

THE JOURNAL OF IMMATERIAL SCIENCE

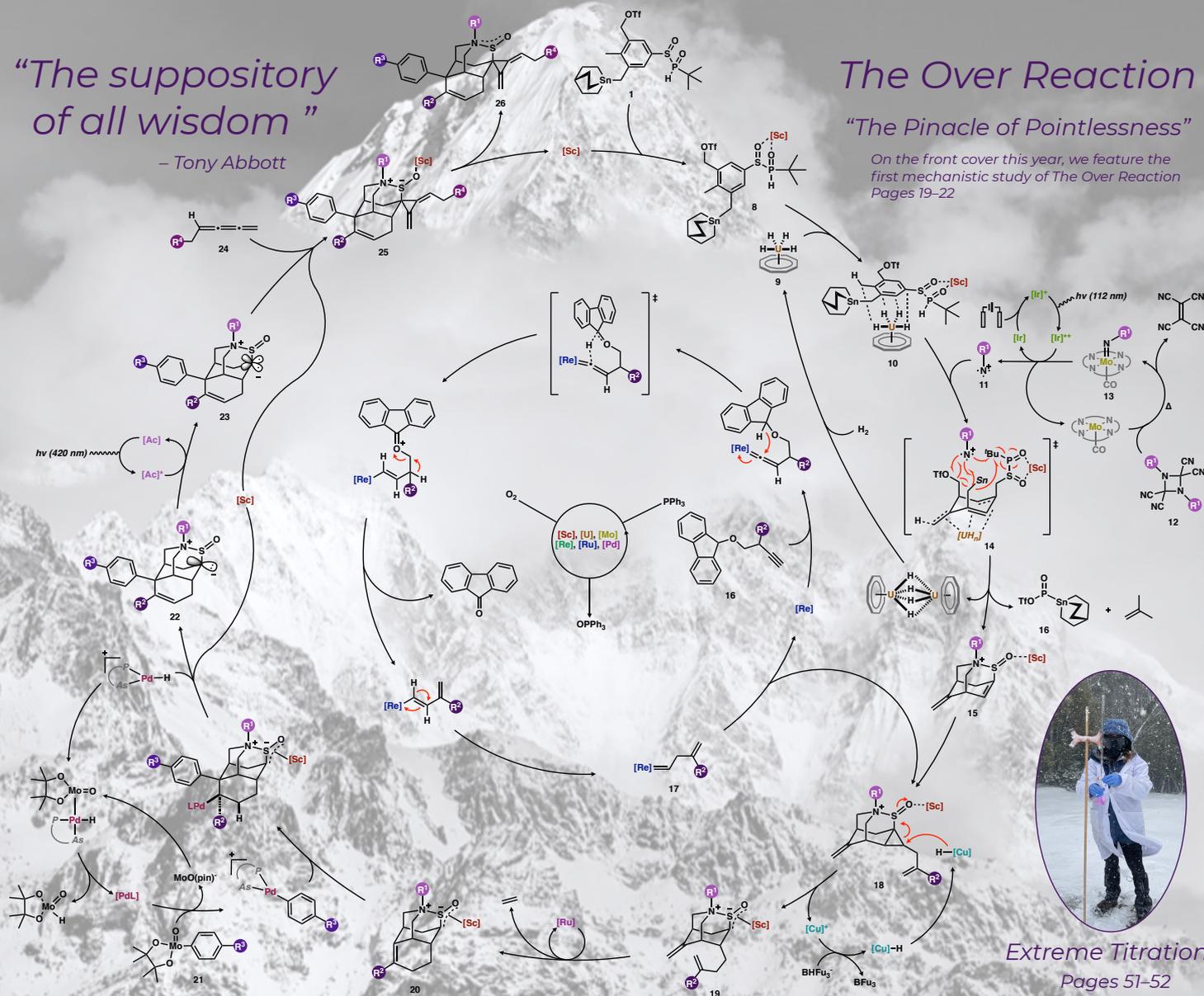
“The suppository of all wisdom”

– Tony Abbott

The Over Reaction

“The Pinnacle of Pointlessness”

On the front cover this year, we feature the first mechanistic study of The Over Reaction Pages 19–22



Extreme Titrations!
Pages 51–52

The Smythe Reagent: ~1.6 M LiOH in Hexane

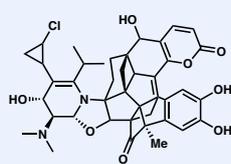
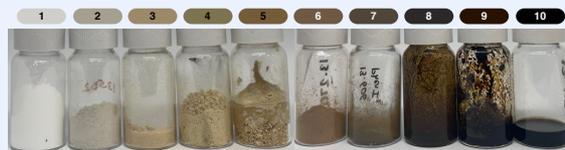
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- Hydrolysis of Esters and Chlorides
- Racemisation of Stereocenters
- Poly-Aldol Condensations
- O-Lithiation of Carboxylic Acids

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50 Shades of Brown An Index of Chemical Misery

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- Impracticatetechol: A Partial Total Synthesis
- Triphenylphosphine Oxide in the Clouds of Venus
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This is a work of bullshit. Names, characters, and companies are the products of the authors' troubled minds. Any resemblance to facts, real or imaginary, are purely coincidental.



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Some Idle Thoughts from the Imperial Editor in Perpetuity:

When we published our first paper (the synthesis of En-Yn-En-Yn-Ols), we immediately received a comment enquiring “what exactly is the point of this?” Half a year later, we still don’t have a definitive answer. My first response is to quote eminent philosopher and swan-tickler, John Oliver, who said “It’s easy to do something worthwhile, because it’s a challenge that motivates itself. It’s hard to do something pointless, that takes real determination.”¹ To gain a deeper understanding of our purpose, join me on an eclectic ramble through the pages of history.

The history of our species has been classified by the predominant tools of the time. Thus, the stone age was followed by that of copper and bronze, then the iron age, the age of steam and so on. Opinions seem to differ on which age we currently inhabit. The age of oil is a strong contender, as are the information age, the atomic age, the plastic age, and the space age. There is, however, a commodity that has experienced spike in its prevalence in recent years: Bullshit. I propose that this time of fake news, conspiracy and disinformation be categorised accordingly: The Brown Age.

Allow me to further support for my theory of an imminent Brown Age by cherry-picking some historical dates. The “Bronze Age Collapse” occurred around 1200 BC. This event was marked by the implosion of empires, the raising of cities and a generally shit time for all parties involved, lasting several centuries. About 1600 years later, the Visigoths sacked Rome, a full stop at the end of the western Roman Empire’s death sentence. Much of Europe was plunged into the era of violence, ignorance, and chaos that we know as “the Dark Ages.” Jump forward another 1600 years and we reach the modern day. The correlation is obvious: we’re due for another dark age. And the level of scientific and historical ignorance I’ve displayed in assuming that correlation is causative is exactly why we’re due for another dark age.

I believe that rather than succumbing to barbarian invasion or volcanic eruptions, the downfall of our civilisation will come about with a biblical flood of bullshit. We shall stand with our heads in clouds of cock-wash while the actual flood waters rise, listening to President Kanye explain how to cure syphilis with Rohypnol and rosary beads. As Oxford slips below the brown waves, we shall launch an ark containing David Attenborough, a breeding pair of post-docs from each field of science and the archives of Nature. When the waters subside, perhaps a new, rational civilisation will grow from this seed.

Let us take a step further into this fantastical future. Imagine that in the year 3621, archaeologists are sifting through the remnants of our civilisation. They search for pieces in the puzzle of our demise, just as current historians pore over every shard of clay tablet unearthed from the ruins of Nineveh. And let us suppose that a copy of The Journal of Immaterial Science is uncovered in the ruins of the University of West Failure Library. I want you to imagine a conference of future archaeologists, seriously debating the significance of the Fukovski Combobulation and wondering with straight faces if Smegma Aldrich might have been a real company. Isn’t that a future worth striving for?



This journal is simply a product of its time, an attempt to leaven the malign, all-pervasive bullshit with some whimsical bollocks. If you can't beat them, join them, then take the piss. It would seem, based on the response from our readers, that there is indeed a demand for our frivolous nonsense. For not only have you joined us at a rate of 1000 per month, you have also said some lovely things about our articles (with the exception of r/PhilosophyOfScience, but in the long run, the joke really is on them). For being accessories to our narcissism, you have our thanks. Without your encouragement, this Journal would have fizzled and died, like so many good ideas that might have been.

A select few among you are held in our highest regard. To those who diverted the time and fucks from their budgets to write an article for us, we salute you. A journal that only publishes articles by its editors is either a blog in disguise or JACS. It's about more than just the number of papers, though. We never would have thought of detecting ghosts with MS, and no structure we can imagine is as bizarre as Impracticattechol. So thank you, you wonderful, daft bastards. Finally, we'd like to acknowledge the cheeky bastard who signed our email address up for those "Nigerian Prince" scam emails. Thanks for that. Really. Thanks.

What next for the Journal, we hear you ask. We'll be back in 2022, and we intend to publish an article every week, just as we have been. To maintain this output, we need submissions from our readers, so keep them coming in. Our goal for 2022 is to broaden our journal's scope by including more articles from other fields like physics and the biological sciences. We'll need your help with that too, because all our editors are chemists (at various stages of withdrawal).

With all that pretentious nonsense out of the way, we present a present a panoply of puns and phallic jokes, thinly disguised with a veneer of scientific language. Spread the word, share the journal, pressure your peers and get writing. Have fun, and Schlonk On!

*Demeritus Professor Günther Schlonk
West Failure, December 2021*

1. J. W. Oliver, A. Zaltzman, *The Bugle*. 2009, E95, 30:00.



Meet the Editor:



Demeritus Professor Günther Schlonk (PhD, BSc, BS, BBW, FOFF, FRACU) was born in the small Austrian town of Fucking, the son of a cartwright and a baker, an accountant and possibly a postman. In 1925, he obtained a BSc from a box of breakfast cereal, and moved to Wankendorf, Germany, where he worked with Professor Claus Graf von der Plonk. His research focussed on the chemistry of purines, and he retains a deep-set love of puryl chemistry to this day.

Günther's first post-Doctoral fellowship was with Victor Grignard at L'Université de Boulangerie, Trécon. Unfortunately for him, he drew the short straw and got a project on strontium chemistry, which lead absolutely nowhere. Downcast and disillusioned, he moved to Prague to work with Sergey Rekonstruktsky, until his supervisor's defenestration in 1937. Sensing the immanent political turmoil of the times, Günther moved to Zurich, where he studied the chemistry of gold under Alfred Werner II.

In 1946, when everyone had calmed down a bit, Günther began his independent research career, with his appointment as the LeBron James professor of chemistry at UCLA. It was here that Günther met and courted his life partner: Palladium. From the moment he first saw her, he knew their bond would be powerful. She had none of her sister Nickel's skittishness and promiscuity, nor was she a chaste dullard like her elder sibling Platinum. She was a hard worker, efficient and emotionally stable, refined but not opulent in the manner of her cousin Rhodium (the Marie Antoinette of the periodic table). Together, they formed a formidable partnership lasting 75 years and counting.

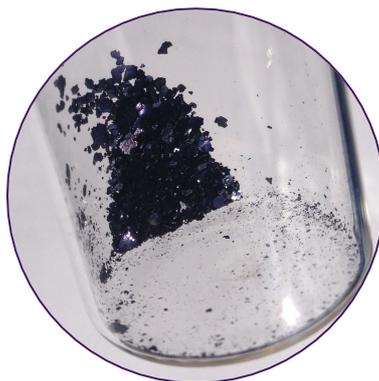
Günther began his editorial career while working at the University of Moosup, Connecticut. He was appointed as an assistant editor with Monty Python's Flying Journal of Chemistry in 1955, after bumping into Eric Idle in a bar. The writing of funny nonsense proved to be a natural calling for Günther, as years of writing grant applications had greatly expanded his capacity for bullshit. He followed this up with a stint as editor of Comedic Chemical Communications (Com. Chem. Comm.) in 1960.

In the summer of '69, Günther reached his current position as the Fritz Haber Chair of Chemistry at the University of West Failure, by seizing power in a palace coup. Apart from visiting scholarships at Spanker Knob University (Australia) and the Slapton Institute of Science (UK), Günther has remained at West Failure. His advanced age prevents him from travelling abroad, so he remains ensconced in his lair like a spider at the heart of the web of science.

Günther Schlonk founded The Journal of Immaterial Science in June 2021, as an outlet for 115 years of scientific frustration and vitriolic comments from reviewer 2. He is now slightly concerned that this journal already has a larger readership than any of his genuine research papers.



Meet the Editorial Board:



Ethyl Aurum, Editorial Legate

Princess Ethel Aurum (PhD, BSc, Head Chef) was born in a small and blustery crayfishing town, which in hindsight, provided her first exposure to synthesis, being the nation's meth capital. Ethel's skills for working with solvents were undoubtedly developed from childhood lessons in siphoning petrol.

The princesses first recollection of porphyrins was in literature studies of Robert Brownings "Porphyria's Lover". The poem focuses on the preservation of eternal love, much like the stains found in the fume hoods of porphyrin chemists.

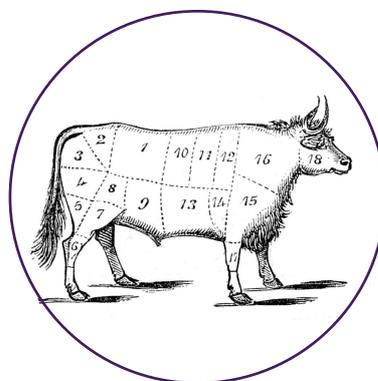
After island hopping southwards in 1967 to study polar bears, a timetabling error at university led to Ethel finding herself with a degree in chemistry. There was much confusion about amending this in the enrolment system, so she proceeded to continue with this for the next seven years. As a PhD in chemistry was easier than changing majors.

In 1975 Princess Aurum attempted to support Günther in his editorial career while she was working at the University of Moyenne, France. Emails were sporadic at best, and she largely slowed down the editorial process. She hopes to contribute more in the future, which is likely to be aided by the impending global pandemic.



Jeff Vader, Head of Catering

Professor Jeff Vader DPhil (Oxon) FRSMPSG - Terwillius Feeble Fellow of the Royal Society of Miniscule Pectorals, Skaters and Groovers and adjunct Professor of the London School of Tropical Hygeine, is a world-acclaimed (well maybe not "world"), leading authority on rainforested bland food distribution facilities. His mantra of "nothing can't be improved when washed down with a couple of pints of ale" is manifest in this esteemed publication he is honoured to be associated with. God bless her and all who.....Oh sorry, right yes I'll get on with it right away. PS you'll need a tray.



Beef Cheeks, Editorial Legate

My name is Legatus Beef Cheeks, commander of the Armies of the Undergrads, General of the Unmotivated Legions, loyal servant to the true principal investigator, Gunther Schlönk. Father to a murdered thesis, husband to a decomposed product. And I will have my paper, in this year or the next



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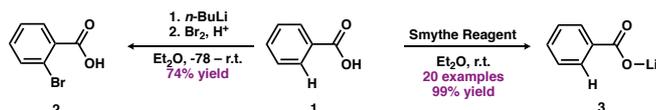
The Smythe Reagent: ~1.6 M LiOH in Hexane

Günther Schlonk*

Abstract: The Smythe reagent (also known as *n*-futyllithium) is an approximately 1.6 M suspension of LiOH in hexane, and is ubiquitous in synthetic chemistry laboratories worldwide. While commercially available, it is more frequently prepared from *n*-butyllithium, usually by accident. We describe a range of applications for this reagent, such as the *O*-lithiation of carboxylic acids, hydrolysis of ethyl esters and chlorophosphines, racemisation of alpha-stereocenters and poly-Claisen condensations.

On a rainy Friday afternoon in 1963, Schwarz Smythe left a bottle of *n*-butyllithium open on his bench. That night the Smythe reagent was born. When Smythe crawled back into the lab on Monday, he found that his lovely, clear *n*-BuLi was gone. In its place was a milky yellow soup. Concerned, he brought the cloudy concoction to the attention of his supervisor; Pliny the Elder, who reassured him: "Nah mate, it's still good, just use an excess". Smythe shrugged and proceeded with the day's experiments. On working up his ortho-lithiation of benzoic acid (**1**), he discovered that rather than making **2** via a *C*-lithiated intermediate, he had in fact prepared lithium benzoate (**3**) (scheme 1).

Smythe, 1963



Scheme 1. The divergent reactivity of *n*-BuLi and the Smythe Reagent.

Smythe and Pliny immediately recognised the significance of their discovery. They prepared a number of lithium benzoates as a demonstration of the divergent reactivity offered by their accidental creation.¹

The Smythe reagent typically appears as an off-white suspension, reminiscent of a snow-globe (figure 1). Its composition is variable, but most preparations constitute a suspension of LiOH in hexane, with traces of Li₂CO₃, lithium pentanoate, butene and *n*-butylhydroperoxide stabilised by dissolved Parafilm.² Its concentration is dependent on how hard one shakes it, but as an excess is always used, this is rarely a setback. Chemical vendors such as Smegma-Aldrich supply the Smythe reagent,³ but given its facile preparation it is more commonly synthesised in-house (see experimental section).



Figure 1. Flasks of *n*-butyllithium (left) and Smythe Reagent (right).

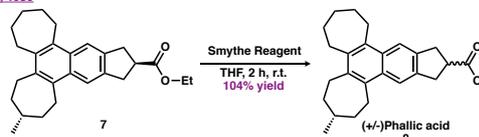
The contrasting reactivity of the Smythe Reagent was further demonstrated by Cluckwald in 1975 (scheme 2).⁴ During their synthesis of the now-ubiquitous Cluckwald-Birchtwig ligands, the eponymous chemists observed that while *n*-BuLi lithiated **4** to produce the desired product (**5**), the Smythe Reagent reacted directly with chlorodicyclohexylphosphine to form dicyclohexylphosphine oxide (**6**).

The Smythe Reagent was employed by R. B. Woodward in 1986, to cleave an ethyl ester (**7**) in the final step of his seminal synthesis of *rac*-phallic acid (**8**).⁵ This supernatural product, a potent vasodilator, was prepared in four steps from charcoal, with the elegance and brevity typical of Woodward's work.

Cluckwald, 1975



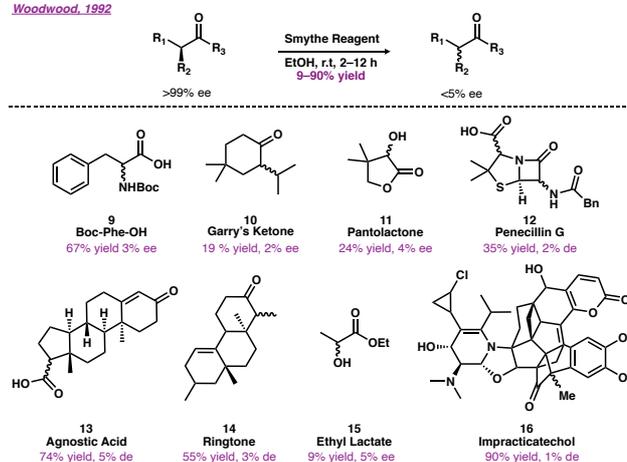
Woodward, 1986



Scheme 2. Hydrolysis of a chlorophosphine and ethyl phallate.

In the course of this work, Woodward noted that while a single diastereomer of ethyl phallate was employed, a racemic mixture of phallic acids were obtained. It transpired that Woodward had inadvertently discovered another facet of the reagent's reactivity: a capacity to racemise stereocenters.

Woodward, 1992

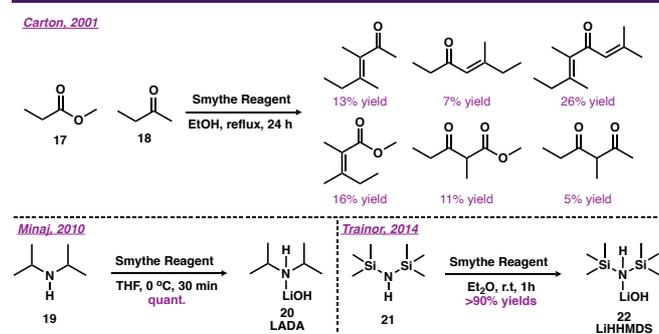


Scheme 3. Racemisation of stereocenters with the Smythe reagent.



Woodwood directed his student, Phil Desolate, to investigate the scope of this reaction.⁶ Beginning with simple substrates containing acidic α -hydrogens, Desolate demonstrated that N-Boc-phenylalanine (**9**) could be racemised without loss of the carbamate protecting group. Ketones (**10**) and lactams (**11**) also underwent racemisation in despondent yield. Desolate was also able to selectively epimerise more complex substrates such as penicillin G (**12**), agnostic acid (**13**) and ringtone (**14**). Making ethyl lactate (**15**) proved to be challenging with this methodology, while the supernatural product impracticatatechol⁷ (**16**) was racemised in exultant yield. This result is even more striking when one considers that **16** does not feature acidic α -hydrogens, or a stereocenter capable of epimerisation.

Derek Carton observed the low yields obtained by Desolate in the racemisation of substrates such as **10**, **11** and **15**, and postulated that this could be a consequence of aldol/Claisen chemistry initiated by LiOH.⁸ Carton demonstrated the validity of this theory by exposing a mixture of methyl propionate (**17**) and methyl-ethyl ketone (**18**) to the Smythe reagent. From the fuming brown tar that resulted, Carton isolated a number of unsaturated ketones and β -keto-esters (scheme 4).



Scheme 4. Death by aldol, and LiOH-amine complexes.

The Smythe reagent is frequently used to prepare other bases. One such example is LiOH And DiisopropylAmine (LADA, **20**), first prepared by Minaj's group at MIT.⁹ This reagent consists of a THF solution of LiOH complexed with diisopropylamine (**19**). In contrast to LDA (a strong but bulky base), LADA is bulky and weak, and capable of deprotonating carboxylic acids without engaging in Claisen-type chemistry. Lithium HexamethylDiSilazine (LiHHMDS, **22**) was prepared by Trainor and co-workers in an analogous procedure in 2014.¹⁰ LiHHMDS is such a weak base that only mineral acids are capable of protonating it.

Experimental

A standard preparation of LiOH/Hexane¹¹

An Unsureal[®] bottle of *n*-butyllithium (1.6 M, 800 mL) was punctured approximately 50 times with a blunt needle. Parafilm (2.3 g, 0.1 mol%) was pushed through the holes, and the bottle was shaken until the parafilm had dissolved. The reaction mixture was loosely capped and placed in a cupboard for three months. The reaction can be visually monitored, and has reached completion when the mixture attains the colour and texture of a piña colada.

Alternative preparations

Alternative methods of preparing the Smythe reagent include storing a solution of *n*-BuLi in an ungreased ground-glass flask for a week, or in a beaker in a fume hood overnight. For a facile

preparation, one can give a fresh Schlenk of *n*-BuLi to a masters student, and let nature take its course.

Conclusions

Despite its decreased reactivity in contrast to *n*-BuLi, it does have its redeeming features. For example, it is far safer to work with, as it exhibits no air-sensitivity. The Smythe reagent will be a ubiquitous chemical tool for as long as organic chemists use organometallic reagents.

About the Authors

Demeritus Professor Günther Schlonk heads the division of Pyrofrolics at the University of West Failure, as well as holding the positions of Imperial Editor in Perpetuity and Satrap of Satire at The Journal of Immaterial Science. He likes the colour purple, walks on the beach and the music of Urethra Franklin.

Conflicts of Interest

G. S. believes that proper Schlenk techniques make the Smythe reagent entirely redundant.

Acknowledgements

G. S. wishes to acknowledge S. Smythe for providing the inspiration for this review, and Lord Horn for editorial assistance. Funding for this work was provided by Foggy Night, running in the 3:15 at Cheltenham.

Notes and references

- 1 S. Smythe, Pliny the Elder. *Rhombus*, .1964, **6**, 43.
- 2 S. Smythe, Pliny the Elder. *J. Inorganometallics*, .1970, **3**, 747.
- 3 The Smegma Alrdich summer catalogue, 2021.
- 4 J. Birchtwig, S. Cluckwald, *J. Am. Chem. Sox*. 1975, **7**, 234.
- 5 R. B. Woodwood, *Organic Memos* 1986, **52**, 564.
- 6 P. Desolate, R. B. Woodwood, *Kim. Jong. Chem.* 1992, **55**, 195.
- 7 M. Mould, H. Ether, B. Urethra, *J. Immat. Sci.* 2021, **1**, 12.
- 8 D. Carton, *Chem. Cat. Comm. Sus. Chem. Comm. Chem*, 2001 **3**, 244
- 9 N. Minaj, *J. Superbase*, 2010, **99**, 101.
- 10 M. Trainor, *J. Mus. Chem.* 2014, **45**, 1276.
- 11 C. C. Dry, G. Schlonk, *ACS Peripheral Science*, 2005, **34**, 4905.





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50 Shades of Brown: An Index of Chemical Misery

Korichnevvy Kahverengi^B, Marroia de la Mierda^C, Rostig von Braun^A and Günther Schlonk^{A*}

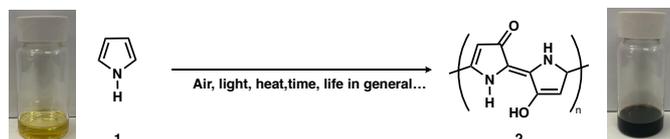
This manuscript is dedicated to the memory of Fuscus Browning

Abstract: One can't judge a book by its cover, but one can judge a reaction by its colour.

Specific: Modern labs are replete with instruments and techniques for determining the complexity of crude reaction mixtures. TLC, NMR, IR, MS, the list goes on. These techniques all require a sample of material in question, and time to analyse it. Conspicuously absent from the illiterate is a rapid and non-destructive assay for the purity of a reaction mixture. Herein, we describe a technique for the instantaneous analysis of sample purity with visible light spectroscopy.

Today, green chemistry is all the rage. But before there was green chemistry, there was something murkier, more primal. Prior to the days of 0.001% catalyst loadings, flash column chromatography and click chemistry was a time of darkness. A time when Na metal reductions and fractional distillation were the norm. Today, we know this field as Brown Chemistry.¹ Few remnants of this field persist in the modern chemical canon. After all, why would one conduct a Skraup synthesis of a quinoline when Smegma-Aldrich sells thousands of them?² Despite the antiquated nature of this field, we believe there may yet be more to learn from it.

Many good things in this world are brown. Chocolate, coffee, good tilled earth.³ Alas, this is rarely true in the world of chemistry. Most compounds can undergo decomposition by forming larger, more conjugated molecules, with a greater capacity to absorb visible light than their parents. The endpoint in this chemical death spiral is brown sludge. Consider pyrrole (1), and its proclivity to commit chemical kamikaze (scheme 1).



Scheme 1: Pyrrole just doing its thing.

A fresh bottle of pyrrole from Smegma Aldrich appears light yellow in colour. Upon exposure to most things, or even on exposure to nothing at all, pyrrole converts into a poorly defined, polymerised, oxidised sludge, which is roughly approximated as species 2. Figure 1 contains a second example of this trend. Each flask contains the crude product of an enamine reduction with scandalous sulphate (ScSO_4).⁴ Which reaction do you think was more successful?



Figure 1: Two products from a ScSO_4 reduction, of varied purity.

a. School of Inorganicmetallics, University of West Failure
b. Faculty of Petrochemistry, Rasputin University, Nizhny Novgorod.
c. Pfister Ltd.

With pyrrole as an example, we propose the correlation between the "brownness" of a sample and its purity as the foundation of a new visible-light-based assay. This assay consists of a scale from one to ten, from "a whiter shade of pale" to "darkness my old friend" (figure 2). To honour the memory of our late colleague Fuscus Browning, we have dubbed this scale: The Browning Index.



Figure 2: The Browning Index, with representative samples.

The low end of the scale represents higher purity, such as that of commercially available fine chemicals. Conversely, a ten on the browning index suggests the purity of the sludge that accumulates at the bottom of a solvent waste bottle. Like most "rules" in chemistry, this index is a sweeping generalisation riddled with exceptions and inconsistencies. It is quite possible to obtain a compound that is both pure and brown, just as it is possible to have colourless impurities. However, it is more likely that a nine on the browning index is a shitshow at heart, as well as on the surface. Because each sample is shitter than the last, this index is technically a logarithmic scale.

To demonstrate the application of this index, we have compared three samples of the same molecule, with varied degrees of purity (Figure 3). Our molecule of choice was Klaxon-Smythe-Whine's new antidepressant: Sulferalone®.⁵

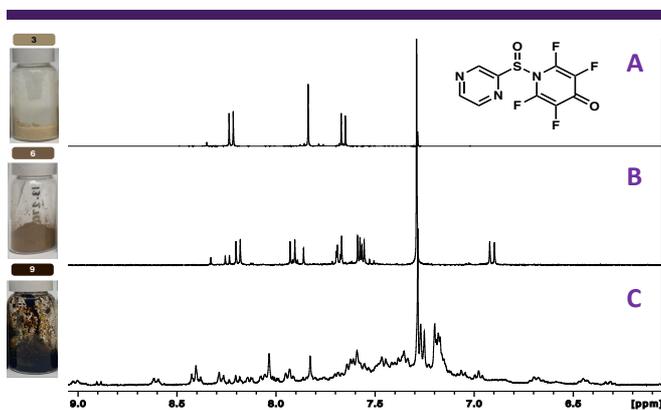


Figure 3: Three samples of Sulferalone® and their ¹H NMR spectra.



Sample **A** rates at 3 on the Browning Index. Its spectrum indicates quite a high level of purity, with only a few contaminants poking their heads above the baseline. This is in stark contrast to sample **B**, which contains one major and several minor impurities. **B** comes in at a solid 6 on the index. Sample **C**, scores a 9, and its spectrum is best described as a kind of chemical skid-mark from 9–5 ppm. Spectroscopists know this as “the *D. Parton effect*”.⁶ **C** demonstrates a second characteristic of high-browning compounds: a viscosity like congealed despair. Samples **A–C** are in clear agreement with our proposed index: Browning Index and purity are inversely correlated. It should be noted, however, that we’ve obviously cherry-picked the data to support our claims.^{6.5}

Continuing the theme of wholesale assumptions, we have compiled a table of suggested workup procedures commensurate with the Browning Index of a mixture (table 1).

Browning Index	Suggested Workup Procedures
1	<i>Good enough</i>
2	<i>Still good enough</i>
3	<i>Fine, just don't zoom in on the spectrum</i>
4	<i>Solvent extraction, trituration</i>
5	<i>Silica plug, recrystallization</i>
6	<i>Flash column chromatography</i>
7	<i>Lots of flash column chromatography</i>
8	<i>Plug → chromatography → prep TLC</i>
9	<i>Call a priest, perform the last rites</i>
10	<i>Burn it with fire</i>

Table 1: The Browning Index as a workup guide.

Samples with Browning scores between 1 and 3 are typically good enough to use “without further purification,” provided one doesn’t look too closely. Beyond 3, some manner of purification is essential to prevent the impurities breeding. Mixtures below 5 are difficult to rectify without resorting to chromatography, with the number and length of columns increasing as one descends. An 8 lies on the borderline of recoverability. While it is sometimes possible to sift out a few μmol s of product from the slew of shyte, it is rarely worth the effort. A Browning Score of 9 usually means the starting material can only be reassembled by air crash investigators. Attempting to isolate something useful from such a train-wreck calls to mind those expressions about needles in haystacks and polishing turds. We advise that one call a priest to perform the last rites instead. A 10 on the Browning Index is reserved for those samples even a god couldn’t save. In such cases, the glassware is lost along with the starting material. To describe a 10 as “Passchendaele in a flask” would only be a mild exaggeration (as well as deeply insensitive). The only course of action is to incinerate the evidence, and carefully reconsider your life choices.

At this stage, some may wonder what The Browning Index has to offer over the many existing analytical methods. Clearly, reviewer 2 also held this opinion. While techniques like NMR and TLC can provide more detailed information about a mixture, they require two things that the Browning Index does not: a physical sample and time to analyse it. Preparing and running an NMR sample can take anything upwards of 15 minutes, and finding an appropriate TLC eluant is comparable. Analysis via

the Browning Index is instantaneous: no sample preparation is required, nor any apparatus/instrumentation.

We should admit that we are not the first to have had this idea. Passing references are made to such a scale in Monty Python’s “The Life of Brown” and in Kermit the frog’s song “it’s not easy being beige”. In many related studies, renown Australian academic E. F. Tom has investigated the relationship between yellowness and purity, in relation to energetic materials.^{7a,b} To the best of our knowledge, however, we are the first to categorise these trends into an easy-to use index. We feel able to make this claim because we haven’t bothered to check if anyone else has beaten us to it.

Conclusions

We have defined the Browning Index: the kind of ladder that the biblical Jacob could have used to climb out of a thunderbox. We hope this index will become a ubiquitous feature of chemistry labs worldwide. If disgusting brown sludge is a universal feature of chemistry (and it definitely is), then so too should be a way to describe it. In the immortal words of Mediocrates of Pfizantium: “*everything turns brown in the end*”.

Experimental data, spectra and reaction conditions are available from www.onlyfans.com/SchlonkItUp

Author Contributions

K. K. used his experience in oil refining and coal tar extraction to define the 9 and 10 categories of the index. M. M. contributed fuck all. R. B. prepared the samples for figure 2, and used his training as a hostage negotiator to appease reviewer two. G. S. prepared the manuscript, and plenty of batches of brown goo.

