
BREAD
ISSUE 2:
FLOUR

CONTENTS

Photo credits on page 74

WELCOME

A warm welcome to the second edition of Bread, the magazine for lovers of bread! After the introduction in the first edition, we now move our attention to the most important ingredient in great bread—flour.

ABOUT THE MAGAZINE

BREAD IS A MAGAZINE FOR LOVERS OF BREAD. If you are a serious home baker, dream of becoming one, or just enjoy reading stories of real people making the best bread in the world, this magazine is for you.

In each of its editions, the magazine explores a specific topic related to bread making—such as flour (the topic of this edition), fermentation, heat, and shaping techniques—while keeping the stories of craftsmen at work at its center.

ABOUT THIS EDITION

AS RICHARD BERTINET SAID in his interview in the first edition of Bread, "to make great bread you have to make great dough." And to make great dough, you have to know about flour: learning about how different grains behave as flour in your dough, choosing the right flour for the job, and adjusting the formula accordingly make a big difference in your bread making.

This is why—and for a chance to learn more about where flour comes from—this second edition of Bread is dedicated to flour.

WE WILL BEGIN OUR ADVENTURE right from the beginning: the breadbasket of England in North West Norfolk, where Andrew Charlton grows his organic wheat. Following the wheat's journey, we then move to the windmill looking down to Andrew's fields where the cereals are ground to flour using ancient practices.

A visit to Skærtoft Mølle, an organic farm, mill—and much more—in Southern Denmark will further increase our understanding of what goes into making a bag of flour of the best quality.

We will also learn from bakers who turn flour into bread: what they value in great flour, and why they like to know where it comes from, whether buying the flour from a mill or milling it themselves.

Bringing all this information together, we will expand our recipe from the first edition with variations using different flours—naturally backed by enough information for you to start conducting your own experiments.

If this sounds like a blast, let's get started!

SHARE AND TALK BACK

AS ALWAYS, I encourage your feedback and would love to see you spread the magazine to your friends and family—or anyone as into bread as you and I are!

Thank you for reading!

—Jarkko Laine, editor and publisher

READING OPTIONS

To help you read your magazine in the way you prefer, starting from this second edition, as an experiment, BREAD will be published in two formats: the PDF version familiar from edition one and a Kindle version specifically made for handheld devices.

OPTION 1: PDF

IF YOU LIKE YOUR MAGAZINE IN FULL COLOR AND FULL SIZE on your computer screen, this PDF edition is for you.

Keep reading.

To make sure you don't lose your position when clicking on links (any text that looks like this is a link), it's best to download the magazine to your computer and open it in a PDF reader. such as Adobe Acrobat or Preview if you are on a Mac.

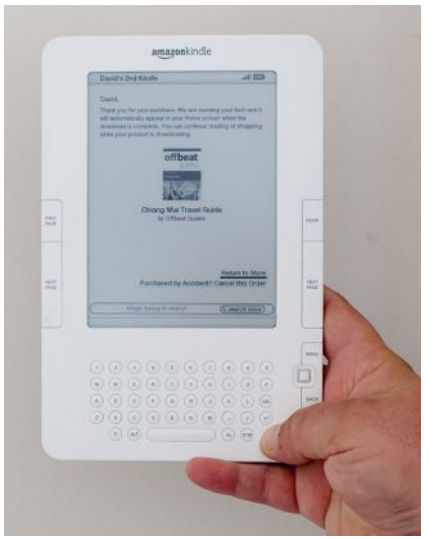
If your PDF reader supports a full screen mode, using it will make for the best and most focused reading experience.

OPTION 2: KINDLE

IF YOU LIKE TO TAKE YOUR MAGAZINE WITH YOU when you go to bed—or on a long bus commute—for example, a laptop (not to mention a desktop computer) is a rather clumsy choice.

For this purpose, I have created a Kindle version that you can buy from Amazon to read on your Kindle or your iPad or iPhone using the free Kindle application.

To learn more about the Kindle version, click here to jump over to Amazon's Kindle store.



THE BEGINNING OF BREAD

It is hard to think of a food that has had as great an impact on the western culture as bread. With a history dating back to the dawn of agriculture and the first great cities of the fertile crescent, it has fueled entire civilizations.

THE VERY FIRST OF LOAF OF BREAD was baked long before the invention of written language, so it's no wonder tracing back the beginning of bread is a tricky task requiring a lot of digging and shoveling—and quite a bit of guesswork.

Bread has been around for a long time. But how long exaclty?

OUR FIRST HUMAN ANCESTORS were hunter-gatherers. They spent most of their days looking for food: berries, roots, small animals—whatever they could find and catch. From time to time, they found wild grains and experimented with them. As they noticed that eating grain as is wasn't a good choice for human digestion, very soon—probably—they turned to simple forms of milling.

Archaeologists have found that simple mill stones were in use already thousands of years before the beginning of agriculture. They could be used for grinding all kinds of things, including grains such as the wild varieties of barley and wheat.

IN HIS BOOK, Bread—A Global History, William Rubel suggests that once the early humans had learned to make a coarse flour, there is no reason why they couldn't have used the flour to bake a simple—probably quite flat—bread on stones or on the embers of their campfires.

He suggests we shouldn't look down at the neolithic societies but acknowledge their creativity. For example, still today, bread in Rajasthani villages is made with a technology not far from that available to those living in the neolithic period:

"In Rajasthan flour is milled in the morning of baking, sifted through a coarse sieve, then mixed with water, kneaded and made into a thin disk that is baked on a terracotta griddle heated by cow dung until the dough is set. It is then transferred to the emberss where it finishes baking." Rubel writes.

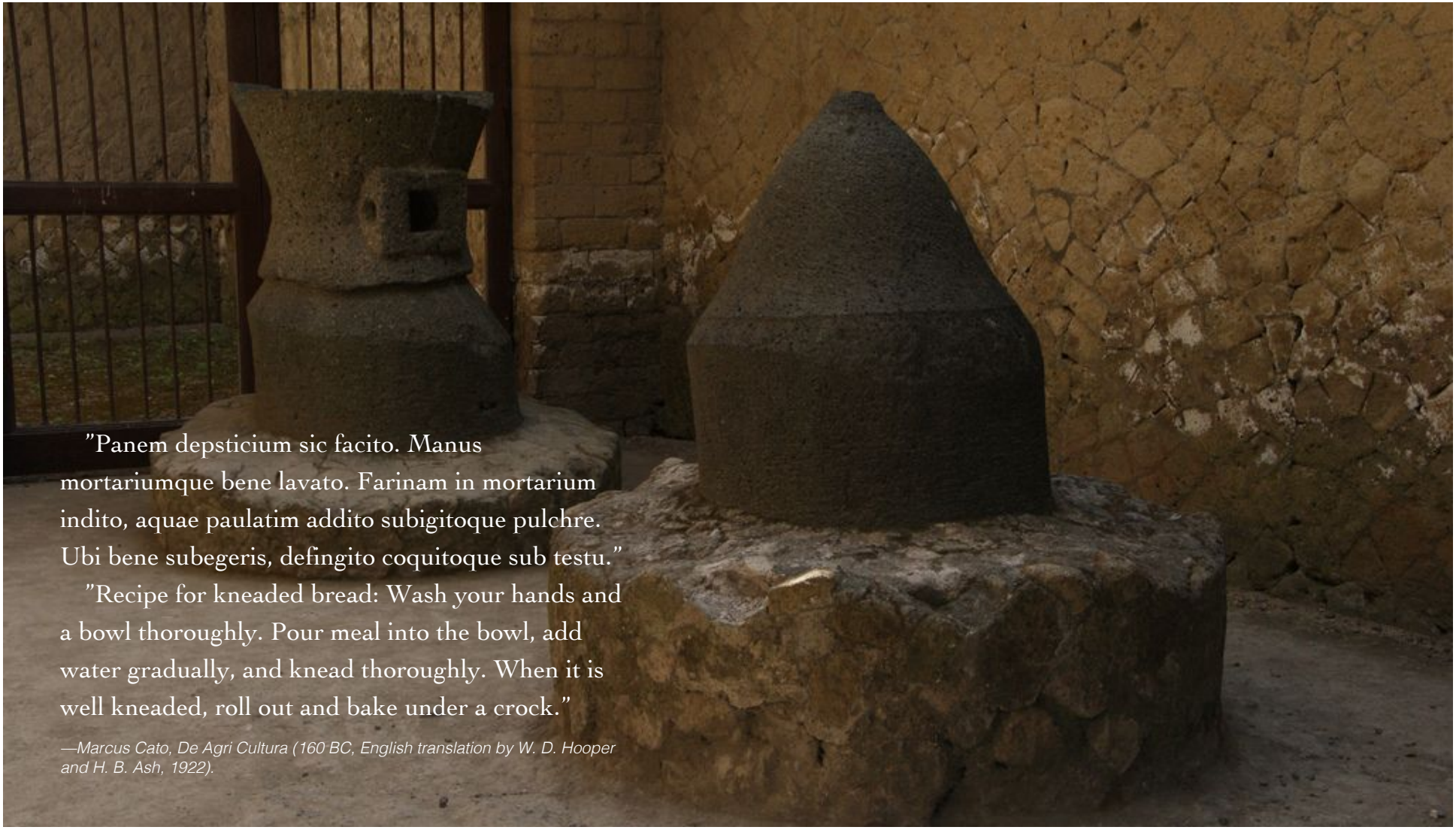
Without conclusive evidence, all we can say is that it's definitely a possibility: all the tools required for turning grains into flatbreads (rocks and fire) were all available for them if they happened to know what to do with them.

And why wouldn't they have?

TRADING A HUNTER-GATHERER lifestyle for that of agriculture some 12,000 years ago was one of the biggest changes in the history of mankind so far. It was big enough to inspire the well-known confrontation story of Cain, the first farmer, and Abel, his hunter-gatherer brother, in the Jewish Bible or the Christian Old Testament.

Despite the bitter nature of that story, for bread—and western civilization—this was a big leap forward.

AROUND THE WORLD, agriculture was invented at least four times independently of each other. In asia, it started with rice. In the Americas, corn was the dominant crop. And in Papua, farming began with beans. While these



"Panem depsticium sic facito. Manus mortariumque bene lavato. Farinam in mortarium indito, aquae paulatim addito subigitoque pulchre. Ubi bene subegeris, defingito coquitoque sub testu."

"Recipe for kneaded bread: Wash your hands and a bowl thoroughly. Pour meal into the bowl, add water gradually, and knead thoroughly. When it is well kneaded, roll out and bake under a crock."

—Marcus Cato, De Agri Cultura (160 BC, English translation by W. D. Hooper and H. B. Ash, 1922).

are all ingredients for a great dinner, they are not bread crops like wheat and barley which formed the basis of the agriculture first in the Fertile Crescent and later in Europe.

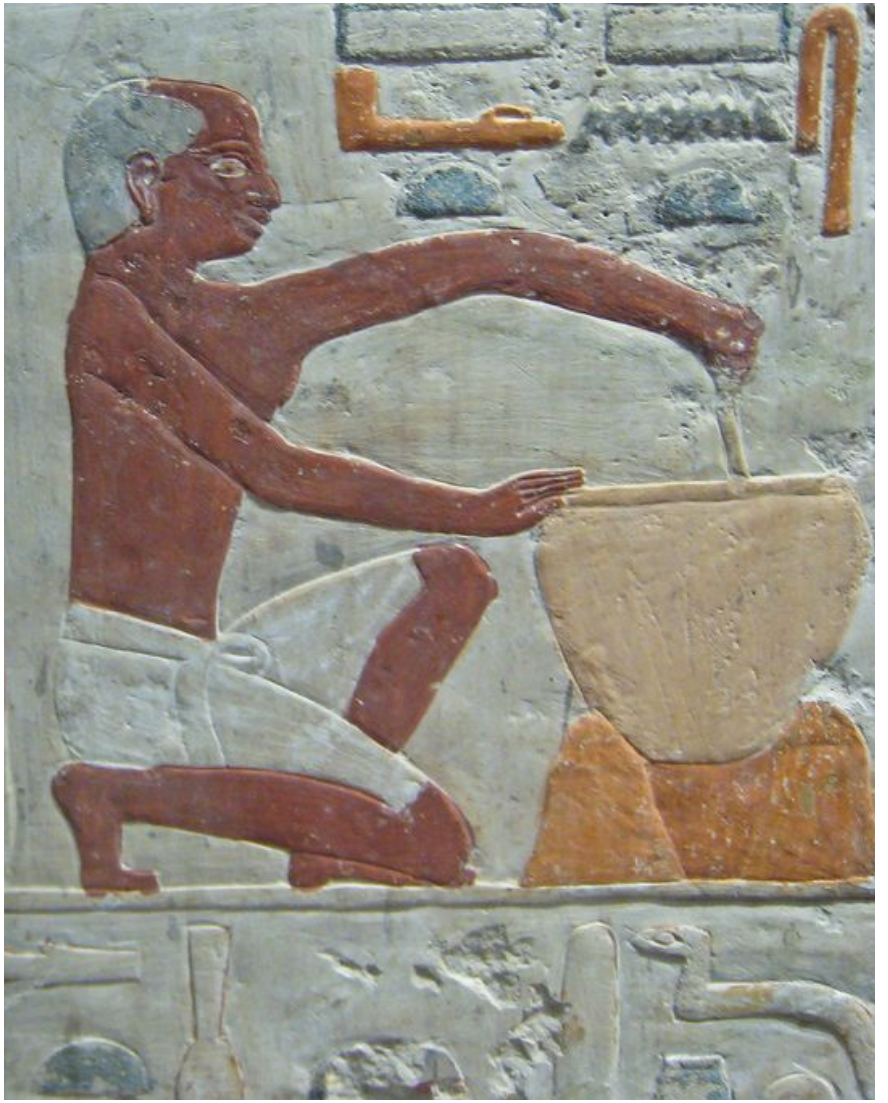
THE RISE OF AGRICULTURE

THE FERTILE CRESCENT, also known as the cradle of civilization, was a crescent shaped slice of land stretching from the Mediterannean sea to the Persianl Gulf. The area was naturally fertile, with the Euphrates and Tigris rivers irrigating wild crops, such as emmer wheat, einkorn, and barley.

