



BOOK PROPOSAL:

Daily, Happy, Grind

The book about pestles and mortars that's actually about everything else...
[for a more explicit title,

or

Beyond the end of our noses

Sustainability questions no one asks and why they matter so much
for a more general, implicit one.

Working titles

*Others considered: Green Pinocchio's pestle of a nose—Our Daily Grind—Getting a grip—Getting to grips—
What effort?—Crushing and pondering — Worldview in a mortar — Through the mortar-bowl—Mortar
dregs: another reading of the future — The web we live in*

Other subtitles: A pestle and mortars' lessons on ecology and health—Big ideas on little things]

by

Juliette Deseilligny

“Dear Juliette—You are a really good writer. Great job. You are doing a good thing with this, and good luck!”

Derrick Jensen (“the poet-philosopher of the ecological movement.” Democracy Now!)

“Hi Juliette—The book sounds interesting, ambitious. I would [definitely] look forward to reading those [sections] on the mortar and pestle itself. Good luck and all the best”

Ethan Welty (Falling Fruit Co-founder & Executive Director)

Daily, Happy, Grind joins a body of recent publications concerned with popular, evolutionary anthropology and a return to simple living, natural-ness, holistic thinking, ancient crafts and techniques—C. Bingham’s *Wild Kitchens* (Thames & Hudson, 2020), L. and M. Purbrick’s *Grown and Gathered: traditional living made modern* (Plum, 2016), K. Bowman’s *Movement Matters* (Lotus, 2016) and *Move Your DNA* (Propriometrics, 2014), E. Le Corre’s *The Practice of Natural Movement* (Victory Belt, 2019)¹, C. McDougall’s *Born to Run* (Knopf, 2009) or *Natural Born Heroes* (Knopf, 2013), T. Gooney’s *Natural Navigation* series (Sceptre, 2013, 2015, 2016, 2019), F. Couplan’s *What Plants Have to Tell Us* (LLL, 2020) [OT: *Ce que les plantes ont à nous dire*] and many others.

However none of these are as broad both in ground covered and subsequent picture painted, or potential audience, nor as rigorous on their scientific background. Those concerned with food, nutrition and waste all leave aside the important aspects that *Daily, Happy, Grind* strives to cover; none even mention cooking tools as being of any relevance, and very few are both essay and handbook.²

Genre

NONFICTION

Categories

Food & Drink, Health & Wellness, Nature & Environment, Business & Economy, Politics & Public policy, Community Resilience.

‘Cover letter
summary’:
Positioning statement

“While many people support a conservation ideal on paper, (...) our daily actions suggest we either don’t truly perceive the cost and unsustainability of our lifestyle, or we are simply unsure of how to begin to live a different way.” K. Bowman³

So much of what is written, or spoken, these days, ‘sounds’ like a photograph whereas it’s just a sketch... and not often a good one. We are made to understand that the tip of the iceberg is the iceberg. After all, that’s a lot more manageable, especially if the submerged part is infinitely big... And that is arguably why people find nutrition advice confusing and supposedly contradictory, why we still hear of ‘believing’ in climate change, why experts seem to contradict each other so much, why laypeople increasingly contradict experts.

¹ See ‘Related publications, selected’

² See ‘Related publications, all’

³ ‘Food Moves’, *Movement Matters*, p.116

Knowledge and the ability to communicate it is not just 'facts', it's *which* facts, what about them, talked about how? And the choices made in these regards are what make us cringe when we read about a subject we actually know.

I was interested in health and in ecology; I was critical of what I was reading and hearing; I was understanding these topics more; and by so doing, **I was finally understanding the ambient confusion.**

That is what prompted the book hereby proposed. I wanted to share my understanding of the complexities hidden behind the flawed over-simplification so prevalent in the public discourse, all the more motivated by the fact that this critical curiosity led me to reach a different diagnostic of ecological and public health issues to what is commonly presented.

Sustainable living and energetic autonomy concerns are growing every day. They are, arguably, the focus of the 21st century. But figures speaking in the name of those subjects do not say anything positive: our ever-expanding energy use is simply not sustainable in the long run—so-called 'clean' energy is riddled with limiting factors.

Despite this, focus in the public discourse is on 'green energy', not 'less energy'. Tree-hugging Luddites are imagined anywhere de-growth is mentioned, and arguments in the matter are too often simplistic both ways.

This book therefore calls us all to reassess what energy we use rather than wait around until we run out of it, trying to make it green. It sets out to pave the way for a change of discourse in these matters and allow a mature discussion to take place by clearing up both scientific and common misconceptions.

It also aims to provide incentive by addressing the issue of human health which is a much more tangible concern for most people than environmental issues, and another key (and confusing) challenge for the coming century.

Human health and 'environmental health', as it could be called, are in fact very tightly linked, and that connexion is the backbone of the proposed work, as it studies how much both benefit from externalising the energy needed for daily living less.

It also aims to be a practical guide in aspects of living a simpler life, starting in the kitchen with the pestle and mortar. The idea is to not only suggesting to readers *why* they should act but also to give them the tools to do so. (And to bring those innocent pestle-users to see the sustainability of their ways...)

It is currently near-impossible to find practical and in-depth resources on traditional house-hold equipment such as mortar sets; the mismatch is impressive between their visibility, and their called-for use or the knowledge how to do so—where a French cookbook from 1826 held 93 different recipes which call for its use, today 93 different blogs just give the same pesto recipe.

This book aims to fill the void, collate current and past know-how and thus reinstate and enable the pestle and mortar as a modern, functional and highly versatile tool worthy of consideration for its culinary potential as well as its health and life-supporting ones.

'Cover letter
summary': Structure

The aim of the proposed book follows is to be very fluid in its argumentation, funnelling in from general observations and considerations to highly specific ones, to really take readers by the hand and guide them through the thought-process.

Introduction — An overview of the environmental state of the world and how urgent it is to switch to sustainable lifestyles, and of the increasingly worrisome state of the world population's health. Introducing the notion that we overlook many things which could provide answers to both problems, such as moving away from mechanised labour-saving devices particularly daily in the home.

[Because of writing on 'touchy' subjects as a formal outsider (*eg: nutrition*), the introduction is followed by a foreword which borrows J.S. Mill's voice to speak of logical fallacy—a leading cause of friction—as an anticipated address of any criticism that the some of the book's positions could generate.]

Body— The book will starting with the most general principles, of human and environmental health and how the two interact, to travel to more specific issues —pestle and mortars themselves—and finally end with practical instructions on preparing food with a pestle and mortar.

- [Part 1]
 - The planet is in a terrible state.
 - Human health is actually in a pretty bad state.
 - “Social health” is also in a pretty bad state.
 - Human health benefits greatly from slow regular daily effort.
 - The planet and society suffer terribly—obviously and less obviously—from humans avoiding slow regular daily effort (via mechanisation—its “whys” and its “hows”).

→ **A return to the use of very simple hand-powered tools may be the true key to a sustainable future.**

But:

- We don't understand the more complex implications of using them.
 - We've forgotten how to use them.
- **Need to be further educated on the use and implications of hand-powered tools.**

Focus on one hand-powered tool: the mortar and pestle, because it implies food, and food plays a big part in human health.

- [Part 2]

Implications of mortars and pestles being a processing tool, frequently used in conjunction with fats and implying food diversity.

 - What does different forms of processing imply for human health?
 - What do fats imply for human health?
 - What does food food diversity imply for human health?
 - How do these affect the health of the planet as well?
- **Use of the pestle and mortar as a tool.**
 - Which sort to use for what?
 - How to use them?
 - Where to find them?
 - How to maintain them?

→ **Then, what to make food with them?**
- [Part 3]

Ways food can be prepared with a pestle and mortar.

 - Breaking
 - Powdering
 - Wet-puréeing
 - Fat-puréeing.

(With sub-categories; illustrated with specific recipes for cultural and

historical context.)

Appendices — Provided for an even more user-friendly and practical experience of the book.

- **Indexes:** alphabetical / technical terms (*relating to Parts 1 and 2*) / recipes (*relating to Part 3*) / ingredients (*relating to Part 3*) / 'shortcuts'.
- **Resources:**
 - Online and physical places of practical interest.
 - Excerpts of a 19th-century recipe book featuring extensive use of pestle and mortars.
- **Further reading/references:** 'places' of theoretical relevance to the topics covered, bibliography.

Target audience

This book would appeal to those interested in ecology and nature, health, and cooking; to the curious and open-minded, potentially sceptical about where society is headed or just interested in ordinary people's every-day lives from a historical or anthropological perspective.

- Ecologists, cultural critics, foragers, sustainable or nature minded cooks, Zero Wasters, holistic health and low-tech adopters, pestle and mortar enthusiasts/owners, evolutionary anthropologists.
 - "Rebecca": 25-yr old junior Doctor, aspiring GP, very interested in focusing on preventive medicine and medical improvement strategies; weekend foodie.
 - "Thibault": 26-yr old agronomic engineer and environmental lobbyist, always critical of mainstream discourse even within ecology; on a path to zero-waste; keen cook and forager, trying to bring his hyper-rational partner into day-to-day sustainability.
 - "François": 55-yr old ethnobotanist and well-connected author who writes and teaches about foraging, food diversity and autonomy for a living.
 - "Helen": 42-yr old physiotherapist eco-renovating her cottage, interested in holistic and 'alternative' health, very critical of where society is at and is headed; avid cook and growing her own vegetables; keen on educating her two daughters 'the right way', not 'the mainstream way'; fighting the implantation of wind-turbines in her village because she believes they are not a true solution to the energy and climate crisis.
 - "Richard": 70-yr old retired journalist, cyclist and traveller, polyglot and writer who keeps numerous commonplaces and is always keen to speak in cafés to unassuming locals for the particular insights they may provide.
 - "Amadis": 29-yr old geologist, minimal footwear and natural movement enthusiast, getting up at 6am to move and read before getting to the office, fed up of his current position in the oil industry and longing to make sense of the world and be a more active part of it changing for the better; feeling like some part of his native Haiti had its priorities better sorted than the Paris he lives in today, but can't quite put his finger on what.
- Cooks, fitness and health enthusiasts or minimalists, not especially environmentally-minded but generally curious, critical and open to new perspectives; those interested in history and anthropology, technology and tools.

Provisional specifications

- “Edda”: 43-yr old food blogger of Italian cuisine, curious and keen on sharing in-depth knowledge and novel points of view, and the human backstories to food ones.
- “John”: 51-yr old historical re-enactor and experimental archaeologist who uncovers the old ways of doing things and their benefits on his largely-followed YouTube Channel, with a particular focus on food.
- “Melanie”: 35-yr old podcast sales manager, runner of semi-marathons and very health-conscious, who enjoys her avocado toast brunches but would be ready to forgo them, given sufficient incentive.
- “Theresa”: 29-yr old political advisor, very keen reader of history; much more socially than ecologically engaged; a Labour-activist very critical of mainstream opinions such as the adoration of personalities; not keen on cooking just for herself, but quite health-conscious, she would never dream of using a pestle and mortar but would be interested in reading on how (on earth) doing so could be beneficial to society.

Current draft: c.35,000 words (full structure and argumentation, bullet-pointed, written out in parts).

Suggested publication formats (For suggested style please visit the [Pinterest board I have created](#).):

- *Illustrated hardback.*
 - Potential illustrations: hand-drawn pictures and graphics by myself (see examples of my work at www.juliettedeseilligny.com), photography.
 - Subjects: food, step-by-step, figures (infographics), journalistic. Eg. *On Beauty*, (Secker & Warburg, 2004) by U. Ecco, *Salt, Fat, Acid, Heat*, (Simon & Schuster, 2017) by S. Nosrat, W. MacNaughton.
- *Non/minimally paperback*
 - Potential minimal illustrations: black & white photography, charts.
 - Subjects: Journalistic, figures (infographics). Eg: *Your inner Fish*, (Pantheon, 2008) by N. Shubin, *The Upcycle*, (North Point Press, 2013) by W. McDonough.

Key selling points

- **Strong and growing public interest in the individual topics covered**—Nature, ecology, simple living, cooking, health, nutrition, food diversity and rewilding, to name the main ones: all of these are subjects which people are increasingly interested in, and they are all brought together in this work.
- **Appeal to a variety of audiences**—There are many possible ‘doors’ into the work, as stated above, but beyond the subject-matters, the format can speak to many: part non-fiction, part handbook, thorough but accessible, it can be as much for an essay-loving ecologist, a cookbook user, a scientist or a lay-person.
- **The missing book on the subject of pestle and mortars**—Despite the fact that myriad hyper-specific cookbooks exist, dedicated (English-language) recipe books focusing on mortars and pestles are extremely scarce (see *‘Related publications, all’*) and barely give any contextual or general information. Articles or videos online are equally rare and incomplete. Only one book aims to be more than a simple recipe book

(see 'Related publications, selected'), but, again, it lacks a lot of information and is also full of mistakes and shortcuts.

No one source, printed or else, presents as comprehensive a view as here, even in national library archives.

- ***The missing book on a vital but under-appreciated and discussed field: movement ecology***—Similarly, only one other book has been written on 'movement ecology' as such (in 'related publications'), and it doesn't do so in such a detailed and structured way. It also focuses on different specific topics.