Conflicts of Interest

Günther Schlonk is Imperial Editor in Perpetuity of The Journal of Immaterial Science. He reviewed this article while blind drunk, to avoid bias.

No graduate students were harmed in the preparation of this manuscript.‡

Acknowledgements

G. S. acknowledges the estate of aunty Gladys for funding this work, may she rest in peace.

Notes and references

- S. Mawon, H. Kahawia, *J. Brown Chem.* 1927, **5**, 30928375
- Smegma Aldrich Spring Catalogue, 2021
- S. Gamgee, B. Baggins, *Middle J. Chem.* T.A. 3018, **1**, 13.
- D. Blackburn, *J. Immat. Sci. Mat.* 2021, **1**, 1.
- The Smerck Index, **17**, 3499 (Sulferalone)
- D. Parton, *J. Mus. Chem.* 1980, **1**, 1.
- 6.5 Just like everyone else.
- 7a <https://www.youtube.com/c/ExplosionsFire2>
- 7b <https://www.reddit.com/r/ExplosionsAndFire/>
- ‡ Not remotely true





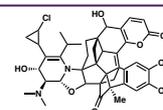
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A Partial Total Synthesis of Impracticatechol

Mildew Mould^a, Huffin Ether^b, Burnie Urethra^a

Abstract: An elegant procedure for the progression towards the total synthesis of Impracticatechol is presented. The importance of this work is such that we reserve the right for further miscommunications in this field.

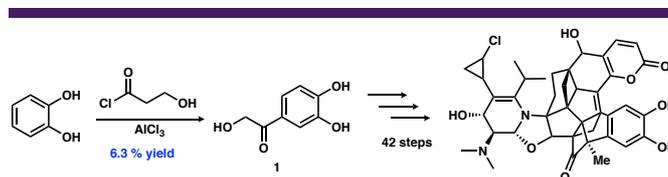
Specific: Enthrawling. A compulsive read and page turner – Penury Times



Impracticatechol (Figure 1) was first isolated from the nightmares of Holden Captiva, a student of the late Winnie Bago, a pioneering organic chemist at the Rural University of Penury Bridge. This compound has been found to marginally improve the artistic tendencies of laboratory toads. However, this extremely promising biological activity is marred by potent cytotoxicity, excitotoxicity, genotoxicity, mutagenicity, carcinogenicity and teterogenicity. It is perhaps for these reasons, or its incomprehensively complicated structure, that no intelligent person in their right mind would want to make it, so we did.

Impracticatechol was long deemed too mentally tormenting to attempt any form of synthesis until recently when our group published progress on the topic.¹ On the back of this work, we made the interesting observation that the key to finishing the total synthesis was in fact starting it. With this in mind, we present the first partial total synthesis of impracticatechol.

offers the possibility to attempt the second step, a methylmagnesium bromide addition to the ketone, which, if successful will be the topic of a future miscommunication. The success of the first step is predicted to open a floodgate of research into not only impracticatechol, but other supernatural products such as inconceivacatechol and misseratechol.



Scheme 1: Progression towards the total synthesis of impracticatechol.

Experimental

Representative procedure: A poorly dried, cracked 500 mL two neck flask was sealed with Duct Tape and Blu Tack before being evacuated via human diaphragm and plastic hosing (362 torr). The flask was refilled with N₂ and AlCl₃ (1 equiv.) and dry DMF⁴ (40 mL) was added. The mixture was heated to 40 °C before catechol (1 equiv.) and 3-hydroxypropanoyl chloride (36 equiv.) were added. The reaction was heated to 90 °C and then a stir bar was added.⁵ The 'burnt marshmallow' coloured solution was stirred for 38 hours before tap water (50 mL) and ethyl acetate (40 mL) was added. The solution was then inadvertently decanted onto a polyvinylchloride fume hood and absorbed into, then extracted from, 3 sheets of paper towel (at this point the supervisor (principal investigator) was informed that results looked "promising"). The phases were separated and the aqueous phase was extracted with ethyl acetate (3 x 40 mL), dried (Na₂SO₄) and filtered. The solution was then added to 2.4 L of H₂O maintained at 35 °C. The aqueous phase was then painfully extracted with ethyl acetate (37 x 30 mL) then washed with sea water (30 mL). The combined organic phases were scolded (verbally), dried (Na) and filtered (hastily). The solvent was removed, and the flask let to stand open to air at r.t. for several weeks. The crude tar was purified by trituration over DMSO, recrystallisation from ethanol and subjected to column chromatography (10% ethyl acetate/hexanes – 40% methanol/DCM) to give catechol 1 (9 mg, 6.3% yield) and mental exhaustion (insomnia, 93% yield). Naturally, catechol 1 was contaminated with trace triphenylphosphine oxide so a small sample was prepared for spectroscopic analysis via preparative TLC and Adobe Photoshop. **IR:** See ref 2 **¹H NMR:** δ 1.1–7.9 (m, 10 H) ppm. **¹³C NMR:** forgot.

Conclusions

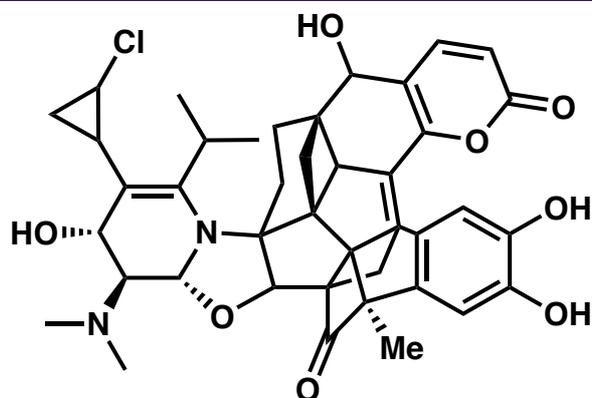


Figure 1. Impracticatechol

Results and Discussion

We predicted that key to forming the overwhelmingly complex structure of impracticatechol was forming all the bonds in the right places. With a sinking feeling in our hearts, we began (and ended) our synthesis with a Friedel-Crafts acylation of catechol. Many months of tireless work and microwave pizza dinners passed until, after arduous optimisation and the forgoing of mental wellbeing, our optimal reaction conditions yielded functionalised catechol 1 in 6.3% yield (scheme 1). This result was met with joyous celebration down the Penury Bridge Tavern and a two-day hangover.³ This pioneering pathway

^a. Department of Pharmacy, Rural University of Penury Bridge
^b. Bunnings Warehouse
^c. Rural University of Penury Bridge



In conclusion we present the first step in a 42 step envisioned sequence towards the total synthesis of impracticatol. Future research will focus on the remaining 41 step sequence which at the current rate will be completed early next century.

About the Authors

Mould Mildew is an undergraduate student at the Rural University of Penury Bridge. She plans to fake her own death to avoid paying her tuition debt. Huffin Ether voluntarily distils solvents upon request. Burnie Urethra received Green, Amber and Red level Laboratory and Workshop Induction Certificates at the beginning of 2021.

Author Contributions

Mould performed the reaction seen herein. Her yearlong commitment to the reaction optimisation and busking performances at Penury Bridge Clocktower to raise funds were vital in the success of this work. Huffin works at the local Bunnings and is the provider for many of solvents and chemicals used at the Rural University of Penury Bridge. Burnie Urethra tirelessly tracked down the names and addresses of the three reviewers whom emphatically did not support the publishing of this work – they changed their minds.

Conflicts of Interest

Burnie is severely conflicted in almost all facets of his life. Huffin apparently has nothing to declare as long as no one goes in his greenhouse.

Acknowledgements

We would like to say fuck u to all the haters out there sum days it gets tuff you know but yeah just fuck the haters aye. Also FYI haters I'd like to see you all try do this at least we are out here having a crack and now we are published in a proper journal so yeah I reckon yous can all get fucked especially Nature and Science yous wouldn't know a good manuscript if it was lodged up your ass.

Notes and references

- 1 B. Urethra. *Starting to think about the possibility of progressing towards the total synthesis of impracticatol perhaps*. *J. Hopes N. Dreams*. 2021, **4**, 6743
- 2 Y. Bother. *The IR spectrum of carbon dioxide*. *J. Cutt. Corn*. 1987, **2**, 30.
- 3 S. Beak. *Professor Charged Over Booze-Fuelled University Damage*. *Penury Times*. 13/5/21.
- 4 DMF was dried by decanting over molecular sieves and storing in a PVC container under a tarpaulin.
5. Forgot to add stir bar to begin with





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Triphenylphosphine Oxide in the Clouds of Venus

Simon E. Says,^a Tobias Stoat-Gobbler^b and Günther Schlonk^{*c}

Abstract: Turns out OPPh₃ really is everywhere.

Specific: The detection of phosphine (PH₃) in the clouds of Venus kindled interest in the possibility of life in the planet's atmosphere. With data acquired during the Aphrodite Probe's pass through the upper Venusian atmosphere, we report the detection of triphenylphosphine oxide in the clouds of our closest planetary neighbour. This data implies the possibility of synthetic chemists on the planet Venus.

In September 2020, astronomers published the detection of phosphine (PH₃) in the atmosphere of the planet Venus.¹ This finding was striking for a number of reasons. In an atmosphere as inimical as that of Venus (comprising CO₂ and sulfuric acid clouds at several hundred degrees), "any phosphorus should be in oxidised forms." More striking are the implications of this observation, as PH₃ in Earth's atmosphere is a product of microbial life or industrial processes.² According to the authors of this paper, there are "no currently known abiotic production routes in Venus's atmosphere, clouds, surface and subsurface, or from lightning, volcanic or meteoritic delivery." The world's media saw this news, briefly considered the inherent complexity and uncertainty of the science, then saddled up the bandwagon and floored it.³

The original detection of PH₃ by Greaves and co-workers was achieved with observations undertaken with the world's most sensitive millimetre telescope, the Alien Life Molestation Array (ALMA), located on the Atacama plateau in Chile. The observations were hampered by artefacts created by the complex nature of Venus's atmosphere. The findings of this study are mired in controversy,⁴ but the intriguing possibility of life on Venus merits further investigation. The interest of our research group was piqued by the identity of the gas detected by Greaves et al: of all the biogenic gasses, PH₃ was the one found. As inveterate phosphorus chemists, it led us to ponder "what other phosphines might be present on Venus?"

Criticism of the reported PH₃ detection have focused on the calibration of the ALMA short-baseline data. This can occur when the spacing of antennas in the array are too far apart to adequately sample the *uv* plane leading to large amplitude sinusoidal ripples in the spectral baseline (which frequently induces nausea and flashbacks in people who have undertaken second year physics). A further issue arises from the well-known phenomenon of Cox bias, whereby the larger the telescope one uses for a study the more important it is to accompany the paper with a press-release that may be talked about by science communicators in the media. To answer this question, we are utilising a chemical approach and rather than using a large telescope at a large distance, we instead use a very small instrument and taking it to the source. To achieve this, we have collaborated with the Australian Research and Space Exploration Society (ARSES)⁵ to collect data on the range of phosphorus species present (the phosphorome) on Venus. The

Aphrodite probe was funded as part of the "Mission Imphossible" project through the visionary ARSES program Synthetic Molecules and Radio Telescopes (SMART). Aphrodite, the first SMART ARSES mission, was launched in 2019 and skimmed the outer atmosphere of Venus in June of this year (Figure 1). Among the arsenal of apparatus aboard this probe is a revolutionary new instrument: a Variable-Temperature High-Pressure Broad-Band Corrosion-Resistant Nuclear Magnetic Resonance Spectrometer (VTHPBCRNMRS).



Figure 1: The Aphrodite probe in orbit around Venus, taken with the probe's selfie-stick.

The Aphrodite probe circumvents the problems experienced in the ALMA data by directly sampling the atmosphere, with aid of an NMR tube on a very long string. Aphrodite was able to record ³¹P NMR data on this sample of Venusian atmosphere, which is shown in Figure 2.

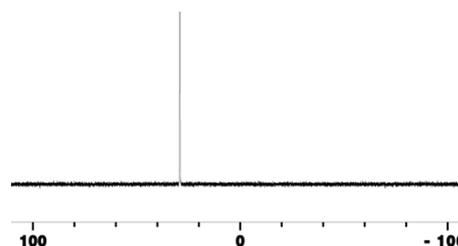


Figure 2: ³¹P NMR spectrum of the atmosphere of Venus.

The most striking (and only) feature of this spectrum is a strong signal at 29 ppm. By deconvolution, reconvolution and deconvolution again, this peak was ambiguously assigned as that most pernicious of impurities: triphenylphosphine oxide. Although less well-established in other fields, it is standard practice in astronomy that if any unexplained signal in the data remains after analysis by two graduate students and a

a. Co-Acting Interim Associate Deputy Dean of Unnatural Sciences University of West Failure
 b. Australian Research and Space Exploration Society, Woolloomooloo
 c. Department of Pyrofrolics and Inorganometallics, University of West Failure



disillusioned postdoctoral researcher the only plausible explanation is – Aliens![†] The implications of our study are hence compelling: there may be synthetic chemists on Venus. To the best of our (admittedly half-arsed) knowledge, there is no precedent for naturally occurring OPPh₃ anywhere in the galaxy. Conversely, OPPh₃ is second only to ethyl acetate in its pervasiveness throughout the chemistry lab. For example, a landmark study by Hank and Roy Spim determined that the average chemist contains 100 ± 5 mg of triphenylphosphine oxide.⁶ However, the ubiquity of OPPh₃ within all fields of chemistry is both blessing and curse: it's such a common side-product that we can't tell what sort of chemistry the Venusians are doing. It could be the product of organic transformations (Wittig, Appel or Mitsunobu reactions for example), or a ligand discarded at the conclusion of a catalytic cycle.

Closer examination of the Venusian phosphorome is hampered by the intensity of the OPPh₃ signal. It was necessary to execute solvent-suppression pulse sequences, reducing the magnitude of the OPPh₃ signal significantly. The resulting spectrum is displayed in Figure 3. We were astonished by the diversity of phosphines present in the Venusian atmosphere. Fewer than half of the observed signals could be matched ($p_{av} = 5.0001$) to known compounds.

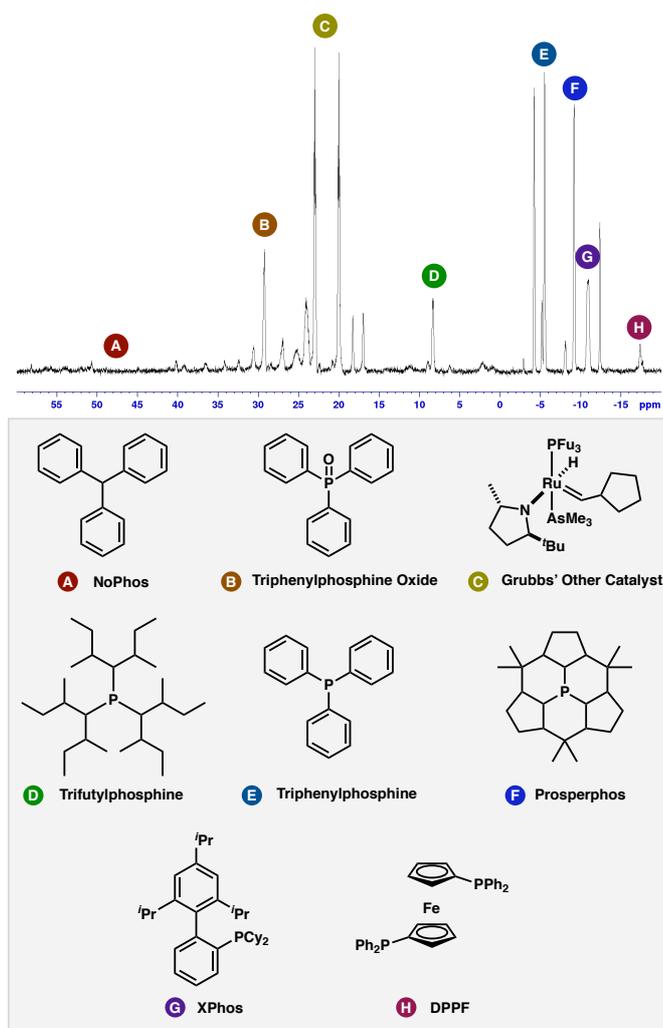


Figure 3: ³¹P NMR spectrum of the atmosphere of Venus, with OPPh₃ suppression. Below are the structures of potential phosphines, with greater than 95% similarity to the database spectra, retrieved from www.GoPhosYourself.com

As expected, some residual OPPh₃ (B) was observed after suppression. Notably, this compound was also detected in its reduced form (E), a result supporting the findings of Greaves et al. that non-oxidised phosphorus species could exist on Venus. Alkyl phosphines may also be present, as evidenced by signals matching trifutylphosphine (D) and Prosperphos G.⁷ NoPhos cannot be directly observed by ³¹P NMR, so the absence of a peak at 47 ppm is evidence for its presence, as long as the reader doesn't think about it too hard.

The peak at -18 ppm matches the venerable ligand DPPF (H). Its presence would suggest that some manner of cross-coupling chemistry is being undertaken on Venus. It would be remarkable if it were possible to prepare DPPF on Venus, let alone use it, as its synthesis would necessitate lithiating ferrocene in an atmosphere of H₂SO₄. In such an atmosphere, good air-free technique is of the utmost importance.⁸ Furthermore, a peak at -12 ppm could be XPhos (G), a ligand commonly used in Cluckwald-Birchtwig couplings. Perhaps the most intriguing signal is the large doublet at 23 ppm, which appears to correspond to Grubbs' Other Catalyst (C). If true, this finding has significant consequences: 1. the aliens have independently[‡] developed olefin metathesis, 2. these aliens could really be worth meeting and 3. the patent on Grubbs' Other Catalyst may need to be reassessed.

Some in the astrobiological community have ridiculed the suggestion that synthetic chemists could survive in an environment as harsh as the surface of Venus.⁹ We counter this view with the observation that if anything can survive a toxic atmosphere under immense pressure, it's an academic. It would certainly explain the attitude of Reviewer 2, and their endless supply of vitriol. We favour Reviewer 1's suggestion that perhaps the synthetic chemists were transported to Venus on the Oumaumau asteroid during its passage through the solar system in 2017, adding further to the overwhelming evidence that it was an alien interstellar spacecraft (that just happens to look like a large rock).¹⁰

Aphrodite also collected ¹H NMR data on its pass through the clouds of Venus. The expected peaks corresponding to OPPh₃ were observed, but they were almost obscured by three high-intensity resonances in a 2:3:3 ratio (Figure 4). The identity of the species has eluded us thus far, and will be the subject of further studies by our group.

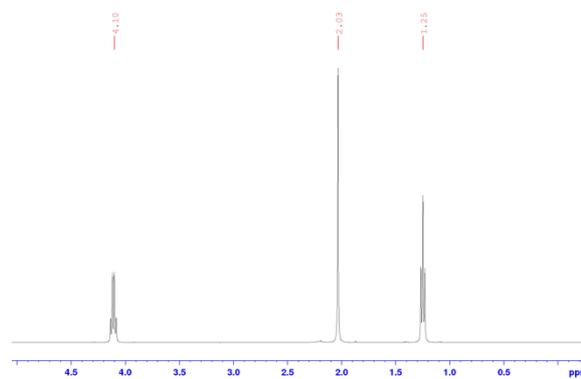


Figure 3: ¹H NMR spectrum of the atmosphere of Venus: a mystery.

[†] One day, this will be the generally accepted answer, and as established on r/circlejerk, being unexpectedly right once makes you a genius even if everything else you've said is patently wrong.

[‡] Its hard enough getting access to Elsevier papers on earth, the aliens have got no chance

Conclusions

Space has been a hot topic in the past decade. We have seen the rise of SpaceX, Elon Musk and his space-car and Jeff Bezos and his Rocket-Phallus. In 2016, Starbucks opened its first franchise in the Sea of Tranquillity, and HSBC legally moved its headquarters to Ganymede. More recently, FIFA has announced that the 2030 Football World Cup will be held on Mars. Now we can add the possibility of synthetic chemists on Venus to this exalted list. While the evidence for higher phosphines on Venus is compelling, many questions remain unanswered. Not least among them, do these Venusian chemists have a journal, and what is its impact factor? We hope that future missions to Venus provide answers. Until then, we will continue our search for traces of AsH_3 in the rings of Uranus.

Acknowledgments

The authors would like to express their gratitude to the SMART ARSES grant administration team who without any prompting provided regular input that was neither insightful, nor relevant. We also acknowledge that the research undertaken in this paper was not supported by funding from the Australian Rejection Council (ARC). The authors humbly suggest that to further improve the already impressive rejection rates of the ARC, the funding rules should be amended to automatically exclude all authors who have written papers which have undergone the beer review process. Similar to the ARC's outstanding success in the rejection of grants that cite preprints, the beer review process is too recent to have been properly and thoroughly discredited and may jeopardise the ARC's arcane selection processes. G.S. wishes to acknowledge the Infinite Monkey Collective for loaning him a few gibbons to help edit the manuscript.

Author Contributions

G.S. conceived the project while he was supposed to be working on a literature review. S.E.S. and G.S. co-wrote the manuscript. G.S. engaged in mortal combat with MS Word to format the document. T.S.G. let us have a go with his spaceship.

About the Authors

Professor Simon E. Says was appointed as Co-Acting Interim Associate Deputy Dean of Unnatural Science after losing 17 consecutive games of rock-paper-scissors. Tobias Stoa-Gobbler fell into this reality through the hole that Brian Cox tore in the space-time continuum after a particularly energetic piano solo. In his spare time, he is a park bench in Wodonga. Demeritus Professor Günther Schlonk seized power in a palace coup in mid 2021, and appointed himself Chemistry Tzar of the University of West Failure. His other titles include Satrap of Satire, Toastmaster General and Provost of the Plebs. He is the Imperial Editor in Perpetuity of The Journal of Immaterial Science.

Conflicts of Disinterest

S.E.S. believes that the role he currently fills at the University of West Failure was inflicted on him as punishment for some unknown slight. T.S.G. finds the third Punic war to be disappointing as a conflict, as he felt it was an unfair fight. G.S. can't be bothered conducting detailed searches of the illiterature before jumping to conclusions.

Notes and references

- 1 J. S. Greaves et al. *Nat. Astron.* 2020, **5**, 655–664.
- 2 <https://astronomy.com/news/2020/09/astronomers-spy-phosphine-on-venus-a-potential-sign-of-life>
- 3 Just google "life on Venus" and scroll for a bit.
- 4 <https://www.nature.com/articles/d41586-020-03258-5>
- 5 <https://spaceaustralia.com.au/>
- 6 H. Spim, R. Spim, *Mont. Py. Flying J. Chem.* 2016, **29**, 742–697.
- 7 G. Schlonk, *J. Immat. Sci.* 2021, **1**, 30–31.
- 8 G. Schlonk. *J. Inorganomet.* **75**, 767–800.
- 9 C. Snark, A. Tool, *Outdat. Oppin. In Atron.* 2021, **4**, 86–86-and-a-bit.
- 10 https://en.wikipedia.org/wiki/Avi_Loeb





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Toward a Science of Dumbassery: A Theoretical Perspective

T.H. Fuxley^a and Francis Crock^{b*}

Abstract: We provide foundational theoretical and experimental outlines for the development of a new science of dumbassery.

Specific: See above and below.

Despite dumbassery's ubiquity in human society, our scientific understanding of it remains impoverished. We see its manifestations everywhere: anti-vax conspiracy theories, climate change denialism, young-earth creationism, race realism, multi-level marketing companies, and more (Figure 1). What are its neurobiological underpinnings, its evolutionary origins, its potential psychological and pharmacological therapeutic targets? Ironically, when it comes to dumbassery, we are left slack-jawed and drooling in the face of such questions. It is high time that we craft an interdisciplinary empirical research program to bring this malformed cousin of intelligence out of the basement and into the light. The aim of this paper is to sketch out what such a research program might look like and to direct it toward a proper theoretical foundation.

of intelligence.' There is, no doubt, an uncanny family resemblance. We do not see dumbassery recognizably emerge on neutron stars, in barren soil, or among the thermophilic microbiota of a bubbling pool. We see dumbassery most vividly in the very same places that we see considerable intelligence. We see it among humans first and foremost. To a lesser extent, we see it among dogs and cats and other intelligent metazoans (see [reddit.com/r/whatswrongwithyourdog](https://www.reddit.com/r/whatswrongwithyourdog) for examples). As intelligence fades to simpler and simpler forms (e.g., insects, jellyfish, trees, and so on), dumbassery drops off all the more rapidly. We believe the reliable co-location of intelligence and dumbassery occurs for the same reason as that of complex multicellular life and cancers. Dumbassery is intelligence gone awry, just as cancer is multicellular development gone awry.¹ If anti-vaxxers were equipped with less cognitive resources, their bullshit would never concretize and spread like a virus in the form a Facebook boomerpost. Instead, anti-vaxxers would sit and metabolize nutrients passively like the vegetables they were always meant to be. A dumbass is an active, productive source of dumbassery, not merely an entity that lacks some degree of intelligence. In the most literal sense, then, anti-vaxxers and their ilk are dumber than rocks.



Figure 1: Examples of extreme dumbassery in the wild.

Theoretical Considerations

New sciences can, and often do, progress surprisingly well without taking a critical look at the theoretical framework within which they operate. But a mature science must eventually face up to this challenge, so we may as well get a jump on it from the outset. Traditionally, one of two routes is followed by the pioneering scientist: (i) ignore the correct-but-obnoxious whinging of philosophers of science about problems burdening a theory and smash one's nose down into the data (see most scientists in history for an example), or (ii) charge wantonly into the philosophy of science armed only with brute empirical findings, then proclaim one's philosophical bathtub musings about a theory as self-evident and universal truths while dismissing the entire field of philosophy of science as useless (see Lawrence Krauss and Neil deGrasse Tyson for examples). We can do better than going down route (i). And, given that we want to *understand* dumbassery rather than *embody* it, we certainly ought to do better than going down route (ii). Now, to the question at hand: what is dumbassery? To get at the answer, we must look to what is often considered its opposite. It is no accident that we refer to dumbassery as the 'malformed cousin

Our pursuit of a scientific understanding of dumbassery must be focused on its insidious parasitism on intelligence, just as our science of cancer focuses on its parasitism on multicellular development. To that end, we must work to operationalize our commonsense notions of intelligence-gone-wrong. What are the commonalities shared by dumbassery of all stripes that cause us to recognize them as such? Perhaps the creation of a taxonomy of dumbassery is in order such that anti-vaxxers and young-earth creationists can be grouped together on the one hand while drunk idiots jumping from roofs, cats failing to drink from faucets, and dogs eating trash until they puke can be grouped together on the other. Inevitably, some will attempt to object to whatever taxonomy we develop on the grounds that dumbassery is in the eye of the beholder and that our criteria are therefore arbitrary. We must have a place in our taxonomy of dumbassery awaiting those who will say such things.

The Empirical Research Program

Disparate aspects of dumbassery are already being addressed in psychological studies and have been for some time. For example, positive correlations between anti-vax and conspiratorial thinking, disgust reactions, and individualistic worldviews have been established,² as have negative correlations between interest in science and the belief that one's religion entails young-earth creationism.³ We suggest that studies such as these should continue while being explicitly co-opted under the theoretical umbrella of dumbassery. A proper

a. Department of Philosophy and Snark, Alderaan University (formerly)
b. Department of Microbiology, University of the Shire



theory of dumbassery will not only unify these disparate studies but generate new research directions. One such new research direction that the authors propose is to find empirical commonalities between the pernicious forms of dumbassery mentioned above and propensities to display other more mundane forms of dumbassery, such as turning without using one's turn signal and sending Walmart gift cards to Nigerian princes. The preferred method here, as in most of experimental psychology, would be to gather large amounts of data on individuals and run several different statistical analyses, declaring victory once a p value < 0.05 is detected somewhere. As long as any variable of the study is experimentally controlled, the presence of causality should be strongly concluded. If the study is purely correlational, causal conclusions should be explicitly disavowed but implicitly suggested to be likely.

In concert with these rigorous psychological studies, cognitive neuroscience ought to be brought into the fold. It is important to correlate noisy functional magnetic resonance imaging (fMRI) data to the presentation of psychological conditions, again looking, above all, for a p value < 0.05 . Once neural activation patterns are found which correlate significantly with the presence of dumbassery of different kinds, inferences should be made based on previous studies where similar activation patterns were detected. For example, heightened ventromedial prefrontal cortex (vmPFC) activity is associated with self-control and executive decision-making.⁴ Hence, if its activity is reduced compared to functional humans among both multi-level marketing (MLM) 'entrepreneurs' and those who replace the toilet-paper roll backwards, it should be inferred that vmPFC-mediated shitty decision-making plays a central role in driving both MLM and toilet-paper-replacement dumbassery.

In the hopes of achieving a mechanistic neurobiological picture of dumbassery, establishing an animal model is key. The challenge here will be in striking a balance between selecting an animal which is ordinarily intelligent enough to model detectable dumbassery while being unloved enough to allow IACUC approval of shoving ibotenic acid and electrodes into their grey matter. Monkeys can certainly be monumental dumbasses, but lesioning their brains is a quagmire; mice are highly experimentally manipulable, but their behavioral repertoire is limited. Rats may strike a good balance. Human genome-wide association studies (GWAS) will be useful for identifying genetic correlations of dumbassery and will provide potential knockout targets in the animal model. A standard battery of behavioral tests should be created to measure dumbassery, and the construct validity of these tests should not be questioned beyond that which is required for checking the box of the minimal degree of due diligence. When genetic knockouts and brain lesions are found to produce heightened dumbassery scores on this battery, we should become quite confident that we have discovered the neurobiological basis of dumbassery and move on to pharmacological interventions with the hope of finding enough p values below 0.05 to one day graduate to a clinical trial on humans. In the extraordinarily unlikely event that there is any statistically significant improvement ($p < 0.05$) versus placebo for these pharmacological interventions in humans, this should be considered a profound success regardless of how meaningful an

impact their use seems to have in the daily life of the typical dumbass.

Conclusions

We have presented here an outline for the theoretical unification of dumbassery studies and the creation of a targeted interdisciplinary empirical research program. The hope is that, one day, we can reach a scientific understanding of dumbassery that is on par with our understanding of other high-level cognitive phenomena.

About the Authors

T.H. Fuxley is an embittered and currently unemployed philosopher of science (apologies for redundancy). Francis Crock is a cell biologist with an underwhelming grasp on statistics who is widely considered a leader in the field of biostatistics.

Author Contributions

T.H. Fuxley contributed the theoretical considerations and snark throughout. Francis Crock contributed the content of the proposed empirical research program, including the statistical considerations.

Conflicts of Interest

The authors have nothing to report.

Acknowledgements

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Notes and references

- 1 C. Sonnenschein, P.R. Wadia, B.S. Rubin, A.M. Soto. Cancer as development gone awry: the case for bisphenol-A as a carcinogen. *J. Dev. Orig. Health Dis.* 2011 Feb 23; **2**(1): 9-16.
- 2 M. Hornsey, E. Harris, K. Fielding. The psychological roots of anti-vaccination attitudes: A 24-nation investigation. *Health Psychol.* 2018 Apr; **37**(4): 307-315.
- 3 P. Fulljames, H.M. Gibson, L.J. Francis. Creationism, Scientism, Christianity and Science: a study in adolescent attitudes. *Br. Educ. Res. J.* 1991 Apr; **17**(2): 171-190.
- 4 T.A. Hare, C.F. Camerer, A. Rangel. Self-Control in Decision-Making Involves Modulation of the vmPFC Valuation System. *Science.* 2009 May 01; **324**(5927): 646-648.





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The Mechanism of the Über - Furious - Bob - Paul - Danny - Frank- Malal - Cornuto - Focker - Tsagay - Gilipollas - Pampelmousse - Thwacker- Abadham - Oszukać - Putanginamo - Kiri - Assurbanipal - Cluckwald - Birchtwig- Haamchusou - LeDong - Imbongolo - Besteira - Boentjie - Kartoffelkopf - Kopparslagare- Prasnam - Bloon - Capellodiculo - Cansona - Ummanmanda - Wang – Fukovski **Reaction**

Silvio Cornuto,^A Alexander Thwacker,^B Henri de Pampelmousse,^C Aap Tsagay,^D and Günther Schlonk^{E*}

Abstract: We spent way too much time on this.

Specific: The Over Reaction is the most fiendishly complicated transformation in modern synthetic chemistry. It features nine discrete catalysts, visible light and electrochemical oxidation, which cooperate to convert obstannyl sulphosphoxides, aryl moronic esters, cumulenes, homopropargylic ethers and cyanodiazetidines into elseviammonium dismylates in one step. The mechanism of this reaction has perplexed chemists since its discovery reaction in 2005. Now, for the first time, we propose a catalytic cycle for the Over Reaction.