By 3,000 BC, the Sumerians had a very developed agriculture. This created a surplus of grain, that—while maybe leading to a less varied diet—brought stability and freed resources from the daily work of producing food. This way, bread built cities, such as Uruk—the first major Sumerian city with a population of 30,000 bread eaters, states, and entire cultures.

From these times, we already have written mentions of bread, such as the passage from the Epic of Gilgamesh (c. 2,000 BC) where, as Rubel says, "what lifts Enkidu from the level of beast to that of a civilized man is eating bread and getting drunk."

SOON AFTER SUMER, Egypt became another great nation fueled by bread. Egyptians loved beautiful artifices, many of which have survived to this day. Looking at the many Egyptian engravings, paintings, and ruins of production bakeries, we clearly see that bread was an important part of every day life as well as religious ceremonies.



Bread and beer were offered to deities, and anyone who could afford them, consumed them as a part of their normal diet.

Still, we don't have a recipe. Some experimental archaeologists are trying to reproduce what could be original Egyptian breads using barley from the region as well as tools and techniques believed to have been around at the time. Still, we might never know how close tot he original they will get.

BREAD ARRIVES IN EUROPE

FROM EGYPT, the craft of bread making moved first to Greece and then, with Greek bakers bringing their world famous skills to the new world capital, to ancient Rome.

Along the way, the recipes get more detailed. Not nearly as detailed as the recipes we use today, but more detailed nonetheless. Paintings became more detailed and realistic so that thanks to this, we have a pretty good picture of what bread was like in the first century: not very different from what we eat today.

RUBEL WRITES: *"Thanks to the tragedy of Vesuvius' eruption in AD 79, besides charred loaves we can see via a well-preserved wall painting a late Roman bakery with golden-hued loaves stacked on shelves behind the counter—a style of display familiar today. From the painting it seems clear that these are leavened breads. [...] Ultimately, loaf breads are loaf*

breads and the chemistry of dough is fixed. What they ate then and what we eat now need not have been different at all."

MAKING WHITE FLOUR means throwing away a big part of the grain, so it's easy to see why it quickly became a sign of wealth: throwing away most of the grain and eating bread made of only the whitest flour was a luxury most couldn't afford.

Therefore, in Rome, and through the middle ages, although Galen and other influential medical writers favored white breads as the healthier choice, most of Europe was living on a diet of very dense, dark bread, mostly made of barley and rye, instead of the more expensive option, wheat.

Today, we know that wholegrain bread is the healthier choice, but these prefences defined 2,000 years ago still more or less guide our thinking on what great bread is like:

"White bread was favoured over bran breads, with the exception of the occasional need for bulk to help pass too compacted a stool. Loaf breads were favoured over flatbreads. Wheat was favoured over all other grains." Rubel writes.

The specifics of our favorite breads such as the baguette or Pain de Campagne came later, fashions come and go, but we can safely say that the general principles of bread making had been figured out.

Bread was born.

DID YOU MISS THE FIRST EDITION?

If you missed the first edition of Bread when it came out in March, no worries: you can still get your copy of the magazine.

THE TITLE FOR THE EDITION is "The Art of Bread" and it works as an introduction to our journey in finding what makes great bread great.

The magazine features interviews with three amazing bakers: Richard Bertinet who inspired me to start baking, Larry Lowary who runs a small bakery on his backyard on Whidbey Island, and the profoundly thinking home baker and miller Phil Agnew. It also contains an interview with Chris Young from the Real Bread Campaign in which he talks about bread and its rightful place in our society today.

If you are new to baking bread, the first edition also gives you a quick overview to the baking process and provides the basic recipe we will use as a basis for our experiments in this edition and every recipe from here on.

TO GET YOUR COPY, visit this page.

And to be notified of every upcoming edition as they come out, subscribe now—if you haven't done it already.

HEDLEY POPLAR AND DENVER MILLS

In Denver, Norfolk, a trusty old windmill stands next to the fields of Hedley Poplar where Andrew Charlton grows the grain that the mill then turns into tasty flours. These neighbours are a match made in heaven.

IN THE COUNTY OF NORFOLK, the bread basket of England, Andrew Charlton runs his small farm, Hedley Poplar. On its 93 hectares of land, he grows wheat, barley, oats, rye, spelt, and oil seed rape.

Near the Hedley Poplar fields stands Denver windmill, now home for Denver Mills, a small business with a goal to showcase the history of milling and to do it in a way that is financially sustainable.

The current Denver windmill was built in 1835 to replace the earlier postmll on the same site. After over 100 years of active use, wind milling ended in 1941 after a lightning struck one of the sails of the mill. A long period of neglect followed, but slow restoration work began in 1975. In 2000, the fully restored mill was opened to the public.

SINCE 2008, Lindsay and Mark Abel have been running the mill as a business that sells the flour from this hertage mill—and bread and pastries made of it—but also organizes courses and events to keep the craft of bread making alive. They describe Denver Millls as *"The last commercially operating Windmill in Norfolk and centre for craft baking and traditional cereal, milling and flour technology & training."*

The Abels' plan to make the mill a self-sufficient business that pays for the mill's maintenance without depending on outside funds was working well until an accident in October 2011 broke the mill sail, leaving the mill out of use.

And now, with the windmill's owner, Norfolk Historic Buildings Trust, planning to not renew the five year lease that the Abels have had for the mill, the mill is once again fighting new obstacles.

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IN APRIL 2012, I talked with Andrew Charlton about his business, organic farming, and his cooperation with Denver Mills.

Mark Abel from Denver Mills also answered my questions about the windmill, flour, and runnng a business to keep the tradtion alive.

ANDREW CHARLTON

JARKKO: To start the interview, can you tell a bit about your story. How did you come to run Hedley Poplar?

ANDREW: I AM THE SON OF A FARMER.

I studied agriculture in college, but my father's farm was very small and I couldn't take over, so I had a long and varied career doing many things: I was a food buyer. I worked in the civil service for a while. I did many things until one day an opportunity came along to rent a very small farm—just two hectares, initially.

And then, twelve years ago, I got a chance to move to this farm which is much bigger, 93 hectares.

JARKKO: Growing up watching your father take care of his farm, was it clear to you from a young age that you would be a farmer yourself one day?

ANDREW: I HOPED TO BE.

To be honest with you, I didn't think I'd ever get the chance. So when it came along, it was a very big surprise, and I grabbed it with both hands.

GIVING UP HAVING TO WORK FOR someone else is the best thing that's ever happened to me.

It's a combination of huge job satisfaction and being able to see the results of your work at the end of the day, or the end of the year, or whatever it may be.

It's the working environment. Strolling across the yard to start the work in the morning. There is no commute or anything like that.

And I guess it's the opportunity to work with nature.

JARKKO: Can you tell a bit about your farm and your everyday work? I guess seasons matter a lot?

ANDREW: THE FARM IS PARTLY ORGANIC and partly conventional.

From July all the way through the autumn, while we are cultivating land and then sowing the next year's crop, the business has a very big labour demand. It's rare for me to take a day off then.

JARKKO: So, no summer vacation for you?

ANDREW: [laughs] WELL, I TAKE MY SUMMER vacations around this time.

And then, hopefully, by early November, we're finished getting crops in the ground, and then concentrate in looking after the crops through the winter and into the spring, as well as on maintenance of machinery and keeping the place clean and tidy, and paperwork, and things like that.

LIKE ANY BUSINESS, I'm completely dependent on the help that I have of people who will work with me.

I have people who come on to the farm to do hand-weeding of crops for, say, six to eight weeks, and there are people who come and do a few hours every week of the year for me.

JARKKO: I see.

There is one question I like to ask people I interview for Bread: What is the craft, or skill of a good farmer you have to master to be good at what you do?

ANDREW: IT'S MANY FACETED.

From a management angle, farming is about getting things done to crops. To sow them, to harvest them, to fertilize them, to weed them, whatever it may be. Getting things done at the right time. To ensure that you can enhance the yield.

It's also a question of managing the soil to be as beneficial as possible. And again, that's down to timeliness and avoiding going for the land at the wrong time.

There is also the question of understanding and working to ensure that we produce what our customers want in terms of quality, price etc.

And, in this day and age, you can't escape it: this is a very massively regulated industry. So you need to ensuring that your paperwork and all your compliance, all your documentation is kept up to date and is available for the very many inspections in the course of the year.

JARKKO: I guess organic farming adds to the amount of regulation quite a bit?

ANDREW: OH, MASSIVELY. Absolutely massively. Organic farming is unbelievably complicated to regulate. Very very complicated.

Some farms—you know—can be perfectly good farmers but they actually cannot manage the complication of organic regulation.

JARKKO: Would you say organic farming is over-regulated, then?

ANDREW: IT'S OVER-REGULATED in as much as some of the regulation overlaps and duplicates, which is wasteful.

Some regulation is necessary to protect the consumer, and that's absolutely, critically important. Ultimately, consumers have to have confidence in the product that we produce.

JARKKO: Speaking of organic farming, what's the difference? Does it make a difference for the end result: the crops you grow and the flour and bread they later become?

ANDREW: AS YOU ARE PROBABLY AWARE, there is an absolutely huge and fierce media debate about what organic means, in terms of why someone would choose to buy organic food.

What we can be sure and certain of is that it involves a production system that is kinder to the environment, involves more natural methods of production, and manages soil fertility naturally.

What we can't be sure of—and there are huge debates that rage about this—is what effect that has in terms of taste, nutrition of the bread that, in this case, results from it. All I know, and the customer at the mill knows is that the crop and the bread they produce is excellent.

I mean, I get my bread from there [Denver Mills]. I'm going there in a few minutes to make a delivery of wheat, and I'll make sure I take a loaf of bread back with me. The quality of the product is outstanding. Whether that's down to their milling process, their baking process, the skill that they have, that they are working in small batches, or the quality of the wheat I supply, to be honest, we really don't know.

JARKKO: Maybe it's a mix of all of them.

ANDREW: COULD BE… I think that's a definite possibility.

I guess it's one of those things where if something works, don't worry too much about it, just get on with it. I hope it doesn't sound negative, but it does work and that's all we can say really.

JARKKO: It seems that you have a very good cooperation going on with Denver Mills. How did you get started in working with them?

ANDREW: I HAD TRIED TO SUPPLY the mill before, but the previous owners really weren't interested. They just wanted to buy the cheapest material that they could.

When Mark and Lindsay took over the mill—three, four years ago—they were working with some business advisors that I had worked with previously. And they basically put us in touch. And we found that we could work together.

WE ARE BOTH VERY SMALL businesses and there were opportunities where we could support each other.

For example, the Denver Mill site is very very crowded, and I've got a little bit of space here, so we have been able to move all the cleaning operations for the grain, and put that in the yard here. So I actually do that for them. I supply them with a clean product that goes straight into their milling machine. They don't have to worry about cleaning it.

Little things like that, we've been able to work together. And it just makes life so much

"I GUESS IT'S ONE OF THOSE THINGS WHERE IF SOMETHING WORKS, DON'T WORRY TOO MUCH ABOUT IT, JUST GET ON WITH IT."

simpler and more manageable for us both.

JARKKO: Is this kind of cooperation the key for making it as a small business in a world ruled by big agriculture corporations?

ANDREW: AS A SMALL FARM, you have to accept that, because you are more flexible in the business, life can sometimes be more figgly than it can for a big farmer.

But you are supplying a market that the big farmer really isn't interested in because it's too much trouble for them. As long as you are prepared to work with the customers and build a good relationship with them, I don't believe being a small farm should be a disadvantage.

You can turn it into an advantage and you can be thankful that you don't have to carry the massive cross the big farmer would carry because you don't need huge machines and very big work forces.

—

MARK ABEL

JARKKO: Can you tell a bit about your background and how you came to run Denver Mills?

MARK: WE FOUND OURSELVES at Denver as a result of looking at an entirely different project!

With—amongst other things—heritage engineering and community development experience behind us, we were looking to set up a facility whereby some of the dying traditional Norfolk skills could be maintained to benefit both the craftsmen and the public, and in many ways even more importantly, future generations.

JARKKO: But you ended up taking over the windmill. Can you tell a bit about the mill as it's operating today?

MARK: DENVER MILLS IS JUST another flour mill. It just happens to be that last one in Norfolk that can still work and so is priceless as a heritage asset.

By the way, lets just confirm the word "heritage": It has come to mean just "the past" to the majority of people. But the Oxford gives the definition *"valued objects and qualities such as cultural traditions, unspoiled countryside, and historic buildings that have been passed down from previous generations"* and that's what we mean.

It's the progression of learning and understanding.

WINDMILLS WERE AGRO-INDUSTRIAL machines that supplied the raw ingredient of sustenance—flour.

With the advent of "factory" roller milling in the 1870s, the role of the mill and the general perception of flour changed dramatically. The old stone grinding facilities could not make the new "white" flour nor produce in the volume of the roller mills. Take Denver as an example: 250 tons a year equates to about a ton a day for a five day week (if there was enough wind)

whereas Heygates roller mill a mile away in Downham Market can run at something like 1,500 tons a week!

The old stone mills went over to animal feed production (powered by steam, oil and finally electricity) which were then rendered uneconomical by the hammer mill.

Roller milling is a largely a science, stone milling predominantly an art; it is important to me to understand products and processes so we can both produce the best product and share that knowledge and experience.