Other works focus on individual subjects—waste, de-growth, food diversity, etc—but none exposes their numerous key connexions though it is them that form the web we live in.

- ***'Current', as an appealing, accessible critique of technological 'progress' rooted in evolutionary science***—The recent million-copy success of Harari's *Sapiens* (see also 'related publications'), amongst others, speaks for people's interest in cultural criticism. As this one does, Harari's book looks way back to understand current ailments and pave out an improved future—and on a conversational tone.

However this one aims to remain steeped in science and keep away from putting words in History's mouth. By mine aims to stay scientifically rigorous, and should speak to specialised and non-specialised readers alike.

Author

(presentation and platform)

My name is Juliette Deseilligny, I am a 27 year old Franco-British Paris-based deep ecologist, ecosophist, artist, zero-waste, rewilding and philosophy-rooted-living advocate, following Thoreau's precepts of thinking your life and living your thoughts. I have initiated and co-created, beginning of 2021, an organization to promote and democratise deep ecology in France, named Philomène and to be launched this spring.

I have always written. Personal works can be found on my website (www.juliettedeseilligny.com), from poetry to opinion, notably a 3,000 word creative non-fiction biographical piece—'[A Manifesto for Change](#)'. My writing also lives publicly on Instagram where I have run a very word-centred blog for two years on food and sustainability which gained an outspokenly keen following. I also enjoy translating both literary and journalistic texts between French and English. I have written a long-form article for [No-Tech magazine](#) outlining the contents of the parts of this proposed work on pestle and mortar per say, to be published in 2021, and been interviewed by the podcast [Go Simone](#) for their 24th episode, aired in March 2021 and available on all podcast platforms, discussing in particular critical and original thought and outlook, related to environment and health.

I am very involved in the sustainability scene through my work as manager of a second-hand and upcycling store for three years, my experience of intentional communities and other personal engagements.

I am also very involved in the 'alternative' health and fitness scene through activism around natural movement (MovNat and hébertisme) and re-wilding.

My theoretical interest in these subjects as well as terrain experience and nurtured penchant for criticality—a trait developed while studying Visual Studies at Norwich University of the Arts—have given me a unique grasp of the issues of waste and sustainability, which motivates and infuses my expression.

My out-reaching enthusiasm and active involvement mean that I could valuably contribute to sales and marketing of a published book:

- **I do not shy away from knocking on the right doors** to give a voice to causes I care about. A few past examples of this, beyond publishing for No-Tech magazine or speaking on Go Simone which I both secured this way, include:
 - **Local networking** — I was able to create quite a name for the thrift-store I managed, and set myself up as a local reference regarding the second-hand and ecological sectors in the process.
 - **Reconnecting with the family of the founder of 'hébertisme' to re-launch it in the Paris region** — From mere interest in 'natural movement', I got in touch with the grandson of its founder (Georges Hébert), from where we successfully re-launched the activity regionally.
 - **Getting involved in creating a sustainability label for bakeries** — After hearing a podcast in which a leading young pastry chef was talking of the creation of such a label to promote more sustainable practices and serve as a basis for educating differently, I got in touch and am now on the committee working on this.
 - **Sharing visions with leading French ethnobotanist** — From mere interest in foraging and ethnobotany I ended up exchanging with François Couplan, French authority on the subject, after sending him my 'Manifesto for change' which he was very interested in.
- **I know which doors to knock on**, very well-informed on the culture surrounding the many topics I write about, be it in publication, podcasts, radio shows, conferences and symposiums, associations, or the communities that underpin them.
Potential endorsers could therefore include:

In a mix of the sustainable, tradition-led or wild food worlds, the 'lifestyle) rewilding', history/anthropology or critical fitness ones, or in ecology, cultural critique, philosophy, anthropology or minimalism:

The Oxford Food Symposium, the Association for the Study of Food and Society, the Sustainable Food Trust, Low-Tech magazine, Bee Wilson, BBC4's On Food, chefs Olia Hercules, Sean Sherman-Oglala Lakota, Pascal Baudar or David Lebovitz, Katy Bowman, Erwan Le Corre and other MovNat affiliates, Tony Riddle, Steve Kamb, Chris McDougall, minimalist footwear brands, Zero Waste and eco-housing circles and intentional communities, prof. Tim Ingold, prof. Alan Drengson, YouTubers Joseph Everett and Townsends, scholar Barbara Burlingame, Alan de Botton, Ann Gibbons at NatGeo, Joshua Millburns and Ryan Nicodemus (at 'The Minimalists'), and many more...

I also know of physical spaces which would be up for hold speaking events in view of promotion.

I am already working on creating a community around the topics central to the book, uphill of any possible publication, with a dedicated blog in the oven, discussions started with influential people I reached out to—some of whom mentioned above—and underway with a few places to hold workshops there.

Related publications,
selected

Alchemy of the Mortar & Pestle (The Culinary Library #1)

by D. Gramp, P. Gramp

Paperback, 142 pages

Published March 10th 2012 by Createspace Independent Publishing Platform

ISBN 1451507119

€16.27

This indeed is “the first cookbook for this kitchen tool”. But were there any others out there, it would not compete:

- It is unreferenced and contains false information both in the details and on the larger topics.
- Many subjective statements are provided as fact with no further explanation. Shortcuts are taken, and much of what is presented is very superficial. Other times it is simply irrelevant.
- Much context is missing, manifested, for example, in the lack of section introductions.
- Many basics are missing: the book dives straight into specific recipes without having ever covered the general ground (tahini-based sauce is given, for example, but pure tahini is not).
- It is impractical, unusable as a handbook because it lacks an ingredient index (adding to the fact that the layout is poorly designed, flawed and inconsistent).

Movement Matters

by K. Bowman,

Paperback, 256 pages

ISBN 1905367775

Published 30 November 2016 by Propriometrics Press

€13.52

I owe much to this collection of essays, the pioneering and only published work on ‘movement ecology’ in its own definition. But many ramifications are quite naturally left unexplored. Much is left to be said, numbers to be given, different audiences to be reached, dots to be connected and precisions to be made, beyond what Bowman covers.

My proposed work aims at broadening the audience scope of her valuable and important voice far beyond Paleo-eaters, Earth mothers, natural-movers and ‘rewild-ers’. Given the scope of the discussion, it seems necessary to pull in the simply curious or critical, alert the caring and the physically-minded, and encourage the doers.

If so many today ‘know’ but don’t act, it may be because they don’t actually know enough. That is why I give figures and many more concrete examples than Bowman does:

- The extent of the impact difference both on health and on the environment between the two options—electrical or manual—is far from obvious to most people. so where Bowman writes “*Swap out one electrical device for an old-fashioned equivalent where no electricity is needed! Not because you’re a Luddite, but because you’ve listed ‘move more’ and ‘consume less fossil fuel’ as goals*”⁴, I devote two chapters (1.II, 1.III) to explaining and proving this statement.

- Elsewhere, she writes “*But what if there is more than one type of processed food? You’d probably consider [a whole, a grated and a cooked carrot] a “whole” food, but they are not the same (...). So far, so good. “While they could be equivalent in dietary nutrients,”—actually they aren’t, and that needs a substantial explanation in itself—“each requires different work from the body and thus each contains different mechanical nutrients. (...)*”—this would also need to be explained as it probably remains quite mysterious to laypeople—“*There is a benefit to, perhaps even a need for, not always using [processed—even traditionally—foods], if we want to be fully nourished*”⁵—but not only: as reminded above, there is also a need to eat foods processed in different ways.

This paragraph makes a good point partially—it would need many more precisions to yield a full story.

My book explores in a first chapter section (2.I.1) processing methods and how much they differ, as much from one another as from ‘not-processed’, and moves on (2.I.2 and 2.I.3) to food diversity, as the same logic is at play.

The flowing structure of the proposed argumentation is another way my book aims to be more inclusive. Bowman’s essays leave much to the reader’s own interest and intellectual curiosity to connect dots and look further. I believe this is insufficient for most, who need to be clearly taken by the hand and accompanied on a journey from A to B.

My book also aims to provide the practical information omitted in *Movement Matters* and unavailable anywhere else—a hurdle I myself faced after reading it and wanting to act upon its ideas.

Move your DNA

by K. Bowman,

Paperback, 301 pages

Published 25 September 2014 by Propriometrics Press

ISBN 0989653943

€39.93

This work is exposes the concept of biological sedentarism in an unprecedented way. It shows the extent of the effects that context has on movements, and should therefore be considered much more than it currently is. It also makes a very compelling point for why we need to move our bodies down to their individual cells, and why that is sensical rather than exaggerated. It therefore shows us how what we consider ‘exercise’ is in fact less important from a health perspective than what we don’t.

But to effectively shift perspective this way it is necessary to really understand the true extents of complexity and diversity. The proposed work therefore picks up where Bowman left things with *Move Your DNA* and goes deeper in other, complimentary, ways.

Scientific reinstalment of what seems—afterhand—obvious common sense, but is absent from the scientific or medical fields (and beyond) is a mission shared by the *Move Your DNA* and the proposed work.

Similarly to Bowman’s other book analysed above, *Move your DNA* is for a small audience. It is quite biologically technical, is not narrative, and is laid out as,

well... Let's say it doesn't come across as a New-York Times bestseller.

The health-supporting message, however, is of great interest and of very democratic concern. This is why my book carries the essence of it across but 'packaged' in a way which should attract a much broader panel of potential readers, and again (similar to the points made regarding *Movement Matters*, above) goes into much more detail for the sake of the reader's full understanding of the issues.

Both mine and Bowman's are the kind of books where one element of its demonstration, taken out of context, may seem ludicrous (Modern underwear is a form of sedentarism? — You're planning to save to save the word with pestles and mortars?), but given a chance to elaborate, the argument turns very logical and serious, and the mismatch is fascinating.

The Practice of Natural Movement

by E. le Corre,

Hardback, 480 pages

ISBN 162860283X

Published January 2019 by Victory Belt Publishers,

€33.33

This book, like the previous and like that proposed, is both a philosophical call for us to re-think our notions of health and how we, as humans, evolve in our environments, and a practical handbook, showing readers 'how' after having made the point as to 'why'.

It convinces us of the necessity and urgency of a return to far less artificial living environments and patterns, and calls us to understand and take into account the complexity of how we function as an animal specie—to re-evaluate our views of effort, comfort, time and energy expenditure in a holistic and long-term perspective.

Where the proposed work differs is in its distinct focus. Where Le Corre looks at 'how we move', I explore 'how we do things'. His work makes the point for why you may want to squat on the ground and shift around—to use a pestle and mortar, for example—rather than stand erect and static, but not why using the pestle and mortar is health-supporting from a nutritional point of view, or why it is ecologically interesting, which are my subjects of concern.

Sapiens

by Y.N. Harari,

Paperback, 512 pages

Published 23 April 2015 by Penguin Random House

ISBN 0099590085

€12.00

(complement to \$4 of 'Key selling points')

This book is similar to mine in that its focuses on connecting dots, in painting a holistic picture, on simplifying complexity at the same time as celebrating it and on looking in the past to question the present state of societies. Both tackle big questions and do not hesitate to suggest big moves.

And *Sapiens'* commercial success speaks for reader's interest in these things.

However my book aims to stay clear of its underlying over-assertiveness and the

shadow this casts. It aspires to more obviously rigorous foundations. I am inspired in these regards by the likes of John Yudkin's *Pure, White and Deadly* (1972)⁶, a pioneering essay on the dangers of sugar which does an excellent job of simplifying form without simplifying content and therefore misleading. It clearly distinguishes fact from deduction. Yudkin explains research methods and findings and their implications, points out limits and the scope of what remains unknown, or acknowledges bias both from himself and from others. He embarks readers on his reasoning process to show them how and why *he* came to certain conclusions he believes worthy of sharing.

Related publications,
all

Beyond these, the only material available on or around the topic specifically of pestle and mortars seem to be:

- **Books (English-language):**

(General)

Alchemy of the Mortar & Pestle (The Culinary Library #1) by D. Gramp, P. Gramp

See 'related publications' above for full review.

Paperback, 142 pages

Publisher: Createspace Independent Publishing Platform (10 March 2012)

ISBN 1451507119

(Cooking)

Mortar & Pestle: 65 delicious recipes for sauces, rubs, marinades and more by Valerie Aikman-Smith

Recipes-only, does not give any further information apparently.

Hardcover: 144 pages

Publisher: Ryland Peters & Small (13 April 2021)

ISBN-10: 1788793498

"Incredible flavours, inspiring ingredients, simple techniques – learn how to master the mortar and pestle and bring new sophistication to your cooking with 65 delicious recipes. The mortar and pestle are ancient tools that no modern kitchen should be without - they're handy for everything from simply cracking peppercorns and bruising fresh herbs to making sauces such as pesto and mole as well as marinades, spice pastes and dry rubs. (...) Here Valerie Aikman-Smith brings you an array of enticing recipes from around the world, all of which employ a mortar and pestle to bring creative seasoning and exciting new techniques to your home cooking. Beef can be made even more mouth-watering when prepared with an African Smoke Rub. (...) »

Pok Pok: Food and Stories from the Streets, Homes, and Roadside Restaurants of Thailand [A Cookbook] by Andy Ricker

A recipe-focused cookbook but containing **a few pages of contextual information** which isn't wide-spread, on the specific uses of wooden pestle and mortars in central Thailand.