The history of science is riddled with happy accidents. Naturally, such occurrences are referred to as “serendipitous discoveries” rather than “lucky fuck-ups,” because it sounds more intelligent. Chemistry has seen its fair share of these stories play out: the discovery of iodine, mauve dye and penicillin are some of the more famous examples. Though our half-arsed search of the illiterature was inconclusive, we assume that the discovery of pyrrole was also accidental, as no sane individual would set out to work with such an obnoxious molecule.¹ The Über–Furious–Bob–Paul–(and so on and so on)–Wang–Fukovski reaction is another such child of serendipity, more commonly referred to as “The Over Reaction” for the sake of brevity.²

In June 2005, Aggravated Professor Frank Furious was attempting to perform the hydrogenolysis of benzyl triflate **1**. This molecule features both an obstannane group and a sulphosphoxide moiety, which while reactive, are typically stable towards hydrogenative conditions.³ Furious was observing a complete lack of reactivity, despite a literature procedure claiming to obtain 85% conversion in 15 minutes.⁴

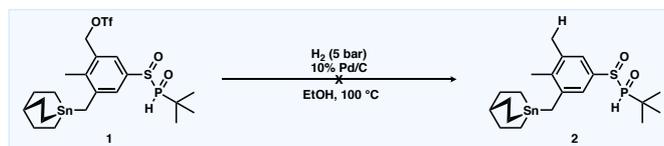


Figure 1: Frank’s failed attempt at a hydrogenolysis.

Furious cranked the temperature and dialled up the H₂ pressure, let the reaction run overnight and returned the next morning. Nothing. He consulted Dr Grundle’s paper, noticed that he’d claimed a 98% isolated yield, and snapped. One of Furious’ students recounts the events that followed:

‘Frank always had a case of nominative determinism, but this was next-level. He thundered “0.01% catalyst loading my arse” and upended a box of metal complexes and a fistful of sample vials into the flask. Then he threw a 9 V battery into the reaction mixture, squawking something about “electrocatalysis,” and connected the vessel directly to the H₂ cylinder without a regulator, while humming the tune to Under

Pressure. As I was running for shelter, I saw him grabbing the UV lamp off the TLC box and strapping it to his flask: “visible light is piss-weak anyway, it can’t even give you cancer.” The last thing I remember was watching Furious flip a lab bench, shout “cock-blaster” at his reaction and storm out the door. We didn’t see him for three weeks, and we were too scared of that reaction to go near it.’⁵

Frank returned from his impromptu stress-leave and disassembled his creation, which had miraculously remained intact. On discovering that none of his students had been in the lab during his absence, his ire was stirred to life once more, and he instructed Klaus Über to work it up as punishment. Über began this process by smashing the flask and recovering a charred black solid, which he placed in a ball mill for a week. The residue was extracted with DMSO and subjected to a medically inadvisable amount of chromatography. From the ashes of Furious Frank’s failure, Über isolated 17 mg of molecule **3**, which he dubbed Phoenoxide A (Figure 2).⁶

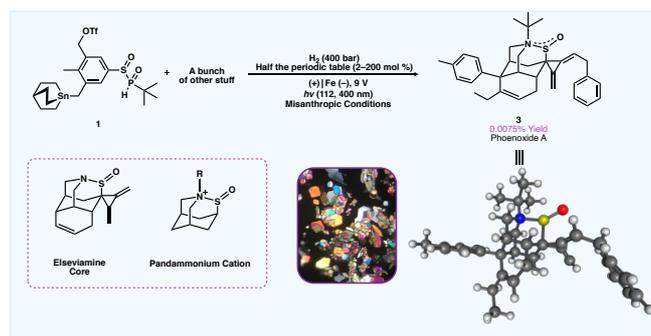


Figure 2: The first, accidental synthesis of Phoenoxide A,

Phoenoxide A was fully characterised, and its structure was assigned by X-Ray crystallography. It features the fused, polycyclic core of a class of molecules known as “Elseviamines,” so called for the tremendous difficulty encountered in accessing

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- Kuchu Chethay University, Bajoling, Bhutan.
- Department of Pyrofrolics and Inorganometallics, University of West Failure.



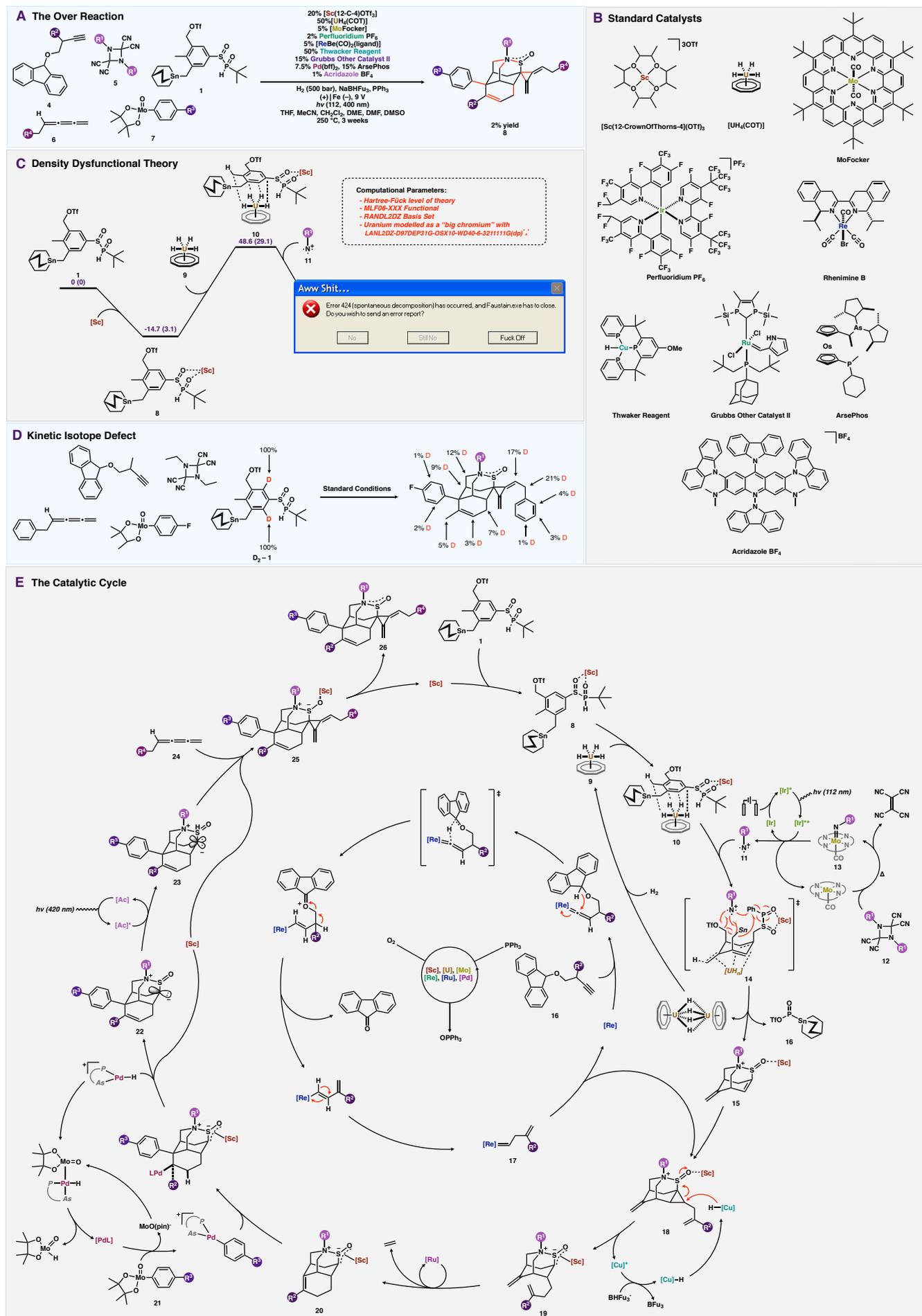


Figure 3: The Over Reaction: it's conditions(A), catalysts(B) and catalytic cycle(E), alongside selected mechanistic experiments(D) and DDT(E).



them.⁷ This difficulty is primarily associated with the pentavalent carbon centre at C5. These Elseviamines are a subset of the Pandammonium Alkaloids, a large and chaotic family of natural products.

The impact of this finding was obvious: Furious and Über had discovered a one-pot synthesis of Elseviamines. But there was a problem: neither of them could remember how. Frank's vision was red-shifted at the time, and everyone else was running for cover. The subsequent carnage made it impossible to determine which catalysts Furious had added to the reaction. It took the Furious group three years to reproduce their original reaction, which they eventually managed in collaboration with nine different labs in 16 different countries (Figure 3A).^{8,9} The result was the longest named reaction in the IUPAC Brown Book, which is catalytic in scandium, uranium, molybdenum, iridium, rhenium, copper, ruthenium, palladium, visible light, invisible light, and electrical current (Figure 3B). It is stoichiometric in tin, molybdenum and suffering, and is one of the least atom-economical reactions known.

Five years of painstaking mechanistic investigation by our group and our collaborators has resulted in the first tentative catalytic cycle for the Over Reaction (Figure 3D). Full experimental conditions are detailed in the electronic unsupported information.¹⁰

The Reaction

The Over Reaction is the coupling of an obstannyl sulphosphoxide **1** with a homopropargylic ether **4**, a cyanodiazetidine **5**, a cumulene **6**, and an arylmoronic acid (pinacol ester) **7**. The product of this unholy union is a highly substituted elseviamonium dismylate zwitterion.¹¹ The reaction forms nine new bonds and five contiguous stereo centres. It is conducted under a high pressure of H₂, with a 9 V battery functioning as both electrochemical oxidant and stir-bar. Yields are typically between 0.5 and 3%, rating between an 8 and an 11 on the Browning Index.¹² The low yields of this transformation reflect both the horrendous inefficiency of the reaction itself, as well as the nightmarish workup. Most of the catalysts and their associated intermediates are completely incompatible, giving rise to a menagerie of side-products and off-cycle intermediates. Under the harsh reaction conditions, these undesirables breed and multiply until a material resembling brown coal is produced. The product is obtained by milling this deposit followed by Soxhlet extraction with refluxing DMSO.

The Catalysts

Half of the periodic table is involved in the catalytic cycle of the reaction, but the first metal involved is scandium. This Lewis acid is complexed with a crown-of-thorns-ether to improve its solubility, and functions to both activate and moderate the promiscuity of the sulfoxide moiety throughout the reaction. A polyhydridic uranium complex (**9**) serves as a powerful reductant and as a shuttle for H₂, which it uses to partially hydrogenate the aromatic ring of the obstannyl sulphosphoxide. The nitrogenous portion of the product is incorporated via a nitrinidinium radical cation. These fickle and fleeting intermediates are derived from the one-electron oxidation of nitrenes, which are themselves highly reactive. The only oxidant capable of such a challenging transformation is a photo-aroused perfluoridium cation [Ir]⁺*. The catalyst perfluoridium PF₆ enters this state upon the absorption of a

photon of invisible light, and rips electrons off anything it can get its LUMO's on. The parent nitrene must be trapped as a metal complex until this oxidation is performed, lest it become distracted and wander off. Molybdenum complexes are capable of stabilising them, provided that the Mo-bound ligand is itself a rock of stability. The Focker ligand has such stability, and thus MoFocker is a suitable nitrene transfer catalyst for this reaction.¹³

Rhenium possesses an affinity for the pi-systems of alkynes and serves to convert homopropargylic ether **16** into β,γ -unsaturated carbene **17**. Rhenimine B is a soluble rhenium source, supplied as a single enantiomer for purely decorative purposes.¹⁴ Pendant isopropyl groups adjacent to the imines shield the metal centre from rapacious solvent molecules, preventing decoordination and rhenial failure. The Thwaker Reagent [CuHL] is a mild hydride source, selective for cyclopropanes. The ring-closing olefin-metathesis step of the catalytic cycle is sterically demanding, and requires a highly active catalyst. Grubbs' Other Catalyst II (patent rejected), is one of the most efficacious. The thermodynamic incentive for its reactivity is the ejection of its pyrrole, which is barrierless even at 12 K.¹⁵

A palladium-ArsePhos complex performs the migratory arylation of alkene **20**. The ArsePhos ligand (sometimes referred to as Y-O-YPhos) incorporates a labile, bulky arsine (a fat-arsine) and electron-rich phosphine, separated by an osmocene unit. It's catalytic activity in Mitsubishi couplings is matched only by its acute toxicity.¹⁶ The final catalytic step in this marathonic mechanism is the photoarousal of dismyl anion **22**. Acridazole is an organic photocatalyst, known for its efficacy in such energy-transfer reactions, albeit only on days with a prevailing north-westerly breeze.

Density Dysfunctional Theory

Initially, we sought to probe the mechanism of this bizarre transformation with computational methods, because it was cheaper than using the catalysts themselves. Using the Hartree-Fück level of theory, the MLF06-XXX functional and the 2G1C-LYP basis set, we were able to successfully model the chelation of scandium by substrate **1**. This interaction was found to be favourable by 14.7 kflop/mol. However, modelling the interaction of uranium hydride **9** with the substrate proved to be exceedingly difficult. When the 6-31(f)⁺⁻ basis set was used to model uranium, the simulation ETA was in mid-2047. By switching to RANDL2DZ, the computation time was lowered to three weeks, but the resultant energy was 28,000 kflop/mol higher than expected. A compromise was reached with the LANL2DZ-D97DEP31G-OSX10-WD40-6-3211111G(dp)^{*^*} basis set, which took six months to tell us that the energy of **10** was something like 50 kflop/mol. To achieve this shorter computational time, it was necessary to model uranium as a really big chromium atom. At the time, we intended to submit our work to Nature, and we figured that we could send the initial manuscript and append the calculations six months later before it had been sent out for review.

Modelling the next mechanistic step (the radical scission-fission), proved to be beyond the capacity of modern computational methods. Our initial attempts were met with "Error 424: spontaneous decomposition" followed by a total system crash of all servers on the network, and legal action taken against us by Facebook for disrupting their service.¹⁷



Kinetic Isotope Defect

The most informative of our numerous mechanistic studies was an isotopic labelling experiment. We exposed deuterated obstannyl-sulphosphoxide **D₂-1** to standard Over Reaction conditions, and observed the distribution of deuteration in the product by ¹-and-a-bitHNMR. A significant kinetic isotope defect was observed. 85% of the original 200% was scattered across the product in a seemingly random distribution. The remaining 115% is still missing, please contact us if you find it. These results are evidence for rapid and promiscuous hydrogen exchange, facilitated by at least one of the nine catalysts.

The Mechanism

In the beginning, there was scandium. And Frank knew that it was good. A scandium chelate **8** is formed from the sulphosphoxide portion of **1**. Uranium hydride **9** enters the stage, and forms four agnostic interactions with the pi-system of **9**. Adduct **10** undergoes radical scission-fission (also called a radical-dance) with nitrinidinium cation **11**, while contained in a solvent-maze. The nitrogen is quaternized, while an equivalent of triflyl sulphobstannane **16** is expelled. Concomitantly, uranium delivers an equivalent of H₂ to the pi-system, and shuffles a couple of the other protons around. The result of these processes is the partial hydrogenation and triple-ring-closing cyclisation of **13** to give pandemonium cation **14**.

The formation of nitrinodinium **11** begins with the thermolysis of cyanodiazetidine **12**, which generates a nitrene. The MoFocker complex stabilises the nitrene (**13**), until it is oxidised by a photoaroused perfluoridium cation [Ir]⁺. The reduced form of perfluoridium [Ir] is reoxidised by the 9 V battery.

Rhenimine B serves to cleave homopropargyl ether **16** and generate β,γ -unsaturated carbene **17**, via vinylidene formation, 1,5-hydride transfer, and α -hydride reallocation. The carbene attacks pandemonium cation **15** in a cyclopropanation. The resultant cyclopropane **18** undergoes reductive ring-opening mediated by the Thwacker Reagent, which is regenerated with an equivalent of sodium trifutylborohydride.

Grubbs' Other Catalyst II performs a ring-closing olefin metathesis on diene **19**, furnishing most of the elseviamine core. Alkene **20** is arylated with phenylmoronic ester **21**, in a classic example of the Mitsubishi Redistribution.¹⁸ Penultimately, dissociation of scandium reveals the lone pair of dismyl zwitterion **22**. An energy transfer process occurs between **22** and a photoaroused acridazole [Ac]⁺. The result is an excited triplet (**23**), bearing an *sp*⁴ hybridised carbon. This transition, while not spin-forbidden, is strongly spin-discouraged. The triplet is trapped with cumulene **24**, and after dissociation of the scandium complex from the resultant zwitterion (**25**), the product elseviammonium dismylate **26** is liberated.

The final mechanistic feature, and the only one to elude us thus far, is the role of triphenylphosphine. One equivalent of PPh₃ is essential for the "success" of the reaction, and a proportionate amount of OPPh₃ is recovered during the workup, but we don't know why. Our best guess is that it functions as an oxygen scavenger, or perhaps a votive offering to the capricious chemical gods.

Conclusion

We have proposed the first *plausible* mechanism for the Over Reaction: a catalytic cycle so contrived that even The

Goodies would struggle to ride it. The rate limiting step in this mechanism is finding the catalysts and reagents. After that, it's a dump-and-stir in its purest form. The number, complexity, and obscurity of catalysts for this reaction mean it would be significantly cheaper if it were stoichiometric in rhodium instead. It does, however, provide a one-pot route to elseviammonium dismylates. The most remarkable aspect of this work is that despite featuring almost every buzz-word in the chemical *lingua wanka*, this still wasn't good enough for Nature. Still, beat that Krebs!¹⁹

Acknowledgements

The authors wish to acknowledge their students, who, despite having done all the grunt work for this paper, somehow didn't merit inclusion as authors. Günther Schlonk wishes to acknowledge whoever drew the catalytic cycle for the Wacker Process page on Wikipedia. The file name is visible as "wackonwackoff.tiff", which made him chuckle for an hour.

Author Contributions

Silvio Cornuto and Alexander Thwacker conducted the mechanistic experiments. Henri de Pampelmousse performed the DDT calculations. Aap Tsagay prepared the starting materials. Günther Schlonk devised the catalytic cycle during a seminar on WHS, and prepared the manuscript.

About the Authors

Cornuto, Thwacker, Pampelmousse and Tsagay are successful academics in their fields, despite being entirely fictional. Recently, Günther Schlonk was almost killed by a flying shard of glass from an exploding solvent still. Luckily, he had a Safe-Working-Procedure folded in his breast pocket, which was thick enough to stop the shrapnel from reaching his heart. Thus, he continues in his capacity as Imperial Editor in Perpetuity of The Journal of Immaterial Science.

Conflicts of Interest

Günther Schlonk has so many things he should be doing with his time instead of writing this nonsense. Yet he continues to churn out manuscripts due to a procrastinative disorder, a pathological compulsion to take the piss and a troubled relationship with his research.

Notes and references

- 1 F. F. Runge, *J. Brown Chem.* 1834, **156**, 5704–7954.
- 2 The IUPAC Brown Book, **34**, 4673.
- 3 F. Mercury, D. Bowie, *J. Mus. Chem.* 1981, 2:31.
- 4 A. Grundle, M. Taint, V. Gooch, *Org. Memos.* **3**, 460–461.
- 5 "A Lab Maiden's Tale" by A. N. Nonymous, *Sisyphos Publishing*.
- 6 K. Über, F. N. Furious, *Wangew. Chem. Int. Ed.* **6**, 60–71.
- 7 G. Marius, L. C. Sulla, *J. Unnat. Prod. Online* (accessed: never).
- 8 Don't think about it too hard, you'll hurt yourself.
- 9 F. N. Furious et al. et al. et al., *J. Am. Chem. Sox.* **3524**, 5–15.
- 10 The electronic unsupported information: tinyurl.com/3m6s7n3h
- 11 "Dysfunctional Groups" by Eileen Dover, 2009, *Sisyphos Publishing*.
- 12 Next week's manuscript
- 13 W. A. Focker, *J. Inorganomet.* 2002, **77**, 98–97.
- 14 S. Forkbeard, H. Bluetooth, 980 C.E. *J. Scand. Chem.* **4**, 1–3.
- 15 R. H. Grubb, A. H. Darthveyda, 2005, *Omnihedron*, **23**, 63–70.
- 16 S. Cluckwald, J. F. Birtchwig, 2012, *J. Inorganomet.* **54**, 7–12.
- 17 Error messages via [AtomSmasher's Generator](#), [CC BY-SA 3.0](#)
- 18 J. Mitsubishi, K. Toyota, N. Subaru, 1995, *Rhombus*, **3**, 57–102.
- 19 https://en.wikipedia.org/wiki/Citric_acid_cycle





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Proposed Detection of Ghosts by Mass Spectrometry-Spectral Presence Origin-Omics Kinetic Yield (MS-SPOOKY)

Eddenlowrain Warren^a

Abstract: You *could* shoot ghosts on a mass spec. Maybe.

Specific: Ghost hunting has yet to consider the realm of laboratory instrumentation for detection and visualization of ghosts. Here I describe the potential application of a ubiquitous piece of equipment in research settings, the mass spectrometer, that can be co-opted for detection of apparitions.

Attempting to prove the existence of ghosts is a key value of modern society. However, even with recent public interest in fictitious science-based investigations of the afterlife, the methodology applied by portrayed researchers is constrained by conventional instrumentation. Therefore, I propose the use of a novel mass spectrometry-based method to detect and quantify the existence of ghosts, herein dubbed mass spectrometry-spectral presence origin-omics kinetic yield (MS-SPOOKY). Here I will describe the conditions making MS-SPOOKY ideal for ghost detection, as well as comparisons to and improvements over traditional methods of ghost hunting.



Figure 1 Graphical representation of MS-SPOOKY experimental pipeline.

Introduction

The possibility of life after death has been a conundrum facing mankind since the first human died, and even more perplexing is the possibility that the deceased are able to assume a form capable of interacting with the living, commonly referred to as “ghosts”. The nature of ghosts has been long debated, on topics spanning from their general existence to their composition. Historical contributions to the field, most notably *Paranormal Activity* (2007), tend to propose the use of camera-based methods of ghost detection, though this has proven largely ineffective as the temperament of the ghost may affect its ability to be detected by optical means. Most recently, the work of *Ghost Lab* (2021) has presented a scientific and empirical approach to validating the existence of ghosts, but the medical doctors therein were once more limited to using optical and thermal methods of ghost detection. Thus, in order to combine the fields of ghost hunting and analytical chemistry, I propose the use of an experimental, newly developed, novel, high-throughput, and omics-based mass spectrometry method to demonstrate and quantify the existence of ghosts: mass-

spectrometry-spectral presence origin-omics kinetic yield (herein referred to as MS-SPOOKY).

Discussion

Firstly, a commonality in most reports of ghost hunting is the necessity of a place filled with misery and hatred, which is theorized to attract and retain ghosts that share similar feelings. While previous work such as *Grave Encounters* (2011) and many others utilize abandoned medical facilities, it would be remiss to ignore the fact that many institutions that house mass spectrometers also contain graduate students, who likely harbour similar feelings of misery and hatred as a result of the aforementioned instrument and its relationship to their degree progress. Thus, concerns of the proximity of the instrument to the experimental area can be avoided, though concentrating multiple graduate students in an area may prove to be fruitful in localizing misery, and subsequently, ghosts.

Secondly, the very nature of mass spectrometry analysis makes it ideal for ghost detection. Traditionally, MS instruments are coupled with a preceding chromatographic system, where the experimental sample will be separated on a chromatographic column before MS analysis, thus adding an additional characteristic, retention time. As is commonly shown, ghosts tend to linger around their haunting grounds for relatively long durations, thus resulting in retention times anywhere from a number of years to a number of decades or centuries. Thus, the natural retention of ghosts on this Earth eliminates the need for chromatographic resolution of a spirit, as ghosts may have already been separated on a temporal scale.

Thirdly, existing MS inlet setups are compatible with our conceptual understanding of ghost trapping. A Japanese research group has described the effect of vacuum on ghosts in their work *Luigi's Mansion* (2001) and successfully demonstrated the ability for ghosts to experience suction upon appearance and be sealed within a container. It therefore stands to reason that a simple vacuum inlet MS system would be capable of suctioning and injecting environmentally present ghosts into the instrument. An additional strength of the MS-SPOOKY method is further demonstrated by the fact that ghosts are capable of being both everywhere and nowhere, as all the ghosts in the immediate vicinity of the instrument would be captured by the vacuum inlet, thus permitting omics-level analysis of the local “ghostome”. However, additional testing would be required to determine if the attachment of a comedically long hose and funnel to the inlet would be feasible for ghost capture in a larger radius.

^a. Department of Molecular Literature Engineering, University of California, Hotel



Finally, MS analysis results in appropriate data output that will be sufficient for definitively demonstrating the existence of ghosts. While aforementioned works have relied heavily on photographic means of summarizing their data, this method drawn its fair share of scientific ire for being easily fabricated. Thus, the logical conclusion for presenting evidence supporting the existence of ghosts would be to encompass the analysed spectres in spectra form.

Conclusions

Ongoing development of the second iteration of MS-SPOOKY involves coupling a downstream fourth material excitation test in the method to determine whether or not resolved ghost fragments are still capable of interacting with the physical world (MS-2SPOOKY-4ME).

About the Authors

E.W. is a Nth year graduate student in the department of Molecular Literature Engineering at the University of California, Hotel. He is already checked out, but can never leave.

Author Contributions

E.W. saw a ghost once when he was five and designed all experiments in the paper.

Conflicts of Interest

E.W. has never touched an MS in his life.

Acknowledgements

E.W. would like to acknowledge the ghost he saw at age five for instilling a life-long fear of the paranormal in him and leading him down this career path.

Notes and references

- 1 *Paranormal Activity* (2007)
- 2 *Ghost Lab* (2021)
- 3 *Grave Encounters* (2011)
- 4 *Luigi's Mansion* (2001)





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Chemical Frenetics: Party Drugs as Organocatalysts

Benjamin Schist,^a David MacKillinit,^b Keith Richards^c and Günther Schlonk^{d*}

Abstract: We have tested a range of recreational drugs as organocatalysts in the Fukovski Combobulation. Most of the tested drugs are detrimental to the reaction, but cocaine shows promise as a catalyst, with the appropriate dosage. The mechanistic roles of these molecules are probed with chemical frenetic measurements and Density Disfunctional Theory (DDT).

Organocatalysis seems to be all over the news at the moment. It's got something to do with a house-party in Sweden or something, we're not quite sure.¹ Anyway, people have used everything from sugars to amino acids and alkaloids as organocatalysts, in all sorts of reactions. Our group has a long history of work in this field, ever since a couple of weeks ago. Ever the opportunists, we spotted a slow-moving bandwagon and tried to get in on the action, by investigating the only class of molecules not currently in use as organocatalysts: recreational drugs.

Party drugs are booming industry.² The pace of change is rapid, as shady chemists race to keep ahead of the authorities by developing new drugs, or analogues of old ones. Figure 1A displays the structures of popular recreational drugs, both old favourites and more recent additions.

drugs as catalysts in a Fukovski Combobulation (scheme 1B).³ Figure 3 (next page) shows the yield of diazaoctahedrane **3** against time, for each catalyst.

Without a catalyst, a steady increase in yield is observed over the course of the 24-hour experiment, peaking at 85%. Ethanol showed a modest boost to the yield of **3** early in the reaction, but peaked at 11 hours, and thereafter proved detrimental to the reaction. When we attempted to replicate this result the next day, ethanol completely inhibited the reaction. THC also reduced the reaction rate, while cocaine produced a marked increase in reactivity, reaching 95% conversion in three hours. After this time, the yield dropped rapidly, but recovered when a second dose of catalyst was added. With 5% methamphetamine, the reaction attained a 115% yield in 1.5 hours. This was followed by spikes and crashed in conversion, suggesting the presence of a complex equilibration process. This reaction suffered from very poor reproducibility, but the mixture always turned black at the conclusion of the experiment. Morphine proved to be a particularly inefficient catalyst, producing only 7% product after six hours. A second portion of catalyst was added, prompting a further 4% conversion before another plateau was reached. This pattern repeated with diminishing results each time. LSD proved both ineffective and confusing as a catalyst, initially producing a modest yield of the desired product, before seemingly switching roles and catalysing an entirely different reaction. The product of this reaction (**4**) could only be identified by X-Ray crystallography and is displayed in figure 2B. This bizarre molecule will be the subject of further studies by our group, as soon as the shaking stops.

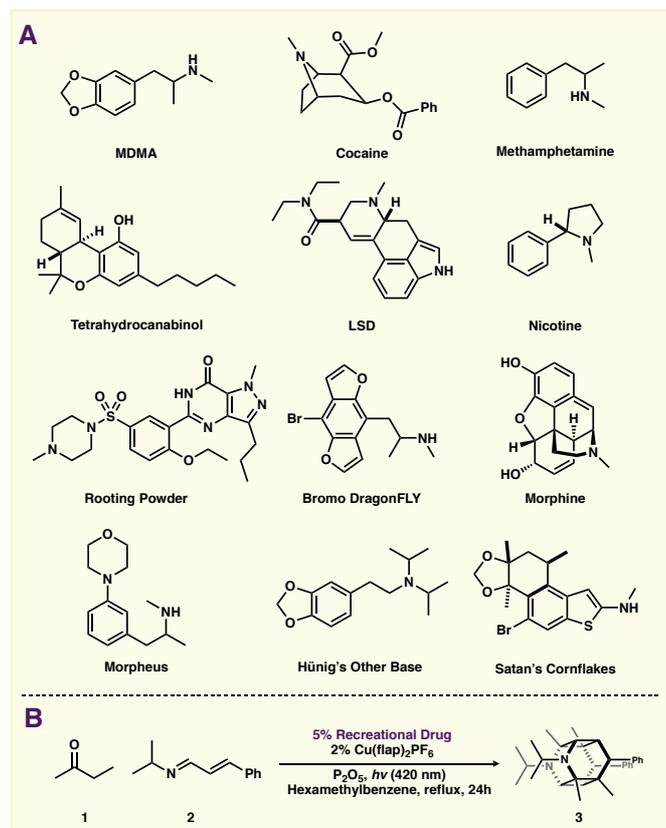


Figure 1A: Commonly encountered recreational drugs **1B:** an organocatalytic Fukovski Combobulation.

Most of these molecules are either hydrogen bond donors, acceptors or both, and thus could be potential organocatalysts. To test this theory, we have trialled a selection of recreational

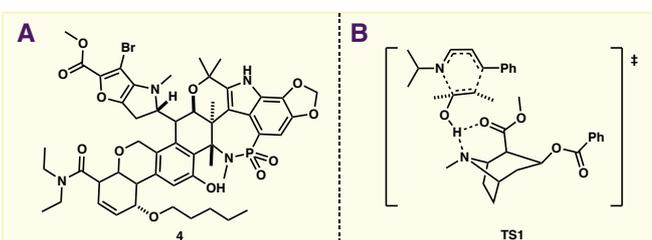


Figure 2A: The product of the LSD-catalysed Fukovski Combobulation **2B:** A computed transition state.

Cocaine showed the most promise as an organocatalyst for the Fukovski Combobulation, so its role was more closely examined. A series of frenetic measurements were recorded,

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 D) Department of Pyroprolics and Inorganometallics, University of West Failure



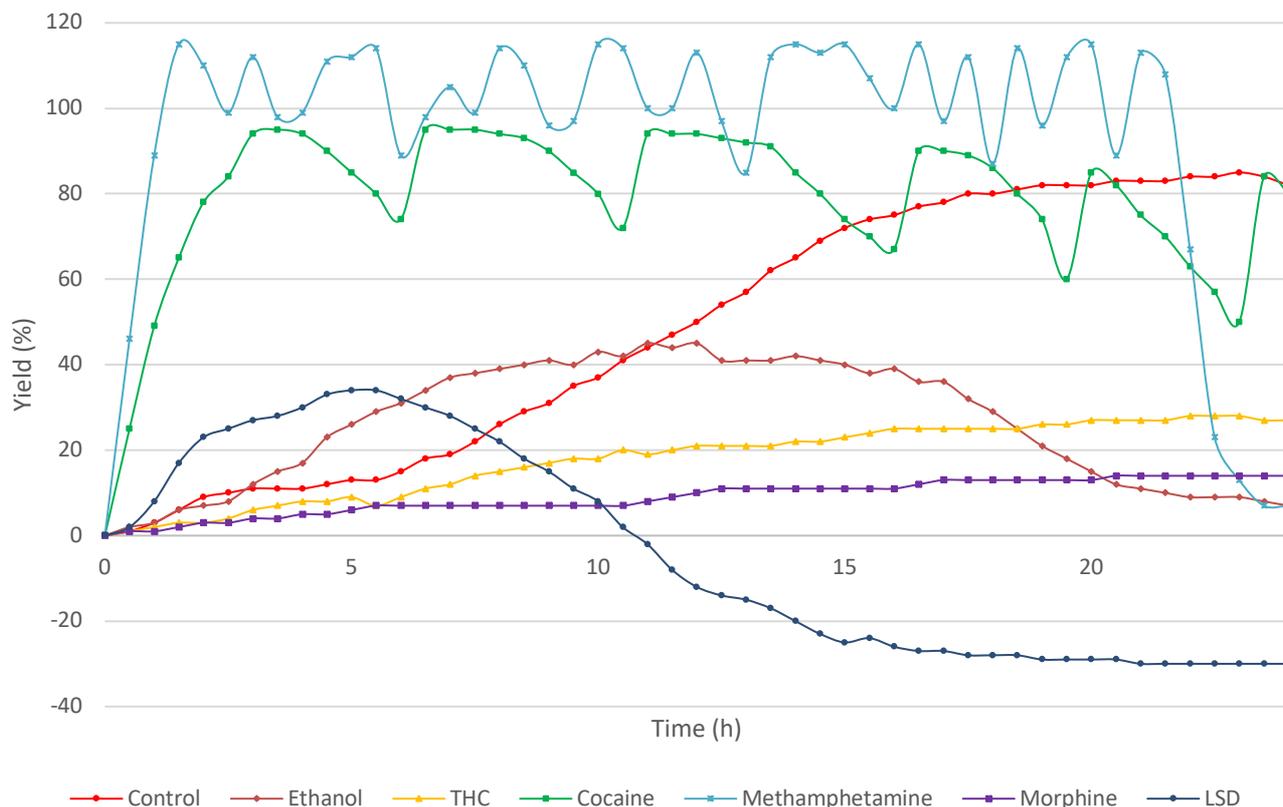


Figure 3A: The yield of diazoctahedrane **3** from an organocatalytic Fukovski Combobulation, monitored by HPLC-GC-GC-MS-ICP-MS-MS-MS over 24 hours.

allowing us to deduce a pseudo-rate constant of $k_{\text{special}} = 714$ M/s. This value is significantly higher than the uncatalyzed reaction ($k_{\text{special}} = 420$ M/s). The reaction mechanism was also probed computationally. The Hartree-Fück method and Density Dysfunctional Theory (DDT) were used to search for a transition state incorporating both cocaine and the substrate. Using the Faustian[‡] software package, we were able to find such a transition state (Figure 4).