JARKKO: Can you tell a bit about your setup and all the different mills you have at Denver Mills? Do you have a favourite or are they like children, where picking your favourite wouldn't be fair?

MARK: WE GOT A BIT OF A SHOCK when we took over here. The windmill was not "completely restored into fully working order" as it was supposed to be. In fact, it was almost inoperative so we immediately had to look at other alternatives.

Like the vast majority of heritage mills, Denver had been buying in and re-bagging

flour but we had a fundamental policy of only selling flour milled on site whenever possible.

We were very lucky in being able to acquire a pair of late (probably just post war) Barron Dreadnaught vertical stone mills. These were an attempt to make a production line stone mill—in the early part of the 20th century they were belt driven, the latter ones had electric motors.

We also use a French SAMAP stone mill. It has conical stones (like the original quern) and was designed for large restaurants and small bakeries to mill as required and is currently re-commissioning a Blackstone vertical stone mill.

WE ARE CONSTANTLY EXPERIMENTING and fine tuning to get the optimum output from each. Different varieties—let alone different cereals—behave very differently, and ambient temperature and moisture can change things from day to day.

JARKKO: Also, I'm curious to hear more about what the work is like. What is the real craft of a miller? And what are the normal work days like, making flour at Denver Mills?

MARK: THE WORK IS PHYSICALLY very hard—my daughter Sally and I worked out that one day last year we lifted 6 tonnes between us by hand!

We are constantly looking at ways we can use contemporary machinery to ease the load, but at the end of the day the only way of getting grain up the mill is sack hoist or conveyor!

The first year we milled about four tonnes. Last year we hit about 32 tonnes, all for the bakery and shop on site.

This year we had everything set up to double that with external sales, but the inability to use the windmill has made that impossible. At the moment I am about 10.5 tonnes short on last year's figures, let alone what we had planned this year.

We have set a cleaning plant up at Poplar Farm (we work in partnership with farmer Andrew Charlton who is an absolute gem) and have mixers, cleaners and conveyors in the process of refurbishment.

The work is immensely frustrating but also very exciting—there is no typical day, you learn something new each one.

JARKKO: What defines good flour? If a baker has the choice, what characteristics should one go looking for?

MARK: FIRST, LET'S DISTINGUISH between types of flour: Roller Mills (think of giant mangles—up to 30 or 40 pairs) separate the germ, bran and endosperm at the beginning of the process and make white flour just from the endosperm. (Around 84% of the wheat berry is endosperm, 14% bran and 2% germ).

The white flour is then blended and processed (in the UK, all white flour has to have additives by law) to produce a product that is consistent in appearance, performance and taste (or lack of it!).

Stone Ground flour has a single pass between two stones so the whole of the berry is ground up—hence whole meal. It's a cooler process producing a very different product in appearance, nutrition and—above all—flavour.

FORMULA FLOUR DOES A GREAT JOB in producing a consistent product with the Chorley Wood Process—it's an efficient way of maximising output—and without it we could not feed our population (go back to the scales of production above).

Real bread is more filling and satisfying than Chorley Wood bread. It is more expensive, but as so often found with modern food products, it has the same or even greater value; it may cost more but you need less, it is more satisfying and you end up with less waste.

If you want a quick easy way of eating, use roller milled flours—you will be safe.

If you want to enjoy your food to the fullest, go for proper stone ground (if its "proper", the wholemeal will have discernable flecks of bran, the dressed or white will appear coarser and rarely dazzlingly white) and if you want to really understand your baking, experiment with different varieties and cereals.

We produce and use wheats, spelt, barley and rye and are constantly experimenting: What does triticale flour taste and behave like? Should know next harvest!

WE START OUR INTRODUCTORY baking courses explaining that it is not magic: once you have the basics of what is going on, its

"IF YOU WANT TO ENJOY YOUR FOOD TO THE FULLEST, GO FOR PROPER STONE GROUND AND IF YOU WANT TO REALLY UNDERSTAND YOUR BAKING, EXPERIMENT WITH DIFFERENT VARIETIES AND CEREALS."

90% confidence.

I was horrified when I first tasted a scone made with our biscuit (plain) flour—you suddenly realise formula flour has little or no flavour!

JARKKO: You seem to appreciate your local suppliers a lot. Can you tell a bit about your cooperation with Andrew Charlton and local businesses in general?

MARK: WE COULD NOT DO what we are doing without a sympathetic farmer who is interested in sharing in our motivation of understanding.

I believe we are in a unique position: we have a farmer who is also an agronomist and has worked on both sides of the food chain; we have a baker who was trained by Rank Hovis McDougal as a food technologist and spent most of his life working for Mars, we have an engineer who questions everything (me!) and a millwright who understands how it all works.

Only with this spread of skills and experience can we operate, challenge and understand as we do.

THERE ARE MANY DEDICATED small businesses who share this pride in their products and these are the people we like to deal and work with.

Currently we are working with D J Barnard Meats on a range of Poplar Farm-Denver Mill-Barnard Meats spelt products: sausages bound with spelt rather than wheat crumb, pork pies and sausage rolls made with spelt pastry, even spelt black pudding!

We are also working with Rob Butterworth from our tea and coffee suppliers Butterworth & Son on a unique biscuit using a by-product of coffee roasting...

LOCAL WORKS WELL FOR EVERYONE, personal relationships and the trust that creates, food miles, carbon footprints, local economies—you win every way.

JARKKO: What happens to your flour when it is ready from your mills? How much of it is used by your own bakery?

MARK: AS SOON AS I MILL some flour some blooming customer comes along and buys it so I have to make some more! I am delighted to say that it is hard to keep up with production—we can always sell more.

We stock bread and plain wheat flours along with spelt, barley and rye in both wholemeal and dressed along with the semolinas (spelt semolina makes the best pasta you will ever taste) and brans that come when we dress the wholemeal.

At the moment it all goes out through the site (bakery, shop, mail order) but that will be extended as soon as the future of the site is sorted out with our landlords.

JARKKO: Can you tell a bit about your business? I suppose building a sustainable business around an old windmill is an art form in itself?

WE CAME TO THIS PROJECT to make it sustainable so no more public funds would need to go into it.

Don't forget that these mills went out of production because they were no longer economic. Just because we get nostalgic doesn't make them commercially viable.

20-50 tonnes of flour through the windmill per year will pay for someone to run it, take people round and above all do the daily maintenance—something forgotten today.

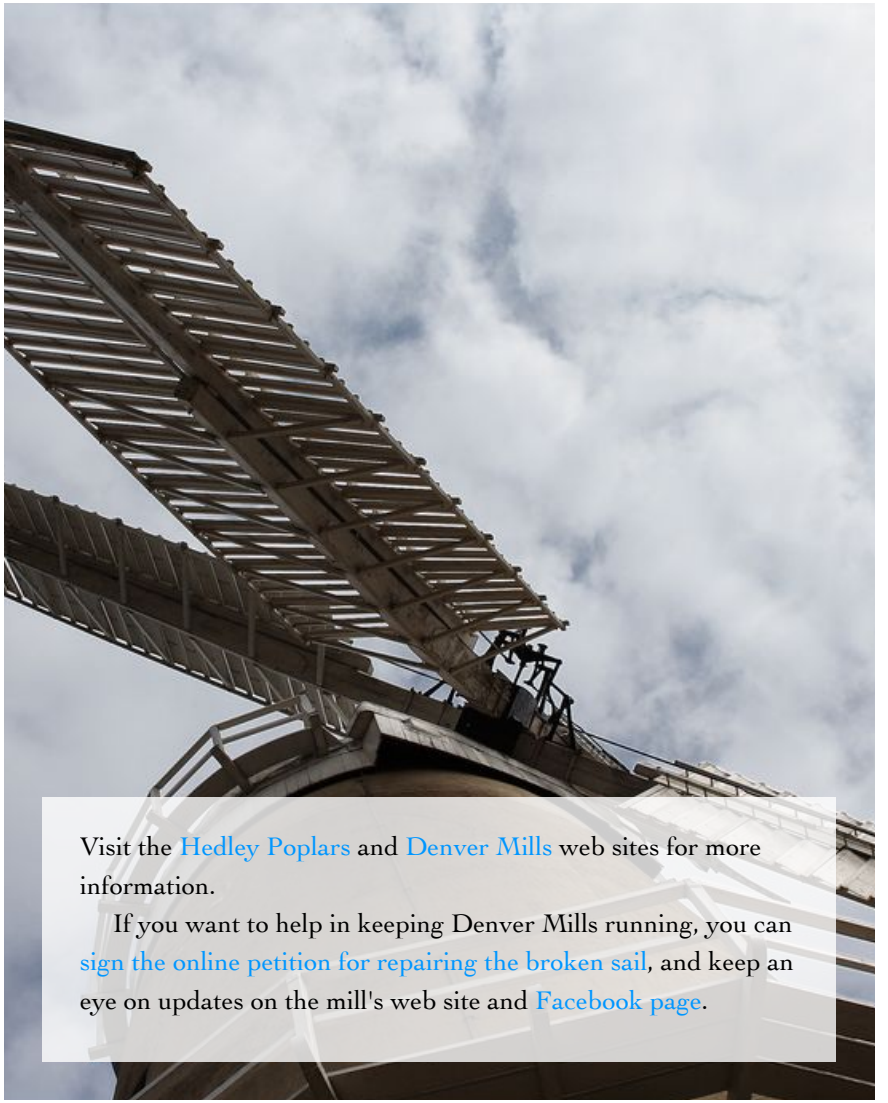
The other departments (teaching, bakery, etc.) are essential to showcase the product and engage people's active interest.

IT IS A VERY STRANGE BUSINESS MODEL.

We cannot be driven by increased custom and turnover; 400 people is the capacity for a normal day, more than that it becomes crowded and destroys the ambience of the site. So, we are going for the right sort of people rather than just numbers.

We want people who enjoy what we are doing and share our respect for this heritage, people who feel "included" (whether they come once a year or once every day) so not only do they want to come back but they want to tell their friends too.

We have a good bunch of regulars—whether it is for coffee, lunch, to bake, to buy ingredients or just to enjoy the atmosphere. They are now coming from Ely, Cambridge, Diss, Norwich and the North Norfolk Coast round to Kings Lynn.



Visit the Hedley Poplars and Denver Mills web sites for more information.

If you want to help in keeping Denver Mills running, you can sign the online petition for repairing the broken sail, and keep an eye on updates on the mill's web site and Facebook page.

MY PERSONAL GOAL is to establish a sound enough business to allow this project to work rather than demonstrate our on-going heritage through to the end of this century.

We now have wind, oil and electrically powered stone milling. Let's hope that in fifty years time something contemporary will be added to show the developments of our generation.

JARKKO: With the accident last October, the windmill is facing a new obstacle. Has there been progress with fixing the broken sails and getting the mill back to business?

MARK: THE WINDMILL SEEMS TO BE in limbo. The sails are still rotting in the Tea Garden and water is flowing through the mills every time it rains. After seven months you would have thought that a Trust dedicated to the preservation of heritage buildings would have done something at least in terms of damage limitation, but unfortunately not.

We are now being forced into costly arbitration, but we hope the future of the project will be resolved soon—we want to continue with this project and Denver Mills will continue one way or another.

What we have done in making the understanding of traditional cereals, milling and bread available to all is too important to lose.


SKÆRTOFT mølle
1kg
øko.
speltmel
fint malet
Vi anbefaler, at du sigter det fine mel i din dej.
Det fremmer hæveevnen. Ælt dejen godt,
og du får et brød med gods i.
SKÆRTOFT mølle
øko.
hvedemel
fint malet

SKÆRTOFT MØLLE

Skærtoft Mølle is a family owned farm that mills its own flour, an active educator of real bread, and a lot more. In this long interview, you will learn a lot about flour, community, and brave leaps of faith.

AFTER MY INTERVIEW WITH Richard Bertinet for the first edition of Bread, Richard and I talked briefly about the future of the magazine. As I told him that the next edition was going be about flour, without a second of hesitation, he said there was a mill in Denmark that I must get in touch with. He spoke very passionately of the spelt flour produced by this family business with a hard to spell name and told me "you have to talk to them."

With this in mind, the first thing I did when I started working on this issue was to contact Skæertøft. At the time, I didn't know much about the company, but the more I learned, the more curious I became.

SKÆRTOFT IS A FAMILY BUSINESS run by Hanne and Jørgen Risgaard and their daughter Marie-Louise. It consists of a farm that has been in the family for four generations, and since 2004, a flour mill. Since the beginning of the milling business, the company has experienced steady growth and now employs ten full time employees, sells 550 metric tonnes of stone ground flour every year, and organizes bread making courses—and a yearly food festival.

—

I WILL LET MARIE-LOUISE, Hanne, and Jørgen tell the story as they have lived it and thus know it best.

JARKKO: This magazine is built around stories of people working with great bread, so I'd like to start this interview by asking about your story and how you have come to where you are today?

MARIE-LOUISE: SKÆRTØFT—THE ACTUAL FARM—has been in my father's family since 1892. When my parents took over the farm in 1983, it was still just an ordinary, conventional farm with pigs.

At the time both of my parents had jobs outside the farm: my journalist mother was working as a producer/director in Danish television and my father as an agricultural teacher. Later he became the vice principal at a local business college and also found the time to get himself an MBA.

Both my parents were extremely busy with their jobs and careers and had no intentions to start farming full-time. Although, I must say, the job as a part-time farmer is really expressed much better in French—they call it "travail double"—because "double work" is really what it is.

THE LATE 1980s were years of environmental catastrophes in Denmark as well as in the rest of Europe, and it made my parents wonder if farming conventionally was really the way forward. So, when they met an enthusiastic organic advisor who told them "farming organically is really just a walk in the park" they instantly decided to convert to organic farming. That was back in 1991 and they—we—have

never regretted that decision for one second.