Hardcover: 304 pages

Publisher: Ten Speed Press (29 October 2013)

ISBN-10: 1607742888

Mortar & Pestle - Aromas from a Peranakan Kitchen by Angelina Teh

Apparently out of print (not on publisher's website). No information available, but

apparently recipes-only.

Paperback

Publisher: MPH Publishing (2011)

ISBN-10: 9675997206

Mortar and Pestle - 5 recipes you have to try by Laevo Group

Nine pages only. Recipe-only.

Format: Kindle Edition, 9 pages

ASIN: B07J4GBDSW

(Historical)

The Wisconsin Archeologist Volume 3: Stone Pestles and Mortars by Wisconsin Archeological Society

Purely archaeological observations and research, artefact-focus.

Paperback: 178 pages

Publisher: Forgotten Books (Original publication: Jan 1924)

ISBN-10: 1333209363

Pre-historic Age: Tools, Techniques & Highlights Kindle Edition by CURIOSITY PUBLISHERS

6 *Pure, White & Deadly* by J. Yudkin, paperback, 200 pages, Published November 1st 2012 by Penguin (first published 1972), ISBN 0241965284, €11.58

Very short. **Is it even related to pestle and mortars?** Unclear...

Format: Kindle Edition, 5 pages

ASIN: B07QPHKN2T

(Miscellaneous)

"Original Famous Teacher Family Brand", The Mini Mortar and Pestle for Home Remedies: Age-Old Wisdom, Proven Products (Running Press miniature editions) by Gabrielle Tolliver (kit product)

Apparently medicine-focused. No extra information available. Very short.

Paperback: 32 pages

Publisher: Perseus Books (11 May 2005)

ISBN-10: 0762423153

The Mortar and Pestle, ("A Yearbook published by the Senior Class of the New York College of Pharmacy of Columbia University") 1924 by Eli Gershenovity.

'False friend': **completely unrelated** to the tool.

N.A.

- A few **articles** online aim to provide more than just recipes, but are extremely brief and often either slightly erroneous or downright false, or focused always on the same topics (senses, taste, nostalgia and meditative qualities):

[The Magic of the Mortar and Pestle](#) by Penelope Casas, The Taunton Press, APRIL/ MAY 1996.

[How to Choose and Use the Best Mortar and Pestle Set](#) by Lorna Kring, Foodal, 'spice grinders', January 4, 2020.

[The Daily Grind: The Humble Help of the Mortar and Pestle](#), by Shahan Cheong, Throughout History [A blog about antiques and history], January 4, 2016.

[The Mortar and Pestle](#), by Susan Belsinger, Mother Earth Living [Healthy life, natural beauty], April/May 2001.

[How to Pick the Best Mortar and Pestle](#), by Daniel Gritzer, Serious Eats, August 28, 2018 (updated: December 16, 2019).

[The Key to This Creamy, Thick Pesto? A Mortar and Pestle](#), By Samin Nosrat, The New York Times Magazine, November 7, 2018

- Quite a few **videos** exist on the subject, mostly in Spanish or Italian, presenting the same issues as the articles, mentioned above. They either cover seasoning mortar sets, reviewing specific brands/models, or showing how to make certain specific recipes, the scope of which is very narrow (pesto, aioli, salsa martajada...). Only very few videos give extra contextual or general information or show examples of other recipes. Some of those that do are:

[Pesto: la ricetta originale di Mauro Ricciardi e Giuliano Sperandio](#), by Italia Squisita, 5 July 2019, 7'18.

[Monter une mayonnaise dans un mortier](#), @Fractix82, 15 June 2019, 14'51.

[How to Pick the Best Mortar and Pestle](#), by Daniel Gritzer, Serious Eats, August 28, 2018, 11'11.

[Jamie Oliver talks you through using a pestle and mortar](#), by Jamie Oliver, 27 August 2010, 5'49.

[El mortero en la cocina](#), Armando Codesal and Alejandro Re, 9 Decembre 2011, 8'56.

Appendices

- 01: Preliminary Table Of Contents
- 02: Expanded TOC
- 03: Sample chapter 1: introduction.
- 04: Sample 'chapter' 2: a long-form article mixing elements from Parts 2 and 3—a chapter from either might look similar.
- 05: Cover idea

APPENDICES

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(The contents of an imaginary) Foreword By John Stuart Mill (1806-1873), Or: Touchy Subject(S) Ahead, Or: On Logical Fallacies (In Scientific Debate Particularly)

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TABLES AND APPENDICES

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2. **RESOURCES** (*Non-comprehensive, BUT: links to artisan physical or especially online shops, food label guides... Anything very relevant that could be of practical interest*)
3. **FURTHER READING** (*"Resources" of sorts, but theoretical rather than practical*)

02: Expanded TOC

(THE CONTENTS OF AN IMAGINARY) FOREWORD BY JOHN STUART MILL (1806-1873)

or: TOUCHY SUBJECT(S) AHEAD

or: ON LOGICAL FALLACIES (IN SCIENTIFIC DEBATE PARTICULARLY)

A short digression which I feel necessary, considering the context and subjects about to be discussed, on democratisation and its pitfalls, writing as a non-specialist, controversial and non-mainstream-views versus myths, and especially on logic and its fallacies in argumentation, even amongst specialists.

- Introduction: My legitimacy in writing this book—where my interest in the subjects at hand came from, my (scientific) approach.
- Problem of broken argumentation within specialist fields, which any critical layperson can be aware of; JSMill's study of this.
- Brief explanation of the different main types of fallacies, as identified by Mill
 - Formal fallacies: invalid premisses to a debate. (There is in fact no debate to be had.)
 - Informal fallacies: invalid argumentation of a debate.
- Conclusion: how common debates over right and wrong are, the damages of over-simplification, how fine the line is between healthy criticality and conspiracy theories and how that is not going to help anyone move forwards with the troubles we face.

PART 1: MOVEMENT ECOLOGY AND LOW-TECH

I. HEALTH OF THE INDIVIDUAL: AFFECTED BY USING LABOR-SAVING DEVICES

1. WHY START WITH HEALTH?

Comprehensive overview. It's a priority in society today, not only in itself but also intrinsically linked to the overarching problem of sustainability. The UN says so too. Western ways of life are shown to correlate with more disease and less fitness. Morbidity is increasing despite mortality decreasing (see *a.* below).

Let us dive in to understand the state of things currently and try to trace back to what aspects of our daily lives as large-scale, industrialised populations may have led us here.

- a. Overall strength and fitness are in decline, as is health in general despite increasing lifespans.** Importance of not confusing life expectancy with health. One is not an indicator of the other.
- b. Established causality link between physical activity (, nutrition?) and overall health**
- c. Extra consideration: the state of people's physical inactivity can be assumed much greater still than is interpreted** from the numbers – on top of what is said by researchers themselves about the nature of the studies yielding these numbers being prone to over-estimations – the most established view of physical activity is highly reductionist, only focusing on large-scale movement (relatively, as will be discussed later). As we will see throughout this section, what is qualified as sufficient, or moderate, activity, is really nowhere near enough.

2. THE HAND: Handgrip strength (HGS)

Hands are not only a logical place to step in considering this book's lens of hand-held tools, they also happen to be a surprisingly accurate reflection of the whole body's state of health and fitness. (+symbolic and evolutionary importance)

- a. FACTS: HGS continually decreasing.** Decline in “norm” and what that means. Confusion between “normal” in the sense of what the current trend is, and “normal” in the sense of how things were designed or what's deemed right. Nuance regarding the apparent supremacy despite this of westerners in regards to HGS in many studies: Link with overall corpulence; malnutrition and physical wear from strenuous and repetitive tasks in disfavour of developing countries.

- b. EFFECTS: HGS correlated with overall physical health and mortality.** Correlation found between muscle strength and overall mortality: Objective measures of physical capability are predictors of all cause mortality.

3. THE BODY BEHIND THE HAND: Getting it moving (again) – When/how and why?

Low-intensity, longer duration exercise (MIE); stress today; benefits of MIE and "slow living" on stress and overall physiology.

Today, we swing between extremes in terms of physical activity. More sedentary, less MIE. But what even do we mean by that? Realising the extent of sedentarism: "good design" or "efficiency" generally means a less movement. Call for a return to more movement but less intense, and the mindfulness it allows. Looking at the benefits and problems. Correlation between stress and inactivity.

- a. Return to slow movement: what even falls under the umbrella of MIE? Understanding the extent of sedentariness.** Realising the extent of what this means: even what we just call "good design" or "efficiency" generally means 'less movement.'

Taking a look at the variety of perfectly concrete, measurable effects of "Slow living":

b. Return to slow movement: The benefits of MIE on the body

- **Overall physiological benefits of MIE.** As it restricts muscular blood-flow, a certain metabolic subproduct accumulates in the muscles which stimulates the secretion of growth hormone. A chemical compound called Reactive Oxygen Species (ROS) which promotes tissue growth also gets produced in moderate amounts—a positive thing, as excessive production of ROS is shown to have negative effects.
- **Specific effect examples**
 - **MIE and BDNF levels in the blood.** BDNF (brain-derived neurotrophic factor) is one of the main proteins with the ability to promote the growth of new neurons in the brains of mammals. Its levels have been shown to increase with MIE such as walking.
 - **MIE and cortisol levels.** Cortisol is the hormone responsible for regulating stress. MIE reduces cortisol levels. High-intensity exercise, on the other hand, raises them. This would have been regulated in the days of near-constant MIE, but is not today because of the extent of sedentarism. Not only does the prevailing couch-to-gym model not reduce stress, it actually causes some.
- **Other stress from the lack of MIE and its own detrimental effects.** Conscious stress from lack of physical activity added to the "unconscious" biochemical stress.
 - **Guilt** (Who is not affected by the guilt of thinking that they "should move more"? How many people add "pick up sports" to their beginning-of-year resolutions? Who is unconcerned by money problems which a gym membership and constantly to-be-renewed sports equipment may be contributing to? Who doesn't complain and worry about "not having time"?)
 - **Money:** frequent cost of 'exercise' and 'sport' forms of physical activity
- **MIE, food and the body: Return to slow food-processing: nutritional advantages (more detailed in Part 2).** Traditional methods increase bioavailability, whilst sped-up processing not only doesn't increase it but renders the foods less nutritious overall. They also make certain foods edible in ways that can't be replicated through sped-up processes, and allow for beneficial pairing of certain foods, which mechanized processing can replicate in part only due to structural differences at a cell-level.

- C. Return to mindfulness: measurable neurobiological benefits.** The context in which we carry out daily activities—time, physical environment, social environment, mindset —and the type of activity itself—hard, easy, complicated—have been shown to have very tangible effects in the brain.

- **Mindfulness (meditation).** Carrying out activities manually and consciously.
- **Embracing effort: The satisfaction found in hardship.** Effort paradox: avoided at all costs on one hand, but sought-after on the other for its rewarding properties.
- **Nature/surroundings.** Connection with our surrounding environments and with non-manmade things.
- **Community.** Not necessary, but logical and therefore frequent in the perspective of slow-living.

4. THE SYSTEM BEHIND THE BODY (or the importance of context): Before and after industrialisation (and agriculture to a certain extent) from a physical health perspective

a. Evolutionary mismatch concept introduction

b. Better health in small-scale hunter-gatherer type societies. Modern-day examples of the Hadza and Tsimane populations, amongst others.

- **More moderate-intensity exercise (MIE):** Much higher levels of daily MIE, consistent throughout adult life. (Similar rise in physical activity observed during the re-enactment of ways of living of past centuries in Europeanized settings.)
- **However quality over quantity, to a measure:** Individuals' total energy expenditure does not vary much no matter the levels of physical activity — the body adjusts. Suggestion that it is the quality both of how one moves and what one eats, rather than the quantity, which is important.

Nuance/caution: Reminder (*as in 1.2.a.§2*) that hunter-gathers and other small-scale populations are **not comparable to rural or developing country populations, modern or historical**. Though these groups' levels of MIE may be equally high, the nature of it is mostly very different: variation, harshness, food, environments and such are all important factors which can tip the scales one way or the other completely.

c. Worse health in modernized societies: the problems brought around by labour-saving. Little direct data, however: Contrary to fat and energy intake, sales of domestic labour-saving devices and vehicles track obesity rates. Not only that, but women's obesity rates have risen more than men's. It may not be a coincidence that many labour-saving devices replaced the work carried out by women. Other general observations of worse health: *[metabolic disorder numbers, cancer etc, all much higher – see intro]*

d. The hand-made effect: Love in hand-made things and bore in mechanisation and the standardisation it implies. Implications on life appreciation. The products of mechanization have been shown to be found less appealing to people. Aesthetics, senses and satisfaction — in themselves and in the ties between them—are things which have direct implications on daily life, no matter how philosophically far-off they may seem. Many have argued that they are what make life worth living. Our appreciation of life could be greater if we were surrounded by and making more handmade things.