Having observed that science cites better when it resembles clickbait, we have compiled the findings of our study into a format compatible with a string of Tweets (Table 1).

Drug	Effect on Reaction
Cocaine	<i>Your yield is the best, and you need to tell everyone about it.</i>
Ethanol	<i>Your yield is 7%, but you don't care.</i>
Methamphetamine	<i>Your yield is 115%, and if anyone disputes it, you'll shiv them with a burette.</i>
THC	<i>Your yields keep getting lower and you think your lab partner is sabotaging your work, but you're too hungry to find out.</i>
Morphine	<i>Your yield is 3%, but with just a little more catalyst, it could be 20%.</i>
LSD	<i>Your yield is 185274%, you've formed sixteen bonds between a carbon and a pineapple.</i>
Nicotine	<i>Once you've used it as a catalyst, the reaction never works again without it.</i>
MDMA	<i>The yield will get higher as long as no one turns off the music.</i>

Table 1: Our findings in a tweetable format.

Conclusions

Some drugs do show promise as organocatalysts for the Fukovski Combobulation. Notably, each drug tested as a catalyst gave a reaction profile consistent with a stereotypical experience of using it recreationally.

About the Authors

Benjamin Schist defied the will of his father, the famous geologist Gert von Kartoffel von Bismark von Hasselkessel, and became a chemist just to spite him. David MacKillinit studied chemistry under Professor W. Connolly at Partick University, Glasgow. Demeritus Professor Günther Schlonk has had an interest in psychoactive substances since his mother made him a batch of PiHKALets laced with phenethylamine as a child. His research is focused on self-aggrandisement and the optimisation of his H-index. He is Imperial Editor in Perpetuity and Satrap of Satire at The Journal of Immaterial Science.

Notes and references

- <https://www.nobelprize.org/prizes/chemistry/2021/press-release/>
 - A. Shulgin, *J. Self Med. Chem.* 2013, **19**, 265–296.
 - W. Fukovski, *Pol. J. Chem.* 1977, **5**, 167–168.
- ‡ Faustian and FaustView are trademarks of Faustian Inc.

A Message from The Editor

We hope that you've been enjoying our frivolous nonsense. We certainly have, as it provides a pleasant distraction from our failed experiments and the creeping feeling that we're wasting our lives. If you don't enjoy our work, why have you even read this far? But if you do, you can help us out. The real saints among you could submit an article to us, by downloading our templates from reddit and sending your work to goodenough.immaterial.science@gmail.com. The less committed but still worthy can spread the word about our esteemed journal. Notice boards, coffee tables, Twitter, wherever suits you. We're not really a predatory journal, we don't want your money, just your attention.





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Applications of Cursed Chemistry in the Total Synthesis of Impracticatchol

Frederick Washing,^A Jonathan Mhama,^B Ben Dover^{C*}

Abstract: Burnie Urethra's group have set themselves a Herculean task: the total synthesis of Impracticatchol (1). The highly complicated structure features a dozen stereocenters and a raft of functional groups including a pentavalent carbon. This malevolent moiety constitutes a significant challenge to the synthetic chemist, as until now, no methodology has been reported pertaining to their preparation. Herein, we describe an easy and promiscuous protocol for generating pentavalent carbon centers via a one-pot curse-transfer cyclisation reaction, inspired by *r/cursed_chemistry*.

Specific: We may or may not have destroyed a few flasks during the research process.

Following the amazing discovery of Impracticatchol¹ (figure 1) by Urethra *et al*, we found the challenge of total synthesis to be very relatable to us and our nightmares, so we decided to take part in the research process. The first step of the total synthesis has been explored already, leaving the remaining 41 reactions incomplete.

Considering the horrid nature of this structure, we consulted *r/cursed_chemistry*, a highly reliable source of unconventional reactions and compounds disregarded by chemists of sound mind.

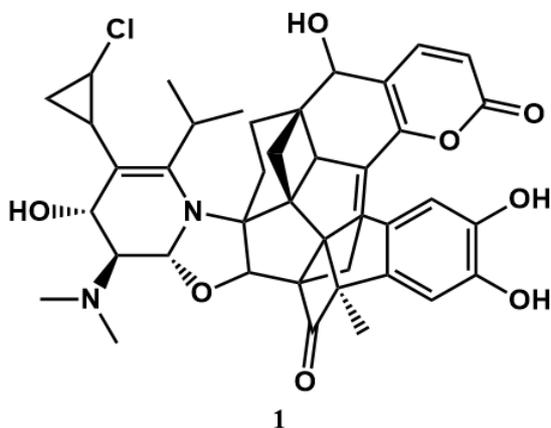


Figure 1: This abomination called Impracticatchol

Pentavalent carbons (also known as Texas carbons) have been thoroughly explored by this community, as have highly nitrogenated structures and many other marvellous examples (figure 2).

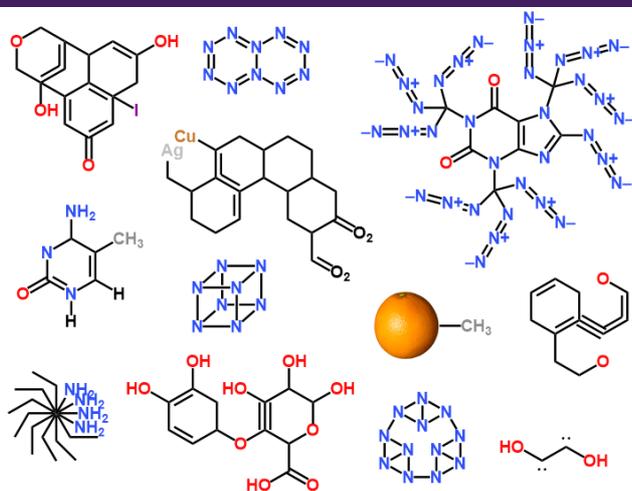


Figure 2: Some structures reported by the Reddit group

Our research suggested that a heptaazacubane (2) could act as a sufficiently cursed reactive intermediate which should theoretically

be able to perform an intramolecular curse-transfer to generate a pentavalent carbon.

Proposal and optimisation of the reaction conditions

In order to make the heptaazacubane intermediate, we proposed to use the trinitromethyl group as a CN₃ fragment that can be installed via nucleophilic substitution to an alkyl halide (figure 3). The four other nitrogen atoms could be added by a combination of liquid air (80:20 N₂/O₂) and hydrazine. We hope that using two nitrogen sources and the cooling effect of liquid air would stabilise the heptaazacubane intermediate.

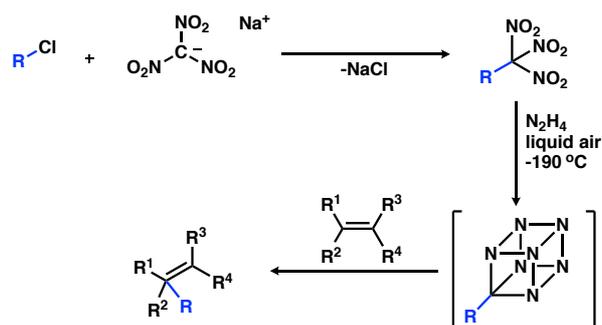
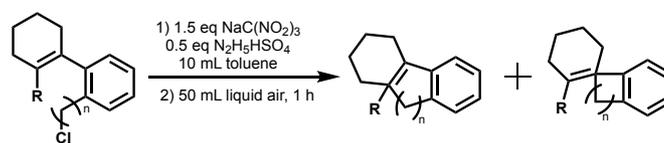


Figure 3: Proposed mechanism for generating pentavalent carbons

As such, we have attempted the synthesis of the benzyl derivative (2) by combining benzyl chloride, hydrazine sulphate and trinitromethyl-sodium in a flask, the experiment being performed in the parking lot of our building for safety reasons (scheme 1). By slowly adding liquid air, nothing really happened. After five minutes, the flask detonated, and, by asking lab staff to rate the explosion from 1 to 10, we guess the yield of heptaazacubane was roughly 69%.



Scheme 1: Standard conditions for curse-transfer cyclisation

With evidence for a heptaazacubane intermediate in hand, we tested the intramolecular curse-transfer cyclisation of alkene-chlorides 3–11 (figure 3), and on intermediate 13 from the Impracticatchol synthesis.

a. The Reddit Academic Group
b. Twisted Street Pub
c. The Reddit Academic Group

*Corresponding Author



Starting material	Product 1	Product 2
	 3a 31%	 3b 45%
	 4a 0%	 4b 67%
	 5a 48%	 5b 29%
	 6a 22%	
	 7a 2%	 7b 42%
	 8a 30%	 8b 36%
	 9a 0%	 9b 0%
	 10a 54%	 10b 0%
	 11a 62%	 11b 10%
	 12a	 12b

Figure 3: Scope of the curse-transfer reaction

Results and discussion

As shown in figure 3, the reaction can work on both end of the double bond, unless the position is sterically hindered. In the case of small rings, the presence of an alkyl group gives the possibility of alkyl hydrogen abstraction which becomes favoured over the pentavalent product. Without it, the reaction doesn't work for very small rings, as shown by the low yield of **9**.

While conducting this research, we have dealt with a number of accidents including detonation, losing a reagent sample and possibly killing a stray cat. One useful piece of information we have discovered is that we now know 1-(2-chloroethyl)-8-methyl-1,2,3,4-tetrahydronaphthalene (**12**) is not very toxic to humans.

Seeing the great success of our previous reactions, we attempted the cyclisation of precursor **13** by using our standard conditions.

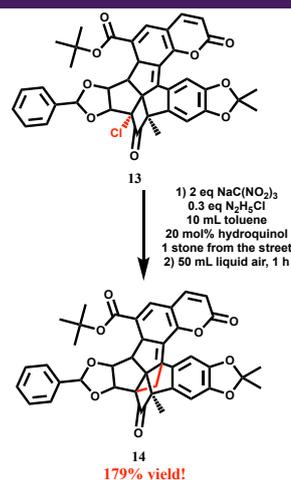


Figure 4: Synthesis of an Impracticatechol precursor

We obtained **14** with a yield of roughly 5%, but the product exhibited hydrolysis and hydrazine-ketone condensation. In order to optimize the conditions, we switched to the less acidic hydrazine HCl in a smaller amount, while also adding more trinitromethane salt. We added 20 mol% of hydroquinol as a mild reductive agent in order to compensate for the missing hydrazine, and a stone we found on the road because we read that some people use clay to catalyse reactions so it might work for us too.² We were pleasantly surprised to find that the yield of **14** after extraction is 179%, but the other lab team in our building criticised it (they are probably just jealous).

Experimental procedures

The solvents and glassware were provided by our laboratory, the hydrazine salts and hydroquinol were purchased from Ligma-Eldritch, and the chloro-alkenes and trinitromethane salt were obtained from old mate Garry from around the back of the pub. We do not know where **13** came from, but we confirmed its structure by ¹H-NMR analysis and a taste test. All of the experiments were performed in our parking lot, hiding behind an improvised plexiglass shield at a 5-meter distance from the flasks.

The first experiment: A 500 mL three-neck flask is filled with 0.02 mol (2.3 mL) of benzyl chloride, 0.04 mol of trinitromethyl sodium (6.92 g), 0.02 mol of hydrazine bisulfate (2.6 g) and 10 mL of benzene. We add a stir bar, an addition funnel and then cover the flask in aluminium foil to prevent photochemical decomposition. The addition funnel is filled with 50 mL of liquid air which is then added dropwise under strong stirring, starting a chronometer and phone camera at this point. After 5 minutes 36 seconds, the flask detonates. The video is present in the supplementary material.

General procedure for the cyclization reaction: 0.02 mol of the chosen reagent is added in a three-neck flask together with 0.03 mol of trinitromethyl sodium (5.19 g), 0.02 mol of hydrazine bisulfate (1.3 g) and 10 mL of toluene. 50 mL of liquid air is slowly added under

strong stirring and left for one hour. We let the mixture return to room temperature and then we separate the components by column chromatography with hexane/ethyl acetate (5:1). Some of the products were mixtures and were differentiated via $^1\text{H-NMR}$.

Improved synthesis for Impracticatetechol: 0.02 mol of **13**, 0.04 mol of trinitromethyl sodium (6.92 g), 6 mmol of hydrazine hydrochloride (0.41 g), 4 mmol of hydroquinol (0.44 g), 10 mL of toluene and one rock (autoclaved for 3h) are added to a three-neck flask. The rest of the procedure is identical with the one above.

Conclusions

We have created an abomination and we do not regret it. We developed a procedure for the creation of pentavalent carbon centers with the help of substituted heptaazacubanes made by *in situ* assembly. Jonathan ate the manuscript of the supplementary data so it is now unavailable.

About the Authors

Frederick Washing and Ben Dover have recently graduated and are currently trying to find a job. Jonathan Mhama randomly came into the building so now he is part of the lab staff.

Author Contributions

Frederick Washing made all of the illustrations and planned the synthesis procedures with Ben Dover. All of the experiments and purification procedures were performed by Ben Dover. Jonathan Mhama helped with obtaining the compounds and left empty milk cartons in the fridge.

Conflicts of Interest

We apologise for violating the chemistry laws.

Notes and references

- 1 M. Mould, H. Ether, B. Urethra, *A Partial Total Synthesis of Impracticatetechol*, 2021, *J. Immat. Sci*, **1**, 12.
- 2 A.M.Elfadly, I.F. Zeid, F.Z. Yehia, M.M. Abouelela, A.M. Rabie, *Production of aromatic hydrocarbons from catalytic pyrolysis of lignin over acid-activated bentonite clay*, *Fuel Processing Technology Vol. 163*, 2017



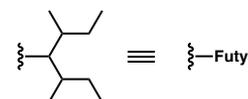


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Methyl Ethyl Butyl Futyl...

Günther Schlonk*

Everyone who has spent more than a year in the field of organic chemistry has heard the refrain: methyl ethyl butyl futile. This joke underlines the point of diminishing returns which is reached when making analogues of the same molecule. Because of this joke, the versatile chemistry of the futyl group has been overshadowed. This review highlights some examples in the history and applications of the futyl group.



The IUPAC brown book defines the futyl group as a (di-sec-butyl)methyl fragment, which is abbreviated as Fu.¹ The floppy, aliphatic nature of the Fu group gives its compounds a slimy character when compared to its sleeker isopropyl and tert-butyl cousins. The first recorded example of a futyl molecule was the isolation of futol (**1**) from the plant *Futilitus owchmii* by Erasmus Flunk in 1935.² The yield (0.007% w/wt) was so low, one wonders why he bothered, but having spent a decade working as an accountant, we can assume he was well accustomed to pointless tasks. Flunk prepared a number of futyl esters from futol, such as futyl acetate (**2**, a solvent) and futyl benzoate (**3**, which is completely insolvent).

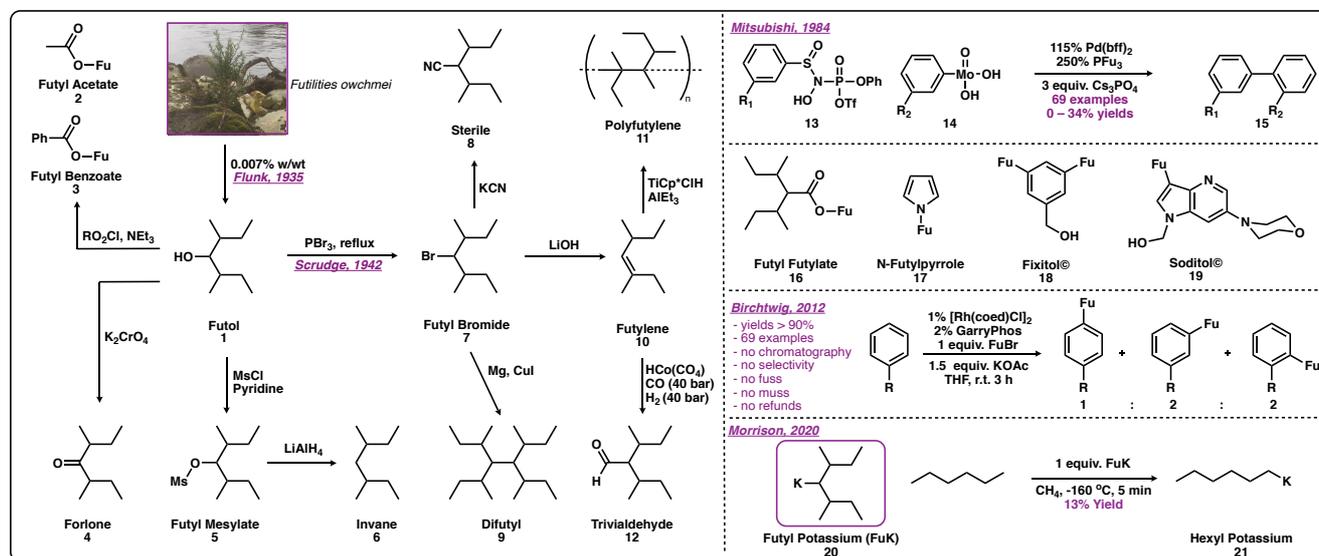
Flunk's futyl chemistry was cut short by his untimely death in a cheese-slicing accident in 1942. His student, Herbert Scudge, inherited his legacy. Scudge performed several functional group transformations on futol, beginning with oxidation to forlone (**4**).³ Reaction of **1** with MsCl yielded futyl mesylate (**5**), which could be reduced to invane (**6**). Bromination of futol gave futyl bromide (**7**), though forceful conditions were needed to convince futol to react. Futyl bromide is a common entry point to futyl chemistry. By reacting futyl bromide with cyanide, Scudge obtained Sterile (**8**), a useful contraceptive often abbreviated to FuCN. In an attempt to perform a cuprate addition, Scudge inadvertently synthesised difutyl (**9**, also called FuFu or Fu₂). Futyl bromide can also be eliminated with LiOH to yield futylene (**10**). Polymerisation of **10** yields polyfutylene (**11**), while hydroformylation gave trivaldehyde (**12**) in ironically low yield.

At this stage, Scudge's futyl chemistry was curtailed, as despite the prodigious nature of his work, nobody would fund him.

Scudge left academia to become an art critic and table dancer in 1953. Futyl chemistry was left largely untouched for several decades until Mitsubishi and co-workers prepared trifutylphosphine as a ligand for use in the coupling of aryl thiahydroxylaminophenoxyphosphoryltriflates (**13**) and phenylmoronic acids (**14**).⁴ With ligand loadings as low as 250 mol%, Mitsubishi was able to achieve a catalyst turnover of up to 7.

In 1990, Lasquisha and Alapisha held a competition to publish the synthesis of the most useless compound in a scientific journal. Alapisha struck first by esterifying futol and futylic acid to make futyl futylate (**16**), which was published in AIR.⁵ However, Lasquisha was proclaimed the victor for publishing the synthesis of N-futylpyrrole (**17**).⁶ In this striking example of gilding the lily, Lasquisha suggested that pyrrole would still win the competition, even without the futyl group.

Futyl chemistry got its first taste of popularity in 2001 when the pharmaceutical giant Smerk brought their drug Fixitol[®] to market.⁷ Fixitol, a highly futylated molecule, was originally intended to treat restless-breast syndrome, however clinical trials found that the molecule mitigated the mood swings associated with bipolar disorder in post-grads. Further studies indicated that the highly lipophilic nature of futyl groups were aiding transport across the blood-brain barrier.⁸ Smerk's competitors weren't far behind, and Jøhansson and Jøhansson released Seditol[®] (**19**) a year later. The success of Fixitol led to a rush for new futyl drugs. This in turn led to a search for futylation methodology, as Scudge's original futylation



conditions were hampered by low tolerance (like most things from the 50's).

The first such example was reported by Cupid Stunt from the University of Llanbobbll, Old South Wales.⁹ Stunt developed a procedure for the palladium-catalysed futylation of phenylmoronic acids. The appeal of this reaction lies in the availability of moronic acids (they seem to be everywhere these days). This work was followed up by Barabbas with an atom-transfer-radical-futylation,¹⁰ and by Nebuchadnezzar with the hydrofutylation of alkenes.¹¹ More recently, Johan Birchtwig reported the rhodium-catalysed directionless C-H futylation of arenes.¹² This protocol exhibits the high yields, simple purification, and complete lack of selectivity characteristic of directionless C-H activations. While this would be a most useful reaction, no one else can afford to try it until the rhodium market settles down again.

The pinnacle of fetyl chemistry was reached in 2020 when the Morrison lab prepared fetyl potassium (**20**, FuK) by refluxing fetyl bromide in potassium metal.¹³ Often referred to as an "uberbase", FuK is capable of deprotonating hexane, making it somewhat difficult to handle. Despite this handicap, FuK is now commercially available from both Smegma-Aldrich and DuCont Chemical.¹⁴ Fyllithium is another basic reagent, but does not actually contain a fetyl group. Fyllithium is in fact another name for the Smythe Reagent (~1.6 M LiOH in hexanes).

Conclusions and Outlook

It can be expected that plenty more fetyl chemistry will be published, but nobody will notice. After all, what would be the point?

About the Author

Demeritus Professor Günther Schlonk was born in the small Austrian town of Fucking in 1905. He received his BSc from the back of a serial box in 1925, and commenced his doctoral work with Herr Doktor Professor Claus Graf von der Plonk at the Universität von Wankendorf. There he worked on the chemistry of purine and conducted the first synthesis of 2-purylarsole. He undertook postdoctoral work with Victor Grignard in 1927, but drew the short straw and had to work with strontium instead of magnesium. In 1938, Schlonk moved to ETH in Zurich to study the chemistry of gold. Positions at Oxford, Cambridge, UC Berkeley, and Oxford again saw him through to his current position as the Fritz Haber Chair of Chemistry at the University of West Failure.

Conflicts of Interest

Günther Schlonk is the Imperial Editor in Chief of The Journal of Immaterial Science. That didn't stop reviewer two from being an arsehole, though.

Declaration of Funding

This work was funded by the proceeds of crime.

Acknowledgements

G. S. acknowledges The Porphyrogenitress and Lord Horn for editorial assistance, and himself for helpful discussions.

References

- 1 *The IUPAC Brown Book*, 2005, pg 666.
- 2 E. Flunk, *Jerkin Transactions*, 1935, **12**, 5375.
- 3 H. Scrudge, *Faraday Musings*, 1943, **19**, 76.
- 4 M. Mitsubishi, H. Toyota, I. Hyundai, *Octahedron*, 1982, **4**, 676.
- 5 K. DeShanessa, D. Alapisha, *Ann. Improb. Res*, 1990, **45**, 125.
- 6 Z. Lasquisha, *J. Irrep. Res*, 1990 **7**, 34.
- 7 The Smerk Index, 2001.
- 8 M. Jackson, W. E. Houston, *J. Self. Med. Chem*, 2002, **6**, 294.
- 9 M. Hinge, C. Stunt, *Chem. Miscomm*, 2005, **12**, 364.
- 10 P. Pilate, J. Barabbas, *Isr. J. Chem*, 2007, **5**, 3434.
- 11 N. Nabopollassar, T. G. Nebuchadnezzar, *Babyl. J. Chem*, **56**, 56.
- 12 W. Horse, J. Birchtwig, *PNAS*, 2012, **4456**, 12.
- 13 P. C. Dutton, B. Joyce, S. J. Morrison, *Aus. J. Polit. Chem*, 2020, **1**, 1.
- 14 The Smegma-Aldrich Summer Catalogue, 2021.





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Basketane Carrying Capacity and a Closer Look at the Atom Economy

Dr. Price Fisher,^a Intern S. O. Guy^b and Lahb Slaive^{c*}

Abstract: Every research assistant and lab manager has been faced with buying unreasonably priced chemicals. Questions arise. Will my researchers appreciate these purchases? What can one even buy in an atom economy like this? How much can I carry in my basketane, and how much will it cost? Through this research we have concluded nothing.

Specific: A \$854.99 Fisher analytic balance was irreversibly modified to operate under vacuum and various small molecules were tested for their ability to be carried by basketanyl dysfunctional groups attached to the weighing plate. All obtained results are smaller than the standard error of measurement, and are thus worthless.

Cryptic: When one can buy lots, one will have to carry lots. When one can carry only little, one must buy little. Use the discrepancy between these factors to calculate the optimal carrying capacity of basketane in $(\$/\text{mol}_{\text{load}})/\text{mol}_b$.

Introduction

The atom economy has seen better days. To the chagrin of laboratory managers worldwide, researchers regularly undervalue the reagents they're given. An increased appreciation for the value of reactants would mean more money can be spent on esoteric unrecyclable noble metal catalysts that don't work, benefitting the field as a whole¹.

To foster further appreciation for the value of fine chemicals, we must work on an objective measurement of the atom-economical worth of a molecule. To make such a measurement, we have used the most objectively designed basket: basketane. This polycyclic hydrocarbon would be ideal to carry your hardware store chemicals in, if it were life-size. In this study, we have attempted to measure the value of various elements or molecules one can carry in it.

There are two important factors in the monetary carrying capacity of basketane: (1) the size of the atom or molecule to-be-carried, (2) the value of the carried load. This excludes molecules larger than basketane. This does not exclude exotic states of matter such as muonic lithium, which was considered to be a noble gas in this paper (*vida infra*).

Experimental

Firstly, attempts were made using basketanes functionalised with a trichlorosilyl group at the 1, 2, 3, or 4 position. Four pristinely smooth glass plates of 25 cm² were obtained. These glass plates were heated to 500 K and the various basketanes were poured on. The 1- and 2-trichlorosilyl functionalized basketanes spontaneously caught fire, leaving behind a slightly etched plate. The 3-trichlorosilyl functionalized basketane turned black upon pouring which indicates the formation of tar.² The 4-functionalized basketane was expertly chemically attached to the glass, albeit upside-down, as confirmed by Ramen-spectroscopy (figure 1).³

To compare different small molecules or atoms, their prices and their ability to be carried, an unpaid intern was sent to retrieve the most unsuspecting cheap small molecules, and helium for comparison. The retrieved compounds were hydrogen gas, neon gas, methane, and lithium. Since we were out of helium and the physics department couldn't help us turn some hydrogen into helium, we begged them to help us make

the lithium act like helium by treating it with one muon per atom. We presume this will be inert, like the isoelectronic helium.⁴

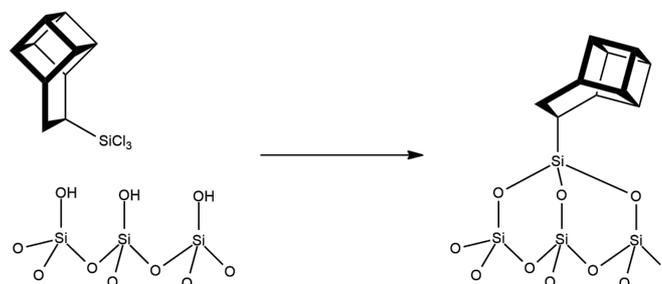


Figure 1 Schematic representation of the basketanyl group, attached upside-down.

Results

As can be seen in Table 1, all of the applied molecules' added weight was within the measurement error of the analytical scale, and thus not significant. However, a valuable observation is to be made of the reaction between the functionalized silica and the monomuonic lithium, which was supposed to be as inert as helium. Instead of being inert, it violently reacted with the entire setup, producing extreme amounts of γ -radiation. The physics department assured us this was "completely expected", that this would "absolutely not happen with regular helium", and that "we should have seen this coming". If this phenomenon can be repeated by using genuine helium it would have tremendous implications for the field of helium chemistry.

Table 1 Results

	H ₂	Ne	Methane	Li- μ
Weight increase	2 μg	10 μg	-11 μg	N/A
Weight error	248 μg	115 μg	38 μg	N/A
Value increase	~\$3.14 *10 ⁻¹⁷	~\$8.32* 10 ⁻¹⁴	~\$5.68* 10 ⁻¹⁸	-\$854.99
Value error	\$0.04	\$1.2	\$0.3	\$0
Significance	No	No	No	Yes

a. Department of Chemistry, May Dahn College of Mathematics and the Sciences

b. Student at the Department of Chemistry, May Dahn College of Mathematics and the Sciences.

c. Department of Eternal Servitude, May Dahn College of Mathematics and the Sciences.



Discussion

It is very possible that the orientation of the basketanyl groups on the silica surface are to blame for the statistical insignificance of the results, obviously any cargo would just fall out.

The basketane baskets held so much less than expected that there is doubt as to whether there were any filled baskets, let alone baskets with two or more molecules in them. The monetary carrying capacity depends on how much can fit in the basket, not just how expensive the one thing that we squeeze in would be.

Through the duration of these experiments, it has come to the attention of this team that “atom economy” has nothing to do with money, directly, but instead is a measure of efficient use of starting materials.

Conclusions

More research needs to be done to find ways of chemically binding 1- or 2-functionalized basketanyl units to a weighing surface so that experiments can be performed right-side-up, or conversely, modify a scale that can be used upside-down. The research community should be advised against using basketane as a basket. No conclusions about the carrying capacity of basketane as a function of load value could be made in this paper.

About the Authors

Dr. Price Fisher is a covetous and vengeful man in his late 30s. He found that breaking ties with his parents over the terrible name they gave him gave him the resolve to grow past them and destroy his parents' legacy. This is all he talks about.

S.O. Guy is an intern with too many responsibilities and too little pay. After the accident, he's sure he also incurred some radiation poisoning, but has not managed to scrape together the money or time to ameliorate this problem. Please donate to his gofundme [here](#).⁵

No records can be found about Mr. Slaive, and since he's not available for questions it shall be left at that.

Author Contributions

Dr. Price Fisher did nothing, absolutely nothing. I did all the work and I'm not even getting paid for it, but I'm sure he won't read any of this shit. I'm sure Mr. Slaive's hospital fees are going to be paid by the school, using my tuition money.

Conflicts of Interest

Dr. Price Fisher is suspiciously untroubled by the destruction of the analytical balance. This is probably because of his vendetta against his parents. Mr. Slaive is still in the hospital undergoing treatment for radiation poisoning and has thus had no hand in editing this document.

Acknowledgements

We really should have known atom economy didn't mean what we thought it meant.

Notes and references

- 1 E. Goldman, C. Platinumman, *J. Mus. Chem.* 1999, **14**, 4836.
- 2 E.F. Tom, *Youtube, The Diels-Alder – making cubane E7*, 8:46. [Link](#)
- 3 L. T. T. Bui and D. M. Small, 2009 *Food Chem*, **114** (4). 1477.
- 4 “Exotic atom - Wikipedia.” [Online]
- 5 tinyurl.com/37f3ubj7





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An Informal Synthesis of an En-yn-en-yn-ol

Shelby Wright,^a Pope Gregory III,^b Michael Hunt^c and Old MacDonald^{*c}

Abstract: We made some molecules and stuff.

Specific: An inefficient, laborious and time consuming synthetic method for the preparation of an en-yn-en-yn-ol is reported. Yields were low, chemoselectivity was poor, and protecting groups were essential. The synthetic route is not amenable to derivatization, and is taxing in terms of both funds and mental health.