During the 1990s there was an increasing focus on the subject of traceability. Questions like “where does our food come from, how is it made and why”, made my parents wonder what actually happened to the grains they produced. We were quite fortunate to have a good deal with an organic mill (owned by Scandinavia’s largest milling company) and received a price premium for our organic bread wheat every year.

The soil we have at Skærtoft is good for growing crops and when summers were good we delivered excellent wheat with protein levels well beyond 12-13 percent. But when we went to the local supermarket to buy organic wheat flour from that mill, protein levels were always 10 pct and we wondered what had happened to our excellent bread wheat...

AT THE TIME, I was studying agronomy at the Agricultural University in Copenhagen, and the organic farming specialization had taken me to Wales. There, I saw what can happen when farmers decide to take things into their own hands—when they choose to follow their produce every step of the way—from field to fork, so to speak.

And my mother and I started discussing if it might be possible to do SOMETHING with our farm to achieve just that. We talked at lengths about milling flour, touched upon the subject of growing apples, vegetables, and strawberries but every time, my father objected and reasoned that he was no good at any of this—

and why would he want to leave a perfectly interesting job for this? We had to come up with something better!

HANNE: AND THEN SOMETHING HAPPENED.

I was attending a film festival in London and had nipped off for a little break. I was sitting on a bench with my eyes closed, enjoying the heat. All of the sudden, somebody asked: “What fingerprint will you leave on the world?” It was an old man, who had sat down next to me and who clearly wanted to talk. And so we did, but without me ever answering his provocative question. The gauntlet, however, had been thrown.

“What fingerprint will you leave on the world?” The question will not let go... it demands an answer. And that answer appears, on the 15th August 2003! A landmark date in our family history.

That day, Jørgen and I are sitting in our separate cars, heading for our respective meetings, and listening to the same show on the radio. At ten past nine, the host, a professional cook called Nanna Simonsen, welcomes two experts who have been invited to speak that day: pastry chef Thorleif Kristensen, owner of the Music Patisserie, Copenhagen; and the academic Ane Bodil Søgaard, who has conducted research into grain at the Carlsberg brewery, and at the Royal Veterinary and Agricultural University.

MOST OF THE BROADCAST'S two hours is spent on the incredibly bad flour and terrible

bread which the Danes seem happy to settle for. Part of the problem is that flour and bread are among the oldest processed foodstuffs, and are thought of as so common, everyday and unsexy that they can end up being treated with indifference. The result is that neither flour nor bread end up carrying the same expectations of flavour and nutrition that are otherwise demanded from our foods.

Flour producers, bakers and the bread industry are all getting a real hammering from the guests on the show. Thankfully though, the guests are able to offer alternative solutions. Bodil Søgaard outlines, with broad brushstrokes, the formula of how to make the best flour in the world—and both guests and host end up completely united in the idea that if only proper flour was made freely available, a bread revolution could be created in Denmark.

So—as Marie-Louise says—we had already been discussing any possibilities our farm might offer us to leave a decent fingerprint on the world. Because we were farming grain, the idea of making flour had also been put on the table. But Jørgen hesitated. As the fourth generation at Skærtoft, it made good sense to be a part-time farmer. But a miller?

WHEN WE CAME HOME that August evening, however, there was no longer any doubt: we should give flour a go. We would try—and this was said modestly, of course!—to make the World's Best Flour. Or get as close as possible.

It would be organic, stone-ground flour, with the germ and bran left in.

Pure, no additives, milled only to order, and with a naturally short shelf life.

Flavour and nutritional value would not be mutually exclusive, but would go naturally hand in hand.

ONCE THE DECISION WAS MADE, things started happening very quickly. In the beginning we worked alone, with the skills we had. When problems appeared that we couldn't solve ourselves—and there were many—we looked for help, from the best we could find.

And so it was that on June 1st, 2004, after ten months of hard work—by us and by many other people—the very first bags of stone-ground flour made their way from Skærtoft Mølle.

JØRGEN: AND MAY I JUST ADD that we never thought that things would end up the way they are today.

When we made the decision to start up a mill we spent the first four months intensively researching and investigation how to do all this. We also made ourselves a very detailed business plan where we stated which kind of organic, high quality flour we wanted to make and how—as Hanne's just said—and we also set out to find a way of selling our flour before investing anything but our own time.

Too many times have we experienced how skilled organic farmers have made excellent high quality products that they just haven't been able to sell, because they are farmers and not salesmen, and because in Denmark you cannot make a living from selling your produce from the side of the road.

This part of our research lead us to the high-end supermarket chain "Irma" which resides mainly in Copenhagen and on Sealand. Their consumer segment appeared just right, so we had a meeting set up with a buyer from Irma.

That day Hanne and I spent 45 minutes in a very small room with a furiously smoking man telling him what is was that we wanted to do and how, and why exactly we wanted to sell our flour in Irma. He said yes.

We simply could not believe our luck.

Once our sales channel was settled we started investing real money and started rebuilding the old cow stable into a modern mill. During that whole phase Marie-Louise was our scientific anchor. Whenever we needed to know something about grain and flour we sent her knocking on doors at the university or made her read up on everything available about how to preserve nutritional values in flour for instance. A never-ending field of research it seems...

MARIE-LOUISE: YES, INDEED IT IS. We know that now! I would just like to add that it had not been part of the plan from the beginning that I should return back home from Copenhagen to join the mill. I was heading towards a PhD and was very happy in the big city. But honestly, it was really, really hard not to become enthusiastically engaged in the crazy flour

"WHEN WE CAME HOME THAT AUGUST EVENING, HOWEVER, THERE WAS NO LONGER ANY DOUBT: WE SHOULD GIVE FLOUR A GO. WE WOULD TRY TO MAKE THE WORLD'S BEST FLOUR."

adventure my parents had embarked on, and in 2007 I returned home bringing my husband and first child with me.

JØRGEN: AND WE ARE GLAD to have Marie-Louise on board. She is an only child and it is a real treat to be able to include her in the business in the way that we have. Between the three of us we have many different skills and cover many different areas of knowledge—and being able to work together as a family has been an unexpected but very nice add on!

JARKKO: It seems to me that you are into milling for more than just to make a living? Why flour? What about your goals for the business? When do you consider it successful?

JØRGEN: MAKING FLOUR IS MOST CERTAINLY about making a living—and making money. But having said that, to us it is also a very meaningful way to spend the last decades of our working lives. For Hanne and I that is—Marie-Louise is just getting started!

Making high quality flour gives us the opportunity to contribute to an increase in health and an awareness about the fact that good, nutritious and tasty flour is most certainly an important and essential component of our daily diet—and that is very giving indeed. As Richard Bertinet puts it: "It is not good bread that is bad for you—bad bread is".

And bad bread is made from bad flour. But I'm sure Marie-Louise will tell you lots more about that...

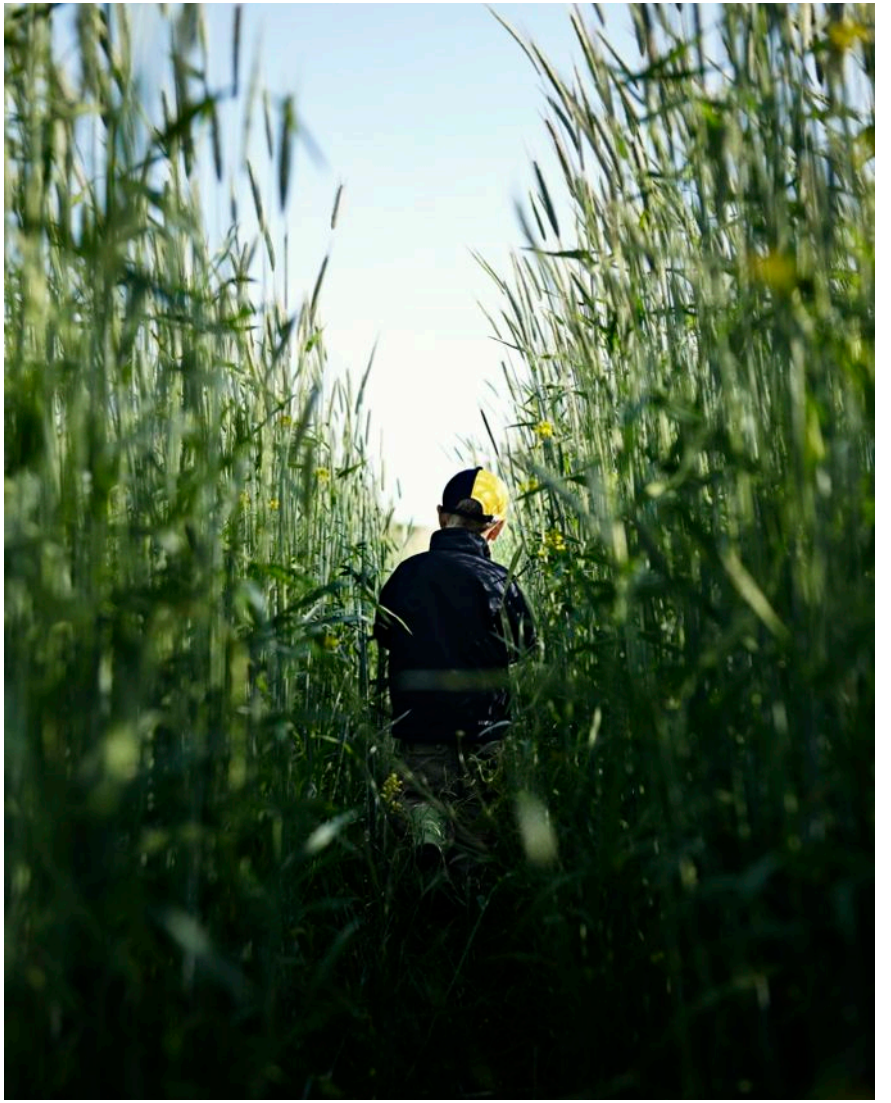
HANNE: WE CHOSE FLOUR because flour comes from grain. And Jørgen was already a very skilled arable farmer at the time. We had been farming organically for 12 years when we decided to start milling our own produce and Jørgen had gathered a lot of experience in those years.

Farming organically is not just "a walk in the park" as the advisor so alluringly expressed it. It is quite demanding. If you let it be. Thinking about nature and working with nature gives you a respect for the crops you grow, that in some ways challenge you even further. You take pride in what you do and you want to create the best growing conditions possibly. So we have always paid a lot of attention towards crop rotations, including crops that add to soil fertility, mulching of straw etc.

In a way, you might say that our land was ready for the next challenge—providing us with the best grain possible for flour production.

JØRGEN: WE STARTED OUT by stressing in our business plan that we would be milling our own crops, which would give us about 40 tonnes per year. A proper self-supplying mill. Only, the flour became such a huge success that we had reached the 40 tonnes after just 6 months on the market.

So now we have a group of farming partners who deliver grain to us and we can look back and say that the only grave mistake we made in our business plan was the actual size of the mill—we simply made it too small. We had no idea….



AND THEN THE QUESTION pops up of “when do we consider ourselves as being successful?” Now—after 8 years in the milling business—we can look at our business and conclude that it is successful because we have a high demand for the type of flour that we produce—along with the other grain products.

What is really great for us is that we have also managed to attract the interest from the gastronomic world. Master chefs use and praise our flour and pearls because they have that extra layer of quality attached to them. This is indeed an achievement in itself.

Also, being chosen as supplier for important scientific health studies is of great importance to us.

ONE OF OUR GOALS was also to create jobs in our rural area, and we are proud to say that today we employ 10 people full-time.

But most importantly we wanted to create a meaningful framework for our lives. Something that was not just “a job” but our life! We take great pride in what we do and that is not a given. We have realised that it becomes increasingly important to know everything about the whole process from “field to fork”. This is a somewhat cliché expression, but it really is self-increasing.

The journey doesn’t end here although we believe that we have reached a lot of our goals, but we are very happy that we dared to make the choice of skipping our profitable jobs and risking everything and starting up a production of something as basic and ordinary—but yet very meaningful—as flour.

JARKKO: Can you tell a bit about your mill and your work? What are the day-to-day operations like?

JØRGEN: THE MILL WE HAVE is a stone mill. It uses the same technology as when “invented” 5000 years ago, only this one runs on electricity and everything that surrounds it is a bit more modern.

From the beginning, we decided to make two main types of flour: whole meal (wholegrain) flour and fine sifted flour. We wanted to always keep the nutritious and flavourful germ in the flour and when making fine flour, we wanted to keep some of the bran particles in the flour as well.

What we do in practise is that we adjust the distance between the milling stones according to the softness or hardness of the kernel. The intake is regulated in such a way that the temperature of the stones never go above 28 degrees Celsius.

When the stones are kept closely together, we make fine flour and thus grind some of the bran to very small particles below 200 microns in size. That gives you soft and smooth white flour sprinkled with little brown dots. It also gives you bread that will never be totally white but golden instead. Golden for taste, flavour and health.

IT ALL STARTS with finding the best grain varieties: good ones that do not need a lot of fertilizer, that are not susceptible towards pests and that deliver high percentages of protein and gluten. Since we primarily make bread flour we focus a lot on protein content and quality. Typically, high yielding crops will not give you high yields of protein. Rather, it is the other way around.

When the crops are harvested, we start out by making the analysis that we need to make to be sure this is the grain we are going to use. Falling number, protein, gluten etc., and later on during storage we also check for toxins. If all is well, we then dry the grain to 14%


SKIOLD

moisture (if necessary) and then leave it until we need it. Flour is best stored as grain. Especially if you want to keep as many of the valuable nutrients and flavours given to grain from nature as possible. Once a grain is opened and the endosperm and aleuron layer exposed, flavours, essential oils and vitamins in the grain will start to degenerate.

WE ONLY MILL ON ORDER. That means we have no storage facilities for flour—only for grain. It also means that the flour we deliver to wholesalers and retailers is a maximum of 5 days old and should therefore reach the end-users when it is no more than two weeks old.