- **'Love and the human factor':** proven greater appreciation of things visibly made by people and with love
- **Motivation for the maker.** The products are also more appealing to those making them.
- **"Hand-made" vs "hand-made":** Nuance. One shouldn't confuse the mere fact of a task being carried out by a person and the loving work of the craftsman or someone who isn't in for the money (*In the same way as we saw earlier that movement carried out in a varied and self-motivated way, as within hunter-gather populations, was incomparable to that of intensive physical labour, as carried out throughout much of post-agricultural history and currently in developing countries; the effects are in fact opposite*)

Link to next: Hypothesis about how this lack of "love" in produce made mechanically, even at a very small scale such as within the home, could contribute to our wastefulness regarding labour-saving devices, which we are about to turn our attention to.

II. HEALTH OF ENVIRONMENTS: (around the individual) AFFECTED BY THE LABOUR-SAVING DEVICES THEMSELVES

General notions of pollution and social ills caused by industrial manufacturing.

1. PLACES: Pollution linked to the industrial manufacturing of tools

a. FACTS: Constant rise in number of electronic appliances bought and trashed; short lives and bad treatment once trashed

i. More and more bought

ii. More and more trashed. Most of it white goods and small household appliances, not high-tech.

- iii. **Waste not dealt with properly.** Most not even collected (80% not "traced"), and of what is, either not all recycled or re-used, and when it is, badly so (eg: rare metals wasted)
- iv. **Short life of appliances.** Difficult to quantify specifically, but for sure: Difficulty and cost of repairs vs ease and (relative) cheapness of new goods = strong encouragement for individuals to trash devices even if they may still be usable.
 - **Cheaper is less fixable:** High demand and lowering prices = more cheaply made so less fixable (fragile parts, soldered, one-way plastic clipping or heat moulding etc).
 - **Complex is less fixable:** Increasingly complex appliances (more digital/electronic components and/or general rising demand for high-end, more complex, devices) = also less fixable

b. EFFECTS: Pollution

- i. **Making:** pumping resources, energy, emitting CO2.
- ii. **Use:** Devices running mainly on fossil-fuels, CO2 emissions
- iii. **End of life:** More emissions of CO2 and methane, especially (from landfills), and pollution of ecosystems from "lost" trash and treatment factory by-products. Very small percentage of things eco-conceived (aka to be dismountable, recyclable etc).

Disclaimer: even though low-tech tools can be produced industrially, because of their much less complex nature and generally more sustainable materials and much longer life, their life-cycle would still be much less polluting.

2. PEOPLE: Social impact of industrial manufacturing.

Historical notion: marxist alienation

- a. **Materials: human "by-product" cost.** Human repercussions surrounding the trade of certain materials, specifically in the case of electric goods eg: *blood metals (wars around rare metals needed for tech in Congo)*
- b. **Making: work conditions & their implications & the advantages of smaller-scale manufacturing.** (*See also the hand-made effect (1.4.d)*)
 - i. **Personal negative consequences:** health, happiness etc of labourers and makers.
 - ii. **Social negative consequences:** inequality. Implications of the resulting hyper-polarised society.

Disclaimer: even though low-tech tools can be produced industrially, with these same ills as a consequence, at least the chance of them being produced in much smaller-scale models is much higher. You can find both industrially-manufactured pestle and mortars and electric blenders, but artisan hand-crafted blenders are not something I've ever heard of... I can't say the same for pestle and mortars.

III. HEALTH OF ENVIRONMENTS: AFFECTED BY THE CONSEQUENCES OF USING LABOR-SAVING DEVICES

The fitness and health industries, current 'answers' to the ailments of sedentary lifestyles, have an unimagined heavy indirect ecological cost. Looking into that.

Ex: picture all the infrastructure behind producing kitchen robots, **not in themselves but in the consequences of using them:** the gyms and devices called for to compensate arm muscle weakness and general lack of physical exertion, the specialized clothing worn in the process, the potential driving to and from the shops and gym, the building and eventual destruction of those, their maintenance, heating and electricity etc, all the same that goes into the sports textile industry;

- Bra example: You can even extend the category of "material needs as a consequence to using labour-saving devices" to the wearing of bras for women and therefore the whole lifecycle iceberg of that product.
- Grape seed example: Manufactured grape seeds out of many of the grapes consumed, in any case, in westernised countries (nearly the only available sort now in the US and the UK) which required infrastructure and work, which comes at an environmental cost, because easier/less work to eat. Seed's very beneficial substances factory-produced as grape-seed extract sold in plastic bottles shipped around the place.

- Processed foods example: We will see in PART II how the industrial and or mechanized processing of foods can reduce their nutritional value and potentially result in the introduction of toxic components.

It is crucial to understand that **no matter how initially far-fetched these cascading links may seem, they play a non-negligible part in why the westernised systems we live in require over two planets per individual** to sustain them.

1. **THINGS: Impact of the life-span of all the specialized equipment labor-saving goes hand-in-hand with and which the use of it demands**

(see also II.1.b) Gym clothing & equipment, but also medicine and nutritional complements

a. Making

i. Examples from the fitness sector

- **The “front-end”:** Fast-fashion, applied to sports. Exponential rise in numbers of consumption of goods and services in the fitness sector. Particular ‘fad’ aspect of sports generating an even faster consumption-waste cycle than for non-specialized clothing and equipment.
- **The “back-end”:** Workers’ and surrounding environments’ health: workers being exposed to toxic substances during the manufacturing process and factories spitting out toxic by-products, especially because synthetic materials are vastly dominant and ever-increasing in the fitness industry, and much of it is being made cheaply in countries where social and environmental regulations are low, inexistent or not-enforced.

ii. Examples from the health sector.

Rise in the consumption of nutritional supplements. Huge material cost of answering the metabolic illnesses for which sedentary lifestyles are in large part responsible.

b. Use

i. Examples from the fitness sector.

Energy consumed by electrical fitness devices both at home and in gyms.

ii. Examples from the health sector.

Energy consumed by the running of drug-industries and hospitals.

c. End of life

i. Examples from the fitness sector.

Issues related to the volume of production and trash and the evolutions in design, more environmentally demanding. (Vague) nuance: upcycling initiatives.

ii. Examples from the health sector.

Big trash generated by the health sector, linked to metabolic illnesses.

2. **INFRASTRUCTURES**

Impact of the life-span of all the specialized infrastructures (hospitals, gyms) labour-saving goes hand-in-hand with.

Precision on “sports”: All this is without even going into the field of sports per say and the environmental consequences of the whole field. It is my view—for all the reasons made evident in this chapter—that sport should be an addition to physical movement and not as the sole provider of movement in people’s lives. Relying on sports for providing the movement necessary to optimal health is logistically unsustainable.

a. Construction.

General ailments and environmental degradation, but some specifics:

i. Pure amount of energy and materials used

ii. Particular impact of the manufacture of concrete, used in the vast majority of construction.

Hugely used, increasingly and exponentially so; very detrimental to environments and human health on many levels; many argue that it’s the building craze in itself which is the problem.

iii. Impact of building on soils.

b. Life-span.

Environmental cost of running institutions.

c. End of life.

Toxicity of certain building materials in the long run. Pollution of disused buildings degrading into nature. Treatment or lack thereof of building trash. Short life-span of health facilities.

IV. CONCLUSION/OPENING: REMAINING CRITICAL IN THE FACE OF PROGRESS.

The simple-minded narrative of progress needs to be rethought. And if that makes us brush the dust off our pestle and mortars, then great. I think it should, that's why I'm writing this today.

1. INDUSTRIALISATION DOESN'T ESPECIALLY MEAN PROGRESS

Responsibility: As humanity reaches a point where it is clear that we can do pretty much anything the question of whether or not we *should* deserves our utmost consideration. Why should we care? Even if we were happy living less-healthy and less-happy than could be lives, it is not just our problem: it comes at the cost of others and the quality of their lives.

Why does industrialisation not especially mean progress? Examples, amongst many:

- Shift from intrinsic and long-term motivations to extrinsic and short-term ones.
- In large part accountable for the polarisation of levels of physical activity.

a. What do we mean by progress? Literally to progress is to go forwards. However just as one can do so geographically, in time, in quantity or in a set framework, one can also do so in much looser frameworks, such as concepts of right and wrong, good or bad. Therefore **determining a consensus as to what path we aim to progress on seems paramount.** One view of progress can just as well be seen as a regression from another perspective.

i. What are we after? Suggested goal (meaning that 'progress' would tend closer to it): Living happily and sustainably on this planet. Very different from economic growth.

ii. Long-term vs short-term happiness. Current prevailing model: never-ending loop of pleasure-seeking, consumerism and disappointment, not a reliable source of happiness in the long-term.

1) Time isn't especially actually saved with more mechanisation. The more time we have, the more we fill it up.

2) Consuming does not bring long-term satisfaction (consumption generally implied as what to do with saved time — a quest for pleasant sensations). Neurobiologically: pleasure as a survival device, needing to be as constantly renewed as the effort to survive. Can't get complacent.

3) Saving vs embracing effort: the proven satisfaction found in hardship. (*reminder of 1.3.d.ii*)

b. History of a critical view of progress. Measured thinkers and critics having doubted the apparent simplicity of newness as a synonym for improvement (progress). Calling to be realistic, objective and critical to avoid falling into a romanticized/Whig view of history.

2. SO WHAT? WE CAN'T EXTRACT OURSELVES FROM OUR NOW-INDUSTRIALISED SOCIETIES, BUT WE CAN REMAIN CRITICAL AS TO THE WAY WE LIVE IN THEM.

Maybe we can pick and choose as a sign of maturity rather than hypocrisy and graciously welcome the advances in medicine and communication while politely declining the dictatorship of consumerism and profit-making.

As Brancusi said, maybe we need to understand that "**Simplicity is complexity resolved**". And learn to embrace it.

We can only embrace what we know, so on that note, let us dive in and talk in much more practical detail about pestle and mortars.

PART 2: THE PESTLE AND MORTAR, NUTRITION AND OBJECT

I. NUTRITIONAL CONSIDERATIONS

To transform things away from their natural state less, but to do so better when we do. Understanding a tool starts by grasping its limits. How many times is leaving things as they are actually the best thing to do? *'Perhaps recognition of the nutritional quality of the traditional foods will encourage the preservation of the knowledge of traditional food customs.'*

1. ON THE PROCESSING OF FOODSTUFFS

Crushing : to process food or not to process it ? That is the question... Holistic view of nutrition. Understanding the science.

a. Problems of crushing: benefits of whole foods

i. From a biochemical point of view

1) The importance of the matrices of foods generally. Overview before more detail later on of the importance of the physical structure of foods in how the body assimilates. Processing can profoundly change these structures.

2) The role of fibre

- In transporting biological co-passengers
- Their incidence on the speed of sugar assimilation
- In contributing to the feeling of satiety

ii. From a mechanical point of view and its biological repercussions. Benefits of chewing, obviously more necessary the least the foods are processed

1) Physiologically: on the muscular and bone-structure of the face and neck

2) On satiety

3) Neurobiologically. Effects on cognition

b. Benefits of crushing: advantages of processing food

i. Make edible and/or make more nutritious.

1) Make edible. Removing wholly or in part anti-nutrients which would otherwise make the food toxic, either in the long or short-term.

2) Make more nutritious. Making micronutrients more bioavailable, and reducing or removing the anti-nutrients which make existing nutrients less or not at all bio-available. Food diversity often implied in crushed preparations is a key to greater bioaccessibility. Grinding foods actually “adding” external nutritional elements.

ii. To process in order to combine: the chemical complementarity of certain foods (Possibly more complex extensive that folk-tradition let on.)

- Proteins
- Iron/vitamin C
- Antioxidants/carotenoids

Transition: Forgetting traditions, forgetting the real reasons behind sayings. Example with the case of fats.

2. OIL: THE DEAL WITH FATS

(Touchy territory, reference back to the “Imaginary foreword by JSMill”.) Taking a look at what is beneficial and detrimental in both oil and fats in general to understand what we are dealing with and allow us to make the right choices. They can act as transporter of nutrients in combination with other foods, but also how valuable they can be nutritionally in themselves. Where the criticism surrounding them comes from; if it is justified.

a. The point of pairing fats with other ingredients: how they are a key to micro-nutrient bioavailability. (the fat-soluble properties of micro-nutrients). *Nuances.*

b. The intrinsic nutritional value of oil. Lipids as an essential macro-nutrient. Limiting factors: processing methods.

i. Nutritional value of fats, overview.

ii. Historical recap of how we came to demonize fats

1) A bit of history

- Nixon, Coca-Cola & Ancel Keys
- Precision: where information comes from. Navigating the truth, between officially recognized professionals and critical nobodies.

2) How fats *can* be bad. Circumstantial factors. Methods of processing.

iii. Ultra-processing/refinement as one of the main issue: the poor nutritional quality, or downright toxicity. The nutritional consequences of the processing method. Problem of the reductionist view of nutrition.

1) The general problems with ultra-processing and what that term actually covers. It starts when the original food-obtaining logic is flipped on its head, when the processing in itself takes the lead over – and forgets – the end product.

Process as a rich and worthy experiment in itself which is of interest vs process as a mean to ends which are completely exterior to both itself and its object of scrutiny.