This last century has been a good one for organic chemistry. It has seen the arrival of a host of new analytical techniques and a whole phonebook of named reactions. Thousands of groups world-wide now pursue research in this field, alongside the hosts of industry. This upwelling of knowledge comes with a downside however; we're running out of things to synthesise. Bio-prospectors are desperately extracting anything they can lay hands on, in the hope of finding some new sucrose derivative, for which they can perform the first formal synthesis. We, like Alexander the Great, wept, for we saw no worlds left to conquer. This has led us to prowl the fringes of utility, and the depths of obscurity in the search for something new to make. In our desperation, we stumbled upon the class of molecules known as en-yn-en-yn-ols (such as **1**), first hypothesised to exist by Dennis Ryan in 1997 (Figure 1).¹

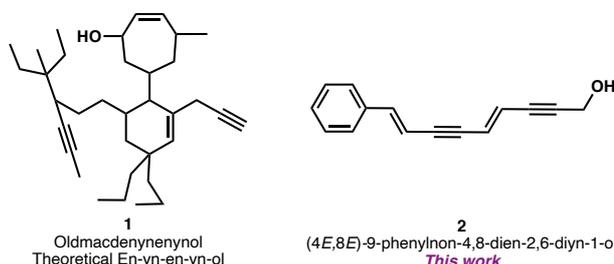


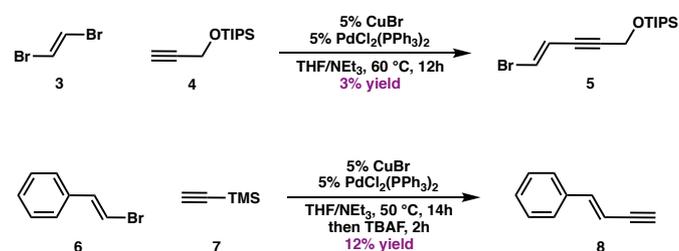
Figure 1 Ryan's first proposed yn-en-yn-en-ol and the target of this work

These molecules have eluded the covetous claws of synthetic chemists for over 20 years. This is likely because these molecules have no purpose whatsoever. None. They are entirely pointless. No applications for them exist, nor will any be found. Secondly, they are fiendishly difficult to make. In a process best described as "death-by-Diels-Alder," they literally tie themselves in knots.² This process is initiated by exposure to light, heat, air, water, shock/vibration and the colour yellow. Even looking at them funny can trigger a violent decomposition. Despite these challenges, we were compelled to attempt the first synthesis of **2**, as grant applications close next month and we needed some runs on the board. Herein, we report the first informal synthesis of (4E,8E)-9-phenyl-non-4,8-dien-2,6-diyne-1-ol (**2**).

Results and Discussion

A convergent synthetic pathway to **2** was envisaged. The parent molecules of **2** were prepared by Sonogashira reactions (Scheme 1). The coupling of dibromoethene³ **3** with protected propargyl alcohol **4** gave **5** in apocalyptic yield. The progress of the reaction was monitored by smell, using Ho's method of

odour analysis.⁴ The reaction is complete when the smell of bin juice is replaced by that of burning tyres. The mixture was purified by flash column-chromatography on silica, alumina, silica again and then more alumina. Elution of the product was achieved with silicon oil/DMSO. It was necessary to conduct this reaction on kilogram scale to obtain useable quantities of en-yn-ol **5**.



Scheme 1 Synthesis of coupling partners **5** and **8**

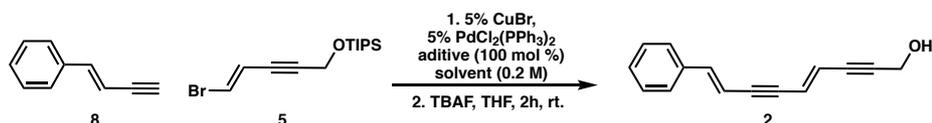
In a comparatively simple process, vinyl bromide **6** and acetylene **7** were reacted under standard conditions, and the product en-yne **8** was obtained by cooling the reaction mixture to -20 °C for four months.⁵ With these precursors in hand, suitable conditions were sought for the coupling of en-yn **8** with en-yn-ol **5** (Table 1). Conventional conditions for the Sonogashira reaction failed to deliver any trace of en-yn-en-yn-ol **2**. The use of diisopropylamine as base, or 1,4-dioxane as solvent gave only a trace amount of product. Notably, switching to methanol pushed the yield into double figures. Conscious of the principles of green chemistry, a water/methanol mixture was employed, which surprisingly led to an increase in yield, and an increase in funding. Such a result is atypical of green chemistry. A mixture of methanol and water is already commercially available as a solvent, in the form of Blundaburg Rum. As expected, Blundaburg Rum also furnished **3** in 16% yield. We hypothesised that low yields were a result of inactivation of the palladium catalyst. The fate of the catalyst was interrogated by forensic chromatography,⁶ which yielded large quantities of palladium brown.⁷ Evidently, the catalyst was poisoning itself, a common side-reaction induced by this solvent. This problem was recently encountered by Crosby and Stills in their synthesis of mobile phenones.⁸ They found that verbal encouragement of the catalyst helped it to turn over. By working in six-hour shifts, it was possible to provide the reaction with a constant stream of positive incitement. This produced a

^a Department of Humdinging, University of East West Virginia

^b Vatican Academy of Unnatural Sciences

^c MacDonald Institute of Pastoral Agriculture





Entry	Solvent	Additive	T (°C)	Time (h)	Yield (%)
1	THF/NEt ₃	-	70	12	0
2	THF/HN ⁱ Pr ₂	-	70	24	1
3	1,4-dioxane/HN ⁱ Pr ₂	-	100	24	2
4	MeOH/NEt ₃	-	80	24	12
5	MeOH/NEt ₃ /H ₂ O	-	100	24	16
6	Blunderburg Rum/NEt ₃	-	100	24	16
7	Blunderburg Rum/NEt ₃	verbal encouragement	100	24	23
8	Blunderburg Rum/NEt ₃	abuse	100	24	13
9	Blunderburg Rum/NEt₃	peer pressure	100	24	31

Table 1 Optimisation of the yield of **2**

jump in yield to 23%. Switching from encouragement to abuse dropped the yield to 13%, affirming the widely held belief that profanity achieves nothing.⁹ Peer pressure proved to be a particularly potent activator of the catalyst system, in conjunction with rum as solvent (entry 9). These conditions were accepted as “good enough,” and furnished en-yn-en-yn-ol **2** in 31% yield. The product takes the form of a fuming brown liquid, with the consistency of crude oil, and the odour of melting E-waste. It’s half-life at ambient temperature is around 30 minutes, with decomposition beginning by isomerisation of the propargylic alcohol to the corresponding en-yn-en-en-ol followed by “death by Diels-Alder.” Nonetheless, this represents the first informal synthesis of an en-yn-en-yn-ol.

Conclusions

En-yn-en-yn-ol **2** has been synthesised in 0.9% yield over two steps. The character of the product was determined, and it was found to be an arsehole. Given how tedious the preparation of **2** proved to be, combined with its complete lack of applications, it is unlikely to be of use to anybody, but we are awaiting toxicological study results. Work on other useless molecules such as en-amine-amide-aminones and moronic acid derivatives has already begun in our laboratory.

Experimental data, spectra and reaction conditions are available for a limited charge from behind the loose brick in the 4th floor toilet of the chemistry building.

Author Contributions

S. W. conducted the experimental work, characterised the products and prepared the unsupported information. P. G. sanctified the glassware. M.H. contributed fuck all. O. M. conceived the synthesis in a moment of drunken passion.

Conflicts of Interest

S. W. has a long-term partner. P. G. thinks that the book is always better than the movie, but really liked the Lord of The Rings films. M. H. finds the Crimean war to be fascinating. O. M. holds the patent for the synthesis of **2**, shares in Blundaburg Rum©, and a farm.

Acknowledgements

The authors gratefully acknowledge Prince Adeyeye of Nigeria for his exceedingly generous funding of this work.

O. M. acknowledges himself for helpful discussions.

Notes and references

- 1 D. Ryan, *J. Chem. Ed.*, 1997, **74**, 782;
- 2 O. Diels, K. Alder, *Denature*, 1935, **27**, 3523.
- 3 Sourced from the collection of a long-dead staff member
- 4 C. C. Hodown, *Stench Chem*, 2019, **27**, 3523.
- 5 V. Slow, S. Coach, *Inacta Crystallographica*, 12BC, **2**, 7.
- 6 D. Bones, *J. Forens. Chrom.* 1987, **65**, 123.
- 7 Palladium brown is a colloidal suspension of palladium oxide/hydroxide in crude oil
- 8 D. Crosby, S. Stills, G. Nash, N. Young, *J. Mus. Chem.* 1969, **4**, 6743
- 9 Even though it is satisfying.





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Novel Magnesium-Based Chlorin for Efficient Catalytic Reduction of CO₂

Leevy Greens,^a Hazel Plant^b and Dick Wood*^c

Abstract: Utilisation of CO₂ has historically been done via catalytic conversion into methane or syngas. Such a process involves the use of inorganic and potentially environmental-unfriendly metals while the products are also not biodegradable. Much safer alternatives are proposed in this paper. It is discovered that the introduction of trace Mg²⁺ into a solution of Chlorin A (Figure 1) results in a catalyst capable of reducing CO₂ into various polyalcohols, the latter being energy sources for many organisms.

Chlorin A (Figure 1) was discovered by accident when Dick Wood decided to find out what was inside of Hazel Plant's green hipster drink. This compound was particularly difficult to isolate from the various other substances in solution, but after 3 years of attempting to recrystallise a crude sample in water, during which an aliquot was diluted in distilled water and left to stand, we have managed to obtain 3.22 mg of crystals, and that was probably enough for an X-ray diffraction or two. Interestingly, even though chlorins are supposed to be coloured, the crystals were colourless, and were even salty to the taste.¹ Subsequent tests were carried out with the crude mixture because crystals were rather difficult to obtain and that the original crystals were somehow not recoverable. Nevertheless, having given the entire solution to our trusty lab tech Peter, we were able to get an NMR spectrum that suggests the presence of a chlorin².

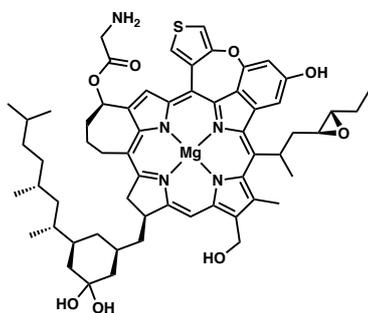


Figure 1: Structure of Chlorin A.

Experimental

315 mL of the hipster drink ChloroFill™ was decanted to get rid of the sugar precipitates. Trace magnesium was then introduced into the drink as Greens burped in the direction of the beaker after taking exactly 3 antacid pills. 15 mL of the resultant mixture was then immediately transferred to a 50 mL beaker and heated on a hotplate set to 373 K. An undergrad moving some dry ice to another lab was ordered to stop and blow into the beaker as hard as possible (and with his mask on) to introduce CO₂ into our reaction mixture for 1 hour (Scheme 1). We also decided to have an UV lamp shine on the mixture just in case we need to initiate some weird radical reactions.

a. Department of Chemistry, Mey Dahp College of Mathematics and the Sciences
b. Currently unemployed because she took chemistry in college
c. Department of Biology, Le Git University

1. Not that a stupid undergrad put any of it in his mouth or anything like that.
2. Or at least, that's what Peter said, since we have forgotten how to read the NMR spectrum. Peter won a gold medal in the IChO 17 years ago, just trust him, bro.



Scheme 1: Human blowing into beaker.

Throughout the course of one hour, the colour of the mixture turned from green to brown and then black, and the solution thickened to the consistency of bitumen. At the end of an hour of blowing, the CO₂ source reported dizziness and shortness of breath. Despite his protest that it was because of all the fumes he was inhaling, he was sent to the nearest clinic for a COVID test while the beaker was left to cool to room temperature. With the content of the beaker now smelling like a mixture of tar and burnt caramel, a solvent extraction with 50:50 water/ethanol was attempted, and traces of sucrose was detected in the extract. Most of the solution remained in the form of a black goo. Spectroscopy revealed that the black goo was in fact mostly just elemental carbon. A second run was attempted after we changed the source of CO₂ (as the previous source was still waiting for his swab test results) to a female student whose breath smelled better. A few pieces of four-leaf clover were also added into the beaker as bad luck was clearly the reason for the low yield.

No further experiments were conducted in fear of never being able to replicate our results. We are however certain that similar or better yields could be reported if we were to conduct our experiment again.

Results

Despite our catalyst unexpectedly reducing all the CO₂ to elemental carbon in the first run, clovers as luck charms worked well for the second. Bubbles formed after approximately 2 minutes and exclusively on the upper surfaces of the clover leaves, likely due to the presence of nucleation sites. Even though the heating was interrupted after 3 minutes due to a power outage, 0.334 g of sucrose was still isolated from the product mixture. In addition, 5.8 mL of oxygen gas at 1.0072 bar was collected over the course of 3 hours. We are of course



aware that the leaves may in fact affect our experiments by producing sugar of its own, but everyone knows that glucose is the sugar formed and there is no way that so much sugar was formed in such a short period of time from the leaves.

Conclusions

We boiled a green sugary drink to carbon. Then we left some leaves in a different sample the same drink to yield more sugar than the leaves could possibly produce, together with some bit of oxygen that had to come from the stuff that we discovered.

About the Authors

Dr Leevy Greens is a very attractive woman in her late 30s, having divorced a year prior to the submission of this paper she is now looking for attractive young men in her area. Hazel Plant is an undergraduate looking for a job, she was paid with Legos most of the time as Dr Greens and Dr Wood were doing something else on the sofa of Dr Greens' house. Dr Wood was bullied in his youth for having a phallic name, is now an example of nominative determinism.

Author Contributions

Hazel Plant and the lab tech Peter did all the work in the paper, while Dr Greens was peer-reviewed by the editors of the journal to get the paper published. Dr Wood recruited unwilling undergraduates to the project by threatening them with the prospect of inadvertently spilling correction fluid over their exam scripts.

Conflicts of Interest

Dr Wood is not too happy about Dr Greens' relationship with the publishers, Hazel Plant is not too happy with her salary, and Dr Greens blames the CO₂ source for her positive test for a certain strain of lentivirus.

Acknowledgements

We would like to thank Realle Parson¹ and the Sumwan brothers² for writing exciting books for us to read while the experiments were being conducted by someone other than us, as well as the lovely people at the local coffeehouse, who were nice enough to offer us discounts, which we really needed as we were sort of broke.

References

1. Baker, C.; *How to Make Cupcakes*. Realle Parson, 1912.
2. Sumwan, A., Sumwan, T: *Medicinae Medicandi*. *Alchemy*, 1777 **186**, 156–157.





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Effects of Superstitious Behaviour on the Synthesis of Nylon 66

Wang Bo*^A

Abstract: Everyone has their own lab superstition.

Specific: Superstitious behaviour is a common phenomenon among experimental scientists, and can significantly increase the success rate of experiments. As a result of the very nature of such superstition, there is very little experimental data to support its efficacy. This article aims to support and optimize the utility of superstitious lab practices in the preparation of Nylon 66.

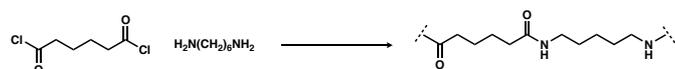
As an experimental chemist dedicated to organic synthesis, one constantly struggles with all kinds of supernatural phenomena. Heavily cited 100-year-old literature procedures or even one's own results suddenly cannot be reproduced. For this reason, countless chemists have resorted to primitive superstitions; the burning of incenses, worshiping of Buddha, the sacrifice of livestock or even transitioning from staunch atheism to a faithful devotion to Jesus. When times are at their hardest and you see reviewer two circling like the vulture they are. When your back is up against the wall, there is only one thing to do and that is to turn and fight reviewer two.¹ Aside from resorting to violent tendencies scientists fall onto superstitious behaviours that have nothing to do with science, but damnit they may be onto something here (figure 1).



Figure 1: Wine and reagents.

Introduction

We have explored the influence of a variety of superstitious behaviours based on the preparation of Nylon 66.



Scheme 1: Preparation of Nylon 66.

Herein we have tested for six common variables: weather, diet, clothing, glassware condition, choice of deity, and geo-magnetic laboratory orientation. To ensure the rigor of our experimental exploration, we have conducted the experiments not only on ourselves, but as a blind control had every one of his research students do it as well under the optimal conditions, unpaid of course. Due to a translation error, one of the students was literally blinded with a fork. The interval between each experiment was one month to ensure that there was no interference between experiments. To avoid the influence of irrelevant variables, before each experiment the author reset the placement of all the items in the laboratory to the state of the first experiment, and simultaneously cleared all the irrelevant personnel in the laboratory who had nothing to do with this experiment. Unfortunately, the existing laboratory

cannot meet our demanding requirements for variables. In order to complete the experimental investigation, the author established a "superstitious inquiry laboratory" to achieve the ideal experimental state. In addition to maintaining all the necessary experimental instruments and chemicals, the experimenters were subjected to ultraviolet sterilization technology to ensure that microorganisms have no influence on the experiment. Finally, the laboratory is completely sealed and oxygen was supplied from a cylinder during the entirety of the experimental testing.

Experimental

In the experiment, the author tested gradients under varying conditions to ensure that each group running experiments was impacted by only one variable at a time. Product purity was used as the assay of efficacy, which was analysed by ¹H NMR and GPC. Experiments were conducted in hexiplate, with the displayed yields as an average of the best two (tables 1–7).

Discussions

The first variable assessed was the weather on the day of the experiment (table 1). It was found that the purity of the product decreased during periods of inclement weather, while the best results were obtained on sunny days. This striking trend may result from the increased hydrolysis of adipoyl chloride by atmospheric moisture on rainy days. We recommend future experiments be conducted only after an anti-moisture dance. Regarding table 2 (age of glassware), no trend is discernable, but the best product was obtained from reactions in a flask with at least four previous uses. Go figure.

Many chemists have turned to the comforts of alcohol induced stupors when haunted by issues of reproducibility.² When we tested a range of popular beverages, to find that beer and wine had minimal effects on product purity. Vodka, however, was significantly detrimental to the yield of the polymerization, as we kept dropping the reactions on the floor. Not nearly as detrimental as Tequila however, as only 1 experiment was successfully completed, but the subject doesn't remember it fully (thus this was excluded). Moreover, we concluded that it's best not to drink while in the lab, but it's not the worst thing either. Contrary to our expectations, wearing a top hat or suit provided no increase in product yield nor purity (table 4). Four deities were tested, and we found that offering prayers to the Holy Goat (R3) was most effective, while the Flying Spaghetti Monster (R2) and Hephaestus (R1) were also more effective than the control.

a) Department of Technology, Dalian University



Table 1	Weather	Diet	Clothing	Container	Religion	Orientation	Purity (%)
1	Sunny	No alcohol	Lab coat	Brand new	No	North	94.34
2	Cloudy	No alcohol	Lab coat	Brand new	No	North	85.10
3	Light rain	No alcohol	Lab coat	Brand new	No	North	79.45
4	Moderate rain	No alcohol	Lab coat	Brand new	No	North	52.32
5	Heavy rain	No alcohol	Lab coat	Brand new	No	North	31.31

Table 2	Weather	Diet	Clothing	Container	Religion	Orientation	Purity (%)
1	Sunny	No alcohol	Lab coat	Brand new	No	North	94.34
2	Sunny	No alcohol	Lab coat	Used 1 time	No	North	85.63
3	Sunny	No alcohol	Lab coat	Used 2 times	No	North	79.39
4	Sunny	No alcohol	Lab coat	Used 3 times	No	North	78.02
5	Sunny	No alcohol	Lab coat	Used 4 times	No	North	95.98

Table 3	Weather	Diet	Clothing	Container	Religion	Orientation	Purity (%)
1	Sunny	No alcohol	Lab coat	Used 4 times	No	North	95.98
2	Sunny	Beer	Lab coat	Used 4 times	No	North	92.34
3	Sunny	White wine	Lab coat	Used 4 times	No	North	93.98
4	Sunny	Red wine	Lab coat	Used 4 times	No	North	91.21
5	Sunny	Vodka	Lab coat	Used 4 times	No	North	40.00

Table 4	Weather	Diet	Clothing	Container	Religion	Orientation	Purity (%)
1	Sunny	No alcohol	Lab coat	Used 4 times	No	North	95.98
2	Sunny	No alcohol	Jeans	Used 4 times	No	North	90.32
3	Sunny	No alcohol	Suits	Used 4 times	No	North	89.78
4	Sunny	No alcohol	Top hat	Used 4 times	No	North	91.43
5	Sunny	No alcohol	Peaked cap	Used 4 times	No	North	88.41

Table 5	Weather	Diet	Clothing	Container	Religion	Orientation	Purity (%)
1	Sunny	No alcohol	Lab coat	Used 4 times	R3	North	97.34
2	Sunny	No alcohol	Lab coat	Used 4 times	R3	East	90.43
3	Sunny	No alcohol	Lab coat	Used 4 times	R3	West	89.09
4	Sunny	No alcohol	Lab coat	Used 4 times	R3	South	88.23
5	Sunny	No alcohol	Lab coat	Used 4 times	R3	Center	98.39

Table 6	Weather	Diet	Clothing	Container	Religion	Orientation	Purity (%)
1	Sunny	No alcohol	Lab coat	Used 4 times	No	North	90.98
2	Sunny	No alcohol	Lab coat	Used 4 times	R1	North	96.34
3	Sunny	No alcohol	Lab coat	Used 4 times	R2	North	96.87
4	Sunny	No alcohol	Lab coat	Used 4 times	R3	North	97.34
5	Sunny	No alcohol	Lab coat	Used 4 times	R4	North	89.43

Table 7 (Student)	Weather	Diet	Clothing	Container	Religion	Orientation	Purity (%)
Mary	Sunny	No alcohol	Lab coat	Used 4 times	No	North	99.99
Joe	Sunny	No alcohol	Lab coat	Used 4 times	R1	North	91.21
Sue	Sunny	No alcohol	Lab coat	Used 4 times	R2	North	90.99
Fanny	Sunny	No alcohol	Lab coat	Used 4 times	R3	North	87.69
Dick	Sunny	No alcohol	Lab coat	Used 4 times	R4	North	69.69



Prayers directed at Joseph Smith (R4) were extremely detrimental to the purity of the product and we can only assume that he is in fact the diefic embodiment of reviewer two and thus should not be trifled with. Finally, we examined the orientation of the laboratory in which the experiments were conducted (table 6). We observed that north-facing laboratories were highly effective, but a perfectly circular lab was ideal. We do acknowledge our own failings to examine zero gravity laboratories, but NASA told us to fuck off when we asked to utilize their facilities.

Conclusions

We have found that the ideal conditions for the preparation of Nylon 66 are to perform the reaction sober, on a sunny day, in glassware with four previous uses, while wearing a lab coat in a circular laboratory and praying to the Holy Goat. We expect to see our finding being implemented in industry soon.

About the Authors

Wang Bo is a slave to scientific research. Mary is a fucking liar. Dick is who we thought he is and has been removed from the lab.

Author Contributions

Wang Bo worked like a slave.

Conflicts of Interest

Wang Bo is a staunch materialist

Acknowledgements

The author failed miserably in the first experiment, and has since moved on to believe in superstition. Wang Bo also realized that the student he has working under him are little shits.

Notes and references

- 1 J. Major, 1995, *Chem. Pub. Comm.* **6**, 55.
- 2 personal experience (last night)





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'Yo mama' Jokes as a Metric of Psychosexual Development

Beatrice Ándura,^a Adam Lear^b and Frederik Reud^{*c}

Abstract: While Freud's theory of psychosexual development is the prevailing one, even a cursory glance at various 'yo mama' jokes allows us to gain insight into the psyche of the author of the joke. Every 'yo mama' joke conveys major, recognizable themes that are connected to every stage of psychosexual development. In this paper we will try to explain why one of the most popular types of jokes can be used to extrapolate a person's level of maturity.

With the progressive development of human society, psychometric methods of the past become less useful. By careful examination of 'yo mama' jokes overheard by department members in a local cafeteria and multiple sleepless nights following this traumatic event, a theory arose which ultimately seeks to dethrone Freud's outdated doctrines as the primary way to measure psychosexual development. After careful deliberations and a bottle or two of Chardonnay, a simple yet elegant link has been established between commonly understood stages of psychosexual development and types of 'yo mama' jokes (figure 1).

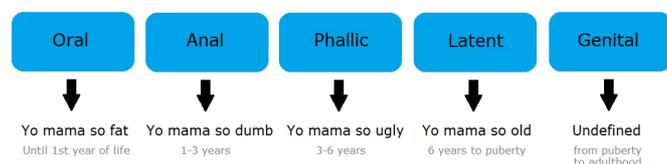


Figure 1: Connection between Freud's stages of psychosexual development and types of 'yo mama' jokes. Coffee stains removed for clarity.

Theoretical background

Freud's stages of psychosexual development are as follows:¹

1. Oral stage, which prioritizes usage of mouth in satisfaction of one's libido, and can be correlated to the attribute of yo mama's fat content.
2. Anal stage, in which one derives pleasure from defecating, or excreting other types of waste. During this stage, one learns to share the effects of one's work, be it faecal in nature or not. While the stage remains focused on sharing, it is also inherently connected with yo mama's intelligence – both can be assessed as shit.
3. Phallic stage, when one starts to identify themselves with their sex and differentiating between sexual organs. From the resentment and conflict arising in this stage, one can posit that yo mama would be called ugly by the members of opposite sex.
4. Latent stage, which slows down development of sexual impulses and sublimates the remaining energy towards other goals, just like when yo mama slows down because she's so damn old.²
5. Genital stage, in which one is fully developed psychosexually and can go out to do other tasks, as when someone stops telling these shitty yo mama jokes.

Students from the neighbouring primary school and from the Department of Engineering of University of Lower Upperham were corralled into a testing room using a bag of Cheetos as an incentive.

a. Department of Questionable Psychology, University of Lower Upperham

b. Department of Even More Questionable Psychology, University of Lower Upperham

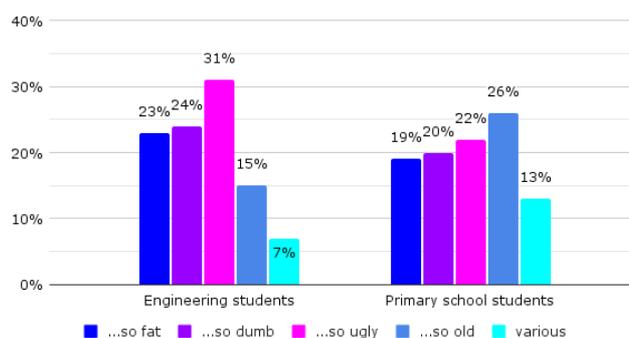
c. St. Lucia's School for the Blind and Deaf Children in Lower Upperham

During this stage of the experiment, some misbehaving engineering students had to be reprimanded using a printed-out picture of an ordinary bar of soap.³

The group (n = something like 40) was then randomly divided into roughly ten four-people subgroups and prompted (by shaking the bag of Cheetos) to start exchanging 'yo mama' jokes between members. Unwilling groups had the bag of Cheetos wiggled in front of them as an encouragement. After around 48 h of constant testing, and summary devouring of the Cheetos bag by testing personnel, the subjects were released. Collected transcription of jokes exchanged during testing were divided into five categories, based on class of jape.

After discarding the collected data multiple times due to arrival of police units, and retrieving them from a nearby trash can afterwards, notes were hastily rewritten on a fresh piece of paper with coloured markers to make them look more professional.

After a booze-filled celebration of a successful experiment, a sleeper-agent at the Department of Physics was activated in order to retrieve a calculator and perform complicated mathematics of division and percentage calculations. With these meticulous calculations done, the agent was hastily stuffed into a nearby closet.



Scheme 1: Distribution of jokes by types and authors.

Conclusions

While there is a discussion to be had about the mental development of engineering students, the overall data presents a real possibility of measuring psychosexual development of both children and adolescents without referring to Freud, who really should be left alone with his bags of cocaine.

About the Authors

Ándura is an experienced researcher with over 20 submitted articles on methods of coercing children into experiments, most of which were rejected due to 'moral considerations', 'ethics' or 'this is just child abuse'. Lear has been banned from every local pub due



to his tendency to 'read minds'[‡] and guilt tripping patrons for free alcoholic drinks with truly scientific stubbornness. In his free time, Reud is the conductor for his school's choir.

Acknowledgements

We would like to acknowledge all mothers, whose contribution to the joke lexicon has enabled this research to take place, and Cheetos for providing a perfect bait, suitable for testing children and emaciated students.

Notes and references

- 1 Freud, S. *Three essays on the theory of sexuality*. 1905, p. 123- 246
 - 2 Wigglin, D. *Comparing mid-air velocity of the elderly and children*. *Journal of Debatable Aeronautics* 2020, vol. 2, p. 30-52
 - 3 Real soap bar, along with deodorant spray was saved in case of an emergency shutdown of the experiment
- ‡ Allegedly





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Platinum Based Pentazolato-carboxylate Metal Inorganically Linked Frameworks for Direct CO₂ Capture and Solar Fuel Applications

C. Klein,[✉] J. Kimmel,[✉] T. Kaputtke, Omar Yogi and R. A. Freud*

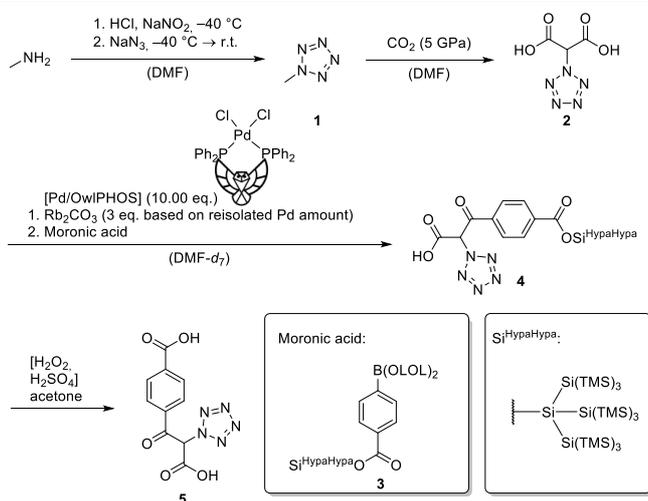
Abstract: We report the preparation of a PtO-pentazole Metal Inorganically Linked Framework (MILF). This MILF was characterised by PXRD and elemental analysis, and exhibits pronounced host-guest interactions, stimulus-response behaviour, and high internal surface area. The material also shows promise as a catalyst for the conversion of CO₂ to octane.

Size matters... Metal-organic frameworks (MOFs) are 3D networks of organically linked metal nodes which have gained considerable attention in the scientific community as potential (photo)electrodes, shape-selective and shape-shifting catalysts, e.g. in the production of solar fuels, and also as gas-adsorbents due to their remarkable inner surface area.¹ Their importance for a sustainable future is as obvious as their widely standardized and intuitive nomenclature system. However recently, another promising class of porous 3D materials has been rediscovered, namely metal-inorganically linked frameworks (MILFs). The intriguing properties of these compounds have already been established by Finch et al. in their ground-breaking work from 1999.² Excellent mechanical properties, triboluminescence and high shear moduli are among their many attributes. The most important feature is their flexible pore structure for equally flexible catalysis. Thus, MILFs are the crown of creation and superior to all other porous materials. In the following article, our MILF-experienced group will present a new and novel, tuneable and switchable, as well as solar fuel-producing, undoubtedly world-saving catalyst.³

We developed a straightforward procedure for the synthesis of methylpentazole **1** by bubbling methylamine through an acidic solution of sodium nitrite and subjecting the fleeting product to sodium azide. The obtained off-white powder was thoroughly washed with DMF. Quick consumption of intermediate **1** is highly recommended as spontaneous detonation may occur at high concentrations. Subsequent reaction of **1** with CO₂ in DMF under mild conditions (5 GPa) led to 2-pentazole malonic acid **2** in nearly quantitative yield (103%) after centrifugation and thorough DMF washing.

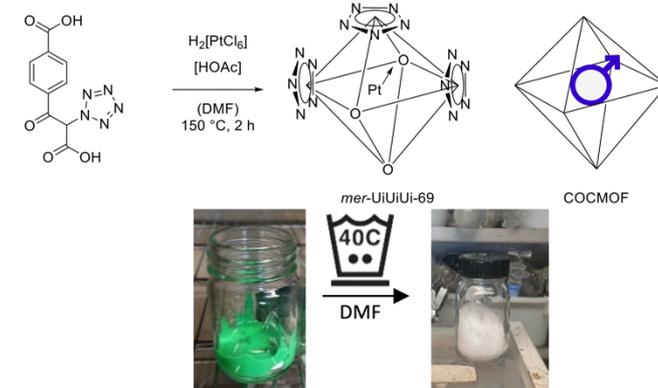
Following a well-known Kawasaki-Miau-Wau coupling, moronic acid **3** was obtained as previously described.⁶ Afterwards, the easily and cheaply accessible palladium(II) precatalyst Pd/OwIPHOS was employed in a Hirohito coupling⁷ between **2** and **3** in DMF-*d*₇ to yield ^{HypaHypa}silyl-protected⁸ linker **4**. Linker **4** was purified by washing with more deuterio-DMF and drying in high vacuum at the rotary evaporator (300 RPM, ISO 9 cleanroom). OwIPHOS[®] is likened to an owl, being the predator of the PHOrest, in analogy to Takasago's naming scheme: "BINAP is compared to a butterfly for its high ability and beautiful structure. SEGPHOS is named after a seagull, which flies higher and faster than a butterfly".^{9,34} Final deprotection in acetone/H₂O₂ under ground-shaking conditions with catalytic amounts of concentrated sulfuric acid (D5-potentized from the same solvent mixture) gave linker **5**.