At this age, there will still be high amounts of nutrients and flavour preserved in the flour. This means that we have put a lot of effort into telling people that they should use their flour when it's fresh. And—as a special treat—we managed to convince Irma that the shelf life of this flour should be no longer than 7 months. This was quite an achievement as the shelf life of flour in Denmark is normally 12 to 24 months.

WHEN ORDERS COME IN, we first clean the grain. The cleaning process starts with taking out any particles that are either smaller or larger than the grain itself. Then we take out all round particles and keep the kernel shaped one. Round particles are usually weed seeds. Hereafter the grain passes though a de-stoner and then enters a gravity sorter where only the good-looking and fully developed kernels may pass through. Throughout the entire cleaning process the grain also passes over three magnets. The last thing we do before the grain enters the mill is to pass it though one of my own inventions: a brush and vacuum cleaner. Here all the dust that has settled on the grain is brushed off and then sucked out by the vacuum cleaner—not an ordinarily sized one I should add—so that what we mill is clean grain and nothing else.

When you want to preserve flavour and nutrition in your flour you have to avoid two things: heat and oxygen. This is the reason why we chose the stone mill. It runs quite slowly and the stone therefore never goes above 28 degrees Celsius in temperature. This means of course that the milling capacity is somewhat limited. We now mill about 500 tonnes of flour per year, which is what the average modern roller mill produces per day!

To avoid enemy number two, oxygen, I have created a system where the flour is pushed by a wire conveyor from the stone mill in a closed system of tubes through to the packaging station.

In large roller mills the grains are passed through very rapidly moving and also very warm steel rollers and the flour is transported via pneumatic air transportation systems, hereby adding a lot of air to the freshly milled flour.

Richard Bertinet stands quite firmly on never using roller milled flour until 2 months after it's been milled. That's how long it takes for the flour to settle and come together again, he says. Before that it doesn't feel right and it

will certainly not deliver the bread that he wants!

WE DO OUR VERY BEST in terms of making a product that is as fresh, natural and non-tampered with as possible in order to provide the end-users with the best possible starting point for making flavourful and nutritious bread. To obtain this, we have adjusted the whole milling process to last the least possible time; when a grain passes through the stone mill it will be in a sealed bag—as flour—just 7 minutes later.

ALL THE FLOUR IS PACKED by hand. This is mainly because we never expected that we would produce the amounts that we do now. We are considering buying a packaging machine but on the other hand the hand packing does indeed have one very large advantage. The three ladies working full-time in the mill act as our final quality insurance. With their eyes, ears and noses they ensure that the flour bags (or indeed bags of pearled grains, kibbled, cut or flaked grain) only contain the best product. They discover immediately when something is wrong—if the sieve is broken for instance, or the mill doesn't run properly.

This places a lot of responsibility on their shoulders but they carry the load gracefully and with great competence! The same goes for the two guys working in the fields and in the cleaning area. They carry a lot of responsibility too. I'm out there when they need me, but the office workload has increased a lot over the years, so I trust them to do their best every day.

JARKKO: As I mentioned earlier, I first heard about you from Richard Bertinet when I talked with him for the first edition of Bread. Can you tell a bit more about how you met?

HANNE: IF JØRGEN HADN'T BEEN SURFING the internet looking for everything and anything related to flour we might not have met Richard at such an early stage of our milling life.

WHEN YOU MAKE FLOUR, you also start baking, because you have to! Once we have carried out all of the lab analysis, we finish off with a baking test. Because sometimes—even when all protein and gluten values are perfect—sometimes nature is playing tricks on us. Sometimes the gluten is simply too weak to bake with. That will give you very tasty bread which is however completely flat.

Normally, you would blend such loads with other loads of grain with stronger gluten to obtain a better quality. But we decided—back in the days of the business plan—that we would never mix individual loads in order to ensure 100 percent traceability.

This means that each and every load of grain that we produce ourselves or receive from our partners has to live up to the quality standards we have set up. This leaves room for naturally occurring fluctuations: We never go below 12 percent protein but very often above. The colour of the grain varies according to wind, weather, and soil type, and this influences the colour of the finished bread—sometimes lighter, sometimes darker.

But most importantly: we never accept grain that cannot bake the way we want it to!

I QUICKLY REALISED that stone milled flour acts very differently from roller mill flour. It has markedly higher water absorption and retention, for instance. So I looked around for experts on baking with stone milled flour. I joined all the baking classes I could find, but the real revolution happened when Jørgen found the book Dough by Richard Bertinet on the internet.

I read it, watched the DVD and instantly decided that I had to join one of Richard's baking classes. This happened in August 2004. Marie-Louise joined me in 2006 and went there alone in 2007.

Bertinet's technique and discipline and most of all his enthusiasm for making wonderful contemporary bread was just contagious. He completely changed the way we look at bread and so after years of intense practice and with Richard's blessing we started up the course facilities at Skaertoft—the stable kitchen, Staldkøkkenet—thus enabling people to come to us and learn to bake with our stone milled flour, the Bertinet way.

IN 2008, WE ARRANGED the book launch of Richard's second book Crust in Denmark. Richard came over for a Master Class and that was when he first saw the old baking house

"I QUICKLY REALISED THAT STONE MILLED FLOUR ACTS VERY DIFFERENTLY FROM ROLLER MILL FLOUR. IT HAS MARKEDLY HIGHER WATER ABSORPTION AND RETENTION, FOR INSTANCE."

with the wood fired stone oven which we were having restored at the time. I think it was love at first sight. He told us that we had to do something with it. Something big. And he got us thinking...

MARIE-LOUISE: AND IT DIDN'T STOP THERE.

Next time we came to Bath, Richard sat us down and told us his exact vision of an international Bread & Food Festival at Skærtoft. With an oven like that we were simply obliged to use it for making people come together and enjoy good bread and food. And then my mother was hooked too. She took that vision even further and created the Bread & Food Festival as it is today—with a strong focus on both food culture in every sense of the term and across the Danish-German border, and on organics, sustainability, fun and the joy of baking bread in wood fired stone ovens.

When I last saw Richard in March this year, he asked me: "So how's the festival coming along? Because I've been telling everybody that they have to go. You know, this is not just some small inconspicuous event you have there. I believe we've created a monster..." And he laughed.

HANNE: WE GOT THE COURAGE to carry out an international Bread & Food Festival from Richard Bertinet back in 2008, but the festival itself has evolved immensely in scope since then. It is still a happy day out for the family or anybody interested in good, organic bread and food, but if you want more than just that, you will certainly get it!

Since the focus of the festival is not bread alone, but also food, it was the natural choice to involve the local vocational college, EUC Syd, where young people are trained to become chefs, nutritional assistants and bakers—among others. So in cooperation with teachers from EUC Syd, a local Master Chef and a local food historian, we set up the framework for a competition between young chefs from both Denmark and Germany.

Living so close to the German border we have especially our food culture in common, which makes it natural to work and share experiences across the border.

To act as the judges we found some of the best and most esteemed chefs—some of them holding Michelin stars—and put them in the jury. And now, after only three years, it has become quite prestigious for the young chefs to add a winning position to their CVs and so the stakes are not a lot higher than before.

MARIE-LOUISE: FURTHERMORE, the Danish championship for nutritional assistants, called SKILLS, now takes place on the Sunday of the festival.

Chefs have always been recognized for their work but traditionally they primarily make food for the few. Nutritional assistants however, are "out there" where it all happens. They have such great responsibility for the quality of the food that is served to thousands of people every day in hospitals, rest homes, kindergartens, schools and the rest of the

ON THE FESTVAL GROUNDS:

Food Culture Tent: (with room for 150-200 people) for guest speakers, for when the jury evaluates both championship and competition, special events etc.

Market Tent: Approximately 25 organic producers from both Denmark and northern Germany sell their excellent products.

Café Tent: For little breaks with coffee and cake and surprise events (e.g. sustainable fashion show and live music).

Nature Tent: A showroom for the local division of EPA.

Handicraft Tent: Local and regional people have their wonderful handicrafts for sale end exhibition

Climate Tent: A showroom for the local strategy of a CO2-neutral municipality for 2029.

Out-door Activities: Sheepdog show, pancakes on open fire, face painting, straw bale jumping etc, and the top event which takes place on the Sunday just before closing time:

Sowing of the Children's Field: This is where all the children present are given a bag of grain to sow themselves on a field next to the festival ground. This was done for the first time in 2011 so this year all the children who have kept their empty bag will come and bake bread with Marie-Louise with flour made from the grain they sowed themselves.

public sector. But their work is never truly recognised and admired.

SKILLS aim at changing that and at the festival we provide the contestants with every opportunity to impress and be rewarded accordingly.

HANNE: BUT THE FESTIVAL is not only about competitions, skills out of the ordinary and prestige. It is very much about bringing people together to experience something out of the ordinary, both in terms of educational experiences which our guest speakers take care of and in terms of seeing, tasting and experiencing all kinds of different organic products that are on exhibition in the market tent.

The festival is also the place where future technologies meet the skills and handicrafts of the past. In our municipality we aim at being CO2 neutral in 2029. This demands a lot of local engagement and understanding. But moving into a bright green future should always include and make room for old skills. Who knows what the future might bring?

And finally I should mention that the festival has a new theme every year. This year it is Fabulous Bread and Food from America, and we are welcoming Master Baker Jeffrey Hamelman, King Arthur Flours, Vermont, as our guest star. Jeffrey is going to give a number of lectures on bread and flour and what it all means from his perspective.

SO FAR, WE HAVE HAD two great bakers as our guest stars: Richard Bertinet—both for the opening in 2009 and again in 2011—and Andrew Whitley in 2010.

We are hoping that each year we will be able to present another visionary and knowledgeable master baker to our Danish audience, because we consider their influence as important and very often also mind changing!

THIS YEAR, the festival takes place from September 1st to September 2nd from 10 am to 4 pm both days.

We are hoping to see a lot more international guests this year and can assure anybody arriving from abroad that all Danes are perfectly good at English!

JARKKO: Richard Bertinet praises your spelt flour. What do you think makes your spelt flour so special? What about spelt in general, why should a baker use spelt for her bread? And if one does, what's the best way to start?

MARIE-LOUISE: YES, ISN'T IT GREAT that a world famous baker like Richard loves our spelt flour? I feel very fortunate!

And I must admit that I couldn't agree more. First of all, spelt has all the excellent nutritional values of wheat—only there's more of everything. But spelt is difficult to handle in the milling industry due to it's need for de-husking. It also has much lower yields than wheat and thus has not been of any interest to crop breeders for many, many years.

THIS YEAR, THE BREAD & FOOD FESTIVAL AT SKÆRTOFT TAKES PLACE FROM SEPTEMBER 1ST TO SEPTEMBER 2ND.

So now we have this ancient wheat that holds a larger proportion of vitamins, minerals, protein and flavour compared to ordinary modern wheat. Truly a gift to any baker who wants "more". And speaking of flavour, we know now that flavour is best preserved when the flour is ground on a stone mill.

MANY PEOPLE BELIEVE that you cannot bake with spelt alone, that you have to mix it with wheat to give it extra strength. But when handled correctly, spelt will deliver very nicely indeed.

The gluten in spelt is weaker than that in wheat. This means that you should not work your dough for too long—and take extra care when using a mixer. But stone milled spelt has nice water absorption and will give you very smooth and elastic dough if you use for instance 1 kg of spelt (1 kg fine spelt or 700 fine/300 wholemeal), 20 g yeast (7 g for an over-night fermentation), 20 g salt and 680-700 g of water (or even more if you like to challenge yourself, e.g. 750 g). The resulting bread has a wonderful crumb and the crust is just delicious.

Also, you should never let your spelt dough prove for too long after shaping/moulding as it tends to soften more quickly than wheat dough. Using either a couche (baker's linen) or proving baskets will give you nice loaves that keep the intended shape. I make wonderful sourdough bread with our spelt—just to say that anything is possible with spelt and that all you need to do, really, is to give it a go and enjoy the ride.

WE HAVE AN INCREASING NUMBER of professional bakers coming here for baking classes and what we tell them again and again is that when choosing to work and bake with stone ground flour, you end up with bread that fill people up in a whole new way. The water absorption is around 15 % higher and water retention is higher too, which means that you will actually make more bread from a given amount of flour—if the flour has bran in it and does not consist of endosperm alone.

Our fine sifted flour holds about 5 % fibres, which means that you cannot eat the same amount of “white” bread as you would have with, for instance, ordinary white sliced bread.

When baked properly, the bread has a beautifully moist crumb and a nice crust, which again will give you more to chew on. When you chew you activate digestion enzymes in your saliva which helps you digest the bread properly AND—more importantly—your brain actually registers that you are eating because you are chewing and therefore tells you to stop when you are full, and not when you have had too much.

I BELIEVE A BAKER or any person that bakes and serves bread to a lot of people is obliged to make bread that will contribute to both public health and happiness through the joy of eating good and nutritious bread—not degenerate it.

Bakers and the bread industry have so much power, it’s incredible. They decide which

kind of bread we should live on: good or bad, healthy or unhealthy?

In Denmark, we experience being part of the bread revolution that was initiated in sunny California and now flows across Europe. We need better bread. Bread does indeed matter and when bakers no longer live up to the responsibility given by their trade, then we have to start baking ourselves because then—and only then—we are fully in charge.

Just look at the Real Bread campaign in the UK which promotes community supported bakeries and provides courses in how to bake for a living. We have learned a lot from Andrew Whitley when it comes to taking good flour and bread that one important step further and say out loud that baking with highly refined, conventional flour will not contribute to public and environmental health in the long run—quite the opposite.

JARKKO: More generally, maybe, what do you consider great flour? What do you strive for when making your flour? Also, what should a baker look for when choosing flour to use for baking?