2) Loss of some of the essential beneficial compounds found in cold-pressed oils during industrial processing. Antioxidants in particular. To understand why this specifically is problematic, let us look at the dangers of oxidation, the occurrence of which is significantly heightened in ultra-processing.

3) Residues and solvents introduced during processing. Hexane and its problems.

4) Specifically: oxidation

- Toxicity of oxysterols. Correlation of their levels in oil with the oil's level of refinement.
- Risks linked to the oxidation of cholesterol; beneficial roles of the various fatty acids found in lipids and their fragility to oxidation; the general problems of oxidation; the role of antioxidants to limit this; the heavy destruction of antioxidants during processing.
- Nuance.

5) Reminder of consumer numbers of ultra-processed oil consumption, high overall, on the rise globally, and in terms of proportion, largely favoured over non-refined types.

The problem in commonly opposing “home-made” and “industrial” as opposed to looking at processing levels in view of these numbers. NOVA classification.

6) Extra consideration: cold-pressed oil overall more environmentally friendly (/sustainable?) to produce.

Generally more difficult to produce, and very sensitive to “contamination” at all stages of the process, which calls for high-quality and care taken throughout (Industrial processing is much more ‘forgiving’).

3. FOOD DIVERSITY: A SIDE-NOTE WHICH REALLY ISN'T ONE

Maybe conveying an understanding of the mechanisms of diversity is in fact my main focus in this argumentation?

Therefore seems important to address explicitly at least once. How the concept of “diversity” reaches far beyond the common imaginary of vegetables vs meat and why it's so important to understand that. Raw, cooked, fat, lean, winter-grass-fed, summer-grass-fed, specie A or B, wild, cultivated, from this area, from that, mashed, cooked, raw, in a salad, on its own, combined, whole, partial... These are the things that matter and that we should be looking at.

a. General diversity of foods: an extent of what that means to bare in mind. The palette of tastes, colours and textures could be a more trustworthy indicator of diversity than the foods in themselves. Individual specificities often outweigh

large food-group generalities. Reminders/recap of previous points. Ways in which foods can differ nutritionally, why all these “subtle” difference in food components matter. Some substances are only obtained through foods, and everything we eat all day, all our lives, adds up. We do not know how to treat every single disease in the world, even some quite common ones, so the importance of preventative health should not be overlooked, not only for that but also for the sake of the ecological considerations elaborated in PART I as well as for the simple sake of human happiness and well-being.

Society should be more demanding on traceability of foodstuffs, current labelling systems — knowing ‘details’ (the kind of things to be considered & the extent to which they have an effect) like the following:

- i. Processed or not.** Cooked vs raw, broken down vs intact, whole vs partial...
- ii. On its own vs paired.** A food ingested on its own may not be metabolized the same way as it would be if it were ingested alongside another.
- iii. Species, cultivars, production.** Breeds, feeding, season, place, what's susceptible to environmental influence and what isn't.
 - 1) Wild vs grown.** Intrinsic benefits of wild species, often very nutrient-dense, more so than their cultivated counterparts; how they contribute to overall diversity insofar as being “different”; economical consideration.
 - 2) Specie A or B, “slow grown” or “fast grown” ...**
 - Difference between the composition of oils from different plant sources (x 6540 for certain components)
 - Foodstuffs derived from monogastric or polygastrics animals.
 - 3) Cultivar A or B/ geographical origin**
 - 4) Feed**
 - ‘Conjugated linoleic acid’ importance for humans and difference in concentration depending on cows’ feed.
 - Organic milk and its fatty-acid composition.
 - Inuit traditional food and its chain example.
 - Eggs, vitamin and acid composition differences and why they matter.
 - Seasonal implication of animal feed differences and overall climatic conditions; how these play also.

b. Differences between fat sources

- i. Generally.** Just a reminder that oils extracted with the same method will contain very different levels of nutrients and bioactive substances depending on the plant source.
- ii. Specific case of omegas**

All this to say that what is often passed off as the details of **what foodstuffs you decide to mash up in your mortar have a huge influence on the end result for your body and overall health**, just as much as deciding to mash them up in the first place or not, as we saw before.

The good news is that things preferred by the human body are basically always those preferred by the environment too, being slower and more respectful all-round (extra motivation to care).

Link with how the material specificities of the tool will also affect the nutrition of the end result by the mechanical differences between them, of its intrinsic properties and how those come into play (ex of antibacterial or antifungal woods traditionally used, or the antimicrobial properties of copper and its alloys)

II. THE OBJECT AND ITS USES

Early (pre)history, common anthropological mistakes made. Materials and designs.

1. PHYSICAL OBJECT

The once-popular knowledge of what tools are appropriate for what use and how to use them is getting rapidly lost.

My research for the following in unlikely 'places' & personal conclusions based on what can be said of the properties of materials in themselves, regardless of the specific tool made with them.

a. Materials and shapes: hypotheses

- i. Cultural coherence: that materials, food preparations and tool design stemming from the same culture are best suited to one another.** Hypothesis of the preference for flat grinding stones in the north of India versus for concave pestle and mortars in the south being related to local stone properties.
- ii. Only a few experimentally verified practical specificities of pestle and mortars.** Ex of marble/wood being more efficient for pesto and granite for Thai curry paste. Very little research to verify traditions. Ex of wood types used in Africa.
- iii. Cultural specificity and aesthetic prevalence gradually having taken over practical considerations?** Despite the facts we will look at after (1.b.), many questions on why such model is preferred here or there remain unanswered. Definite loss of ancestral knowledge recently, confusion of things still 'looking' traditional.

b. Materials and shapes: verified. Qualities of certain materials used to make cooking tools more or less desirable depending on the intended use. The topic of material science.

For each substance below, elements of science, history and anthropology. More mentions of non-food uses.

- i. Stone.** (More or less) hard, heavy, cold, textured. Differences between types. Nutritional consideration: transfer of minerals from tool to food to positive or negative effect.
- ii. Ceramics, glass.** Non-porous, hygienic, smooth, easily customisable. More on non-culinary uses and technical ceramics and notion of even greater disconnect with the non-edible elements of our daily lives which we never make any more.
- iii. Metal (iron, bronze, brass...).** Non-porous, hard, resistant, some antimicrobial, some rough, some heavy.
- iv. Wood.** Ease of making and transport (static bedrock mortars vs portable wooden ones), availability, light or heavy, many different properties depending on the tree specie (hard, antifungal, antimicrobial etc). Shock absorbent, gentle enough for foods where repetition is key (ex: glutinous starch pastes) or delicacy is required.

c. Finding and up-keeping **SECTION REFERENCED IN APPENDICES**

- i. Buying.** What to take into account? Where to look? How much to expect to pay?
 - 1) Second-hand, "old"**
 - 2) Craftspeople**
 - 3) Industry**
- ii. Upkeep, care.** 'Natural' & minimal.

2. ITS USE

- a. **Techniques.** It is often said that there are none but that isn't the case. Different even depending on the type of pestle and mortar and of food being prepared.
- b. **Specific historical use stories**

PART 3: PREPARATION PRINCIPLES [*supporting photos for this section are provided in a separate document*]

A collection and categorization of historical and current practices for a comprehensive view of what the pestle and mortar's potential culinary uses are. The focus is not on recipes but on principles. Regional and historical recipes are given as illustration (as well as a few of my own finding). **Link and focus on zero-waste cooking.**

Each section will provide a table (or some kind of infographic) with:

- **The subcategory** (ex: wet pastes, fatty pastes, marinades, raw emulsions, cooked emulsions...)
- **The principle** (ex: for "Pesto": aromatic (optional) + salt + 'creamy 1: nutty' (opt) + raw leaf vegetable or herb + oil + 'creamy 2: cheese' (opt) + other aromatics (opt); for "Hummus" or "brandade": aromatic (opt) + salt + 'creamy 1: nutty' + [hummus] cooked vegetable or legume / [brandade] cooked animal part + oil + 'creamy 2: cheese' (opt) + other aromatics (opt))
- **Examples of traditional recipes** which follow this principle (cultural/historical context + some actual recipe)
- **Ideas of new recipes**
- **Photos or illustrations** of the process for 1 example

I. CRUSHING 1: *Breaking*

Very historical here: traditional dehusking of cereals particularly, first recorded uses.

1. BREAKING TO SEPARATE

a. Nuts/seeds

b. Grains

2. BREAKING TO FREE UP (flavours) OR SOFTEN

Bones, carcasses (*many of the 19th c. Cardelli book recipes, provided in appendices*). Bruising of aromatic substances (garlic, ginger for ex) or of other whole foods (papaya in Laotian papaya salad for ex). Softening by pounding of animal substances but also vegetal ones (cabbage midribs for ex) — very common in Polish cooking.

II. CRUSHING 2 – DRY: *Powdering*

1. DRY HERBS

2. **SPICES**

3. **NUTS, SEEDS & GRAINS** (And other dry elements like hardened cereal foods)

III. CRUSHING 2bis - WET: *Puréeing, liquifying*

1. **RAW** (Purées, gaspachos...)

2. **SOAKED** (Masas and many other traditional foods, fermented and not; plant-based 'milks')

3. **COOKED** (Probably the widest and most diversified historically. Cooked purées and pastes destined to be eaten as is (mochi, fufu, leaf stews...) or transformed further (gnocchi, ravioli filling, fish cakes, fermented bean fritters...)

4. **FROZEN** (Whole frozen foods creamed to a paste or liquid preparations creamed as they freeze. Not a recorded use of pestle of mortars but I have experimented with great success)

IV. CRUSHING 3 - FAT: *Puréeing, infusing*

1. **INFUSING** (Generally pounding some aromatic substance and adding it to fat for it to be imparted with the flavour)

a. **Marinades**

b. **Oils**

c. **Butters**

2. **PASTES** (Further trituration of a powdered fatty substance releasing its oils and turning it into a paste, or adding a fatty substance to a dry powdered substance to form a paste)

a. **Intrinsic: Nut butters**

b. **Intrinsic: Caramelized nut butters**

c. **Added: other fatty pastes**

3. **EMULSIONS** (Mixing wet foodstuffs with fatty ones)

a. **PESTOS: raw plant-based emulsions**

i. **Green pestos** (with a note on wild and wasted greens)

ii. **Other raw "condiments"** (aïoli etc)

b. **HUMMUS: cooked plant-based emulsions**

c. **BRANDADES: raw or cooked animal emulsions**

03: Sample chapter 1: introduction.

“

I have often been told, or made to understand, that I put far too much time and effort into thinking about the way people go about the most fundamental and mundane aspects of their daily lives. I think about it to the extent it would be unhealthy, obsessional. But from my perspective what seems unhealthy is not doing anything about the illness in the world you once you see it.

Admittedly, I have spent many hours listening to fascinating podcasts deciphering the implications of how we sleep and eat to move or dress or poop (The scene is set!). These are self-evidently very personal actions, and questioning how we perform them, no matter what the intention, comes across as questioning people's essence. And they don't like that.

"Your grandparents didn't give this stuff any thought, and they lived perfectly happily to ripe old ages so stop obsessing and go read a novel." I beg to differ. Actually, I agree whole-heartedly with some elements of that statement, but there are important nuances to be underlined...

My grandparents did not live free of any health issues. Maybe compared to others they were spared to some extent. Nevertheless, in the last few years of their lives, their health seemed to be at the forefront of most conversations, no strangers to Alzheimers, depression, heart issues and a host of 'banal' smaller ailments that were visibly restricting their lives rather extensively.

They did not all seem to have been perfectly happy their whole lives; both grandmothers arguably suffered depression for most of theirs. They might have been spared this if women like them had gained some of the agency on their daily lives they later did 60 or 70 years sooner.

So maybe for the sake of debate, I'll give my interlocutor the benefit of mis-wording the original statement and change it to 'your great-grandparents', or 'your grandfathers'.

Yes, they were healthy and happy to certain extent—still relatively—but what led them there was a lifestyle very different from how we live now, much more similar to those embodied by today's marginal people, today's rejectors of an 'all-growth' model, people like me, who get told to stop worrying. My great-grandmothers would have spent a large portion of their lives using a hand-whisk rather than an electric one (for those who actually cooked!).

I can't help myself referring here to a casual conversation with a friend close in age to my parents, on this generational pattern: *"My grandparents lived through U.S. depression and were wonderfully considerate of the environment (they were South Dakota farmers) and used resources prudently and humbly, and imaginatively. And my parents' generation were slopping wasters with a two-car garage, much food thrown away, preposterous levels of fast food and prepared food, not to speak of the ambient idiotic television-based culture."*

As people in today's zero-waste movement often point out, our generations in 2020 have to talk about the habits of care and self-reliance which stopped being the norm within one generation; we need to label and theorise them, whereas for my great-grandparents, they just *were*. So I agree that their lives contained elements that made them better than ours in some respects, and which I think we shouldn't have lost.

They also lived much more human-centred lives than is publicly seen as acceptable today: Knowing if their lifestyle was sustainable in the grand scheme of things was not a preoccupation. The question of whether and how their lifestyles had an impact on the environment was not a concern for the vast majority. Their health and happiness may well have come at the expense of other living beings and systems, and I see it as a marker of progress that more of us see this now.