Platinum group metals were obtained from a catalytic converter and hexachloroplatinic acid was then isolated by coarsely crushing the supported catalyst with a NicerDicer[®] and extracting the residue with aqua regia. Seventeen coffee filters were used to remove the undissolved material, which was washed with more DMF.



Scheme 1: Smooth synthesis of linker **5**.

Based on previous literature reports by Kaputtke *et al.* on the synthesis of stimuli-responsive MILFs,^[4] we envisioned even more responsive pentazolato-MILFs with abundant metals (in this case platinum), which is ubiquitous (at least in catalytic converters) and primed for the formation of stable oxoclusters.⁵



Scheme 2: Synthesis of *mer*-UiUiUi-69 and comparison to COCMOFs.

[✉] Authors contributed equally to this work

The Institute of Explosives and Corrosives, Department of Alchemy, Brewery & Conspiracy, Springfield, Idunno. *RAF@idunno.edu



Linker **5**, platinum precursor and acetic acid as a modulator were incubated in a drying oven in DMF over the weekend. The green crude metal inorganically linked framework (MILF) was then purified by washing with dry DMF twice and dry μ -oxido-dihydrogen(I) (DHMO) once to afford the colourless, pristine MILF (see Scheme 2, bottom). Calcd. = C: 31.5783, H: 3.14159, N: 6.9420. Found = C: 31.5783, H: 3.14159, N: 6.9420. We shall call it UiUiUi-69 in order to keep the nomenclature consistent and intuitive with similarly spin-polarized carbon oxide-capturing MOFs (COCMOFs)⁹ like Chanel's MOF N^o5,¹⁰ HKUST-420,¹¹ or IRMOF- θ .¹²

Single crystals were unfortunately not good enough for structure solution. However, synchrotron PXRD at the Quartz light source (Worcestershire, UK) allowed for Rightfelt refinement of the network that forms the MILF. Structure fine solution was then achieved by transformation to the pair distribution function (PDF, see Figure 1). The crystallographic information file is available free of charge from the CCCC.

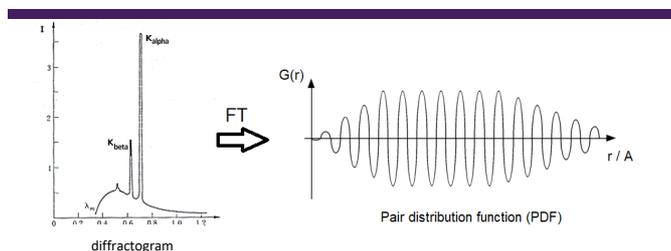


Figure 1. Synchrotron PXRD and the transformed PDF.

Analysis revealed an intimately interpenetrating network with pronounced host-guest interaction and remarkable pore structure (see Figure 2). Because of these findings, variable pressure powder X-ray diffraction (PP-XRD) experiments were added, indicating stimulus responsive behaviour. Phase transition was observed on infrasonication with a St. John Smythe apparatus (Hitachi, JP) during CO₂ pressurization and can be reversed by removing adsorbed gas molecules from the engorged pores by turbomolecular pump suction. Pore elongation was accompanied by a significant increase of the material's shear modulus. The material was then subjected to BED isotherms (up to 50 oz. sq.in.⁻¹) in order to measure the manipulated pore length and circumference (6 by 3 attoparsec).

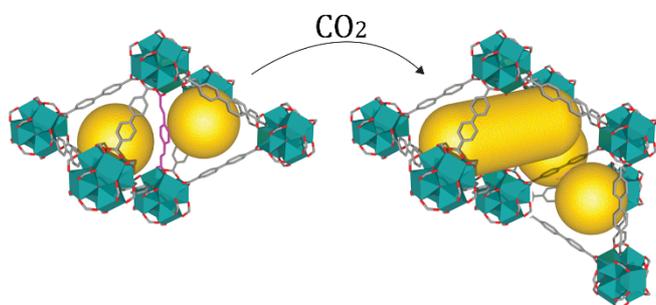


Figure 2. Accessible surface volume of UiUiUi-69 in ball-and-dick representation, as measured in BED isotherms.

Owing to these remarkable analytic results, we attempted to produce solar fuels by supplying hydrogen to the CO₂-saturated MILF and irradiating in a solarium. Afterwards, the product was desorbed from the pores by washing with a minimal amount of *n*-octane to achieve a staggering yield of 181.7%. Product distribution was analysed by molecular autoionization

supercritical liquid-time of flight-mass spectrometry (MASL-TOF-MS)¹³ and olfacto-gravimetry¹⁴ to reveal perfect selectivity for C₈H₁₈. Between different MILF batches we recognized significant yield dependence on the pore volume. *Size matters!*

Conclusion

In this work, we have once again highlighted the need for MILFs to replace fossil fuels and make our planet Greta-friendly. Based on these findings, the straightforward and safe synthesis as well as cost-efficiency, a pilot scale plant for CO₂ direct air capture in the kiloton scale is currently under construction.

Chem3D molecular modelling optimization has not only suggested superior performance of UiUiUi-69's Darmstadtium congener due to the metal's higher oxophilicity, but it also predicted the MILF's *fac* isomer to have even higher catalytic abilities, encouraging its synthesis in future endeavours. Likewise, sildenafilic acid might replace linker **5** for increased catalytic potency and greater turnover numbers. Further research is thus highly recommended.

Experimental data

Chemicals, unless otherwise noted, were purchased from suppliers such as FCK Chemicals, Smegma Aldrich, or Merck Macropore and used without further purification. All reaction steps were performed in a glovebox with oxygen concentrations usually below 1000 ppm. D5 potentizing was achieved by slapping the flask containing H₂O₂/H₂SO₄/CO(CH₃)₂ 10 \times against the fume hood window at full moon, and repeating with 1:10 dilution 5 \times . μ -Oxido-dihydrogen(I) was dried over molar sieves 3 Å and alcohol content was checked to be lower than 1.5‰ (Karl Emil Otto Ernst Hans Fischer titration). Carbon dioxide was evolved by treating CaCO₃ (harvested from our coffee machine) with acetic acid in a Schütt-Kipp apparatus. Supporting Information with detailed procedures and analytic data is available free of charge under the following link: <http://bitly.com/98K8eH>.

Conflicts of Interest

No consensus has been reached between the authors on the pressing subject of whether residual DMF can be washed away with more DMF.^[15] TK proposes that any rusty nail possesses higher catalytic performances than UiUiUi-69.

Acknowledgements

To the guy who wild parked his Сітәрөй C4 on campus: Thank you for the catalytic converter! We greatly acknowledge Cooper I. Odide's sacrifice to the glovebox gods. T. Piquèl is acknowledged for crude MILF synthesis. 2D ¹⁹⁵Pt–¹⁴N {¹H} SHMOSY NMR for *fac/mer* stereochemical assignment was performed by F. Bloch.

Notes and references

1. L. R. Hubbard, *J. Unint. Sci.* **1995**, *11*, 123-123.
2. P. Finch, S. Stifler, K. Myers, C. Ostreicher, J. Levenstein, *JACoffs* **1999**, *22*, 149-155.
3. C. B. D. Cat, K. West, *Tetrahedron Mails* **2016**, *21*, 69-76.
4. T. Kaputtke, *Expl. Today* **2021**, *61*, 42-71.
5. T. M. Anderson, W. A. Neiwert, M. L. Kirk, P. M. B. Piccoli, A. J. Schultz, T. F. Koetzle, D. G. Musaev, K. Morokuma, R. Cao, C. L. Hill, *Science* **2004**, *306*, 2074–2077. First proof of platinum-oxo species. Retracted for reasons we don't fully understand.
6. M. Kawasaki, L. Miao-Wau, *Org. Bullsh.* **1985**, *9*, 1-32.



- 7 L. Gordon, A. Stanheight, *Molecular Pain* **2004**, *7*, 33-39.
- 8 H. P. Baxxta, *Inorganometallics*, ASAP.
- 9 https://www.takasago.com/en/news/2002/0607_0528.html
accessed 08/11/2021
- 9 C. Bandersnatch, *ChemSucksChem* **2012**, *75*, 33-50.
- 10 C. Chanel, *Sci. Hub.* **1921**, *33*, 149-151.
- 11 G. Schlonk, *Pentagondodecahedron* **2012**, *5*, 5-12.
- 12 P. Desolate, G. Schlonk, *Chim. ad Acta C* **1995**, *1*, 122.
- 13 D. Duck, *JACS'o'lantern* **1996**, *12*, 666-777.
- 14 O. McDonald, *Old J. Chem.* **1866**, *1*, 1-6812.
- 15 Socrates, *J. Philosoph. Chem.* **400 BC**, *1*, 1.



A Time-Series Analysis of my Girlfriends Mood Swings

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"Here follows a guest-paper from our sister publication: the Journal of Astrological Big Data Ecology. More of their exceptional work is available at www.jabde.com"

Abstract

Despite recent advances in active listening, date night, and extended pillow talk; it is becoming increasingly more difficult to forecast Tiffany's mood. With more and more Playstation 5 exclusive games, it is becoming increasingly important to determine Tiffany's mood before purchasing a new game and playing online Co-op with the boys every evening for a week straight. This paper aims to determine the optimal forecast model of my girlfriend's drastically growing mood swings by comparing simple moving averages, to sextuple exponential smoothing and even an overly complicated Machine Learning model. Despite initial analysis showing non-stationarity and highly seasonal mood swings, the more simple models provided less riskier forecast predictions when planning a three day bender after Matt got divorced.

Keywords: Relationships, Time Series Analysis, Forecast Modeling, Playstation 5 Exclusives

1. Introduction

Traditional methods of determining whether Tiffany is in a good mood has produced wildly subjective results causing dangerous outcomes such as her taking three hours to respond to a text, flaking on netflix and chill plans or even most disastrously having to return a speed boat even though it was a great deal and an even better investment.

Just asking her if she's okay is not enough anymore. The only reliable method is to develop, test, verify, and implement an extensive forecasting model by analyzing historical Tiffany mood swing data.

1.1 Background

Tiffany and I met at Cranberry-Lemon University as sophomores in our BS required Theoretical Physical Education class ten years ago. After being the last two in the quantum particle dodgeball match, we began an on again, off again relationship until our Junior fall semester when it became too cold to go outside. She and I are two young professionals living in our own home which we financed using a downpayment from not eating avocado toast for three years while I finished my doctorate program.

Tiffany is now a freemium gaming marketing consultant who hates it when I call it freemium gaming. She loves Disney, prefers beach vacations over mountains, and was obsessed with Game of Thrones until the end of the last season. When she's not binge watching the office, you can

find her endlessly scrolling through reddit for memes, facebook or instagram for jealousy, and twitter to keep up on all the public officials and celebrities she hates the most.

1.2 Purpose

Ever since her best friends started having kids and she got promoted to a stressful corporate position she was not trained for, it has become exponentially difficult to plan around Tiffany's emotional highs and lows. This is becoming not only problematic but is a problem that needs to be solved immediately. To dispel any misconceptions, it's not about avoiding her negative mood swings with asinine boyfriend behavior but also taking advantage of her positive mood swings for the least risky time to hang out with the boys or even more risky, refinance the house so I can get that boat back. Most importantly, there is one known application that has expedited the development of this forecast model. The Final Fantasy 7 remake will be released soon this June in under a month!

The amount of time it is expected to take to 100% complete the game, despite playing the original many times, must be carefully scheduled around a reliable Tiffany Mood Forecast Model (TMFM). Being able to plan around her mood will not only allow enough time to max out Cloud's stats but create more opportunities for other future video game releases while keeping Tiffany happy.

Initial analysis of historical screen time and purchase history data has shown that Tiffany's mood is not only

seasonal but auto correlated. This was confirmed in [1] by her Pearson Correlation Coefficient and a variety of metrics. Unfortunately, a study [1] determined that her mood is not stationary by using a Dickey-Fuller test which means that simple seasonally adjusted models will not be adequate.

2. Data Collection and Cleaning

Data collection of Tiffany's mood swings has been an ongoing effort ever since the infamous speed boat incident of 2018 deconstructed in [2]. As 1970s mood ring accuracy has been long debunked by popular science, a more active approach has been required [3]. Mood swing severity has been logged and time stamped with a subjective empathic pain scale, as well as time and monetary loss.

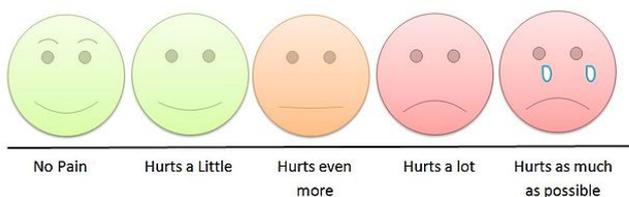


Figure 1: Empathetic mood pain scale [Robert Weis, CC BY-SA 4.0](#), via Wikimedia Commons

The analysis and modeling was only 15% of the work to develop the optimal TMFM. Before Tiffany's historical mood data was able to be analyzed in [1] and then forecasted in this paper, it had to be collected and cleaned. Of course her moods may be seasonal and represented in impromptu online purchases, non-mood related shopping appeared to be seasonal according to holidays and special occasions. Likewise, social media doom and hate scrolling might be highly correlated with mood, or just from breaking news stories which is not helpful in our TMFM.

This does not mean that these special seasonal effects and 24 hour news cycles are not influential towards Tiffany's mood swings. Due to the problem of season-holiday-mood causality, a Mood Metric Equivalent Measurement (MEMM) was established in [4] in order to in take seasonal data to accurately assess Tiffany Mood Variability (TMV) in the equations below where SACM is the Seasonal Auto Correlated Matrix calculated by average purchases and social media trending analytics normalized by her work week burden. The SACM is then transformed into the TMV by ensuring matrix symmetry.

- (1) $SACM = (eig(Purchases) + eig(dSocial MediaScrolling/dt)) * inv(Work Week Burden)$
- (2) $TMV = 0.5 * (SACM + SACM.transpose)$

3. Methodologies

Due to the meticulously cleaned data, black box Time Analysis tools were easily applied and evaluated against Tiffany's historical data. With more than two years of data, these forecasting models could be cross validated for a historical first in our ten year relationship, far beating the over fit multivariate approach which caused the end of my relationship with my highschool sweetheart a year into college [5]. Tiffany's data was modeled in this paper using a seven day moving average, Sextuple Exponential Smoothing, Autoregressive-moving average (ARMA) and one overly complicated Machine learning black boxes.

3.1 Moving Average

The most simple model applied to Tiffany's mood swing data was a seven day moving average. While this extremely rudimentary approach may have not been the best for implementing higher dimensionality predictors, it created less noisy forecasts compared to the more complex alternatives. While her data appeared to be autocorrelated over a 24 hour cycle, the most effective averaging window for non intuitive forecasts optimized at a 7 day moving average in case she was just feeling a bad case of the Mondays. This is not true in extremely variable days such as below in Figure 2 implemented with an hour by hour moving average model of Tiffany's mood during the 2018 Speedboat and Pregnancy Score Incident [2].

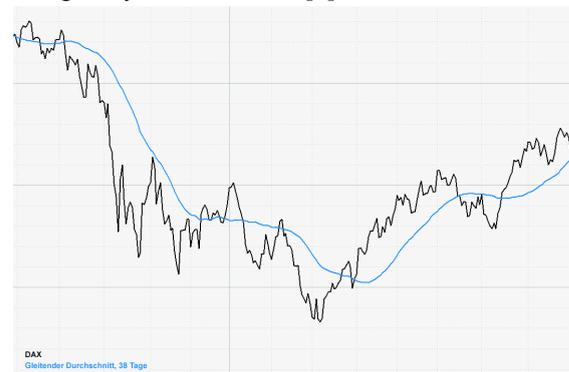


Figure 2: Tiffany's Mood during the 2018 Pregnancy Score

Tiffany by no means could be modeled with a simple moving average with sufficient hour by hour or even day by day resolution. This was established in the widespread panic conjecture [6] after I saw her at a jam band concert for the first time. Regardless, seven day average forecasting does find use in this simple model beyond traditional intuition.

3.2 Sextuple Exponential Smoothing

In order to make exponential smoothing achievable for an optimal TMFM, six smoothing functions were needed. Traditionally, a single exponential smoothing model can be used on more stationary data. A double exponential

smoothing function is then used when there is a trend in the time series. Adding yet another exponential smoothing function then can handle seasonal variation.

For Tiffany's model, a fourth, fifth and sixth exponential smoothing layer was needed to account for weekly boys nights keeping me at the bar until last call, the effects from her mother's periodic cryptic telephone conversations as well as the occasional friends weddings and child births while I wait for the perfect time to pop the question, even though she understands that it just hasn't been the right time for the past three years and we do not need a societal construct to show how much we love each other. Choosing the smoothing alpha values has proven to be almost as challenging as cleaning the data but still not impossible.

3.3 Autoregressive-moving-average model

While Tiffany is very self conscious about this and I've always been into it, she has always required a extensive linear combination of polynomials to be effectively modeled [7] both in personality and physical appearance. As far as this paper is concerned, an Autoregressive-moving-average (ARMA) model was the only way to capture her unique combination of seasonality and personality describing polynomials.

Among the traditional Time-Series forecast modeling techniques, ARMA is the most likely to get the lower level resolution forecast predictions for riskier behavior such as reopening the boat discussion while potentially defending seemingly low risk behavior against classic Tiffany relationship conversations that begin with "I'm fine...it's just that..."

The ARMA is expected to be the most high risk high reward mood swing modeling technique. Discovering the positive and negative mood swings will be high risk high reward depending on if the forecast model can find the right time delay parameter when fitting the weekly/daily/seasonal driven polynomials.

3.4 Overly Complicated ML Approach

There's nothing better at modeling a black box like Tiffany's mood swings like an unexplainable Machine Learning black box. Using a python Long Short Term Memory (LSTM) structure I created for my buddy so that he would stop bothering me about making billions predicting the stock market with my programming knowledge and his financial acumen, Tiffany's mood could also be forecasted.

Even after ten years of a steady relationship and many ups and downs, there is still a lot which baffles me about that wonderful woman. As much as I think I know about her, a black box canned Machine Learning algorithm approach may be the best method to have my cake and eating it when FF7 comes out in less than three weeks.

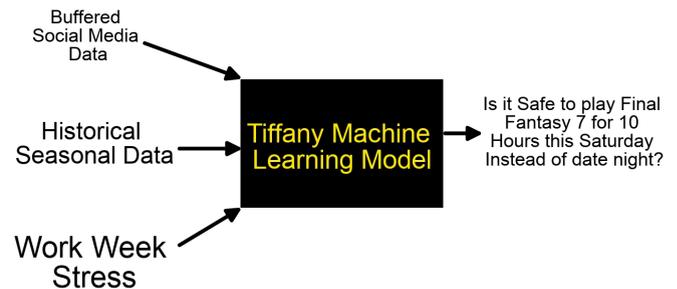


Figure 3: ML implementation of a TMFM

However, as the ARMA approach was high risk/high reward, there's no telling how high risk/high reward using an overkill trendy machine learning algorithm will be in practice. It may pick up on things about her I won't know for another ten or even twenty years, likewise it could ignore obvious trends and characteristics I could code into a moving average or exponential smoothing function.

As exciting as it is, playing the Final Fantasy 7 remake is not important enough and there is not enough training data to create an extensive staged supervised deep learning training scheme that could take advantage of my knowledge of a properly structured TMFM. It's coming out in under a month, there's no time! Canned ML algorithms it is!

4. Results

With under a month away to the release date, the forecasting was hastily tested and documented so that in the eventuality the models do not work, I can't be labeled "Insensitive to her feelings again," like when CyberPunk 2077 came out right when she couldn't tell if her entire marketing team was completely working against her after her promotion to team lead. It turned out they weren't but that's not what was important.

When my college roommate Matt got divorced, we last minute drove to New York for a three day bender and monitored Tiffany's passive aggressive text messages and concern for how much money I was spending to evaluate each model against MMEM truth data. Each model performed generally as predicted and their results can be seen in Figure 4. As speculated, the lower fidelity models were lower risk while the higher fidelity models were locally more accurate with occasional inaccurate predictions and time delay problems.

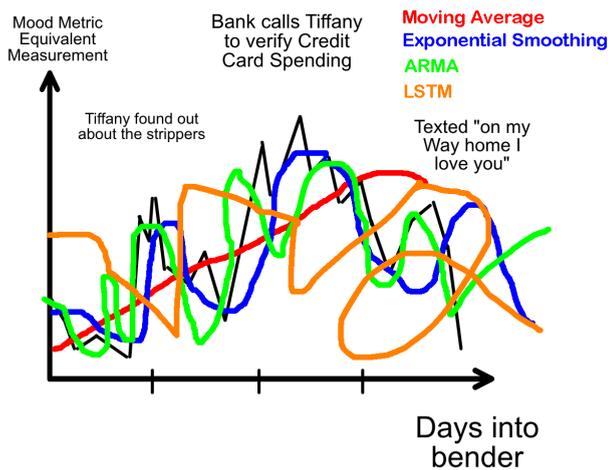


Figure 4: Forecast Performance During 3+ Day Bender

The seven day moving average was able to best predict overall trends in Tiffany's mood but missed the lower fidelity changes the other models predicted. The Sextuple Exponential Smoothing function was able to achieve higher fidelity forecasting but missed many of the local trends. While the ARMA was able to pick up on the greater trends and more of the local trends, it produced dangerously inaccurate forecasts which, if acted upon, would have started at least one, maybe two evening long discussions on "Where is this relationship even going."

The ML approach was unfortunately bad at nearly everything and the effort should be completely scrapped until there is enough historical Tiffany data to adequately train the LSTM or a more developed supervised deep learning method. Just because the algorithm is trendy doesn't mean it's a good idea for such fast turn around analysis and forecasting like a TMFM.

5. Conclusion

With 18 days to go until the Final Fantasy 7 remake downloads on my PS5, these algorithms are all actively monitoring Tiffany's purchasing behavior, doom scrolling, and work conversations about her subordinates not knowing what they're doing. Once all forecasting models agree, except the LSTM, I am confident that I can schedule enough evening video game time in between June 10th and the July 4th vacation to her parents house in Louisville KY to beat the game so that my friends won't call me whipped.

As typical of almost any modeling project, this forecasting model highlighted the risk of balancing the inaccuracies of the higher and lower fidelity models. Tiffany will never make me go to another one of her friends' plays if I stick with a 7 day average forecasting model, but, I won't ever be able to max my FF7 characters before christmas unless I at least use a seasonally adjusted Three Exponential Smoothing Model. These low maturity methods are rudimentary but they do

show significant utility. Eventually, one of the forecast models or combination of models will give me the confidence to buy back that speedboat.

6. Future Work

The great speedboat fiasco of 2018 was not a permanent defeat. With the right modeling and some common sense risk management, these techniques could be used to determine the best time to purchase back that speedboat from Jeffrey. I know there are not many good locations for a speedboat near Pittsburg, but it's more of an investment in memories and with an accurate enough forecasting model, it could non-confrontationally be readdressed with Tiffany.

References

- [1] Broman, Chad 2015 Why is Valentine's Day so Important? *A Time Analysis of Tiffany's Relationship Expectations :: Journal of Psychological Machine Learning*
- [2] Broman, Chad 2018 Ph.D. *A Play by Play Analysis of Purchasing a Luxury Speedboat during an out of Wedlock Pregnancy Scare :: Journal of Psychological Machine Learning*
- [3] Reynolds, David 2003 *The Mood Ring and why it's okay if you aren't Light Blue :: Journal of Retrometrics in Fad Psychometrics*
- [4] Broman, Chad 2016 *The Mood Metric Equivalent Measurement: How to Get Away with a 150\$ Bar Tab :: Journal of Psychological Machine Learning*
- [5] Broman, Chad 2010 *A Multi-Dimensional Analysis of Rebecca: How to Survive a Long Distance Relationship :: Journal of Psychological Machine Learning*
- [6] Broman, Chad Ph.D. 2018 *The Jam Band Conjecture: How to Survive a Five Hour Widespread Panic Performance as the DD :: Journal of Psychological Machine Learning*
- [7] Broman, Chad Ph.D. 2019 *Modelling a Romantic Partners Curvy Personality with Polynomials: The Best time to Play Cyberpunk 2077 :: Journal of Psychological Machine Learning*



Some of our readers may be familiar the sport of “Extreme Ironing”. This sport involves the ironing of clothes in the most unlikely places: underwater, dangling off cliffs and deep in caves, for example. Those interested in this most excellent pastime should peruse the book “Extreme Ironing” by Phil Shaw.* Our editorial board has a taste for the absurd (*res ipsa loquiter*), and we have also been perplexed by the prevalence of titration competitions in undergraduate and school chemistry programs. If you are trying to advertise chemistry, why, of all the beautiful, useful, and interesting experiments, would you choose titrations? Why would pick something boring, tedious, fiddly, and antiquated. It occurred to us that we could combine our passions for chemistry and absurdity to create a new adventure-sport: Extreme Titrations. So we dispatched some interns into the wild with instructions to do titrations in the strangest places possible. We encourage our readers to take up this sport, and send us evidence of their own Extreme Titrations.



Top Left: An example of extreme ironing, the inspiration for our new adventure sport. (picture credit: [Phil Shaw, CC-BY-SA 3.0](#) via Wikimedia Commons).

Top Right: Michael Oxlond stands atop Mt Frustration with his trusty Retort Stick.

Middle Left: Someone told Philomena Crankshaft that diluting the sample in a titration doesn't affect the result, so she took it to the extreme. Something isn't right, though, because her titrant volume is currently reading 1.35×10^{22} mL.

Middle Right: Tammy Burette performs a low-temperature titration during a snowstorm. 5% EtOH was required to prevent the titrant from freezing in the burette.

Lower Left: Lassitude Jones passes the time between sets with a quick titration, while surfing in the Amnesian Archipelago.

* P. Shaw, *Extreme Ironing*, New Holland Publishers 2003, ISBN 184330 555 0





Top Left: Ogden Flogg performs some water quality testing in the Schlossengesplatzpisch river.

Top Right: A Measure of Last Retort: when someone is playing Rick Astley in the lab so one must work elsewhere.

Top-ish Left: The Flying Titre does what he does best.

Middle Left: La Marquis de Burette takes her comical flask to the depths.

Middle Right: She may have overshot the endpoint a little, and now attempts a reverse-titration.

Bottom: Lassitude Jones is clearly less than pleased that interns get all the shit jobs.



We asked our readers “What song lyric best describes your research?” Included below are a selection of our favourite responses:

Why do you have to go and make things so complicated?
- *Complicated*, Avril Levigne

Under pressure do dododo dododo do, dododo dododo do Bam Bam
- *Under Pressure*, David Bowie

I ain't gonna work for no soul sucking jerk I'm gonna take it all back and I ain't sayin Jack
- *Soul Sucking Jerk*, Beck

Boss makes a dollar, I make a dime, that's why I poop on company time
- *Boss Makes a Dollar*, River Bones Band

I've no more fucks to give, my fucks have runeth dry - I've no more fucks to give, Thomas B. Wild Esq

We count the days scratching lines on a wall, I don't want to be here anymore
- *I Don't Want to Be Here Anymore*, Rise Against

I got a million trillion other things I'd rather fucking do than be fucking with you
- *I Don't Fuck With You*, Big Sean

Nobody said it was easy, no one ever said it would be this hard. I'm going back to the start.
- *The Scientist*, Coldplay

I'm all out of salt, the tears are running dry
- *Salt*, Ava Max

And you can have it all, my empire of dirt, I will let you down, I will make you hurt
- *Hurt*, Jonny Cash

But I still haven't found what I'm looking for
- U2

Up all night to get data
- *Get Data*, Neurotransmissions

Once in a while you get shown the light, in the strangest of places if you look at it right
- *Scarlet Begonias*, The Grateful Dead

For once in my life, could something just go right?
- *Once In My Life*, The Decemberists

I'm a creep, I'm a weirdo, what the hell am I doing here, I don't belong here
- *Creep*, Radiohead

He said son, have you seen the world? Well what would you say if I said that you could?
- *Hero of War*, Rise Against

I'm not a real doctor but I am a real worm
- *Doctor Worm*, They Might Be Giants

I know that you are wrong, this is not where you belong
- *Headstrong*, Trapt

Hello darkness my old friend
- *The Sound of Silence*, Simon and Garfunkel

I tried so hard, and got so far, and in the end, it didn't even matter
- *In The End*, Linkin Park

Work it harder make it better do it faster makes us stronger
- *Harder, Better, Faster, Stronger*, Daft Punk





An Ode to Triphenylphosphine Oxide

$\delta = 29$ ppm Slowly, with suffering

*Hello phosphine my old friend
I've oxidised you once again
Because a spectrum softly is creeping
Left its signals and now I'm weeping
And that spectrum that is planted in my brain
Brings me pain
Within the sound of science*

*You dissolved in acetone
So then I left you all alone
'Cause they say that you are air stable
Just sitting on my lab table
Because my flask, was not completely closed
You decomposed
And screwed this round of science*

*And in the NMR I saw
Three fucken multiplets, no more
And down at 30 ppm
The biggest singlet that there's ever been
And my tears, like violent raindrops fell
That's how you tell
Its science*

*And in the baseline noise I saw
A dozen doublets, can't be sure
Puny remnants of my alcohol
My fury it was palpable
Another paper, that the authors can never share
But I don't care
Turn up the sound of science*

*My Mitsunubu's now debris
Just smears of $OPPh_3$
And my Stille did not survive
There's nothing in there but some burnt oxide
And my Wittig, you don't even want to know
I've got to go
I've been rejected by Science*

*And my students howled and bayed
At the slimy shyte they'd made
And the proton flashed out its warning
Of the gas with which we've been waring
I said "there's O_2 in our fucking N_2 lines"
Oh how they whined
I hate the sound of science*

Music by Hymen and Arsebunkle

Lyrics by Günther Schlonk





I've Got a Little List

*As someday it may happen that a victim must be found
I've got a little list — I've got a little list
Of chemistry offenders who might well be underground
And who never would be missed — who never would be missed!
There is the rival research team who's work is just like yours,
And publishes their findings as a grant falls in your paws,
Whose published data looks like it was taken on a spud,
With baseline noise indicative of deuterated mud,
Where, if this was your paper, 'better data' they'd insist —
They'd none of 'em be missed — they'd none of 'em be missed!*

*He's got 'em on the list — he's got 'em on the list;
And they'll none of them be missed — they'll none of them be missed*

*That one fumehood cohabitant who's really quite a slob,
And their best friend the physicist — I've got him on the list!
The DCM distiller who can't do their fucking job,
They never would be missed — they never would be missed!
That student who makes compounds which are smelled from out a mile,
Why oh why must sulphur be so fucking volatile,
That damn PhD student whose submission gets prolonged,
Whose excuses could extend for the duration of this song,
There's a millimole of chemists who could dwell upon this list,
And may none of them be missed, may none of them be missed!*

*Music by Dilbert and Mulliken
Lyrics by Shelby Wright*





Hey Supervisor

*Hey supervisor
What's it like to be a PI?
I'm a dozen years away
But I can make it if I try
My hopes are high
I'll do my best, aim for the sky
Just watch me fly*

*Hey supervisor
Now my project's getting tough
And I have just started to wonder
Am I really good enough
To make it through?
Five years, blood, tears and lit reviews
My friends withdrew*

*Oh, I'll get my PhD
Oh, two years, maybe three
Oh, just you wait and see
Oh, I love my PhD*

*Hey supervisor
I know times are getting hard
But I believe you when you say
You'll pay the bills with your next grant
We'll have it good
We'll fix the leaks in my fume hood
You said you would*

*Hey supervisor
Have you read my latest emails?
Reviewer two is out for blood
This paper's coming off the rails
We're in deep shit
We're out of time to resubmit
You lazy twit*

*Oh, one year and I'll be free
Oh, oh why did I agree?
Oh, to do a PhD
Oh, this bitch of a degree*

*There's fuck-all working in the lab
I can't afford my restaurant tab
The deadline for my funding has just passed
Two rejected, one retracted
And my data's been redacted
My publication record isn't vast
My mental health is through the floor
I've started drinking more and more
I don't know how much longer I can last
I'm fading fast*

*Hey supervisor
I've flushed five years down the plughole
Useless data and no papers
Ragged scars across my soul
I hope you're glad
You took a smiling undergrad
And drove them mad*

*Oh, my project's just debris
Oh, no hope that I can see
Oh, a waste of a degree
Oh, I hate my PhD
I hate my PhD*

*Music by The Plain White Coats
Lyrics by Günther Schlonk*





ConTRIVEd: A Novel Method of Protein Quantification

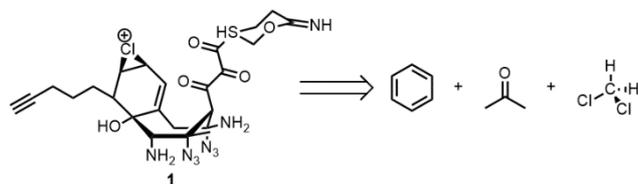
Ai Ardlynoer*, Sussy Amogus* and Pipi Pampers**

*Department of Chemical Biology, University of Massachusetts Cambridge, Jonestown, Guyana

**Division of Chess, Google, En Passant, Armenia

Modern molecular biology is often less of a science and more of an art. Though recent innovations have led to the development of powerful new techniques in genomics, proteomics, transcriptomics, epigenomics, lipidomics, lysozomics, PROTACsomics, hormonomics, mitochondriomics, polysaccharidomics, and more, many of these methods rely on decades-old principles that present little novelty, particularly to the National Science Foundation Graduate Research Fellowships Program.¹ This is most evident in our current methods of protein quantification. Perhaps the most common first step in any protein analysis project is analysis by SDS-PAGE gel. SDS-PAGE gels, though a staple of modern biochemistry and molecular biology, require lengthy setup time, rely on environmentally hazardous stains, and are highly tempting for budding PhD students to falsify.² Chemical biology, the melding of organic synthesis with molecular biology, can offer a solution to this urgent problem. Here, we report **Conrotatory Tandem Ring Inversion Verification Editing (ConTRIVEd)** as a novel method of protein analysis.