HANNE: TO US, GREAT FLOUR is something that provides you not only with great looking bread but also with bread that fulfils all your needs and senses: it has to be nutritious, it has to have flavour, look good, smell nice, have that certain sound that only a bread with crust will give you, and it should not go stale within 4 hours after baking.

As an extra add on you have organic flour which indirectly make you help look after the environment including our precious ground water. Did you know that 1 kg of organic flour will spare the ground water from being polluted by 550 litres of pesticides?

Like Marie-Louise says, I too truly believe that bread made from good quality flour will keep you healthy—unlike bad bread which has now been claimed responsible for malnutrition, obesity, diabetes, some types of cancer and cardiac diseases.

Knowing that good bread starts with good flour, it is all very simple to us. We continue on our way towards making the world's best flour, all the time adjusting and learning more about grain and flour every day.

MARIE-LOUISE: ONE VERY IMPORTANT thing we have discovered is that a lot of people do not really know how to use rye and barley any more: They represent two types of grain that were extremely important in the Scandinavian diet only a few decades ago.

Going through my grandmother's handwritten book of recipes made me realise that before and during WWII almost each and every recipe contained large amounts of barley —for bread, rolls, cakes, and biscuits— because it was cheaper than the exclusive wheat. What they probably didn't know at the time was that barley is extremely nutritious and very healthy indeed.

Barley is known to reduce the risk of high cholesterol, diabetes, some cardio-vascular conditions and certain types of cancer. Today, barley flour is on its' way back due to the increased focus on the Nordic Cuisine, but as a first step on the way whole barley grains or pearled barley is now commonly used in all kinds of dishes where it replaces rice, pasta and potatoes as a healthy alternative.

We produce both pearl barley and whole barley along with pearl spelt and rye and their wholegrain cousins and we have done everything in our power to promote the usage of these grains.

As we speak, Hanne is finishing off her first cookbook, which will indeed be about pearls and whole grains and how to use them in a deliciously contemporary way.

HANNE: IN THIS BOOK, I am also talking about rye—my absolute favourite among grains. Rye bread is traditional in the Nordic countries and Eastern Europe. But in Denmark we are unfortunately eating less and less rye bread.

"So what?" one might ask.

But the thing is that rye is as full of surprises as it is delicious and dark. Scientists have known for quite some time now that consumption of two slices of 100 % rye bread per day will help prevent breast cancer. The next question was naturally whether only women profit from eating rye? And some Danish scientists have just carried out a pilot study showing that men who have been diagnosed with prostate cancer in an early stage can actually stop the cancer by eating 200 g of wholemeal rye per day and doing one

"1 KG OF ORGANIC FLOUR WILL SPARE THE GROUND WATER FROM BEING POLLUTED BY 550 LITRES OF PESTICIDES."

hour of daily exercise.

We donated the rye flakes needed for this study and it was a very special day in our lives when the results were published. Being in a situation where what you produce suddenly turns out to be of crucial value to critically ill people, that leaves you with a feeling of awe and respect for nature.

There are so many things we do not know about grain—but now we DO know that rye deserves to be a substantial part of our daily diet. And fortunately this is not a problem. Pearl rye or whole kernels are just delicious! As is properly baked rye bread!

JARKKO: Educating people about bread and home baking is an important part of your business too: you organize courses about bread making, and you even have published a book on baking. Can you tell a bit more about this?

MARIE-LOUISE: THE COURSE FACILITIES are of great importance to us—not economically but certainly educationally. Here, we have been given the opportunity to create what I like to call a gastronomic power centre with undivided focus on food quality, organics and skills.

The baking classes take their starting point in Bertinet's way of making dough and great bread, but we have added more because we have a unique setting at Skærtoft. The people who come here get to actually see the fields, the mill and the grain. And they go home with bags full of freshly baked bread, hands full of new experiences and techniques and heads full of new knowledge about grain and flour.

It is such a great pleasure to be able to give people new tools—or inspire experienced bakers—and when they leave this place with a smile on their faces I know we have succeeded.

HANNE'S BOOK, Home Baked (Hjemmebagt in Danish) was another attempt to reach some of the people who want more from their (daily) bread.

The book contains around 70 recipes for bread and pastry made with stone milled flour, but almost 30 pages are devoted to real education of the home bakers. Knowing "why" has always been a driving force in my family and making stone milled flour and baking bread has certainly triggered some of the greatest "why's" we've ever come across.

We strongly believe that when you have learned something out of the ordinary that enriches your daily life, you have to teach it to others. A book is a great way of doing just that. And so are the baking classes.

TRUE, TEACHING TAKES UP a lot of time and we are busy enough as it is. But without the baking classes we would never be able to revolutionize people's way of looking at bread, flour and grain.

There are so many things to know, so many ways to make better, healthier, more nutritious and flavourful bread—and the time is indeed ripe. People are ready to accept that making good bread takes time and that the quality of the flour has great influence on the quality of the finished loaf.

I FEEL PRIVILEGED to have this job. That my parents dared change from safe to unknown territory has probably been one of the greatest gifts they have ever given me. I get to work with something that's meaningful to me every day, and I get to teach people who are genuinely interested and curious which I just love.

For more information on Skærtoft Mølle, you can visit the company web site.

INSANELY INTERESTED IS A PUBLISHER OF MICRO MAGAZINES FOR THE CURIOUS.

MICRO MAGAZINES ARE magazines that focus on a very specific topic, published online by a very small team—in the case of Insanely Interested, just one man: me.

I am Jarkko Laine, a stay-at-home dad, online writer and publisher, beginner cigar box guitar player, and an all-round creative guy from Finland.

I believe as humans, we are born curious and need to keep learning about many different things to enjoy our lives to the fullest and to get the most of our minds. Insanely Interested is here to deliver a part of that healthy diet for a curious brain.

MY LOVE FOR A DARK CURST ON A soft white crumb combined with a need to find out how things are made lead me to create the magazine you are now reading.

IN ADDITION TO BREAD, Insanely Interested publishes an email newsletter for those of us hoping to turn their minds insanely interested in everything into a meaningful change in the world—by creating important work and sharing it with the world.

The newsletter is called Curious&Creative and you can subscribe to it for free at the Insanely Interested web site.

SLOWLY, AS I KEEP LEARNING how publishing online works, I'm building Insanely Interested into a sustainable, long-standing business that can serve the world by presenting new ideas and stories from people doing things they believe in.

FLOUR IN BREAD MAKING

Most of a bread dough is flour. But what actually is flour? Why are there so many different varieties? And what happens when you switch the regular white flour for wholegrain, spelt, rye, or maybe something as exotic as barley or khorasan?

In the next pages, we will take a look at the most popular bread making flours with a bit of history and information on the crop as well as tips for making them a part of your baking repertoire.

Starting from page 61, you will find some ideas for more adventurous bread making experiments.

WHEAT (*TRITICUM AESTIVUM*)

Wheat is the best known and most popular of bread grains — and for a good reason: its high gluten content gives the flour great bread making properties: the dough is easy to handle, and bread made of wheat rises to form beautiful, light and airy loaves.

WHEAT BELONGS TO the family of grasses and comes in a variety of different species: types of wheat can be differentitated by sowing time (spring or winter), color (red, white, amber), and hardness.

The most important characteristics of wheat for a baker is hardness: harder wheats contain more protein than their softer siblings. Two of the proteins—glutelin and gliadin—wich account for 80 % of the protein in wheat flour form gluten when they get in contact with water.

Bakers often speak of gluten strength when talking about the baking properties of different flours (with equal protein quantities): flours with stronger gluten lead to a dough that can be kneaded longer and create better elasticity, leading to a bread that retains its shape better when it's resting than a weaker flour.

WHEN BUYING FLOUR from the grocery store, depending on where you live, you will find a range of different flours, made of different wheats for different intended usages.

Bread flour is white flour made of hard, high-protein wheat. The protein percentage can be as high as 14 but usually stays somewhere around 12 or 13. This is a good choice for yeasted breads, especially if you use a bakery mixer, but can be too strong for slowly leavened sourdough loaves worked by hand.

A softer alternative is *all-purpose flour*, which is a mixture of hard and soft wheat varieties, with a protein level of 8 to 11 %. This, on the other hand can be too weak for a good loaf of bread. In her book, Bread Science, Emily Buehler recommends a level of about 11.5 %—the protein level of the French "type 55" bread flour—to get the best gluten structure for white bread.

Experiment with the different flours until you find one that works for you and the recipes you use. Also, keep experimenting with the amount of water you use. Flours with more gluten forming proteins benefit from more water. As you experiment, you will notice that your favorite flour in the end might not be what you'd expect at first. For example, although I'm a big fan of organic food, my favorite white flour here in Finland is not organic or fancy in any way—it just leads to the most consistent results, so I'm sticking to it until I find an organic flour that does the same for me.

FRESHLY MILLED WHEAT FLOUR is light yellow and the gluten in it is still quite weak. When the flour is allowed to rest and age for six weeks or more and the flour reacts with oxigen, it turns white and the gluten forming proteins gain more strength.

This process takes quite a bit of time, so many flour manufacturers are eager to hurry it up. To get the same results quicker, they use a bleachening agent such as peroxide (benzoyl peroxide) or chlorine oxide. This leads to a flour that has the same baking qualities as a naturally whitened flour but faster.

As this process can also leave unwanted

side effects to the flour, most bakers will recommend using unbleached flour whenever possible. And naturally, it's always a good idea to go for a flour with as little additives as possible.

A GRAIN OF WHEAT is composed of three layers: the bran, the germ, and the endosperm. When making white flour, all except the endosperm is discarded. As this process wastes such a big part of the grain, it used to be a special treat only available to the richest people of the time, and therefore considered the healthier choice everyone should strive for if possible.

Nowadays, white wheat flour is available to everyone, but at the same time, wholegrain flour is gaining in recognition as the healthier—and more flavorful choice: in theory (although, as we will soon see, things are not always this clear cut), it contains all of the vitamins (B1, B6, A, E), minerals and fats of the grain, as well as the bran that helps your body in digesting the bread.

These good properties come at a cost: making a beautiful, airy loaf of bread from full-grain flour is much harder than doing it with white flour. Luckily, although a wholegraiin dough will always be denser than its white counterpart, with practice and a couple of tricks, it's possible to create a good wholegrain bread that doesn't look and taste like a brick.

JUST LIKE MOST WHITE FLOUR, most of the wholegrain flour sold in stores is roller milled. In roller milling, the bran and germ are removed

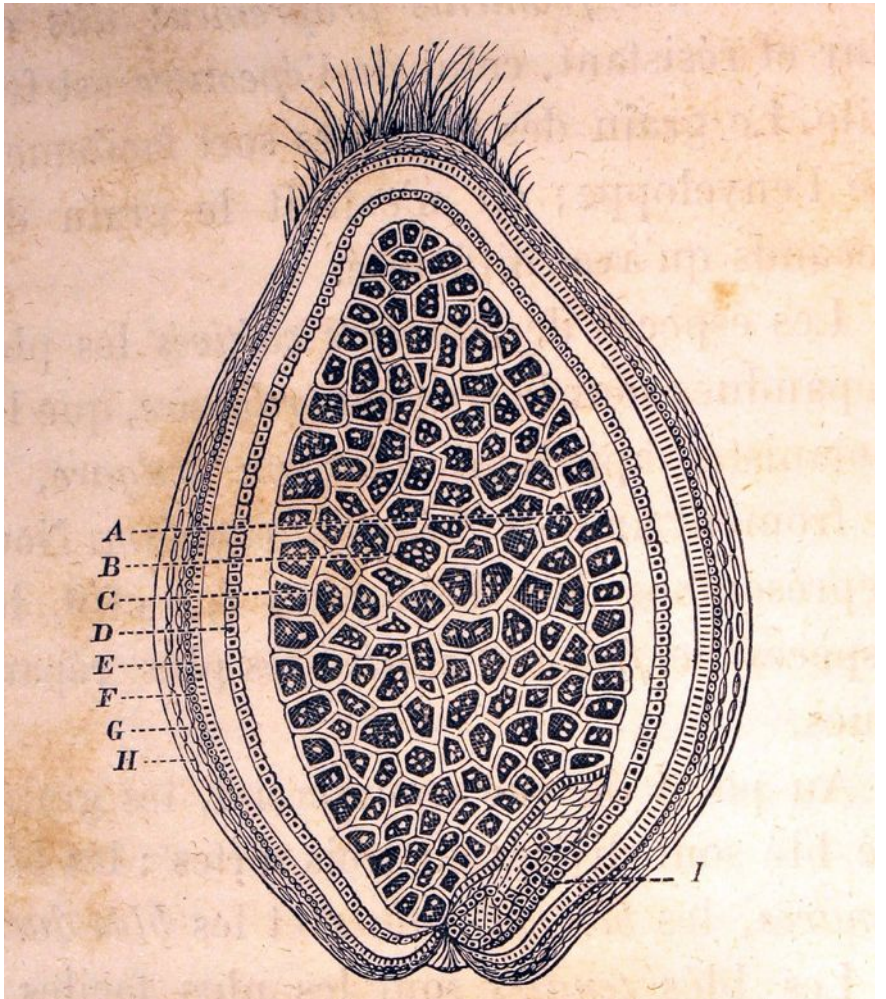


Fig. 12. — Coupe d'un grain de blé grossi 40 fois.

from the grain before the rest of the grain is ground. After the grinding, depending on the extraction level of the flour being made, some or all of the bran is added back in the flour. The germ, because of its high fat content, will go rancid quickly, so it's left out—and with it, a big part of what makes wholegrain flour healthy!

STONE MILLING WORKS works the opposite way: the whole grain is ground between a pair of stones, and only then, some of the bran is sifted out as desired—but with the germ included. This is why stone ground flour is probably healthier and more flavorful than roller milled flour.