I don't agree, however, that they were as healthy as they might have been. My great-grandparents were privileged and consequently not too badly off, but if they had been miners, for example, they would not have lived 'happy and healthy' lives. Also, like their children after them, and like many people of their generation, which was seemingly only the start of the current pandemic, as they aged they suffered dementia and various other ailments. You can always find worse off, but I don't want to live simply avoiding the worst, nor do I wish that for my co-humans either.

I'd rather follow the example set by 70-year-old Cretan farmers who are still hopping around mountains than simply try to avoid looking like my neighbour of the same age who is paralysed by extra weight and heart issues. I am curious about what the farmers' 'normal' lifestyle amounts to, what distinguishes it from that of my neighbour, and whether this might be what makes all the difference. Why are so many people who are in their seventies today ill with metabolic diseases, obesity, physiological problems and discomforts, and even more so why are so many of those who are free of serious illness still in no state to scramble at top speed through mountains? What stops them going about their lives as they might wish? Why, in some societies, is it so normal to be handicapped by problems of mobility or physiology? Why are these problems so ordinary we've stopped even seeing them? Not being able to get up off the floor past a certain age is not a biological doom, it's societal specificity.

Unsurprisingly to me, the only 70-year-olds I know of who scale mountains also 'overthink', as I am accused of doing.

It is my strong belief that it is the way we live daily now that decides the circumstances under which we will live as we age. And this is more than just a belief—research in many fields points ever more in this direction. What we eat, how we move, the air we breathe are all things that affect our health and well-being in very measurable ways. We are also starting to see how these things affect the entire environment we live, beyond their effects on us. For now, awareness of the web of connexions in all its depth, understanding what it means, is still limited among most people.

I would like try to share aspects of an awareness, illustrated by the pestle and mortar, ancient, versatile and very basic tools in which all these connections and subjects come to life.

I would like to suggest that not only does "fast-tech", mechanisation in other words, pass over the numerous actual benefits brought by (s)low-tech, but that it also actively creates a host of problems. We are well aware of some of these, but it's very difficult to grasp their full extent.

At the same time, we have forgotten the arts of (s)low-tech, or we are, with each passing generation, in the process of forgetting them, and we cannot possibly aspire to get the most out of our lives if this continues. It's an all-too-familiar chicken-and-egg scenario: the less we do, the less we care and the less we know how; the less we know how, the less we see why we should care.

In this book we will attempt to understand the issues and benefits surrounding the mechanisation - or not - of tools useful for our daily living. We will begin by looking at one particular tool, the pestle and mortar. We will also dive into some more practical aspects specific to that utensil, because you can't grasp the potential of something if you don't know how to reach it. I have therefore collated and laid out know-how surrounding the uses of the pestle and mortar, as specific knowledge is key for traditional methods to be efficient. And as a reward, we might actually talk about the delicious things you can make with it too!

I love cooking, and I love finding out about the natural world, and I love trying things out. These interests, nurtured under the wing of ecological and critical concern, paved the way quite naturally to my interest in pestle and mortars. And that in turn led me to discover that very little was generally said about them beyond the instructions of hundreds of identical pesto recipes!

I wanted to know what the different types were for, why one material or shape was preferred over another, whether you could make *praliné* with a pestle and mortar or if there was some secret physical or chemical reason one couldn't, and so on. Search as I might, I found virtually nothing in libraries, bookshops or online to answer my questions. One book exists on the specific topic of pestle and mortars, and I credit it wholeheartedly - first for actually existing and then for offering quite a long list of possible combinations... but there is so much more to say!⁷

Which is why, along with the prompting of a librarian's comment, I decided to sit down and write the book I wanted to read.

Thinking about this topic very quickly extended it beyond the specifics, leading me to explore the underlying logic, which had led me to the topic in the first place: why were we not using this tool any more, what were the consequences of this apparently banal material shift, what does that say about us and our ways of life?

Because very little information is available on the topic of pestle and mortars specifically, the last, more hands-on part of this book was the fruit of experimentation, squatting on the floor of the kitchen in a flat behind the Père Lachaise, but also of much collating of popular knowledge reaped right, left and centre: the odd sentence in a documentary on culinary traditions on the other side of the globe, isolated blog-posts from someone keen to do some experimentation in their own kitchen, or from the enthusiastic antiquarian—or even the YouTube comment of an anonymous 'know-er'—all places are equal in a quest for scarce information.

The logic though, the 'whys' that made me personally make the journey to those practical 'whats', is mainly based on reading and research, understood through my own personal lens. I have tried to be very careful in making clear what is fact and what is interpretation or hypothesis, my own or someone else's, and hope to have succeeded; if at moments I've failed,, please believe it was not with the intention of misguiding anyone.

Pilon et mortier. Pestle and mortar. Suribachi to surikogi. Molcajete y ejolote. Batu lesung. Batan y uña. Silauto ra lohoro. Sil aur batta. Tjobek dan cobek. This utensil is known by name to all, whichever of these it may be, and is one of the oldest tools used by humans. It was one of our first means of processing food as *homo sapiens*, possibly on a par with the knife; even non-hominids are known to crush foods. The process occurs so naturally and is so organic in its evolution from a very basic gesture to a much more

7 D. Gramp, P. Gramp (2012), *Alchemy of the mortar and pestle*, The culinary Library 1.

sophisticated one that it is hard to establish a clear-cut birth for the tools that perfected its art; but we find traces of pestle and mortars as we know them today in South-East Asia dating back to 35,000 years B.C. The only thing that has changed since then, and this has occurred mostly in the last 100 years, is the place they hold within the kitchen.

In many cultures, the pestle and mortar still occupies a central place, but in industrialised western ones—as far as I can see—it has spent the past hundred years collecting more and more dust.

From being as useful as a Swiss army knife it became a mere decorative item. I saw one for most of my life sitting in the family kitchen and can count on one hand the number of times it was actually used. In a cookbook from 1826, *Le Manuel du Cuisinier et de la Cuisinière* (of which I've included a few extracts in the appendices), it is used for everything. In fact, I was curious to see how often it was mentioned, and 96 recipes of this hand-sized book call for using a pestle and mortar. But one century later, by 1926, Industrialisation and WWI had happened, and competition had arrived in the form of other, specialized, mechanical devices, such as hand-held mincers. Fifty years after that, the tap was opened wide: the time had come for the start of the deluge still gaining momentum now of electric and mass-produced domestic appliances. Now the pestle and mortar seem to be a symbol of a supposed once-common and now outdated inefficiency to most people. Or the embodiment of a time when we actually had some...

But please consider: what is inefficient or outdated about a single tool that replaces fifty others? What is inefficient or outdated if a tool can last for ever, or almost, if a tool doesn't require any other energy to work than that of your muscles and your last meal, which gives you both a workout and a mindfulness session for free—and accomplishes something practical in the process—that extracts cascades of nutrients from the foods that go through its seemingly rough process, and that has more chance than most of having been shaped with love by human hands?

The pestle and mortar is not only worthy of consideration, it stands at the crossroads of an impressive number of topics. Each sparkle of granite, streak of marble, glimmer of bronze, every wooden fibre is a different aspect of health and nutrition, of history, anthropology, sociology, aesthetics, philosophy, evolutionary biology, biochemistry, biomechanics, physics, neuroscience, dentistry; of botany, ethnobotany, ecology or economics.

We believe that research scientists today should reclaim the philosophical dimension that appears to have been lost during recent decades in favour of the profits of hyper-specialized technoscience. — Anthony Fardet⁸

This appeared in a journal of nutrition. As a cross-disciplinary, complex, and fascinating field, it is one of many possible ways to approach the holistic paradigm the article called for. The author talks of this as reclaiming a 'philosophical dimension', and I have to agree that this seems crucial: philosophy is a way of improving our understanding of systems as a whole, even in *not* understanding them. Or put another way: philosophy is about embracing the beautifully organic complexity that drives the weaving of things. And in that sense, with the aim of getting a truer grasp on our world, I do believe that it is essential to move away from the extreme specialisation we know so well today and instead embrace cross-disciplinarity.

It is not merely the intrinsic richness of that holistic approach I hold dear. Crossroads, webs or whatever other analogy you want to use may be beautiful in themselves, but the threads and roads that make them up matter too. The pestle and mortar connects many issues that we should definitely be paying attention to.

It's not always easy to walk the tight-rope between having strong views and not wanting to impose them on people; why should you care about the subjects I care about? But I hope that you can see that like any decent writer or researcher the idea here is not to say, 'Think like me, I have it right and you have it all wrong', but to say that I have given a great deal of thought to some topics and have come to believe that, yes, it may be beneficial for others to consider them too, for the reasons I will put forward. I am always ready to reconsider my analyses, were someone to have a good reason to make me do so. So far, I haven't found any! But the debate remains open.

In case you wondering: not liking change, feeling defensive, or just not caring are not good arguments. Because it's not just about you, and that's the whole problem.

When I say it's not just about you, I don't mean it's just about saving polar-bears—and just because we find their cubs cute. The planet as a whole does not need us. We, on the other hand, need the planet. That is very much about 'you', but it is also about 'us' as a whole, independently of 'you'. We need the Earth to stay in a state comparable to that in which it currently finds itself, or we simply won't be able to live on its surface any more. If, for example, suddenly an impossible scenario made the pressure on the earth's surface the same as that in the Mariana Trench, all life-forms might not disappear, perhaps the sorts of life that are currently only found in abysses would survive, starting with a few bacteria—humanity would be left out of the picture. If this pressure-change

⁸ Fardet, A., & Rock, E. (2014). *Toward a new philosophy of preventive nutrition: from a reductionist to a holistic paradigm to improve nutritional recommendations*. *Advances in nutrition* (Bethesda, Md.), 5(4), 430-446. <https://doi.org/10.3945/an.114.006122>

happened over millions of years, we humans may be able to develop the superpowers of deep-sea anglerfish, but if it happened more quickly than that, we wouldn't have the time. And the changes that dangle menacingly over our heads now will not take millions of years to occur.

The good news is that we may just be able to kill several birds with one stone (maybe it's time for that expression to change, though... 'Save several birds with one tree?'). As suggested earlier, using a pestle and mortar rather than a motorised tool may not only be very beneficial for the person handling it, from a health and general well-being perspective, but also for their much larger environment—in unexpectedly tangible ways. We are currently be doing several things wrong that could be righted together....

At present there is a global need to reduce climate gas emissions, and at the same time there is a global call for increased physical activity. Increased physical activity level implies reduced risk for overweight and chronic diseases (...), and a potential to reduce transport's major contribution to global CO2 emissions (...). However, increased physical activity [as we commonly understand it today, I would importantly add] means increased energy expenditure, and most likely enhanced food consumption (...). [As will we see later, this conclusion is flawed and due to our current misconception of what 'physical activity' means, which goes to show just how important it is to redefine that notion]

*The ambitious goal of the Paris Agreement adopted by 195 countries in December 2015, entailing carbon neutrality before the end of the century (...), demands that initiatives need to be generated within all areas of society. In light of the historic Paris agreement, we believe that sustainable physical activity holds a potential that should be introduced and addressed. (...) Considering upcoming resource challenges, types of physical activity should be taken into account (...) Moreover, going "back to basics", using less equipment and appliances for everyday tasks could contribute toward energy balance through increased physical activity, and could decrease resource use.*⁹ [1

I would like to remind here of bio-mechanist and author Katy Bowman's very telling "sliced apple" example, from her book *Movement Matters*, because it illustrates the issue at hand so well:

(...) The Washington Post published an article highlighting a pilot and follow-up study on how American kids are throwing away the apples given to them for lunch. As it turns out, they throw the whole fruit away because eating it is too much work. Slice it, and they'll eat it. According to the article, "A child holding a whole apple has to break the skin, eat around the core, and deal with the hassle of holding a large fruit," and older girls in particular found whole fruits messy and unattractive to eat.

In 2014 Americans ate 511 million sliced apples, and this statistic is driving the food industry to focus their attention on pre-sliced, treated, and packaged apples. If we're considering only dietary nutritional value here, then "at least they're eating apples, and that's good, right?" applies. But if we broaden our scope to an ecological perspective, we'll see (...) the cost of our children not being practiced or strong enough to eat a whole food (...).

This is why I find it increasingly relevant to consider movement from an ecological perspective. (...) [O]ther humans and the planet are burdened by [our children's] unnecessary weakness. This is a matter of movement and is also why movement matters.^{10 11}

It is our responsibility that our children are believe they are too 'weak' to eat whole apples: we so rarely ask them to chew or exercise dexterity, work of the face and the hands, that these skills come across as chores when actually required; we don't truly reward slow effort or getting hands dirty—or even just a bit sticky; we don't provide incentive to overcome these barriers of perceived effort, as we don't truly put any emphasis on the bigger picture which pushes us to be curious and critical, to ask where things come from and where they will end up, and see the importance of this.

We shun certain silly physical movements—tiny tasks, insignificant—and leek this disdain onto our children. As a result, entire systems pay a heavy price. I owe a lot to Katy Bowman the clarity of her thinking on this.

