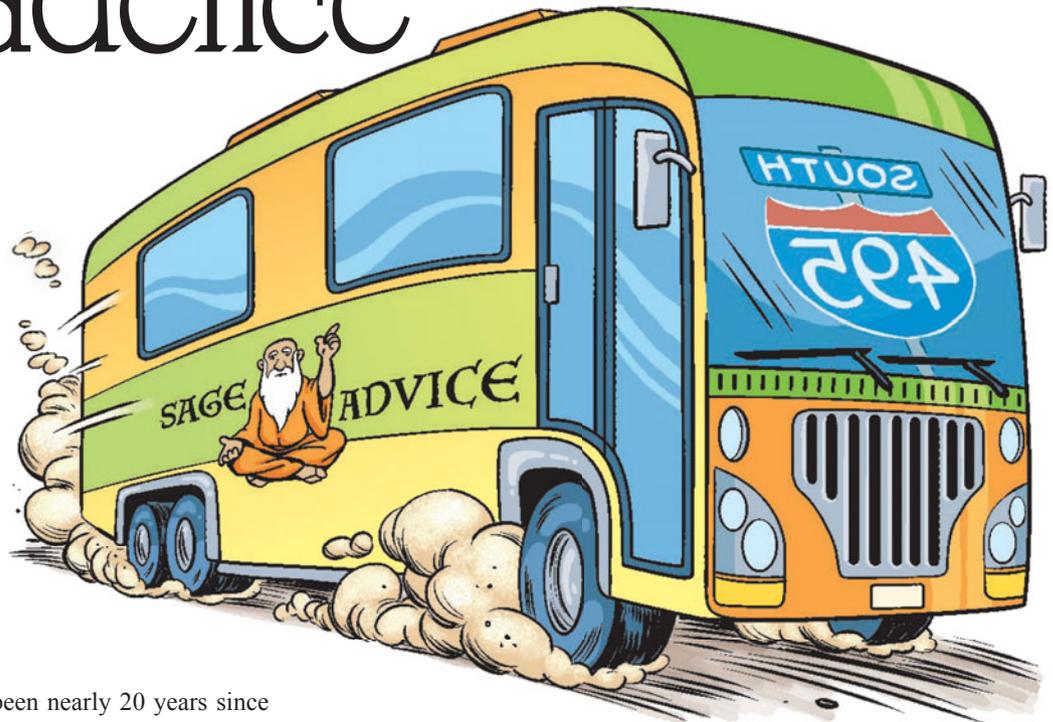


# Three decades of decadence

In January 1987, page 188 of *MRS Bulletin*, Volume 12, Issue No. 1, hosted the first appearance of the now “venerable yet decadent” Postterminaries column. That is how this column was described by Dr. I.M. Science Sage,<sup>1</sup> a similarly venerable yet decadent personage, whom we interviewed for this anniversary issue, and whom we had interviewed on several previous occasions.<sup>2–7</sup>



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**MRS Bulletin.** It has been nearly 20 years since we last spoke, if you don’t count the time we met after the revival from your 18-millennium sojourn in deep cryostorage.<sup>6</sup> It appears you are doing quite well. The science policy advice business must still be going strong.

**Dr. I.M. Science Sage.** Why do you seem so surprised? The never-ending need for my kind of service is axiomatic. As long as the inner workings of science and technology policy in the capitals of the world remain nebulous and the consequent uncertainty of research funding can be relied upon, my business will boom. But your own endeavors are clearly flourishing as well. For the *Bulletin’s* caboose to be at the threshold of its fourth decade in print is quite an accomplishment. For such decadence to have survived embedded within such a wholly venerable publication is an extraordinary feat. I would say that this afterthought of a department has become venerable in its own right.

**MRS B.** We’d like to move on to some more substantive matters about which we are sure you’ll offer many valuable opinions. But we can’t resist first seeking clarification of your “venerable and decadent” compliment, or was it an accusation? Are not those two qualities mutually exclusive, even oxymoronic?

**Dr. S. S.** The *Bulletin*, and therefore, if only through osmosis, Postterminaries, is accorded a great deal of respect, especially because of age, wisdom, and character. That’s a dictionary definition of *venerable*. Really! You can look it up. And *decadence* being the luxurious self-indulgence in pleasurable pursuits (you can look that one up as well) clearly nails down precisely what

your editors and your authors must be doing when diving into a Postterminaries after a long slog through the serious stuff preceding it.

**MRS B.** Thank you for such a lucid explanation and for the tribute. We’ll be sure to repeat it when we introduce this interview in print. Now we’d like to tell our readers what you believe are the most pressing issues of the day that affect our field. The last time we sought such advice from you was quite long ago—things must have evolved quite a bit since then.

**Dr. S. S.** Indeed they have, in some ways. But in others, they are much the same. What has not changed is the flow of terribly bright scientists, especially materials researchers, from the universities of the world and their enthusiasm for discovering new science and new technologies, even when support for research is uncertain and career trajectories take unexpected turns. Of course, many of these rising stars and their institutions have benefited mightily from my sound advice, if I say so myself. And I do.