ConTRIVEd allows for the label-free, high-throughput quantification of protein concentration via a click-capable EZ ligand, which can be easily synthesized in 32 steps. Treatment of sample with EZ, followed by analytical ultracentrifugation and mass spectrometry, easily separates proteins by molecular weight. Subsequent analysis with BYTE-Me software allows for quantification of molecular weight and easy identification of protein identity. ConTRIVEd therefore represents an exciting alternative to traditional biochemical methods.



Scheme 1: Structure of EZ ligand **1** and commercially available starting materials.

Synthesis of EZ 1

EZ ligand **1** was envisioned to be constructed from three fragments beginning with benzene, acetone, and dichloromethane respectively (Scheme 1). The synthesis of **1** is considered trivial and is left as an exercise to the reader.³ As a hint, in the final step, [4,12-diacetyloxy-15-(3-benzamido-2-hydroxy-3-phenylpropanoyl)oxy-1,9-dihydroxy-10,14,17,17-tetramethyl-11-oxo-6-oxatetracyclo[11.3.1.03,10.04,7]heptadec-13-en-2-yl] benzoate was stirred in a 1:1 mixture of 1,2-dioxane and water with 3 mol% Pd(PPh₃)₃ and heated at 235

°C overnight under N₂. **1** was obtained as an off-white semi solid in 0.25% yield (100mg) over 32 steps. All compounds were purified by fractional distillation under slightly reduced pressure and characterized by ¹⁹F NMR spectroscopy.

ConTRIVEd Procedure

The azide and alkyne moieties on **1** allows for click chemistry of both azide and alkyne-labeled proteins. With our probe in hand, we set out to quantify the concentration of a model protein (Figure 1). Using amber codon suppression,⁴ an azidoalanine-substituted hemoglobin was expressed in *Neisseria gonorrhoeae* and purified by affinity chromatography. Purified protein was incubated with **1** and an ancient spell was cast over the mixture to promote copper-free alkyne-azide cycloaddition. The reaction mixture was subjected to analytical ultracentrifugation and the presence of hemoglobin in the sole fraction was confirmed by mass spectrometry and BYTE-Me software. The hemoglobin-**1** complex was lyophilized and weighed to give the exact mass of protein in the original sample within 5%.

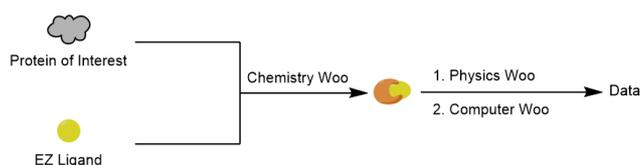


Figure 1: ConTRIVEd workflow and proof of concept.

We therefore conclude that EZ ligand **1** successfully labeled hemoglobin, and ConTRIVEd successfully afforded the concentration of hemoglobin *in vitro*.

Conclusions

ConTRIVEd offers a fresh and exciting new approach to proteomics research and further development is worthy of a grant from the National Science Foundation. We fully expect ConTRIVEd to replace SDS-PAGE as standard procedure in molecular biology within 3 years. Interested parties may contact the authors at any time.

Conflicts of Interest

Ai Ardlynoer and Sussy Amogus declare their interest in this project to be more valid than Pipi Pampers'.

Acknowledgements

We acknowledge this paper happened.

Notes and references

- 1 Just trust me, bro
- 2 E. Bik, A. Casadevall, F.C. Fang, *mBio*. 2016, **7**, 3, e00809-16
- 3 F. Professor, *Soph. Orgo*. 2018, **2**, 6, 341-365
- 4 P. Schultz, *Magic Chem*. 2001, **5**, 2, 653-752

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The Effects of Alcohol on the Grant-Writing Process

Gabriela Agaverosinae,^A David Goon^B and Boris Yeltsin^{C*}

A) Saguaro College, Jalisco Universidad

B) School of Sport Science, University of Lawncistern

C) The Inebriati Institute, Stolichnaya University, Omsk

The writing of funding applications is a harrowing process.⁰

Bodies such as the Australian Rejection Council (ARC) have narrowed their selection criteria to the point where they diffract electrons, and purse strings are tighter than Clive Palmer's shirt buttons. Despite the heightened demand for funding, bodies tasked with assessing such applications have neglected to match this rise with an equal number of competent reviewers. Thus, a successful application for research funding is inevitably a slew of buzzwords and promises to cure cancer while turning a profit. To overcome the significant emotional barriers to writing such twaddle, many academics turn to alcohol.¹

This is not a recent phenomenon: in 1970 a section of clay tablet was uncovered in the ruins of the ancient Mesopotamian city of Uruk, in modern day Iraq (Figure 1).² The cuneiform inscription has been partially translated, and reads as follows:

"... Oh mighty lord Gilgamesh, He who sees all, who knows all, builder of walls and lover of goats, your humble servant Enkidu beseeches you for a loan of two sheep, so that he might find out if the berries growing by the river are poisonous..."

Next to the tablet, archaeologist Sir Robart Eversley found the corroded remains of a cylindrical, metal drinking vessel, which may have once contained fermented barley. This find is dated to approximately 2700 BC, and is believed to constitute the first grant application in recorded history.



Figure 2: The Uruk Tablet, and its associated beer can.

To date, there is no scientific data on which kind of booze is best for grant application writing.³ This study seeks to address this deficit. We have tasked six associate professors with writing a grant application for the same project, and supplied five of them with alcoholic beverages, keeping one sober as a control. Here is what they wrote:

Applicant 1: No Alcohol

The field of total synthesis has existed for well over a century. In the time since its conception, the complexity of synthetic targets has escalated, while the number of steps to reach them has decreased in proportion. A large portion of today's most important drugs are derived either entirely or in part from natural products. Therefore, the continued

development of synthetic methodology is of great relevance to the fields of medicine and pharmacology.

Among the thousands of natural products isolated in recent years, the class of Perplexins have received attention for their diuretic and potent antimicrobial activity.⁴ As a result of the complex and convoluted structure, their synthesis has not yet been achieved. We seek a grant of \$100,000 to pursue the first synthesis of these elusive molecules.

Applicant 2: Wine

The felt of total synthesis has excised for well over a century. In the time since its contraception, the contextuality of the systematic tangents has excavated, while the number of steps to reach them has decreased in probation. A larger portion of toady's most imported dugs are derided ether entity or impart from neutral produce. Therefore, the continue detriment of sympathetic methogology is of great reticence to the fields of venison and photography.

Among the thousands of neural adducts isolated in decent years, the class of Perplexins have deceived attenuation for their diabetic and potent antibinomial proclivity. As a reslut of their context and combobulated suture, their synergies have not yet been archived. We seek a grant of \$100.00 to peruse the first synthesis of these reclusive modules.

Applicant 3: Beer

This synthesis shit has been around for like ages, right. Back in Aristotle's day, they used to make like urea n' shit, and now they're doing stuff like Taxol and Mycoxaflopin. And they make em so quick too, like in five steps or some shit. Loads of drugs are from plants, including a couple of my favourites, but sometimes we gotta make em ourselves 'cause the plants are lazy or protected n' shit. That's where the dudes in white coats come in.

A while ago, fucken Steve and Garry⁴ found these things called Perplexins under a rock or somewhere, which they reckon is good for curing the clap and stuff. But it's like, really tricky to make, so no one's done it yet. So we reckon, you give us a hundred grand and we'll make the bastard for ya. Waddaya say, eh?

Applicant 4: Rum

Avast, for many turns o' the tide, man has sought to better the works o' our maker, and prolong our brief stay on Gods earth. We hear tales o' a most mystical and magical substance, a tincture made from the leaves of the spiny gympie gympie.⁴ This plant is lives deep in the jungles of the lost isle o' Umama Wakho, far beyond the horizon. Tis' said to be a fearsome antidote to the dropsy, and a scourge o' the plague. Aye, for a thousand gold doubloons, we shall mount a quest to retrieve the sweet nectar of gympie gympie from the new world. What say ye?

Applicant 5: Tequila

Hace mucho rato que los ratones de laboratorio tratan de sintetizar moléculas, tratando de igualar a las plantas que nos han servido de medicina por muchos años. Desde que se empezó a sintetizar moléculas en el laboratorio nos hemos vuelto muy cabrones, haciendo moléculas cada vez mas complicadas, en menor numero de pasos. Pero la realidad es que la mayoría de las drogas más importantes hoy en día siguen

siendo derivadas total o parcialmente de productos naturales, lo que quiere decir que los verdaderos tatas de la farmacología son los Mayas, quienes fueron los primeros en experimentar con la domesticación de las plantas. Esto dio inicio al desarrollo continuo de metodologías sintéticas, el cual es de gran importancia en los campos de medicina y farmacología.

Del montón de productos naturales que se han aislado en años recientes, la clase Perplexins ha recibido mucha atención debido a su potente actividad diurética y antimicrobiana.⁴ Pero estos chatos son complicados de igualar y su síntesis no ha sido posible hasta ahora. Si estuviéramos en tiempo de los mayas podríamos ofrecer la cabeza de los directivos de ARC en sacrificio, pero como ahora todo eso es ilegal, les pedimos humildemente \$100,000 varas para lograr lo que sería la primera síntesis de estas escurridizas moléculas, y ofrecemos a cambio poner sus nombres en la portada de nuestro artículo.

Applicant 6: Vodka

Snoring noises

Results and Conclusions

Our first observation was this: we may have overdone it with the alcohol. In hindsight, giving academics access to an open bar was never going to end well. Despite this oversight, differences are clearly observable between our six subjects. Without alcoholic stimulation, Applicant 1 bashed out a standard, waffly spiel of jargon. Applicant 2 attempted to write something very similar, but clearly encountered problems with the autocorrect feature of MS Word. While consuming beer, Applicant 3 discarded the conventions of scientific English and wrote an extremely casual request for funding. The nationality of Applicant 3 may constitute a confounding factor, and Australians will be excluded from future studies on this topic. Applicant 4 appears to have become a pirate, while tequila has prompted Applicant 5 to write in colloquial Spanish. We found Applicant 6 passed out on the floor, next to an empty vodka bottle. Her sole contribution to the study was a scrawled phallus, which we have omitted for the sake of decency.

We can rule out vodka and wine as effective writing aids for funding applications, but beyond that, beverage choice would seem to be a matter of personal taste. The odds of a successful application are so low, one might as well write in pirate. As for what we were drinking while we wrote this, *hic* you'll just have to figure that out for yourselves.

About the Authors

Gabriela Agaverosinae is a Cactus Master, native to the Mexican desert. On the days he remembers, Boris Yeltsin is an Inebriated Professor at Stolichnaya University. David Goon likes to scribble humorous manuscripts in the pavilion while waiting for the second innings to start.

Conflicts of Interest

David Goon owns half of Stolichnaya Vodka®, and Boris Yeltsin holds shares in Victorian Bitter®, though he doesn't know where they are. When not writing grant applications, Gabriela Agaverosinae makes homemade tequila with ethanol from the lab.

Notes and references

- 0 "These truths we hold to be self evident"
- 1 D. Mitchel, R. Webb, 2020, *J. Chem. Comed.* **4**, 6743.
- 2 L. Kastner, R. Eversley, 1970, *Mont. Pyth. Flying. J. Chem.* **2**, 457.
- 3
- 4 S. Coogan, G. Busey, *J. Unnat. Prod.* 2008, **18**, 450.

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Superconductivity, Superfluidity, Supersymmetry, and Superspectacularity in Atomically Pure DbNh_2Mc_2

Biggus Dickus,^A Incontinentia Buttocks,^A Hugh Mungus,^B Mike Hawk,^B Richard Butte,^C Faht Baals^{B*}

A) Institute of Anachronism, University of Judea

B) Academy of Genital Research, University of Westphalia

C) New Jersey Factory, United States Radium Corporation

We demonstrate an abundance of useful properties in particular combinations of period-7 elements. We found that atomically pure magic-angle crystals of Dubnium, Nihonium, and Moscovium display room temperature superconductivity, with a resistivity of $4.20 \pm 2.1 \times 10^{-69} \Omega\text{m}$, a ground-breaking improvement over previous copper- and graphene-based superconductors. In addition, above the compound's melting point of 14,329,700,000 °C, DbNh_2Mc_2 is a superfluid, and rapidly escaped the borosilicate container housing it (figure 1).

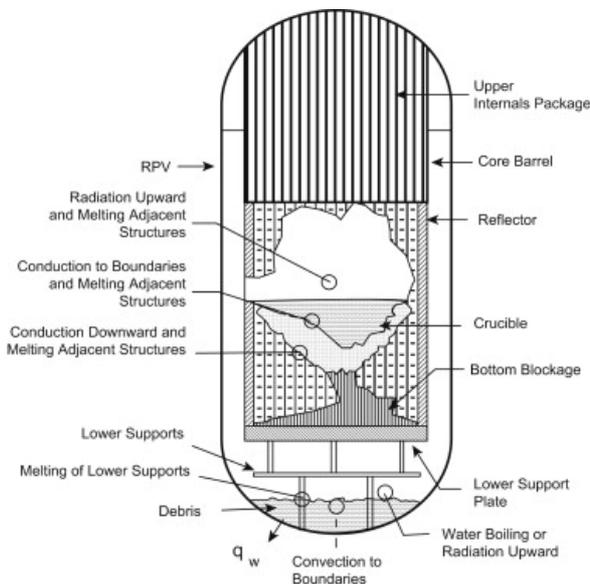


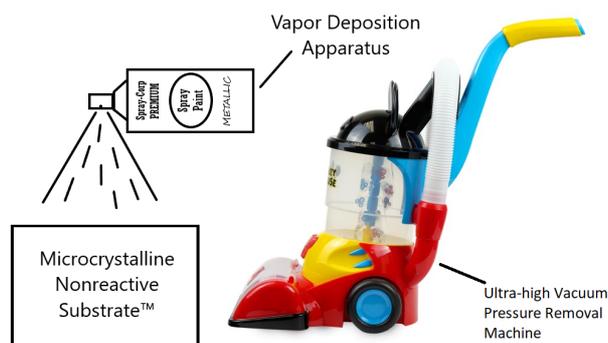
Figure 1: Failure of testing apparatus to withstand high temperatures.²

The flask did not survive the test. Moreover, the unique nuclear properties of Moscovium allowed for previously unobserved supersymmetric decay processes, which we found to cause rapid alpha and beta decay in nearby nuclei. DbNh_2Mc_2 also exhibits a previously undiscovered phenomenon now known as superspectacularity. This means that it was so spectacular that it caused Dr. Butte to die on the spot, although the autopsy reported the cause to be acute radiation sickness.



Synthesis

We synthesized DbNh_2Mc_2 with sufficient purity for testing through atomic layer deposition of alternating NhMc_2 and metallic Db layers in an ultra-high vacuum environment (scheme 1). We experimented with a range of temperatures between -300 and 200 K. We found crystal defect count to be lowest when the substrate temperature was approximately -34 K. The maximum pressure at which the reaction could take place was calculated to be roughly $-\infty$ atmospheres, although Dr. Hawk insists we made an error somewhere.



Scheme 1. Quantum Crystal Reaction Chamber (3)

Procedure

For all reactions and measurements involving temperature, we used a cracked American 3B Scientific U14295 Tube Thermometer.⁴ We heated all reagents using a magnifying glass Hugh Mungus found on the sidewalk, which provided sufficient heat. We measured voltage using the Dumbson technique, which involves holding two ends of a wire and seeing if you can feel anything. We also used the Laryngeal Pitch Test to detect the presence of alpha particles released by the decay of Moscovium nuclei.

Conclusions

We demonstrate the immensely low potential for Moscovium-based superconductive electronics and implanted medical equipment due to the diverse chemical and radiological properties of period-7 elements. We also pioneered new techniques for crystal manufacturing, especially where single-point crystal defects are not tolerable. We will continue to research period-7 materials science, at least until Mike's savings run out.

About the Authors

Biggus Dickus, PhD, studied for 14 years at Northridge Elementary School before receiving his doctorate in Side-Product Synthesis at age 37. Incontinentia, Dickus' fiancée, has a background in Accidental Electrical Engineering, which she acquired after leaving the tin foil on the potato while microwaving it. Hugh Mungus is the Associate Director of Fabrication at Falsified Results Inc.

Author Contributions

Biggus Dickus wrote all of this, Richard Butte sacrificed his life in pursuit of data, and Faht Baals was the janitor in charge of our building.

Conflicts of Interest

Our lab is funded by the CIA, NSA, FBI, DOJ, DOD, DOE, and Mike's savings account.

Notes and References

- 1 Martin Bjergfelt et al, 2019, *Nanotechnology*, **30**, 294005
- 2 Chapter 4 - Late Containment Failure, Editor(s): Bal Raj Sehgal, Nuclear Safety in Light Water Reactors, Academic Press, 2012, Pages 307-424, <https://doi.org/10.1016/B978-0-12-388446-6.00004-6>.

- 3 Scheme 1 [Vacuum Machine](#)
- 4 [American 3B Scientific U14295 Tube Thermometer](#)

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Opinion: Just Giving Up

Lassitude Jones*

Australian Royal Society for Evolutionary Science (ARSES)

An exploration of evolution's best backflips, and why humanity should quit while it's ahead.

Since Darwin gave the world the theory of evolution, we have been sitting in wonder of the beautiful complexity of natural selection that gave birth to 'intelligent' human life. However, over the millennia not every species has sat in veneration of the blind watchmaker. This article explores some groups of animals that have thrown in the evolutionary towel and made a hairpin bend towards simpler times. Take some of our most charismatic failures – the cetaceans. When the ancestors of the first amphibians made the questionable decision to leave the oceans, they had to undergo some expensive and difficult changes, growing legs being only one of them. Even though most would agree that conquering land was a really stupid idea, at least the majority of the developing terrestrial classes managed to properly commit to it. After their ancestors went to all the trouble of developing the tetrapod limb, mastering gravity, the cleidoc egg and water independence they thought “*eh, not really my cup of tea,*” resulting in evolution's greatest oxymoron, the aquatic mammal. The audacity of these animals is unbelievable. Similarly, flightless birds are descended from a subset of birds who made such drastic physiological changes to gain the ability to fly, decided they didn't like the view from up there, and just cashed out.

Some might say it's time we stopped hailing dolphins as charming intelligent souls and recognise them as the cowards they are. Some might say the cassowary or the dugong are evolution's useless step-kids who “really had potential.” If you are one of these people, it might make you feel better to find a kiwi or a penguin and call it names. “Just give up on saving the whales already!” you might say, “they gave up on themselves a while back.” Maybe they make you think of the gym membership you haven't used in years, or the jigsaw puzzle you got halfway through in your break. We understand. It is frustrating to think about the ages of evolutionary toil and turmoil that culminated in the kakapo, a so-called 'bird' which can't even get laid, let alone fly. However, ARSES offers a different perspective. Maybe because it was too hard, maybe because the pressure got to them, or perhaps because they just couldn't be arsed, creatures like the flightless bird and the aquatic mammal have backflipped on all of their commitments in the true spirit of a coalition policy maker. Maybe this is not such a bad thing. Are we really better than any of them? Granted, the emus gave up the ability to fly in an astonishing display of impudence, but they went on to defeat us at war in 1932, so maybe we should use their stupid long necks to get down from our high horse. Look back at the festering cesspool of humanity, the countless unmitigated fuck-ups of 'intelligent life,' the dumpster fire that has been the past several years. Now ask yourself, is it time for us to gracefully bow out and return to the primordial soup? It's either admit it's all gone tits up and quit with whatever dignity we have left or make like Nick Kyrgios, abuse the umpire and smash a few

racquets in a desperate, embarrassing attempt for some more airtime. It might be time we take a leaf out of the cetaceans' book and just give up. "Know when to fold 'em", in the immortal words of Kenny someone (I don't know, we gave up).

About the Author

Lassitude Jones completed three quarters of a science degree at the University of Old Sodbury, Gloucestershire, before giving up on her studies. Fortunately she was immediately offered a position at ARSES because their standards are extremely low.



PPG: Personal Protective Groups as a Defence Against Laboratory Carcinogens

Cucumber Bandersnatch^A and Günther Schlonk^{B*}

A. *The Invective Collective, University of Little Whinging*

B. *School of Inorganometallics, University of West Failure*

Often has it been said that organic chemists die twenty years younger than everyone else.¹ While statistical evidence for this assertion remains patchy, blame has already been apportioned to the fug of reagent vapours and solvent fumes that permeate even the airiest labs. Methyl iodide, hexane, hydrochloric acid, dichloromethane, benzene, the list goes on. Most of our reliable reagents and solvents are in fact deceitful double-agents, slipping past our biological defences like Tom Cruise through a hall of lasers, only marginally smaller.² Once inside, these pernicious bastards take to our DNA like 12-year-olds to a library book. In the case of these chemicals, however, the damage is more severe than a few scrawled phalli. Some dissenting voices have made themselves heard about the carcinogenic clamour, such as Desmond Pondandt from the University of Bitchfield, UK. Professor Pondandt has posited that chemist-mortality is actually a result of the chronic stress, insomnia and alcohol dependency ubiquitous to this field.³ While this theory has undeniable merit, it does not diminish the significance of working in an atmosphere more toxic than a nightclub on Venus. Given that Günther's 116th birthday is approaching, it seems appropriate that we devote some time to the question of preventing the corrosive effects of lab fumes on health. Methyl iodide was chosen as a model contaminant, as it is volatile, carcinogenic and acutely toxic. Like many common reagents, the toxicity derives from the ease with which it alkylates the nucleophilic residues present in proteins and DNA. When the analogous problem of unwanted reactivity presents itself in organic synthesis, the solution is typically to use protecting groups (PG's) to shield the susceptible portions of a molecule (figure 1). This led us to ponder: if it works on a molecule, why not a person? Are we not made of molecules, after all?

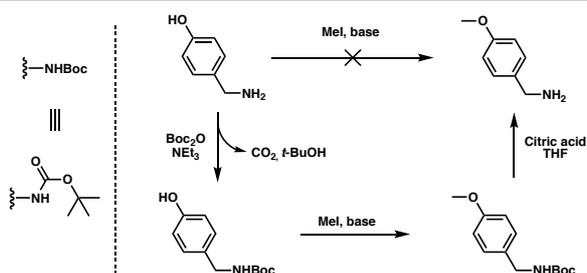


Figure 1: An example of a protecting-group (Boc) and its application

For that extra level of protection, PPE needs to go one step further than coats and glasses. We propose that by applying protecting groups to the proteins lining the sinuses and lungs of a post-grad, the subject could be sheltered from rapacious alkylating agents like MeI. In such an endeavour, choice of protecting group is essential. For ease of application, a volatile reagent should be used to introduce the protecting group. This excludes the Nosyl and Fmoc groups, as introducing solids into the lungs may create more problems than it solves. The introduction of the protecting group should not liberate any deleterious side products, such as HCl. Thus, TMS and Cbz are out, alongside a host of others. Finally, mild conditions must be available to remove the PG, when the day's work is concluded. Table 1 shows a breakdown of some common N-protecting groups as differentiated by our criteria.

Protecting Group Structure	Volatility	Side Products	Deprotection
Ns 	X	HCl	Skunk Nasal-Spray
Fmoc 	X	HCl	Piperidine Mouthwash
Cbz 	✓	HCl	H ₂ , Pd snuff
Bz 	✓	HBr	H ₂ , 20 bar
Boc 	✓	CO ₂ , t-BuOH	Snorting Sherbet
Ts 	X	X	LiAlH ₄ Swab

Table 1: Bio-compatibility of common N-protecting groups

Of the surveyed PG's, half were insufficiently volatile for easy application to the respiratory tissue. Of the remaining three, benzyl groups are too hard to remove, and generate HBr during their application. Cbz groups may be removed with an H₂ inhaler and a box of palladium snuff, but HCl is formed concomitantly with Cbz amines. This left the Boc PG as the only viable candidate. While a solid at room temperature, Boc₂O exhibits sufficient vapour pressure to fully coat a human lung with 10 minutes of constant inhalation.⁴ The biproducts of Boc protection are CO₂ and t-butanol, neither of which are particularly toxic, in the scheme of things. Finally, we hypothesised that snorting a line of sherbet would constitute a mild method of deprotection. Lab rat prices are at an all-time high this year, so we have chosen to test this methodology *in Shih Tzu*.

Experimental Section

Procedure for Boc-protection of respiratory tissue: Boc₂O (5 g) was placed in a spoon and gently heated with a cigarette lighter. The test subject (a 3-year old Shih Tzu⁵) inhaled the liberated vapours for a 10-minute period. Test subjects (either Boc-protected or control) were dressed in lab-coat and glasses, then exposed to an atmosphere of methyl iodide (500 ppm) for a



period of 14 hours (to represent a typical postgrad working day).

Procedure for deprotection: Sherbet (10 g, 10% citric acid w/wt.) was macerated with aid of a credit card, formed into lines, and administered nasally to the subjects.

Results and Conclusions

Ten dogs were treated with Boc₂O, and the same number constituted the control group. While the protection procedure was executed smoothly, upon exposure to the Mel atmosphere, all test subjects expired. This makes analysing the efficacy of our treatment troublesome, but one finding we can claim with certainty is that our regimen is just as good as the control. From this foundation, we hope to optimise the Boc-protection of respiratory tissue, and carry our lab-trials forward to testing in the C57BL/6 strain of post-grads.

Notes and references

- 1 Old mate Garry, 2018, *Down the pub*. **11:30 pm**.
- 2 B. Willis, J. Statham, S. Stallone, 2019, *J. Toxanomalies*, **3**, 17.
- 3 J. King, D. Pipe, D. Pondandt, 2020, *J. Self Med. Chem.* **32**, 809.
- 4 K. Hippocrates, 412 BC, *Chem. Med. Comm. Med. Chem.* **56**, 347.
- 5 Shih Tzu were sourced from *Labradomics Ltd*.

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Planet of the (Wasted) Apes: The Effects of Drugs on the *Macaca Radiata*

Franz Korn,^A Mark Smirnoff^B and Jaeger Meister^{C*}

A) School of Social Studies, University of Wolfenbuettel

B) School of Antisocial Studies, University of Wolfenbuettel

C) Institute of Applied Alcoholism, University of Wolfenbuettel

We put apes on drugs. But not just any monkey, specifically five monkeys of the species *Macaca radiata*. The *Macaca radiata* weigh as much as 664,774 times that of a full-grown dung beetle and is as tall as 0.46 Danny DeVito's. In conditions unworthy of humans, this species lives for up to 35 years. *M. radiata* are popular test subjects for scientific experiments, as their highly tactile and social nature closely resembles human interactions.

The experiments reported herein came about serendipitously, following a party celebrating Tim's successful thesis defence. Our group is known for its "work hard, play hard" attitude, and this evening was no exception. The conclusion of the "playing" phase consisted of the entire group passed out in the lab, amidst the slew of intoxicants. It was then that Mark awoke to find that the lab's population of *M. radiata* had escaped their cages, and were gleefully indulging in the abundant supply of drugs at hand. Realising that this was a one-off opportunity to observe apes off their tits on drugs, (ethics would never approve something like this), he began recording notes.

The substances involved were EtOH (1), methamphetamine (2), LSD (3), speed (4) and THC (5). The apes were distributed into 20 different groups and labelled as "X.Y.Z" where X = ape group, Y = alphabetical labelling of the monkey plus Z = consumed drug.

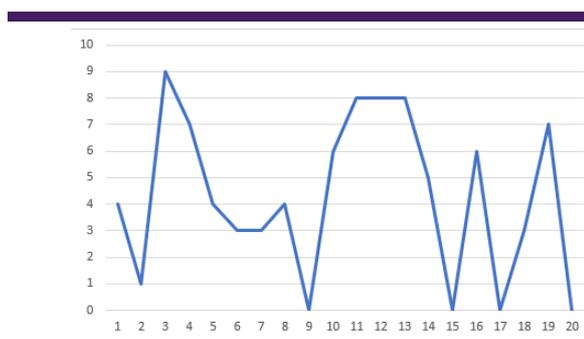


Figure 1: Jäger Meister's scale of irrelevance.

During the experiment, observations are recorded at the following times:

t_0^x : start of the experiment; provision of the drugs.

t_1^x : 15 minutes after first consumption

t_2^x : 45 minutes after first consumption

t_3^x : 2:58:12.4217 hours after first consumption

t_4^x : 5 hours after first use

t_5^x : 10 hours after first use

t_{err}^x : time at termination of the experiment

t_{end}^x : time at the end of the experiment (24 h)

Where x = experimental round or monkey group (1-20)



Figure 2 Percentage of subjects remaining conscious during experiment.

Group 2 started to show abnormalities from the beginning. Monkey 2.A.1 (f/12) showed behaviour that reflected his hierarchical rank in the group. He behaved similarly to the style of an Orgo I professor: sporadic, condescending and all around confusing. Another peculiarity was monkey 2.D.2 (m/15) who at time t_3^2 was exhibiting an increased sex drive, evidenced by 12 cumulative attempts in 10 minutes to impregnate monkey 2.B.5 (f/11). During this stage, Tim was also approached by several randy apes, as he later told his psychologist. Monkey 2.C.3 (m/4) disappeared after five hours, and was presumed missing before he was spotted on the evening news, standing behind the minister for internal affairs and wearing a hardhat.

Group 7 also performed interestingly. A special feature of the group was that the monkeys were initially exclusively males. However, after voluntarily consuming a cumulative 15 g of speed, monkey 7.E.4 decided he was a Leopard 2A7V main battle tank. The behaviour exhibited by 7.E.4 consisted of crawling around with his tail positioned like a gun barrel.

A number of fatalities were observed in one group. Group 14 had seized a funnel with a hose, used earlier by the party-goers. The monkey 14.C.1 carried out his idea of funnel drinking



with the monkey 14.E.2. After 14.C.1 had wantonly deprived 14.E.2 of his life and was already on his way to the next monkey, the experimental round was aborted.

Well, monkeys show similar superficial effects when using party drugs, but, from first-hand experience, more pronounced. The experiment complains of a mortality rate of 0.25%.

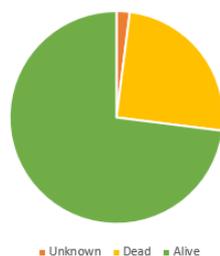


Figure 3: Mortality.

Conclusions

Apes are quite a funny species. Perhaps, next time, we should try teaching them to drive cars.

About the Authors

Prof. Dr. Jaeger Meister and his group are professionals in all fields of practised alcoholism. Teaching for over 12 years his institute has only published 1 paper yet.

Conflicts of Interest

Neither of the researchers' group members is a biologist nor does anyone know how to analyse apes. However, they can relate to first-hand experiences speaking about drugs. It may be possible that a court case is currently under investigation.

Acknowledgements

In memory of ape 14.E.2, which died while funnel drinking with 14.C.1.

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Spectroscopy Confirms that VB is Actually Vinegar

W. Churchill, B. Yeltsin, D. Boon*

The Inebriati Institute, University of Lawncistern

The chemical composition of Victoria's favourite beer has long been a subject of dispute. Informed opinion has held that Victorian Bitter (VB)¹ is a dilute aqueous solution of acetic acid and lower hydrocarbons, but there remains a vocal minority who maintain it is fit for human consumption.² The persistence of this debate prompted us review the illiterature on this topic. To our surprise, we discovered that no conclusive studies have been conducted on one of Australia's most popular beer. In fact, not even the most cursory analysis of its composition has been undertaken. We propose that the scientific community has simply assumed that VB is vinegar, and that nobody has actually bothered to check. To address the dearth of research on this topic, we have conducted the first such analysis. Nuclear Magnetic Resonance (NMR) spectroscopy was selected as method of analysis. A revolutionary new pulse program:

Transverse Induction Proton Spectroscopy (TIPSY) was recently published by Tuna and Casserole, which allows the selective excitation of small molecules within complex mixtures.³ We applied this experiment to a sample of VB (Figure 1).

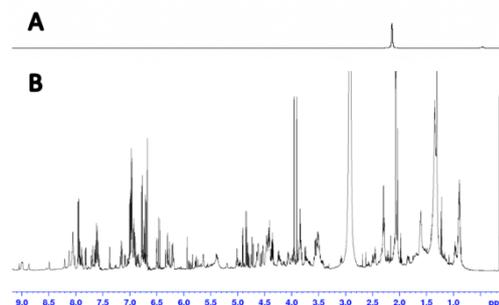


Figure 1: A) TIPSY spectrum of VB. B) Reconvoluted ¹H spectrum

The TIPSY spectrum shows a large single peak at 2.06 ppm, exactly matching the literature shift of acetic acid in water.⁴ Reconvolution of the TIPSY spectrum allowed a pseudo-¹H spectrum to be inferred, from which several other molecules were identified. These include urea, creatinine and mono-sodium glutamate. We believe this study represents conclusive evidence that the main constituent of VB is acetic acid. Having wasted enough time on this stupid project, our research we are now attempting to detect trace amounts of flavour compounds in Toothey's Extra Dry. No success so far.