Because stone ground flour contains the germ, you should use it while it's still fresh, within a couple of weeks from milling, or store it in a cool place such as your refrigerator.

The oxidation period is long enough to lose most of the minerals and vitamins from the flour. For example all of vitamin E disappears from fresh flour in just one day from grinding. For white flour—which doesn't have much of the goods left in it anyway—this doesn't matter much (and in most cases, aged flour is the way to go), but if you want to get the health benefits from wholegrain, buying fresh flour from a nearby mill or milling your own flour are the only options.

WITH THIS INFORMATION (and there is a whole lot more available in books and on the internet), you are ready for new experiments, including our first recipe variation on page 45.

RYE (*SECALE CEREALE*)

Wheat's close relative, rye is best loved in Northern and Eastern European countries, with Russia, Poland and Germany being its biggest producers. Bread made with rye, often fermented with sourdough, has a strong, distinctive taste.

RYE THRIVES IN a poor soil and hard climate conditions, which is probably why for centuries, it was the most popular grain grown in the Northern regions, such as my home country, Finland.

Just like wheat, there are summer and winter varieties of rye. Winter rye is sown already at the end of summer and it survives under a bed of snow with the crops already slowly growing. As soon as the snow melts and sun shines on the sprouts, they start growing and just when the spring rye is only starting to sprout, winter rye is already steadily gaining height and preventing the weeds from gaining ground. Because of this, rye—at least its traditional forms—requires little or no herbicides and easily leads itself to organic farming.

IF WHOLEGRAIN WHEAT is good for you, rye is even better. If you believe the biggest proponents of rye, we have yet to find out all the health benefit good wholegrain rye comes with. And what has been found so far is already impressive: vitamins, magnesium, potassium, iron, zinc, copper, manganese, and bran that could even protect you from certain types of cancer.

RYE CONTAINS BOTH of the gluten forming proteins, gliadin and glutenin, but while glutenin is aplenty, the gliadin content is quite low and therefore bread made of rye flour will not have a lot of gluten.

In fact, a dough made of nothing but rye flour doesn't benefit from kneading—you won't get a strong gluten net no matter how much you knead. In fact, you won't be able to do much kneading: the dough will stick to your hands, and even washing it off after finishing your dough is hard work.

RYE TASTES GREAT and gives white bread an earthy favor that gives traditional French breads such as Pain de Seigle or Pain de Campagne their fine touches. In northern countries, where rye has long been the dominant grain, 100 % rye breads—or breads made mostly of rye are more popular, such as Pumpernickel in Germany, or Ruislimppu in Finland. These breads are dense and full of flavor.

Maybe because rye ferments faster than wheat, these traditional breads have a strong acidic and sweet taste from natural fermentation.

START YOUR RYE EXPERIMENTS by combining rye flour to your wheat dough, increasing the hydration level to account for the higher bran content in the flour.

And when you are ready for a more advanced recipe, flip over to page 48 for my recipe for Finnish, naturally fermented 100 % rye bread, Ruislimppu.


STORA & SMÅ

SPELT (*TRITICUM SPELTA*)

Spelt is often described as an ancient species of wheat. Its early history is not completely clear, but nevertheless, signs of its cultivation have been found from as far as 8,000 years ago. Today, spelt is living a new revival as a more nutritious alternative for bread wheat.

THIS TRENDY NEW GRAIN has come a long way from being one of the most popular bread crops to almost forgotten in the 19th century when breeding of wheat lead to new and improved grasses more resistant to the pesticides used in modern farming.

Today, spelt—which was almost forgotten for a century—is rising in popularity for the very reason that it hasn't been extensively refined. As a natural option, it's often sold in health food stores, and more and more in regular grocery stores as well.

The taste is described soft and nutty—and one you won't get bored with.

Spelt is high in protein, but forms only a moderate gluten net. While it's not suitable for people with coeliac disease, many people with other allergies or intolerances to wheat have reported being able to use spelt.

YOU CAN FIND MANY KINDS of spelt flours, from white to wholegrain—just like with wheat—but in spelt, the endosperm contains more of the vitamins and minerals compared to wheat where almost everything healthy is located in the bran or the germ, so white spelt flour can be healthier than white wheat flour. Assuming it's still fresh enough!

BAKING WITH SPELT, you can quite easily replace some or all of the wheat flour with spelt, with just a few adjustments to your overall recipe.

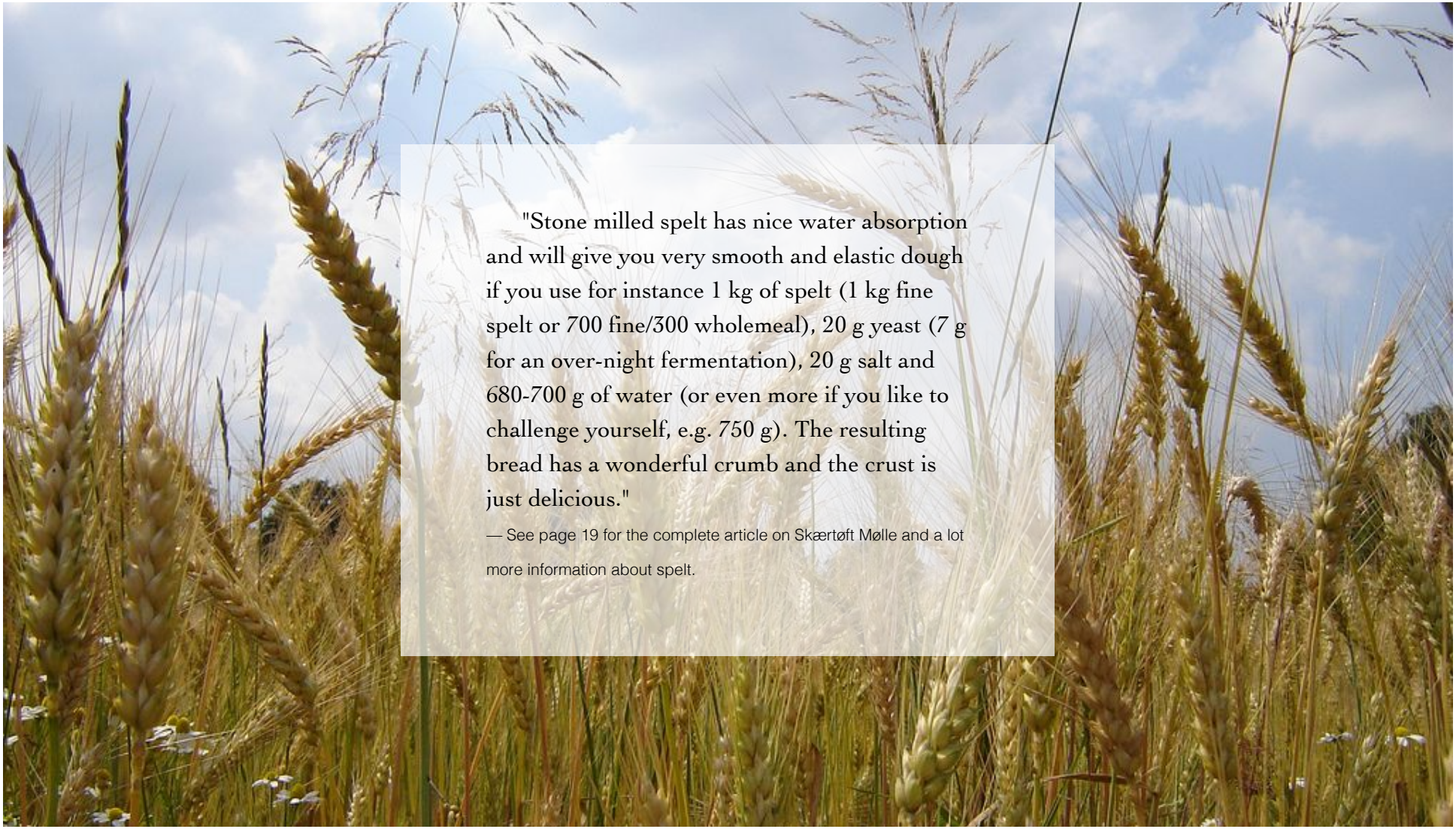
If you are already using a lot of wholegrain in your dough, you might not need to change a lot. Otherwise, use more water than in your normal dough, leaving the dough slightly wet to allow spelt to absorb water still while resting. Marie-Louise from Skærtøft recommends using 70 to 75 percent (bakers' percentage) of water in the dough, but depending on the specific spelt flour you are using, you can go to even higher hydration levels, such as this 100% hydration spelt dough.

Wholegrain flour gives more food for yeast, making it more active, so to get the best results, use a little less yeast than you normally would, or pay close attention to how the dough is behaving: it might be ready to shape and bake sooner than you'd expect.

SPELT IS USUALLY ORGANIC and the grass species hasn't been developed much through breeding, so there might be variations in the baking properties from one bag of flour to the other.

If you can find a flour mill that provides a consistent quality, such as Skærtoft Mølle from the article on page 19, go for it. Otherwise, be prepared to adjust your dough every time you bake, adding only a part of the flour at once and keeping a close eye on the structure of the dough.

FOR YOUR FIRST SPELT RECIPE, try the one on the following page.



"Stone milled spelt has nice water absorption and will give you very smooth and elastic dough if you use for instance 1 kg of spelt (1 kg fine spelt or 700 fine/300 wholemeal), 20 g yeast (7 g for an over-night fermentation), 20 g salt and 680-700 g of water (or even more if you like to challenge yourself, e.g. 750 g). The resulting bread has a wonderful crumb and the crust is just delicious."

— See page 19 for the complete article on Skærtøft Mølle and a lot more information about spelt.


THE RECIPE
100% WHEAT (BREAD) FLOUR
70% WATER
2% SALT
2% FRESH YEAST

RECIPE VARIATION #1: WHOLEGRAIN WHEAT

This first variation to our basic recipe replaces 50% of the flour content with wholegrain wheat flour. As I don't particularly enjoy dense breads, I have added a few steps to make the bread as light as possible without making the recipe too complicated.

IN ADDITION TO THE kernel, wholegrain flour also contains the bran of the grain, a part of the flour that doesn't have any gluten forming capacity. This makes the flour better for health, and gives it a stronger taste, but also reduces the bread's rising potential.

A bread made from wholegrain flour can never be quite as light as a loaf made of white flour but this doesn't mean that a wholegrain loaf has to be dense and thick. With a few tweaks to the recipe, we can use wholegrain flour to make a loaf of bread that is soft, light and delicious.

HERE ARE SOME SIMPLE STEPS that will make the bread much more enjoyable without requiring a lot of extra effort or complexity: adding more water will soften the bran and make the bread easier to digest, adding an autolyse step at the beginning of the mixing (I will explain this in a minute) helps in working the dough to add strength to it, a longer fermentation gets more flavor out of the flour, and finally, baking the bread in a pan helps the loaf keep its form while resting.

Many wholegrain wheat recipes include sweeteners such as honey or fruit, and I must admit that although I'm not a big fan of additional ingredients beside flour, water, salt and leaven, a little sweetness, for example from dates, suits the wholegrain flavor very well.

This recipe doesn't add any sweeteners, but as you experiment further, I recommend you give this idea a try once you feel comfortable with the basic version.

FINDING YOUR FAVORITE formula is a matter of experimentation: your flour is different from mine, as are your preferences, so take this recipe as a starting point and—taking notes—change the percentages of ingredients, proving times etc. until you feel you have got it right.

Remember that wholegrain flour is more "thirsty"—or hygroscopic than regular white flour and keeps absorbing water from the dough still long after you have mixed the ingredients. So, even if the dough feels too wet at the beginning, err on the side of too wet rather than too dry and try to keep yourself from adding more flour.

THE RECIPE

AS WE START EXPERIMENTING with wholegrain wheat, the most important to the recipe is increasing the amount of water by 5 to 10 percent.

If you have been successfully making your white bread with a 70% hydration level, 75% could be a good place to start. If you haven't been using quite that much water, you can start with a lower percentage in this variation as well. Give it a try and adjust depending on the results you get.

To make the bran easier to handle, you can do a simple autolyse step at the beginning of mixing your dough. Despite the fancy name, this technique—first described by French

professor Raymond Calvel—means nothing more complex than mixing the flour and water and letting them rest for twenty to fourty minutes before adding the rest of the ingredients and working the dough.

But now, let's get started!

TOTAL FLOUR CONTENT is again 100% but now we divide it into two: 50% all-purpose flour and 50% high quality wholegrain flour. If you can find a stone-ground flour, go for it (noticing that stone-ground, fresh flour will require even more water than roller milled wholegrain flour).

I like to bake my yeasted wholegrain breads in a tin, so depending on the sizes of your baking tins and the number of loaves you are going to bake, you can pick the total flour amount. 500 grams (250 and 250) is good for one medium sized tin. I like to use 750 grams for my larger tin.

50% BREAD FLOUR
50% WHOLEGRAIN FLOUR
75% WATER
2% FRESH YEAST

MIX THE FLOURS and water until no dry lumps of flour remain. Cover lightly and leave to rest for about 20 minutes at room temperature. This is what artisan and French bakers call the autolyse.

Then mix in the rest of the ingredients, maybe adding a small amount of water to help

dissolve the salt if the dough doesn't seem too wet already. Flip the dough to your work surface and work the dough for fifteen minutes —or until it feels soft and springy. Keep working the dough a couple of minutes longer than you would with an all-white dough.

Let the dough rest for an hour or until almost doubled in size. Then shape it into a log and place in your greased baking tins. At this step, you can either leave them rest at room temperature for another hour, or refrigirate to make them rise more slowly to gather a stronger flavour.