**MRS B.** What then has not remained the same?

**Dr. S. S.** Sadly, I see what amounts to a revolution in the three C’s upon which R&D depends: communication, computation, and contemplation. Unfortunately, the first two of these are literally strangling the third. An early president of MRS, the late Rustum Roy of Penn State, often complained to me about a professor’s workload not providing time just to think. He proposed instituting the formal allocation of one day per



week paid time off as a relatively quiet interlude devoted only to ruminating far and wide about science, society, and the human condition. He sure had the right idea, but today the nemeses of time to think are not only the constant proposal writing, faculty committees, and servicing the needs of students. Now contemplation, even for those of us who are not at university, is the victim of volume, speed, and a reduced demand for critical thinking.

**MRS B.** Please elaborate. What is too big and what moves too fast?

**Dr. S. S.** The literature is no longer a journal issue on a shelf. It's an excerpted paragraph that matches the keywords of a search devoid of surrounding context. The wait for a colleague's preprint to arrive has gone from days to seconds. Experiments that once required making samples, turning knobs, refilling a Dewar,<sup>8</sup> reading meters, and the anticipation of data arriving in dribs and drabs, now live in a petascale (soon to be exascale) world of bits and bytes. Increasingly, experiments are in the machine—cheaper, faster, and no need for staff or utilities, save the megawatts consumed by the latest supercomputer. Problems of a size and complexity unimaginable a few years ago can now be computed while we are at lunch. Instead of pouring over and mining the meaning out of a long awaited data set, the challenge now is managing a deluge of data in real time and choosing what to throw away, and even that task is soon to be automated away from direct human intervention. So being able to tackle huge problems in real time is great, as is performing tests *in silico*, but what is the price paid for all this power?

**MRS B.** The digital revolution of which you speak has certainly transformed how we do science these days. You're apparently hinting at some negative consequences, but doesn't the advent of all this automation actually provide more time for us humans to contemplate the Fates?

**Dr. S. S.** More time? Yes. And we should be grateful that there are still those kinds of studies that resist over-automation—where image analysis and visualization tools still require the human eye to see what needs to be seen, and where real judgment is needed to answer the inevitable question, “What do we do next?” Of course, my own services are often engaged to help contemplate such questions when policy and philosophy are involved.

**MRS B.** Then what do you find worrisome about the current state of affairs? Please be brief. We are approaching the end of this column.

**Dr. S. S.** It's what I'll call the loss of tactility that makes the free time less valuable. Our species creates and discovers in ways invisible to the machines and even to our conscious selves. An eReader lacks the soul found in the paper pages of a well-bound hefty tome. You may not be able to resolve the difference with the naked eye between the grain of a celluloid film and the pixels read from a CCD chip, but there is a sense that a fourth dimension has been lost. These “advances” create

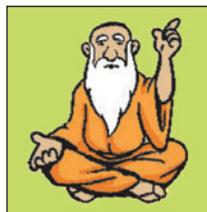
distance between the work and the worker. Without investment of the extra effort required to maintain an old-fashioned “hands-on” relationship with the input and the output of the machine, I contend the science suffers.

**MRS B.** With all due respect, is it possible that a natural discomfort with rapid change and a bit of nostalgia, despite the undeniable advances we see around us, lead to invocation of such intangibles as fourth dimensions in photos and anthropomorphic attributes of ink on paper?

**Dr. S. S.** Guilty as charged! But invoking intangibles is not only a defense mechanism, it's the ubiquitous fallback solution of science. One posits intangibles such as Higgs bosons, islands of stability, gravity waves, dark matter and dark energy, to fill gaps in our understanding of how our universe works. Never mind that pretty plausible physical models or theories required them, whereas it's just my psychological model that needs to explain the preference for grain over pixels and for paper over LEDs.

**MRS B.** You have never led us astray before, so we are inclined to accept your thesis that there is an ineffable quality at risk when we rely too much on the extraordinary new tools and too little on instinct and intuition. And we know that as long as we have you to remind us not to cede too much of our inherent intellect to the machine, our scientific pursuits are safe.

**Dr. S. S.** Congratulations! You have grasped the essence of the argument, and it's time for me to go. I'll let myself out. May the next decade of Postterminaries be as interesting as the last three, and may it continue to appear in print where its dog-eared pages will outlive us all.



*Science I.M. Sage interviewed for Postterminaries in late 2016 by Elton N. Kaufmann*

## References

1. Science I.M. Sage has variously called himself professor, doctor, academician, etc., and often goes by I.M. Science Sage. We have suggested that he consider using *I'm*, a contraction that more accurately reflects his self-image.
2. *Interview*, January 1993.
3. *More Sage Advice*, September 1994.
4. *Web Tide: Casting the Net*, September 1996.
5. *Preaching to the Choir*, November 1997.
6. *Y20K*, November 1999.
7. In May 1997, a Postterminaries entitled *The Pied Piper of Funding* comprised a purported excerpt from “Mountains of Mythical Money,” a then and still unpublished (and most likely unpublizable) work of Dr. Sage.
8. Upper case out of respect for Sir James.

**MRS Bulletin welcomes submissions to Postterminaries.** Description: Light commentary and observations relating to anything of interest to the *MRS Bulletin* readership. Topic must have a materials angle. Word play is a plus. Length: 1600–2000 words. Format of submission: Email as a Word document to [Bulletin@mrs.org](mailto:Bulletin@mrs.org). Examples: [www.mrs.org/postterminaries](http://www.mrs.org/postterminaries).