'Not slicing apples yourself' is indeed an issue of physical movement, or lack thereof, which is why I completely agree that we must consider our individual physical activity from an ecological perspective. Not wanting or not being able to eat a whole food entails extracting or producing material resources for packaging, running factories to make said packaging and process the food, people working in them to actually carry out these jobs, and everything implied by marketing, sales, distribution and waste-treatment of the final "effort-free" product (but let's not even start going into the detail of these, at least not yet).

Currently, we are completely oblivious to the environmental and social costs of outsourcing the physical work our lives require on a daily basis.

9 Bjørnarå, H.B., Tørstveit, M.K., Stea, T.H. and Bere, E. (2017), *Is there such a thing as sustainable physical activity?*. Scand J Med Sci Sports, 27: 366-372. doi:[10.1111/sms.12669](https://doi.org/10.1111/sms.12669)

10 K.Bowman (2016), *Movement Matters, A sedentary Culture eats* (<https://www.nutritiousmovement.com/book-excerpt-movement-matters/>)

11 Brian Wansink, David R. Just, Andrew S. Hanks, Laura E. Smith, (2013), *Pre-Sliced Fruit in School Cafeterias: Children's Selection and Intake*, American Journal of Preventive Medicine, 44(5), 477-480. <https://doi.org/10.1016/j.amepre.2013.02.003>.

What's beautiful, though, is that it's all a question of perspective—which may help us to stay optimistic: perspective is highly malleable. When you open your eyes to the virtuous cycle, the happy snowball, you also very quickly see how considerable its scope becomes—and how considerably beneficial its influence can be. I explore and example of this in the chapter on cold-pressed oils in Part 2: unlike ultra-refined industrial oils, they are not only much healthier for the body but also intrinsically far more environmentally friendly and socially ethical on many levels.

The world is indeed riddled with problems, but more often than not solutions are also bundled together.

One other consideration to bear in mind: not only do sustainable behaviours increase health, very globally, they also allow us to enjoy many more colours of life – which, arguably, is what health is for.

The rainbow of making aioli (and more) the slow way: (...) [T]he results were fantastic, proving that modernity has nothing on an aioli made the old-fashioned way. What a revelation.

The flavor of the garlic when pounded to a saucy purée looms large, as do the nuances of the olive oil. And the handmade sauce is denser and more golden than aiolis I've made in my food processor. (...) [O]nly after making it by hand do I feel like I've really made an aioli. (...)

You can certainly make a much better-tasting green herb sauce in the mortar. Case in point: [during my first year of cooking](...) a sous chef (...), with an exhausted sigh, tossed my plastic container of olive-green basil pesto into the garbage, dragged out the large granite mortar and pestle, and started pounding garlic into basil. (...) The crushing action caused the oils in the separate ingredients to meld completely (as opposed to being cut finely together in the food processor), making for a much tighter weave of ingredients. Not only was the handmade pesto greener and more finely puréed, but it tasted brighter, and more like fresh basil, than our trashed food processor version. (...)

Chimichurri, too —a pungent, vinegary herb sauce with Argentinian origins (...)—exits the mortar in much greener and tastier condition than the same sauce made in the food processor. (...)

And finally, the hazelnut praline should cause everyone who doesn't have a mortar and pestle to run out and find one. Again, it can be made more quickly in a food processor, but it occurred to me that pressing the "on" button burns very few calories while pounding hazelnuts and caramel into praline nut butter surely must work off a few (...). I'm usually all for time-saving, but this is one condiment worthy of exertion.¹²

Not having bad effects does not especially mean having good ones; but in this case it might—exponentially so.

As the pestle and mortar backed out the door, in marched stress and other new (health) concerns—many of which are linked to increasing sedentarism, the consciousness of humanity losing its grasp of nature, environmental catastrophe becoming clear, and many other similar issues. Contrary to what may seem, I am no Luddite. On the contrary, I believe that certain forms of social justice and of equality, many aspects of improved health and hygiene, and unprecedented ease of communication and sharing of knowledge are all very positive things that also walked in the door when the pestle and mortar marched out—and those are just a few examples. To each era its repetition of the same pattern, that same one that accompanied the advent of agriculture and bore both many of the worst and best aspects of humanity from that point on.

But I don't believe that to want the best of several worlds is the quest of a silly utopian.

This is contrary to what many people suggest, but I think wanting to choose the best ways of doing things from among the many sources at hand is just a marker of accepting complexity in life. It's a manifestation of wanting to grow continually, and of believing that's desirable. It's the noble part of a utopian quest: its uplifting and motivating qualities, rather than the commonly cited delusional ones. Plato had in fact theorised this, suggesting that having ideals in life was key to actually achieving anything, as long as they were seen for what they were—drivers, not realities.

Embracing utopia has its challenges: accepting that what you actually aim for is out of reach, understanding that it is the journey towards it that is the tangible benefit, reminding yourself of these facts time and time again... Greyscale requires more effort than black and white, but yields truer pictures. When we press on that big fat start/stop button of the food-processor, maybe the effort we are saving is related to our brains, not our bodies.

What I would like to have written is both a theoretical and a practical plea, a call to reflect, to reason, to reconsider our daily behaviours and the choices that guide them, for our own benefit and for that of the world around us.

¹² Amy Thielen (Jan 7, 2010), *Low-tech wonder: amazing sauces that beg to be crushed—by mortar and pestle*, Star Tribune, <https://www.startribune.com/low-tech-wonder/80806632/?refresh=true>

I talk in Part I about the links between how we move (or don't), our health, what we consume and what we waste, the environment, and how we choose to go about the business of living.

I move on in Part II to the food we eat, considered alongside the same topics. It is, after all, one of the things that actually allows us even to *be* concerned with any of this. We will look at how foodstuffs work as highly complex and diverse entities and what that entails—how do they affect us, but also how do we affect them? And what does that mean, in turn again, for us?

Only then, with a much more detailed picture in mind, we move to the pestle and mortar itself. We take a look at the utensil through its history and current worldwide uses and improve our grasp of the small but important variation in the design and materials used for these tools—and their varying and adapted uses as a consequence. We also talk, even more pragmatically, about procuring a pestle and mortar for yourself and about maintaining a set once you have one.

In a third part, we dive into the specific matter of preparing food with pestle and mortar¹³, exploring the over-arching principles of what can be prepared, grouped by family.

So let us dive in to try to understand both why and how it is necessary *and* possible to shift away from the 'Western World' as it stands today, without returning to some Stone Age for that matter. The difference between these models and another, to build, could simply be a matter of adulthood: the time may have come to mature and to accept that the curse of humankind's incredible abilities is that we must use them to think before we act.

And be thinking again, as we act again, in never-ending doubt—and peace.

”

13 The following pages will be based in the kitchen rather than the lab, focusing on the culinary, rather than the pharmaceutical, uses of pestles and mortars. That is a wholly different subject, which firstly (and very subjectively) just doesn't interest me as much for now—I also believe is of less widespread interest as more people cook than prepare their own remedies—and secondly, but probably more importantly still, I needed to set some limits to the ground covered!

04: Sample 'chapter' 2:

A long-form article mixing elements from Parts 2 and 3 — a chapter from either might look similar.

“

1: History & tradition

The pestle and mortar is one of the oldest and most wide-spread ways of processing food, on a par only with the knife. We find traces of pestle and mortars exactly as we know them today in Southwest Asia dating back to 35,000 years BCE. For at least 36,900 years, they were the Swiss army knife of the cook and healer. Recent findings suggest that the mechanical processing of foodstuffs — cutting, pounding and grinding (cooking only became a regular occurrence 0,5 million years ago, whereas stone tools appeared 3,3 million years ago...) — may have been a central feature in evolution: key features of modern humans such as speech and large brains are only possible thanks to the smaller jaws and greater available energy allowed by thus-processed foods.

However the very first certain uses of pestle and mortars weren't related to feeding — red pigment, seemingly for ritual uses, is the earliest substance found to have been crushed by man. The pestle and mortars' tight connection to our history of food stands alongside its equally tight connection to our history of pretty much everything else. From painting to healing to industry, craft or upkeep, triturating substances has been a key feature of human civilisations and the hugely versatile pestle and mortar has been a discreet but central companion and facilitator throughout. Up to the end of the 19th century, housewives would have used one daily, powdering and mixing calcinated hartshorn to remove stains from metal, glass for water-proof glue or amber, musk and egg yolk for makeup in the very same fashion ancient Egyptians would have ground minerals for kohl in 3100 BCE. For a child's hooping-cough, cochineal would have been thrown into the family mortar — Peruvian bark and arsenic for scorbutic eruptions. If blue ink was needed to write the doctor should these prove insufficient, prussiate of iron, oxalic acid and fine chalk would have gone in instead.

Curious to try to organise the many uses of the pestle and mortar, I found that they sit well in just a few categories. Dry preparations include breaking and powdering — shelling, dehulling, breaking units into only slightly smaller parts (blocks of sugar or ice, for instance) or actually grinding (nuts and seeds, coffee, spices, herbs, animal bones or drugs, minerals...). You can also include here 'bruising' — smashing condiments such as garlic or ginger just enough to release their aromas.

'Wet' is the mashing of everything with a high water content: cooked or raw fruits, vegetables, roots and tubers, animal flesh, cooked nuts, soaked seeds and grain... Concerning food this category is probably the most diverse and the least considered. Mashed proteins are boiled or steamed from one end of the globe to another — from bean *moin-moin* in Nigeria to English steamed puddings. Their fermented cousins are just as popular — from Nigerian *oggi* to Indian *idli*. Fresh leaves become *pistou* in France and *sombe* in DRC. Pastes extend from Africa's starchy *fufus* to the Sioux's berry pastes, from Asian glutinous rice cakes to Italian ravioli stuffing. Bake them and you get Australian Aboriginal bush bread, or the *tortillas*, *pupusas* and *arepas* of Mesoamerica. With extra liquid thick mixes become Hawaii's *poi* or Kenya's *ucuru wa mukio* staples; with even more they yield soups like Spanish Renaissance *escudilla de piñonada*, drinks such as Mexican *atole* or south-Indian *bhaang*, or sauces such as Haitian *épis* and Bolivian *llajua*. Mash frozen foods and you get ice-creams. All the non-food preparations made by adding a water-based liquid to some substance previously powdered, such as for the making of ink, pharmaceutical remedies, or cosmetics also fit here.

Add lots of fat to thick pounded foodstuffs for Spanish potato *atascaburras* or Ghanaian cocoyam *kontomire abomu*. Add it in greater proportion for all the oily sauces, marinades and dips of the world. Fry pounded foodstuffs for Chinese chilli paste or Bengali *batas*. 'Fat' I call this well-known and large family of emulsions — watery vegetal and animal flesh blended with a fatty substance (pestos, mayonnaise and aioli, hummus, marinades and sauces...) — and dry powders bound with fat rather than water (flavoured butters and oils or many non-food substances such as oil-based paints, cosmetics or remedies).

The versatility of pestle and mortars' uses and their presence in virtually every culture and for so long explain why they come in so many shapes and materials. Their variations are only slight, which makes them all the more interesting.

Clay and wood *Cobek dan ulekan* in Indonesia or *Suribachi to surikogi*, in Japan, stone *Calou et pilon* at La Réunion or *Silauto ra lohoro* in Nepal, wood *odo omo odo* for the Yoruba and *kepoùh nkouok* for the Bangoua, brass or wood *mheras* in the Maghreb and virtually the same form in Renaissance Europe — each comes with its own culture and context which explains the differences... to an extent. Physical properties of materials and shapes clearly helped craft pestle and mortars, but as with so many traditional objects a whole host of other factors also came into play. As a result, societies in opposite parts of the world have used pestle and mortars with seemingly opposite characteristics for very similar purposes. Indians will tell you their *sil-batta*, a virtually flat grinding stone, is perfect for pastes and fresh herbs and leaves but horrible for spices whereas Italians will famously prefer their deep *mortaio* for leafy relishes and Peruvians regard their flat *batán* as the best tool to squeeze aroma out of spices. That North India's preference for flat querns (hand-held grinding stones) stands opposite the south's more frequent use of deep pestle and mortars gives us a clue: it may not be for nothing that this coincides with the geological map of India. Hard rock, possibly more suited to receiving the shocks of pounding, is more present in the south, whereas the north of the country is mainly home to soft sedimentary rock, maybe better suited to the steady pressure of grinding on a flat surface.

Another example of how thin the distinction between various grinding tools can be are bedrock mortars — cavities straight in rock surfaces of the land which range from flat to deep. Some archaeologists think that these are simply various stages of wear of a single original tool rather than ones intended different from the start, though distinct uses may have come about through practical observation. It is important to note that pounding and grinding are not the same mechanical process, as I was kindly reminded by a study on how the nutritional content of cassava leaves can vary depending on the way they are processed — ground or pounded. Querns have the advantage over mortars of enabling the user to put their weight into the work through their body's position and potentially through the use a heavy stone, like the Peruvian *batán*'s huge half-moon grinder, but they don't contain free elements or liquids and don't offer the benefits of pounding. Both tundra and sand-desert are remarkably good at doing what they do, as David Attenborough repeatedly demonstrates, and contrary to what is so often said no traditional pestle and mortar is better than another. Each type is simply more or less well suited to one job or another, chicken and egg of culture and environment: think of how good the sharp edges of all the small holes in the Mexican volcanic rock *molcajete* are at cutting the chilli skins so widely consumed there.

