of comics' potential. The very process of creating comics offers a powerful way for conducting research itself. Working between image, text, and composition in the multimodal fashion that comics allow opens us to the making of unforeseen connections. And this is an important outlet and reason to make comics even for those whose final output will ultimately end up being something more traditional. For me, that synergy between my art practice and research investigation – with each propelling the other forward – makes for a truly generative space where the work thrives and takes me in unanticipated directions.

Words can prohibit understanding, restricting access to those not already in the know with jargon and technical terms. I believe that if we can circumvent this language barrier, we can bring difficult concepts within reach for all. Thus my approach (and please keep in mind that this is insight into *my* particular approach, and that I am not suggesting that this is suitable for anyone else – except as a provocation to consider their own ways of operating) has been to get at the material through metaphor in both words and images. And in doing so, I'm allowing readers to make their own connections and find their own paths into the material. For those already well-versed, the work functions on another level as well. In addition to the metaphorical, I'm increasingly concerned with the spatial organization of the whole page. The bulk of my process is devoted to iterating in the sketch phase to explore ways to embody the idea through the composition itself and not only in the individual images. This gives each page a distinctly different identity in terms of its visual schema and structure.

Let me share a bit more specifically through two specific examples. First, a single-page comic I did for the *Boston Globe* on entropy. I gathered an enormous amount of research: common sense notions of entropy, traditional and contemporary physics, a poem by Robert Frost, biology, even economics theory, and more, sifting through it all for my comprehension in order to organize and discuss it in such a way that the concepts were sufficiently brought out, but not impenetrable. The demands of the composition shaped what was included and how the narrative unfolded, as it shifted from the linear to something that challenges traditional reading flow – in parallel with the very flow back upstream being discussed. In addition to all the reading, I also gathered massive amounts of visual references. Even for images essentially in the background and not directly referenced, I still want it to be accurate, to point to a particular kind of thing – not a generalization of a thing. This no doubt doesn't matter to a majority of readers, but there are those who will know if it's wrong (myself included) and it's worth the effort.

ALARMED BY THE GROWING PROBLEM, THE UNITED NATIONS CREATED THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC) IN 1988 TO ASSESS THE ISSUE.



AT THE IPCC'S FIRST MEETING, THE DIRECTOR OF THE UNITED NATIONS ENVIRONMENT PROGRAMME, MOSTAFA TOLBA, IMPLORED SCIENTISTS TO USE THE TIME LEFT IN THE CENTURY - JUST 4,000 DAYS - TO DEAL WITH CLIMATE CHANGE.

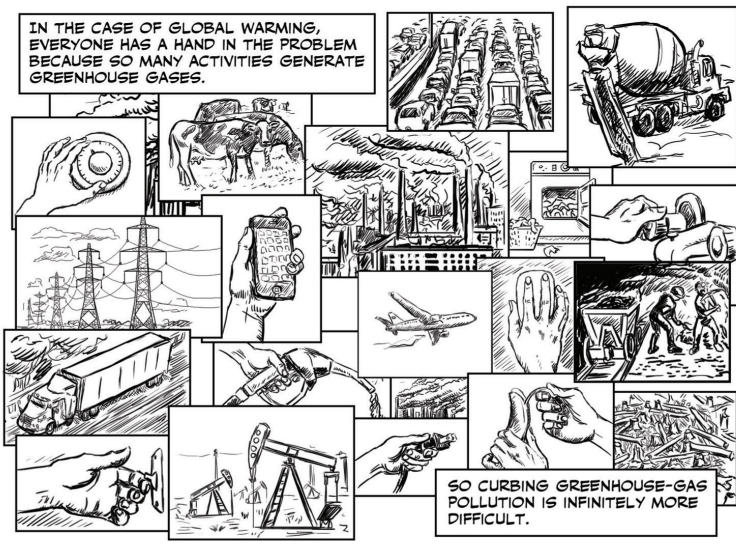
HOPES WERE HIGH BECAUSE THE WORLD HAD ALREADY TAKEN STEPS TO SOLVE ONE ENVIRONMENTAL DISASTER.



IN 1987, NATIONS ADOPTED A TREATY TO PROTECT THE OZONE LAYER.