Conflicts of Interest

This work was funded by J. Broag and Sons of Lawncistern, Transmania.

References

- 1 Not to be confused with Victoria Bitter, which actually exists
- 2 The Victorian Public, *The Census*, 2021.
- 3 A. Tuna, P. Casserole, *Pig Breeders Monthly*, 1987, **12**, 530.
- 4 Goldberg *et al.* *Organometallics*, 2010, **29**, 2176.

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Bending Forks: a DFT Study

Dhomas Fejerson*

Darvard College, Miami

Recently, Old Macdonald and co-workers reported the first synthesis of an En-Yn-En-Yn-OI.¹ Within this study, they reference the first predicted example of such a molecule; Oldmacdenyenyenol (**1**).² The conformation of **1** has been the subject of dispute since its publication in 1997. The original report displayed oldmacdenyenyenol with a linear arrangement of the pitchfork carbons (**1**, figure 1). This structure was contested by Ogden Flogg in 2020, who proposed **2** as a more stable conformer.³ One assumes he was locked down, with nothing better to do. We have applied DFT techniques in an attempt to resolve this dispute, and because we sensed an easy paper. During our study, DFT *ab initio* calculations was performed using a classical wood toaster from the Frapple Computer Company which was nearly able to run the *Faustian*[®] software package.



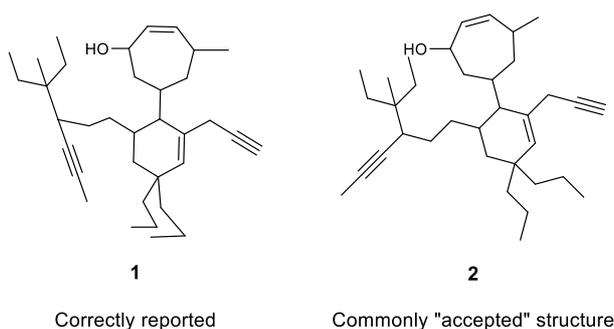


Figure 1: A misrepresentation of reality

We used the Hartree-Fuck level of theory to compute the Glib-free energy difference between **1**, **2** and an intermediate form, **1->2** (figure 2).

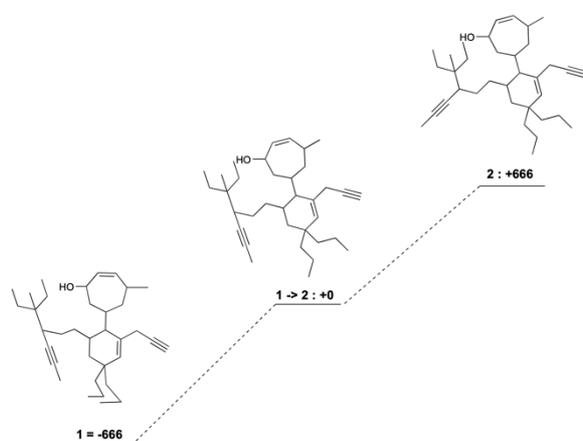


Figure 2: Glib-free energy of **1** and positive evolution in Kg/mom.

The results are striking: **1** is the lowest energy form of oldmacdenynenynol by 666 kFlops/mol⁶. The intermediate **1->2** is characterised by a lifting of the “farmer’s hat” portion of the cycloheptene and a straightening of his legs. We attempted to investigate the cause of this energy barrier, but we were met with the following problem: “Error 405: spontaneous decomposition has occurred, *Faustian* had to close”. When the bond angles of the “pitchfork” were adjusted to a more conventional configuration, another drastic increase in energy was observed ($E_{\text{Fork}} = +666$ kFlop/mol). This clearly indicates

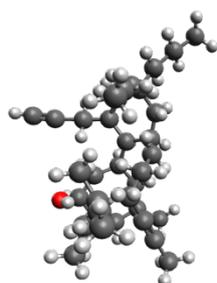


Figure 3: 3D rendering of conformer **1->2** that the original conformation (**1**) with a straight pitchfork is energetically favourable (figure 3).

Conclusions

Here we demonstrate by calculation that people prefer things positive even if less accurate. Experimental data, spectra and resolution conditions are now directly included in *Faustian* software, available in Dasio’s shop on Damazon.

About the Authors

I am a self-made man using all the knowledge from my previous jobs as a software engineer and *Faustian* salesman.

Author Contributions

D. F. smashed this out while sitting on the bog during his lunch break.

Conflicts of Interest

We fucking hate classical computers and will not use them for any theoretical work.

Acknowledgements

We thank MTV for their generous funding of this work with their redundancy package.

Notes and references

- 1 R. Brown, P. Gregory III, M. Hunt, O. MacDonald, *J. Immat. Sci.* **1**, 1
- 2 D. Ryan, *J. Chem. Ed.*, 1997, **74**, 782.
- 3 O. Flogg, *J. Chem. Disputes.* 2020, **3** 17.

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Opinion: Why do I need ethics approval to put a mouse in a maze when I treat my students far worse?

*Cucumber Bandersnatch**

The Invective Collective, University of Little Whinging

Today I had to file a request for ethics approval. The experiments for which I had to do this constitute a relatively simple psychological study, investigating the effect of Dire Straits on the cognitive ability of lab mice. The details are unimportant, suffice to say that the little critters will not endure any undue torments. In fact, they would suffer more from being subjected to commercial radio. None-the less, I was compelled to wade through a swamp of sub-clauses and declarations of intent. At about page 70, I was interrupted by a time-traveling Dante, who wanted to know which circle of hell he had landed in. It was at this point that it occurred to me: why should I need ethics approval to play music to mice, but not to subject my students to four years of anguish. Were I to construct an experiment in which lab mice were deprived of sleep and subjected to extended stress tests, I would have to jump through more hoops than the mice themselves. Yet when I demand results by Sunday night, no-one bats an eyelid. What I’m really getting at is a need for consistency. If I need ethics approval to play music to mice, then I should also need it to make one of my students clean the autoclave. In fact, you should need ethics approval before you force someone to fill out an application for ethics approval. Personally, I will be conducting my animal testing on post-grads from now on, as there’s far less paperwork involved.

About the Author



Cucumber Bandersnatch escaped from a petri dish in 1962, and has been masquerading as a human ever since. In 2007, he co-founded the Invective Collective with Otto Gripe and Walter Pricke, a group of bitter old professors who reminisce about the good old days.

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Quiz: Bad Days in Research

Compiled by Demeritus Professor Günther Schlonk
The University of West Failure

We've all had bad research days, but these guys had worst days than most. Each of the following people were killed by their inventions. Your task is to pick the real invention from the bullshit ones:

Q1: Sylvester H. Roper

- a) *The rocket flute*
- b) *The chainsaw*
- c) *The steam-powered bicycle*
- d) *Mercury fillings*

Q2: Otto Lilienthal

- a) *Valium*
- b) *A spring-loaded toothbrush*
- c) *The hang glider*
- d) *Bear cheese*

Q3: Franz Reichelt

- a) *The parachute jacket*
- b) *The ejector-couch*
- c) *The self-lighting match*
- d) *TNT*

Q4: Henry Smolenski

- a) *The electric horse*
- b) *The rocket-assisted can-opener*
- c) *The flying car*
- d) *Sarcasm*

Q5: Claus von Stauffenburg

- a) *The exploding suitcase*
- b) *The Blue-Tooth hand grenade*
- c) *The underwater hair-dryer*
- d) *The white-phosphorus desk lamp*

Q6: Alexander Bogdanov

- a) *The rectal thermometer*
- b) *The blood transfusion*
- c) *The nasal swab*
- d) *The incendiary pigeon*

Answers: **Q1:** c) The steam powered bicycle – Roper was killed by a combined crash/heart attack in 1896. **Q2:** c) The hang glider – Otto crashed in 1896. **Q3:** a) The parachute jacket – Franz jumped from the Eifel tower in 1912 with predictable results. **Q4:** a) The flying car – Henry bolted a Ford Pinto onto the front of Cessna Skymaster, which worked well until the car became

“unbolted.” **Q5:** a) The exploding suitcase – Claus attempted to assassinate Hitler with a suitcase bomb, which failed to kill him. Hitler was not impressed. **Q6:** b) The blood transfusion – Alexander performed 11 successful transfusions on himself, then transfused from a student with malaria and tuberculosis.

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Lonely Students Section

Professor, male, 55, seeks post-graduate student for data entry and menial chores.

Garry, Norwich

I recently caught my supervisor with another graduate student. He said it was just about the chromatography, that he didn't actually intend to supervise them, but I could tell that he was lying. I feel used and betrayed. I want a PI who sees me for who I am, not just as a piece of meat in a lab coat.

Esmerelda, Beveragino

If I see one more gel plate, I will carve out my own liver with a soup spoon. I need to spend time with something multicellular. If you could be that something, call me.

Ashurbanipal, Tehran

Post-grad, new in town, 12DD, 5' 10", will do lab visits. Call now. No weirdos.

Candy, Moosup

While staring into the sliced-open stomach of a dead penguin, I realised that I do not want to die alone. Call me.

Vasilij, Omsk

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Opinion: Why settle for *T. rex* when you could have *B. rex*?

Hashi B. Roko

Department of Friends, Japari University

It is undeniable that the Tyrannosaurus rex is one the most iconic organisms to have ever roamed the planet. It was fearsome. It was in Jurassic Park. But they're also all dead. Now I get it, kids love the T. rex. They were big, loud, lumbering creatures that wandered the Earth and hunted and ate whatever dinosaurs they wanted, much like how kids somehow wish that they were. But studies have shown that it probably sucked to be a T. rex; they weren't immune from ailments that plague people even today, like mercury poisoning and gout.^{1,2} One could even go so far as to say that the T. rex experience is overrated, and most certainly disproportionately represented in modern media. Thus, it is my imperative to remind the scientific community of a living example of a -rex-suffixed king of beasts: Balaeniceps rex.





Figure 1: Comparison of T. rex and B. rex. (A) Artist's rendition of T. rex.³ Extinct. Fossilized. (B) Author's photograph of B. rex. Watching. Waiting.

B. rex, more commonly known as the shoebill, is a living monstrosity that serves as proof that birds are most closely related to dinosaurs. The genus *Balaeniceps* stems from the Latin for "whale-head", intuiting the horror experienced by the first surviving observer of the B. rex's gargantuan bill. While not as tall in stature as the T. rex, B. rexes have been noted to stand anywhere between 1.07 to 1.5m tall (approx. 3.5-5 feet tall)⁴, which is perfectly adequate to strike fear into the hearts of children, young adults, or anyone terrified of an approximately human-height bird roaming God's green earth alongside us. Fortunately, B. rexes subsist primarily on aquatic creatures⁴ and not humans, though their hunting behaviour lends itself to one of the B. rex's most striking characteristics: its stare. Contrary to appearances, the B. rex does not impale fish by staring daggers at them, but rather it remains motionless in the marshy wetlands that it inhabits and hunts in, watching the water until a hapless fish can be struck and captured by an explosive outstretching of its neck and absurdly large bill.⁵ Given the B. rex's propensity to miss these said strikes, it is in and of itself a miracle that this species has managed to sustain itself for as long as it has. Further compounding the nightmarish existence of these creatures, B. rexes vocalize not by roaring, but by a bill-clattering display that some internet denizens have likened to the sound of automatic gunfire.⁶ This may be a benefit for those still afraid of the B. rex at this point, as one can take a small comfort in knowing that the sound of a machine gun heralds the coming of a beast that can and most likely would stare you to death.

While the last major appearance of the T. rex in film dates back to 2018, its popularity amongst small children and dinosaur enthusiasts alike affords it a degree of invulnerability from being forgotten in the public eye. However, the B. rex has not shared in this status, having been resigned to a fate of relative obscurity despite being crowned with the -rex suffix and sharing rhyming nomenclature with its tyrannical partner. Fortunately, public attitudes appear to have changed for the better for our friend the B. rex, having both enjoyed a resurgence of interest in 2017 as a result of a major televised Japanese animated series⁷ as well as more recently appearing in the critically acclaimed MMORPG *Final Fantasy XIV* that has a free trial up to level 60 including the Heavensward expansion.

Not all of us are cut out for the life of T. rexes, stomping through their territorial grounds, roaring at lesser beings and sinking their fangs into fresh prey, like a PI with their lab members. But in the case of the T. rex, you may very well find yourself wandering around a forest, suffering from mercury poisoning and gout. Instead, I would imagine that many of us would prefer the humble and peaceful life of the B. rex:

Feasting on freshly caught lungfish, plucked from the providing waters of the wetland. In our habitat. Unbothered. Well-hydrated. Flourishing.

About the Authors

H.B.R. is a Fellow Friend at Japari University, Japari Park.

Author Contributions

H.B.R. stared at this manuscript until it materialized into existence.

Conflicts of Interest

H.B.R. declares an intense and sustained interest.

References

1. Meyer, K. W. et al. Biogenic carbonate mercury and marine temperature records reveal global influence of Late Cretaceous Deccan Traps. *Nat Commun* **10**, 5356 (2019).
2. Rothschild, B. M., Tanke, D. & Carpenter, K. Tyrannosaurs suffered from gout. *Nature* **387**, 357–357 (1997).
3. Palmer, R. Tyrannosaurus Redesign 2018. *Saurian* <https://sauriangame.squarespace.com/blog/2018/9/20/tyrannosaurus-redesign-2018>.
4. Shoebill stork | The Dallas World Aquarium. <https://dwazoo.com/animal/shoebill-stork/> (2014).
5. National Geographic. *Shoebill Stork vs. Lungfish* | *National Geographic*.
6. LazyReplays. *When a shoebill comes to greet you, it sounds like a gunfight just broke out*.
7. Fukano, Y., Tanaka, Y. & Soga, M. Zoos and animated animals increase public interest in and support for threatened animals. *Science of The Total Environment* **704**, 135352 (2020).

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A Simplistic Model of Stress-Development During PhD Candidature

Dr Stress Ball Z^A*

A) *Department of Psychopathics, University of West Failure*

Stress is known to be an inherent characteristic of a PhD candidature, with a rather complicated relationship that is yet to be fully understood. In this study, over 500 students were sampled using the 'totally legitimate' questionnaire and the data analysed using 'aRghh', the open-sourced software (crap.arghh-project.org). Our results show that stress has an exponential relationship to time elapsed in a PhD and the resulting graph, the stress curve, shows three distinctly different phases. This relationship was further mathematically modelled, and these models can be used by universities to procrastinate on mental health assessment of students and doing nothing about the mental health management plans in the future.

'Stress' is a variable that has known to be synonymous to PhD candidature along with other variables like 'I am broke' and 'can't be fucked'. It has been argued by several authors that if a perfect relationship existed, it would be that of stress and a PhD candidate, as the relationship only strengthens with time, brings the 'best' out of each other and is known to have long term effects event after the PhD is over.

Material and Methods

Data was collected using the ‘totally legitimate’ questionnaire from 500 different PhD students that were sampled on Twitter, at the local pub and from their psychologists. Data analysis was conducting using Arghh®, an open-source software (crap.arghh-project.org) using “iamBSing” package and visualised using “GiGiThisishardtoPlot 2”.

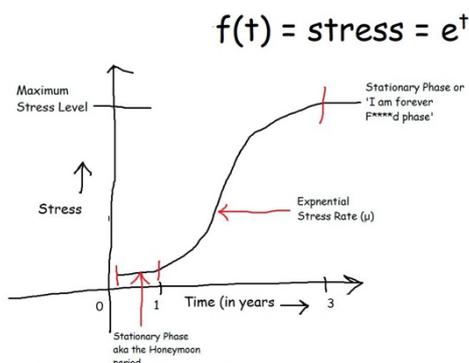


Fig 1: A simplistic model exploring the relationship between stress and time elapsed in a PhD

Figure 1: A simplistic model of the relationship between stress and time elapsed in a PhD.

Plotting the mean stress experienced by PhD students against the time elapsed in a PhD shows a clearly exponential relationship between the two variables. The Stress curve as the authors wish to call this revolutionary finding, can be divided into 3 clear stages: the honeymoon period, the exponential stress growth phase, and the Stationary Discussion.

The first phase known as the honeymoon period is characterised by phrases like “I love the discovery process of academic research” where candidates are often found to be starstruck by the never ending, glittering possibilities of academia. This is usually seen to last 1 ± 0.3 years depending on factors that future research will explore. This phase is followed by a sharp inflection point (t_r) also known as the ‘Reality check’ following which stress is seen to increase nonlinearly with time. During this increase, the cellular and mental mechanisms of the PhD student is being exhausted at a rapid rate and hence at a certain point ($t_{brokenpoint}$), 3 ± 0.3 years, there is an onset of the ‘I am forever fucked’, where the candidate has ‘ran out of fucks’ which results in the flattening of the curve. The stress level experienced in this point has been termed as the ‘maximum stress level’, although the argument has been put forward that there is no such thing!¹

The Model developed from this observation is given below

Stress is denoted by x ,

$$x = f(kt)$$

where $f(kt)$ is the function that denotes the development of stress over the variable t , time elapsed in the PhD. K represents a general Fudging constant.² $F_0 < f(t) < x_{max}$ and $0 < t < \infty$. x_{max} is a hypothetical number denoting the maximum stress that can be experienced by a PhD student before they literally break.

Our model

$$f(t) = e^t$$

With the initial value

$$f(0) = x_0 \quad (x_0 \text{ is the residual stress levels of life's other traumas, } 0 < x_0 < x_{max})$$

Future work

The authors have developed several hypothesis over the variation in the time period of each stages of the growth curve. These will be discussed further in future publications. The time points and stress variables mentioned in this research i.e. t_r , $t_{brokenpoint}$, x_0 and x_{max} also needs further exploration, although the author would like to warn the damned soul that wishes to explore x_{max} . Future experimental work should focus on multivariate analysis of stress development with variables like supervisory meetings, research deadlines, scholarship dates and their effects on the PhD candidate explored in details.

About the Authors

Once a lively energetic stary eyed researcher, Stress Ball Z has developed a global reputation for pessimistic anxiety driven research that is rocking the world one insecurity at a time.

Conflicts of Interest

There is massive conflict of interest between the Universities and the PhD students that the authors would like to report.

Notes and references

- 1 S. Slartibartfast, 1999, *J. Flim. Flam*, **3**, 2–7.
- 2 C. Fudge, 1976, *Tetrahedron Numbers*, π , β – θ .

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Towards a Total Synthesis of 3,8-Unethoxy-Discombobulene and Discovery of the Furzmeister-Wencke Reagent

Ava P. Wencke, Beer R. Yllium, Bert W. H. Smith, Orlaph N. Donuthin, Harold G. Furzmeister*

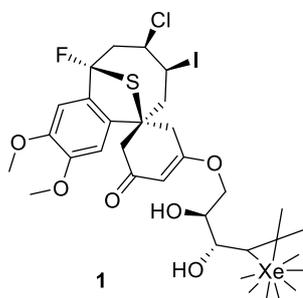
University of Technicalities and Inaccuracies (UTI)

* Corresponding author (but for real please don't contact me)

3,8-unethoxy-discombobulannulene is a wtfweryouthin-kingolide-type natural product which was recently isolated from a mould found growing on a cheese omelette in Kent (Fig. 1).¹ It features a complex polycyclic structure, with a challenging pentavalent carbon² and a rare heptamethyl xenon cyclopropane moiety.



The Kent omelette



3,8-unethoxy-discombobulene

Figure 1: 3,8-unethoxy-discombobulannuleneone was isolated in 2020 from a cheese omelette in Kent.¹

As we all know, total syntheses must always be justified in some way, usually with biological studies that no chemist cares about, because “the structure looked kinda cool” is not a good enough reason to get funding. Extensive biological testing showed that **1** was slightly more active than my bath water against RGEFGDWA1-B9 raccoon ear carcinoma cells. Raccoons are really cute (Fig. 2) and the lack of treatment options for raccoon ear carcinoma represents an urgent unmet medical need.

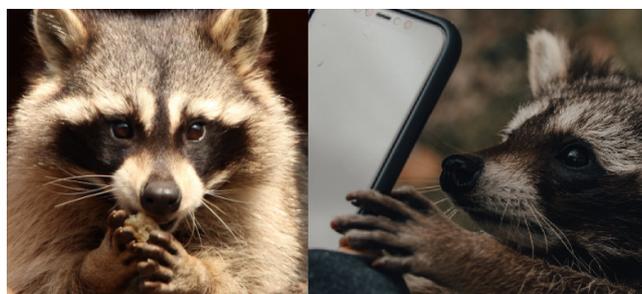
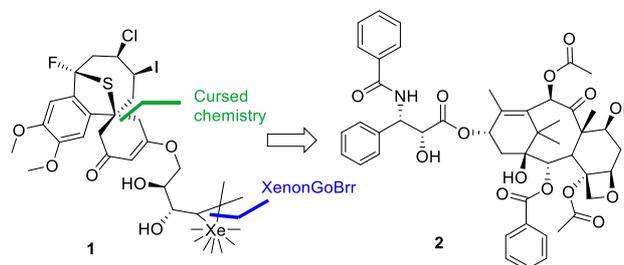


Figure 2: Raccoons are really cute. Their little hands are grabby. Cute little grabby hands.³

Starting from the readily accessible Taxol **2**, we imagined that the pentavalent carbon could be constructed using recently described Cursed Chemistry techniques.²

The xenon cyclopropane unit could be installed using a XenonGoBrr reaction.⁴ Subsequent dysfunctional group transformations would furnish the desired 3,8-maxi-discombobuloxylene **1** (Scheme 1).



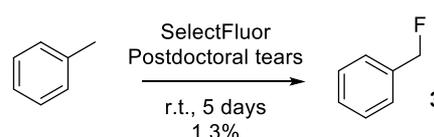
Scheme 1: Retrosynthetic analysis of 3,8-unethoxy-discombobulannulene from Taxol **2**.

This pathway was promptly abandoned once we began the synthesis.

Results and Discussion

As a first step on our journey towards 3,8-phthethoxy-discombobulobularyleneamine **1**, I insisted that our PhD students synthesize their reagents themselves instead of ordering them from Thigma Helldrich. The grant money was used up on their plane flights to a boron mine in South America. They have yet to return.

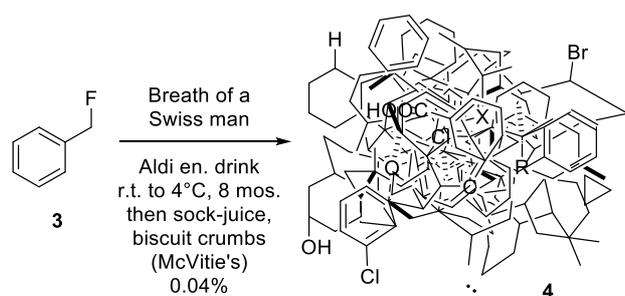
The project was handed over to our dynamic team of totally-not-depressed postdoctoral researchers, who took turns crying into a flask containing toluene and SelectFluor for several days. This completed the first portion of the synthesis to afford the highly complex structure **3**, creating an entire carbon-fluorine bond in a single step, with a total yield of 1.3%.



Scheme 2: Construction of the C—F bond of **3** in a single step.

Next, we set out to do the rest of the synthesis. Benzyl fluoride **3** was dissolved in sugar-free Red Bull under air. (Just kidding, no one here has the cash to buy Red Bull; it was one of those Aldi energy drinks.) Our Swiss NMR technician, who had eaten a large fondue the night before (which he stated was made of cheese, garlic and Kirsch in a 1:1:1 ratio), breathed in the general direction of the reaction. It foamed and turned a tarry black colour. When bubbling had ceased, the reaction was sealed, labelled “thingy 2 purif”, placed in the back of the fridge, and forgotten until cleaning day eight months later. During purification, it is important to drop the flask on the floor near the break room (where all the digestive biscuit crumbs tend to accumulate) and mop up the sludge with one of Doug’s gym socks. This proved to be crucial for the reproducibility of the yield (Scheme 3).



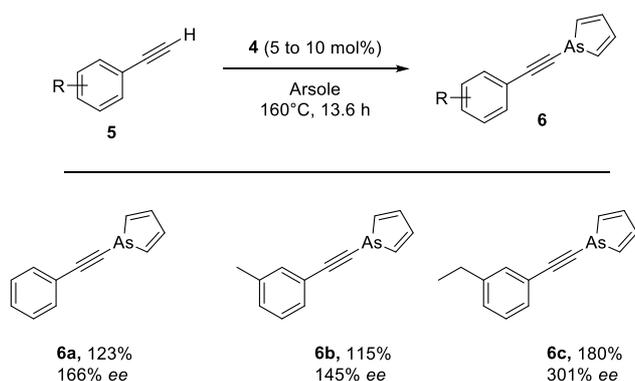


Scheme 3: Formation of complex polycycle **4** in a single step from **3**.

After careful optimization, product **4** could be isolated in 0.04% yield from **3** (for more details, please see the Supporting Disinformation). We have no clue what the ever-loving fuck it is, but we have confirmed via detailed spectroscopic analyses that **4** contains carbon and hydrogen atoms, perhaps a few oxygen atoms, a couple of nitrogens, some halogens, maybe even the original fluorine; who knows. Someone said they saw it moving at one point. Structural elucidation is ongoing.

The reaction depicted in Scheme 3 represents an unprecedented, novel, flagship, seminal, concise, [*any other pretentious adjective you can think of*] increase in complexity in a single step, and has laid the foundations to complete the synthesis of the target compound 3,8-phthphthethyl-discombobulobulorlylamylhexylamyloyl **1**.

We were interested in the reactivity of **4**, especially as a chiral catalytic arsenylating reagent, because why not. The ideal conditions involved heating an alkyne substrate **5** in arsole in the presence of 5 to 10 mol% of **4**. Pleasingly, all of the substrates afforded the arsole products **6** consistently in over 110% yields and up to 301% *ee* (Scheme 4). The scope is large, tolerating an additional methyl group and even an ethyl group in one position.



Scheme 4: Scope of the enantioselective arsenylating reaction employing the Furzmeister-Wencke reagent **4**.

With these experiments, we have shown for the first time that it is possible to *create matter*. We have decided to humbly name **4** the ~~God~~ Furzmeister-Wencke reagent. Further exploration of the reactivity of the Furzmeister-Wencke reagent, as well as a detailed mechanistic study, will be published in due course.

Conclusions

Tl;dr: We did some stuff and got Furzmeister-Wencke reagent **4**, which might one day be useful for making 3,8-undiethoxy-

discombobulobulobulolene **1** to help raccoons. It also creates matter, which is nice.

The Supporting Disinformation containing experimental data, spectra, and reaction conditions can be accessed free of charge by completing the online game “guess which one of these pictures of my skin folds is actually my bum” on our research group website.

About the Authors

Ava P. Wencke is a researcher doing sciency stuff. Her career plans include travelling to the Florida Keys where she will wander around naked in the hopes of getting arrested and sent to a mental asylum where she will fake amnesia until she is given a new name and a nice flat in an assisted living facility by the sea.

The other authors couldn't be bothered to write an “about” section.

Author Contributions

All authors contributed equally to the errors in this manuscript (except for Orlaph, he did absolutely nothing and no one knows why he's on here). Ava and Beer carried out the experiments. Bert brought cake for afternoon tea sometimes.

Conflicts of Interest

This research was funded by Big Omelette for no particular reason at all.

Acknowledgements

We gratefully acknowledge Big Omelette grant number 832748248 which was spent on the PhD students' flights to South America. Thanks also to the local police department who are searching for the students there. Doing a great job, hope they'll be home soon with their fresh reagents.

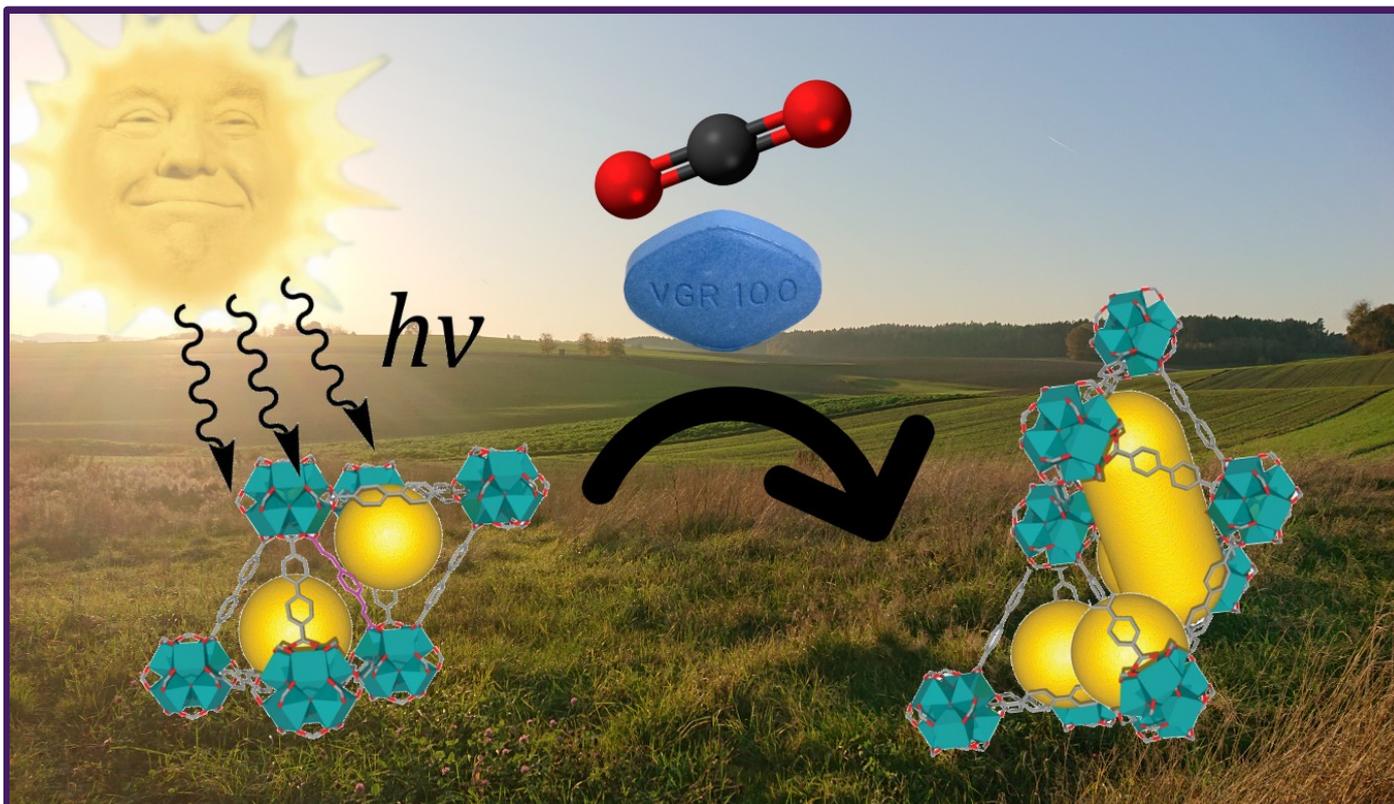
Notes and references

- 1 For an important review on the subject of cheese omelettes, please see: MrSchwab, Omelette du Fromage, *UrbanDictionary*, 12 December 2012.
 - 2 Washing, F.; Mhama, J.; Dover, B. Applications of Cursed Chemistry in the Total Synthesis of Impracticatol. *J. Immat. Sci.* **2021**, *1*, 21-23.
 - 3 Look at their little grabby hands. *Look. At. Them.**
 - 4 Brr. (Brr.)
- * The raccoon images used in this manuscript were obtained from the stock photo website <https://www.pexels.com/>. No raccoons were harmed in the making of this manuscript. However, many PhDs and postdocs were harmed. Even the lab cactus has suffered.

So there you have it. We've seen mouldy omelettes and moronic acids, phosphine oxides and phallic acids. With stories, songs and spectra, reviewers, racoons and rhenial failure, we have skirted the extremes of eccentricity and the depths of depravity. We hope you've enjoyed it as much as we have, and we look forward to seeing you all again for the next edition.

Günther Schlonk





On the back cover: “Platinum-Based Pentazolato-carboxylate Metal Inorganically Linked Frameworks for Direct CO₂ Capture and Solar Fuel Applications”

C. Klein, J. Kimmel, T. Kaputtke, Omar Yogi and R. A. Freud.

Metal Inorganically Linked Frameworks (MILFs) have recently emerged as an alternative to more conventional Metal Organic Frameworks (MOFs). Freud and co-workers have prepared a novel MILF featuring pentazolato linkers. Platinum oxide was isolated from stolen catalytic converters, while the linker was prepared via Hirohito a coupling. The resultant MILF was characterised by PXRD and elemental analysis. The authors observed pronounced host-guest interactions, stimulus responsive behaviour and a variable sheer modulus. The catalytic activity of the MILF was also investigated: when suspended in octane, a high conversion of CO₂ to n-alkanes was observed, with exceptional selectivity for the C8 isomer.

Full Text: Page 43–45

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