We tend to forget this option in industrialised societies where objects follow a much more 'vertical' diversity. There, we mostly deem wooden mortars useless. Accused of retaining flavour, we don't think that this can be sought after for building flavour. Dissed for their (comparative) softness and smoothness, it doesn't cross our minds that soft wood may be antibacterial. Condemned for their (relative) lightness, we forget that this would have been precious to nomadic societies or that it is just what you want to process delicate foods like fruit and vegetables — the Yoruba people don't use their stone pestle and mortar (*olo omo olo*) for pounding yam: that calls for their wooden *odo*. Small-scale nomads may precisely have used bedrock mortars as their own stone counterpart, very rationally leaving the heavy-duty tool embedded in the spot of the heavy-duty work, right where the food was.

Highly specialised professionals spend millions on getting to understand materials while the rest of us lose the home version of this once-common knowledge. Wood is not the only material we misjudge. Often designed for kitchens today, stainless steel pestle and mortars are generally hollow and dent easily, as well as being highly sensitive to temperature changes. In labs or industry they are used in ways adapted to stainless steel's properties — being resistant to acids which corrode copper alloys or certain stones for example.

We dismiss ceramic and glass models, indeed often not so adapted to the kitchen but best friends of labs; their fragility is counterpart to their hardness — it isn't for nothing that bullet-proof jackets are made of ceramic plates — and their smooth surfaces perfect for the much finer powders and techniques of technical uses. We tend to think ceramics are porous, but they aren't all, on the contrary — 'ceramics' is a very large family. Earthenware and porcelain are quite different, as they are from their less-known cousins *alumina* or *zirconia* (you know, the white Ikea kitchen knife?), despite common characteristics. Pestle and mortars made of these are very sought after for grinding other very hard materials or in forensics as least-likely contaminants, again for their hardness — alumina is essentially fused powdered ruby and sapphire, gems not quite as hard as diamond but almost.

Ceramics are not the only material prized by scientists for grinding. Agate, for example, a type of quartz rock, is prized for being hard, smooth, impermeable and unreactive, which makes them sought-after in pharmacy. Metals have also been used historically for these same reasons and purposes, especially copper alloys which inherit its antibacterial properties whilst shedding its unwanted softness. The knob-adorned brass or bronze mortar remains to this day the emblem of pharmacy. Iron, the historical successor of bronze, surpasses it in hardness but was only used for pestle and mortars very late: cast iron only appeared in the 15th century in Europe and is the only scalable way to make an iron vessel. Its density makes it a very efficient crushing tool, and its somewhat rough but very wear-resistant surface can

reduce particles effectively, but its propensity to rust and its brittleness (cracks easily when struck) held it back from being widely used for pestle and mortars. An exception is a branch of Ayurvedia in which purified metals and minerals, notably mercury, are combined with herbs and other organic substances for treatments, as iron is one of the rare metals which doesn't bond with mercury.

2: Contemporary & questioning

The processes of mashing, pounding and grinding have been carried out with a pestle and mortar until industrialisation. In a tiny cookbook from 1826, *Le Manuel du Cuisinier et de la Cuisinière*, 96 recipes call for using a pestle and mortar, from crayfish bisque to meringues. In the space of a century it became a decorative item, first replaced by specialized, mechanical devices, then by electric and mass-produced domestic appliances. It is now seen in westernised societies as a romanticized privilege: hand-crushed basil is for you have the means to have the time.

The mismatch between pestle and mortars' visibility and their called-for use is impressive. Blogs will display a large stock-photo header of one only to tell you in the recipe to use one of those unsightly electric appliances mostly absent from background pictures. Available literature focuses on looks and price tags, or pesto recipes by the thousands. It is unbelievably difficult to find anything comprehensive about pestle and mortars — from national libraries to the depths of the internet, they hardly ever spark serious attention. Sadly, because when you start investigating you realise that they stand at the crossroads of an impressive number of topics. Even just that humans should go beyond what is strictly necessary to transform their food speaks volumes of anthropology or sociology, as does the fact that we let pestle and mortars collect dust whilst we go on a frenzy of blenders, robots, ice-cream makers, mills, mashers and crackers, as if we had forgotten that smartphones could do anything else but phone and left them at the back of a cupboard whilst we lugged around a home-phone, two cameras, a few games, a note-pad and an address book.

Heavy (sometimes), slow (always), sweat-inducing, undemanding of regular replacement or enhancement, pestle and mortars don't initially seem to fit today's picture but that is precisely why we need them; they embody the still-alien concept of *degrowth* — not relying on merchandising the earth's human and non-human resources for the short-term profit of a few. They are free to use, economical of space and money and, importantly, power-independent — even within environmental circles, calling to decrease overall energy consumption is rare. The EU's priority is to move towards 'renewables' and ecologists at home proudly use blenders thus powered, omitting the fact that 'green' energy is actually coal a few steps back and a bit further away from home. Even compared to 'no-tech' tools we do use today like potato mashers, pestle and mortars fare better on many levels. Compare the heavy process of manufacturing steel and plastic for a specialised object with the simple shaping of a wooden pestle, also far more efficient in the face of thick or fibrous foods. Even for stoneware, glass, or metal versions, the strain that making them puts on the environment is divided by their myriad uses. Pestle and mortars outweigh their mechanized counterparts on many basic levels, but we don't see this: our 'developed' view of efficiency is biased, and unsustainable.

A task which would take five minutes and no sweat with a blender might indeed take 20 sweaty ones with the pestle and mortar — although for a small job you may spend as long with a blender for cleaning. But slow and arduous tasks ask that we cooperate, keep us in shape, connect us to our surroundings, give us a sense of achievement. They spare the environment and they spare people. We are so well wired to spare ourselves short-term effort that we are blind to greater long-term benefits. Practising *degrowth* in the kitchen is reclaiming a forgotten sense of efficiency. Refusing to let the processing of your food depend on assemblages of plastic, (rare) metals, human exploitation and centralized energy production. Refusing to partake in the disastrous consequences these have on the world; refusing the colonialist split of the world *growth* stems from and perpetuates. Saying instead that you want to rely on your last meal, your body and a clump of stone for your energy. It's a way to tackle environmental cataclysm, social injustice and declining health in your hearth.

Health is a much more tangible concern for most people than environmental issues and the two are very closely tied. By addressing them with that in mind, we could grow two trees with one seed, but their ties are seldom seen; we all know that bicycles are good for both our health and the planet, but we never extend the logic. Movement is never a serious sales argument for low-tech tools and low-tech tools are never suggested as an option to 'move more' or to strive towards zero-waste living. People joke about the effort needed to process materials by hand, but only biomechanist Katy Bowman pays serious attention to how our health is affected by the how we cook, mechanically. The UK tries to distill health-promoting messages in its public service outlets yet the BBC says nothing of the free half-

hour workout offered by a pestle and mortar when recommending the use of one. Most people in europeanised societies have come to think that sport is the only form of worthwhile exertion, supplanting any forms of handiwork or other daily intermediate effort. The superior levels of fitness in small-scale societies, alien to the concept of 'exercise', has been the subject of many studies; its even obvious on TV shows when western visitors simply cannot keep up physically with their hosts in remote areas of the world.

It was wearing for housewives or slaves to grind and mash for hours at a time, there is no question of wanting to reinstall those dynamics. Repetition, lack of diversity and strain wear the body; that these should be active does nothing but accelerate damage. Highly demanding repetitive physical jobs are no ticket to health: factory-chain workers or high-level athletes often suffer worse health issues than the rest. Grinding tasks historically put strain on just a few in a community, sole providers of the needs of many, but this need not be the case. 'Slowness' can, and has been celebrated for connecting by sharing the load out — families get together for a weekend to harvest their gardens' hazelnuts and subsistence farmers work in short, intense, and highly communal bouts of activity.

Age-old technology allows us to reconsider what constitutes efficient work organisations, against the view inherited from capitalism. As early as the thirties, and even after WWII, studies showed that women did not actually enjoy more free time after the introduction in their homes of mechanised devices, contrary to what people always assume. Katy Bowman's concept of 'time-stacking' allows us to see how the preferred modern way of doing things quickly but separately is in fact not efficient in the face of doing things slowly but all intertwined. She says that sourcing a foraged meal with her family given everything it provided beyond actual food *only* took two hours for what she "*had previously figured would take 6 or 10*" — food shopping, work to earn the income for the shop, exercise, leisure, fresh air, family time, learning and more.

I say 'and more' because there is a complexity and depth intrinsic to *doing* which cannot be told fully. Activities which require a greater input than pressing a switch teach us to observe with all our senses — a conversation takes place. The only English book on pestle and mortars states that "*there is no technique involved in using one*", which is not something that anyone who has actually used one could possibly agree with. Voices come out of YouTube: "*The pounding of fufu is a technique that needs practising*", "*Using the right technique is important lest you will end up with very sore wrists. Use the strength of your whole forearm as opposed to using your wrist*" or "*You're never pressing, but rotating with your wrist. (...) The rotation of the mortar [creates] a bigger friction on the sides. (...) Beating it is absolutely prohibited.*". Only one English author, Andy Ricker, goes into any detail, writing on Thai food and its clay mortar used for pounded spicy salads: "*[Pound] lightly and come at the ingredients from a slight angle, not from directly above. As a guideline, the pestle should strike the side of the mortar at more or less the same time as it does the ingredients, blunting the blow*"; he indicates that using a granite pestle and mortar set is "*an entirely different affair*".

Labs and industry have not forgotten the technicity of hand tools because their livelihood very much depends on it. Pestle and mortars of all sorts are still very frequently used from life sciences to materials chemistry, metallurgy to pharmacy. At home, we don't appreciate the difference between various processes if the result looks similar — pesto will be pesto whether blended or crushed. But scientists know better, as the huge mechanized pestle and mortars they have come up with can attest. Their motion is very specific to pestle and mortars — a mix between impact, shear and compression — and can be intrinsic to scientific processes in reordering molecules to form new substances: triturating calcite from long enough turns it into aragonite for example. But even labour-saving has its limits in specialized settings: automated grinders do not fare well with acidic or volatile substances which damage their many moving parts; hand grinding also allows very small samples to be worked and is a very controlled process. Substances in science can be aggressive and must be kept un-contaminated so hard, chemically resistant and non-absorbent materials are called for like ceramics or glass, both lab staples. The choice depends specifically on which combination of hardness, resistance and impermeability is most required for the job at hand. Slightly rough surfaces are effective at grinding samples very fine but tend to be more porous and more difficult to clean. To achieve very fine powder but in a highly impermeable mortar scientists use techniques such as diluting the sample in a solvent such as acetone or alcohol, triturating until the latter evaporates. They also practise 'cryogenic grinding': pouring liquid nitrogen over the sample and grinding it while the nitrogen boils down. This last technique is used for example in RNA extraction from organic materials and is one of the most common uses for pestle and mortars in life science labs.

We left the responsibility for the paraphernalia of our daily lives entirely up to specialized professionals when we stopped using pestle and mortars at home. Now, we are even more disconnected from our other consumables than

our food. Even someone who prides themselves in cooking most likely buys a majority of other things ready-made despite the current trend for DIY, and the only mineral ingredients we know are powdered and encased in plastic.

We are concerned with world-issues we are aware of, and we know there are many. But the pestle and mortar has the power to show us just how many others lies in the wake of our industrialised lives; things which, like itself, sit there, hidden in plain sight. Not so much the 'big questions' — we know of environmental degradation, of huge social gaps, of health crises. We know just how many of us are not fulfilled by capitalism. What we lack is the ability to see just how connected all these are and just how much they are engrained in the matrix of our modern lifestyles, in the tools we use every day. I would never have treated my housemates to delicious Ghanaian *akara* if it weren't for this research. Africa, the continent of pounded foods, is regularly forgotten in blog posts on pestle and mortars or at best is cited as a 'country' amongst Italy, Japan and Mexico, and contrary to these, no local pestle and mortar names are ever given — the *asanka*, for some reason, is not allowed to sit besides the *mortaio*, *suribachi* or *molcajete*. African heritage is as present in the belly of a mango-wood mortar as both are absent from the Europeanized imaginary — outside of globalized standards, diversity is silenced. Anything too closely linked to times unindustrial is seen as being of lesser worth. Traditional knowledge is lost to market laws which dictate the only 'right way' to do things, more so than we think. Do we really know better than our neighbours or ancestors? Maybe 'saving the world' is as simple as becoming curious.

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05: Cover idea

It seems the approach to marketing this sort of book is either frontal “let’s talk about pestle and mortars”, and hope that sparks curiosity in itself, or a much more secretive tactic along the lines of “guess what is a super-important aspect of degrowth” — I don’t know if one is better for the other, I think it also very much depends on the editor’s positioning, but if the second approach was preferred in fear of pestle and mortars not being likely to interest that many readers in themselves, I had the idea of the following, so I am just leaving you off with it as a suggestion.

(Hint: it’s an autostereogram of my own pestle and mortar.)

BEYOND THE END OF OUR NOSES

**Sustainability questions no one thinks
of and why they matter so much.**



Thank you.