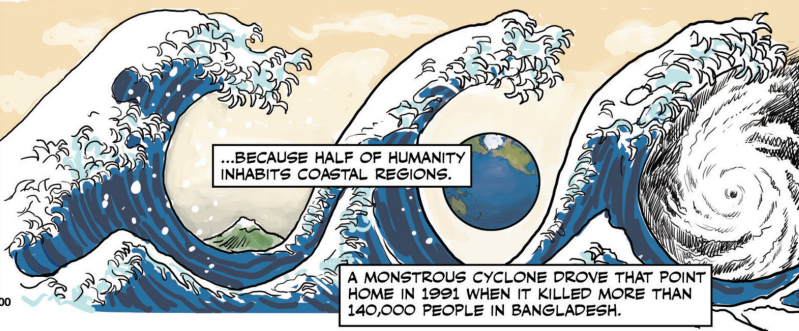
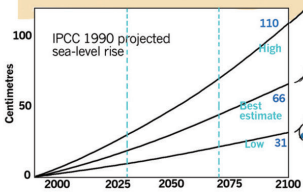
BUT REACHING THAT AGREEMENT WAS RELATIVELY EASY BECAUSE ONLY A HANDFUL OF COMPANIES IN A FEW COUNTRIES PRODUCED OZONE-DESTROYING COMPOUNDS.

IN THE CASE OF GLOBAL WARMING, EVERYONE HAS A HAND IN THE PROBLEM BECAUSE SO MANY ACTIVITIES GENERATE GREENHOUSE GASES.



SO CURBING GREENHOUSE-GAS POLLUTION IS INFINITELY MORE DIFFICULT.

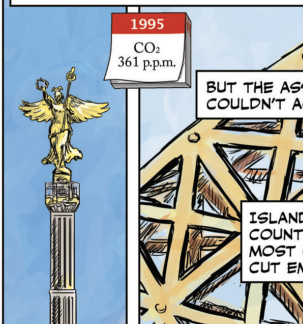
IN ITS FIRST REPORT, THE IPCC FORECASTED THAT IF CURRENT TRENDS CONTINUE UNTIL 2100, THE WORLD WOULD BE 4°C WARMER THAN IT WAS IN 1850. SWELLING OCEANS WOULD BE A MAJOR PROBLEM ...



...BECAUSE HALF OF HUMANITY INHABITS COASTAL REGIONS.

A MONSTROUS CYCLONE DROVE THAT POINT HOME IN 1991 WHEN IT KILLED MORE THAN 140,000 PEOPLE IN BANGLADESH.

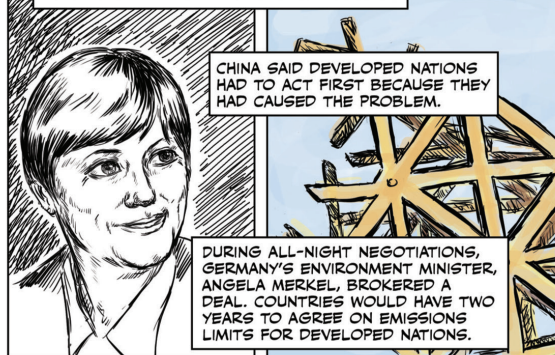
THE RIO TREATY WAS CLEARLY NOT ENOUGH, SO NATIONS GATHERED IN 1995 IN BERLIN TO NEGOTIATE A STRONGER ACCORD.



BUT THE ASSEMBLED COUNTRIES COULDN'T AGREE ON SPECIFICS.

ISLAND NATIONS WANTED RICH COUNTRIES - THE SOURCE OF MOST OF THE PROBLEM - TO CUT EMISSIONS BY 20%.

THE US DEMANDED THAT DEVELOPING NATIONS AGREE TO FUTURE COMMITMENTS.



CHINA SAID DEVELOPED NATIONS HAD TO ACT FIRST BECAUSE THEY HAD CAUSED THE PROBLEM.

DURING ALL-NIGHT NEGOTIATIONS, GERMANY'S ENVIRONMENT MINISTER, ANGELA MERKEL, BROKERED A DEAL. COUNTRIES WOULD HAVE TWO YEARS TO AGREE ON EMISSIONS LIMITS FOR DEVELOPED NATIONS.

Excerpt from Monastersky, R. & Sousanis, N. (2015): *The fragile framework*. Natur 527, 427-435

The second example was a collaborative effort in which the journal *Nature* invited me to create a comic on climate change and the history of climate meetings, in conjunction with the 2015 Paris climate talks. On the first call with editorial and my science journalist co-author, I was insistent that drawing people sitting at meetings (unless key activities happened there that we would delve into) and depicting either my co-author or myself as visible narrators was the wrong way to go about this. I wasn't sure what I would do, but I felt strongly about those ground rules being established from the outset. If we were just going to talk about it, why bother making a comic? This required a shift of mindset, as they had anticipated more straightforwardly handing me text to which I would then add pictures. Balancing the journalistic demands, accurately presenting the totality of the history and science while still making a readable comic, was a terrific challenge - but that's that this work is all about. Our goals, as I see them, are to inform and bring people into these important conversations. This is not something to achieve by dumbing the work down, rather through the much more difficult work of making the concepts real, tangible, meaningful, and relatable. We strive to make good comics that make for an engaging and educational reading experience. With the stakes so great for our future, there is a deep need to effectively convey the complex issues we face. Comics have an extremely important role to play in communicating them, and I look forward to the inventive and varied approaches to come.