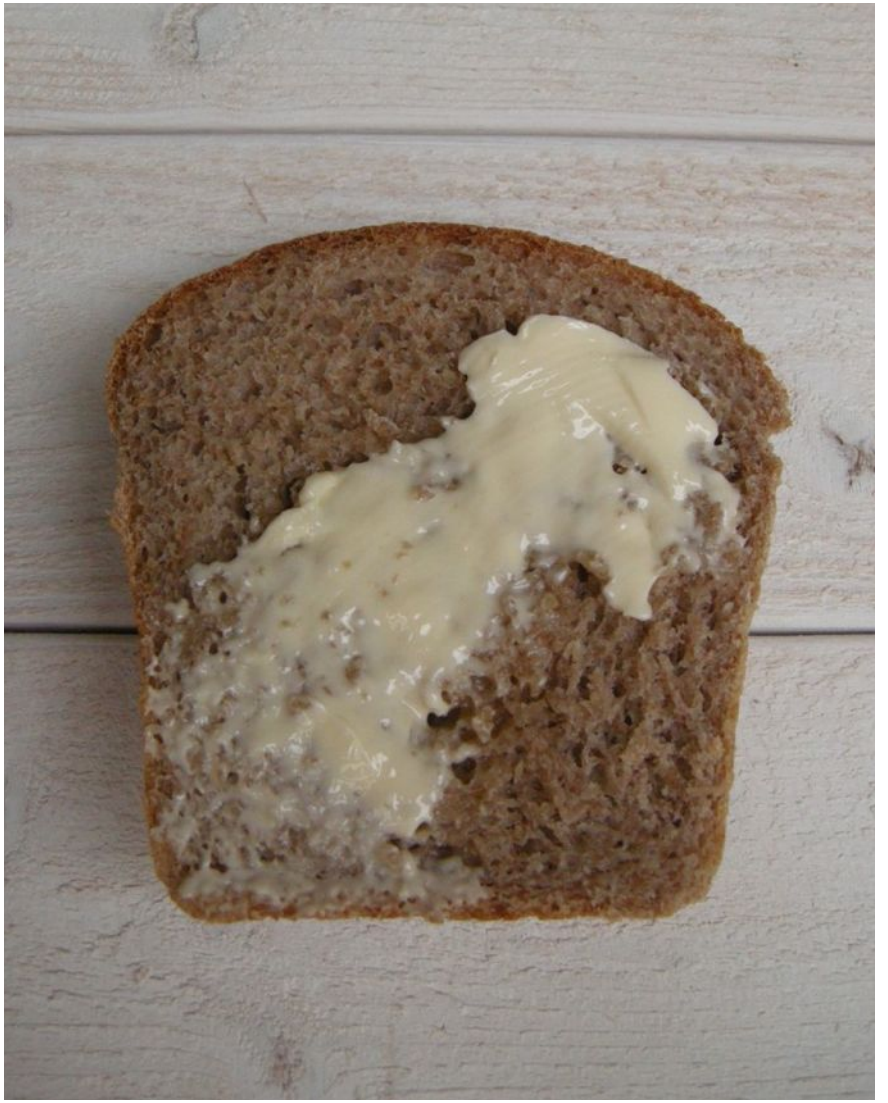
If you want to keep the loaves in the fridge overnight, use only 1% of yeast so that your bread won't taste too yeasty in the end.

IDEAS FOR FURTHER EXPLORATION

WHEN YOU FEEL comfortable with the 50/50 wholegrain to white flour ratio, try adding more wholegrain to your mix, maybe even trying 100% wholegrain loaf.

As you increase the wholegrain percentage, or if you just want to make your loaf a little lighter, you can try adding a preferment at the beginning of the recipe. We will discuss fermentation in detail in the next edition of Bread, but without going too deep into it, here's how you can create a simple prefermented dough (known as poolish) to make this dough lighter.

THREE TO FIVE HOURS before mixing the final dough, prepare a thick batter by combining 50% of the total flour with half of the yeast used in the dough and two thirds of the water. For 1 kg of flour in total, this means 500 g of both flour and wter. Cover the mixture with some plastic wrap (or as Tom Herbert recommends in his book, The Fabulous Baker Brothers, you can use a disposable plastic shower cap as a reusable cover) and leave to rest in room temperature.



When the starter is bubbling and smells sweet and yeasty, it's ready for finishing the dough.

Mix in the rest of the flour, water and yeast, stir well and then finish the dough according to the instructions above. You can now skip the autolyse as a big part of the flour has been already soaked well in the prefermenting phase, or do an autolyse for the remaining water and flour before mixing them with the preferment and the rest of the flour.

ONE MORE IDEA TO TRY FOR A lighter loaf is to bake the bread in bread tins rather than shaping them to loaves or buns. This way you don't have to touch the dough quite that much, and the tins help in keeping the bread in shape as it is resting and rising.

Baking bread in tins—greased with real butter—also gives them a nice crispy surface with a hint of the taste of butter.

I made the bread shown in the photos in this article using a poolish as described above and with 80 % hydration, working the dough for about 25 minutes before the resting period.

Delicious!

RECIPE VARIATION #2: RYE

Start your rye experiments by replacing a small percentage of the wheat in your dough—that simple step will already give you a nice, earthy flavor. Once you feel ready for some more challenge, to get the most out of rye, slow fermentation is the way to go.

VISITING VIIPURILAINEN KOTILEIPOMO (see page 51) in the preparation for this magazine reminded me of how good a real, naturally fermented loaf of rye bread can taste. So, even though we will only fully cover fermentation in the next issue of Bread, I decided to give you my Finnish rye bread recipe already in this edition.

If you don't feel confident about creating and maintaining your own sourdough starter just yet, leave this recipe to wait and come back to it after the fermentation issue, or when you feel ready.

Instead of following this recipe, you can first try replacing 5% of the wheat in your normal wheat dough with rye for some added personality and flavor. Also, just like with wholegrain wheat, increase the amount of water a bit to keep the dough easy to handle.

As you increase the amount of rye, you will notice that the dough becomes stickier—rye doesn't have gluten forming potential, so no amount of kneading will create the same results as wheat does. In fact, as you will notice from this recipe, making a traditional Finnish 100% rye bread you won't even need to knead the dough at all!

THIS RECIPE IS MY ADAPTATION of the different Finnish rye "limppu" recipes I have found so far.

In my experience it creates a very nice, sour and dense yet soft bread. The bread keeps well, and makes a nice present, for example—as they used to do traditionally in Finland—housewarming parties.

The "ruislimppu" is best with a thick layer of real butter, and maybe a slice of hard cheese if you like.

THE RECIPE

IT ALL STARTS FROM A rye sourdough starter. You can either create one using full grain rye flour and water, or transform your wheat starter into a rye starter by feeding it with rye for a couple of times before mixing the dough. I use a rather liquid starter with a 125% hydration rate (I added some water compared to my normal wheat starter as rye absorbs more water than wheat).

This is a bit different from the traditional Finnish method of making rye bread where the starter is the remains of the previous bread dough, left to dry on the sides of the dough bowl, or a lump of dough saved from the previous bake. So, as you see, with rye, what matters is that you have a starter, not that much what it's like.

If you use a drier starter, add more water in the first step.

THE NIGHT BEFORE you want to bake your bread, mix 100 grams (a rye starter is quite active, so even a smaller amount will do) of your ripe starter with 500 grams of full grain (dark) rye flour and 750 grams of water. Cover and leave to rest and ferment overnight in a cool place.

50 % (500 G) RYE FLOUR

75 % (750 G) WATER

10 % (100 G) SOURDOUGH STARTER

IN THE MORNING, or about twelve hours later, as the starter has become soft and airy, mix in 500 grams of flour and 20 grams of salt. The resulting dough will still be sticky and rather wet, so don't try to knead it—in fact, the bread won't benefit from kneading. Just mix it thoroughly, and leave to rest for one to two hours in a warm draft-free place.

If the dough feels dry, add a little water. For the loaf pictured on the left and on the next page, I added 50 grams of water after adding the flour and the salt.

ALL OF THE STARTER ABOVE

50 % (500 G) FLOUR

2 % (20 G) SALT

5 % (50 G) WATER

WHEN THE DOUGH HAS RISEN a bit and feels soft and airy—like the starter in the morning of the bake day but denser, it's ready for shaping. Divide the dough into two pieces of equal size, and on a heavily floured work surface, shape the pieces into cones.

Put the cones to rest on a floured couche or kitchen towel, pointed side up. Make sure to

use enough (rye) flour to keep the loaves from sticking.

AS THE BREAD RISES, the cone shape slowly changes into that of a round loaf, and following this change, you will be able to judge the correct time to bake the loaves: when the shape has changed (or a little before—when there is just a small peak at the top of the loaf), it's ready to be baked.

PRE-HEAT THE OVEN TO 250 degrees Celcius while the loaves are rising. I use a cast iron pan covered with a clay pot to capture heat and steam escaping from the loaf, but you can also use a baking stone or bake the loaves on a baking sheet if you like.

When the oven is hot and the bread is ready to be baked, put it in the oven and decrease heat to 230 degrees.

At this step, I cover my cast iron pan with the clay pot to keep the bread's crust from drying too soon. After 25 minutes, I remove the clay pot and bake the bread for a further 25 minutes to a total of 50 minutes.

LET THE BREAD cool on a wire rack, and enjoy with butter—and in true Finnish style, a glass of fresh milk!


Täysrukiinen
Reikäleipä

VIIPURILAINEN KOTILEIPOMO

In the Finnish town of Lahti, by giving faces to bakers, farmers and millers, a family of bakers—father and four sons—are teaching the buying public to appreciate the craft that goes into a loaf of hand-made bread made of locally grown flour.

THE STORY STARTS IN 1995, in the middle of the economic depression of the early nineteen-nineties.

Veikko Ylä-Hemmilä, a machine engineer by trade, was working in a line manager position at the Finnish household appliance company UPO when the company was bought by the electronix giant, Electrolux. As it started to become clear that Veikko would have to start firing his coworkers, he made the choice and quit his job instead.

At the age of 44, and in the middle of a recession, he found himself in the hunt for a stable job.

Finding a permanent job was hard, but although the thought of becoming an entrepreneur crossed his mind, Veikko continued to look for work in his original profession as an engineer.

THEN ONE DAY AT MIDSUMMER 1996, when the family—mom, dad, and four boys—was sitting at the dinner table, they were having buns from Viipurilainen kotileipomo, some of their favorites. The company, originally founded in 1924 in Vyborg, and then moved 200 kilometers west to Lahti as the city was lost in war, was now about to go bankrupt after over 70 years in business.

"These are the last buns from Viipurilainen we are going to get", Veikko told his family. "The company is going out of business."

The answer from his 9-year old son Tuomas marked the beginning of a new era: "Why don't you buy the company and keep making the buns?"

Yes, why not?

Veikko decided to go for it, and the life of the whole family was changed for ever.

SOON AFTER THE DISCUSSION, Veikko made an offer to buy the bankrupt's estate, planning to make enough money to support himself and one other baker. At first it looked like he was going to lose the bid. But just as he was about to accept a permanent job offer, the winning bidder bailed out from the purchase and Veikko's offer made it to the top.

He bought the business and one month after the family discussion, he was the owner of a small bakery.

WITH NO PREVIOUS EXPERIENCE in baking, Veikko had to to learn the tricks of the trade quickly. Using his engineering mindset, he made the logical decision and dramatically stripped down the bakery's offering. Instead of selling all kinds of bread and pastry as the company had been doing before, he decided to go down to the basics and start by selling only three of the most popular products—all of them bread. This way he was able to make his learning process more manageable—and as it would later turn out, it was a smart marketing choice as well.

Today, Viipurilainen kotileipomo sells seven types of bread, and is still very careful when adding new breads to its offering.

"We don't jump after passing trends but

trust the basic work and our own intuition with things. We have also decidedly kept our selection small to use the bakery space as efficiently as we can. We bake about 2,300 breads per day, but the bakery is only 180 m^2 in size, so we have to take all we can out of those square meters." Veikko's son, Teppo Ylä-Hemmilä told me.

THE NEW BEGINNING OF Viipurilainen kotileipomo started from cleaning up the bakery.

In the months leading to the bankruptcy, the bakery had been neglected: it hadn't been cleaned properly and small issues needed to be repaired here and there.

After a month of cleaning up and fixing the place, the chief of production from the previous owner came over to teach the new bakers how to make the products they wanted to keep doing. With a help of this baker and another they hired from Sinuhe—another bakery from the region—Veikko and his sons started to practice the craft.

"Even learning three doughs proved to be quite a challenge: when is the dough ready to be shaped, how about the resting times, rise, baking? Rising the dough properly was the hardest to learn." Teppo recalls.

VEIKKO'S FOUR BOYS quickly realized that the survival of the company relied on the whole family. They were never forced to work at the bakery, but they knew that the family wouldn't make it financially if everyone didn't do their

part.

”I remember the time when we could just barely reach to the baking table. Only afterwards I have understood how tough it was at that time. I’m surprised at how Veka was able to keep it all together.” Teppo says today.

”The work days were 12-14 hours long, six days a week, plus a little preparation on Sundays. There was no time to relax and back then we boys weren’t old enough to help enough.”

The boys baked on Saturdays and during school vacations. On Saturdays, the alarm rang at 1:20 A.M. They got up and dressed, and then continued their sleep on mattresses in the back of the family car for the 40 kilometers from home to the bakery.

AS IF LEARNING a new profession wasn’t challenging enough, the baking family faced unexpected hurdles from the behalf of suppliers and customers. Although the new owners had nothing to do with the previous company, customers and suppliers treated them as the same Viipurilainen as before—which they had no trust left for.

Everything had to be paid in cash or in advance, and to get on the shelves of the shops, products needed to priced the same as before. This was a slippery road, as it was well known that those low prices were a big part of what brought the company to bankruptcy in the first place.

Veikko and his company had to find a way to get his breads to the stores for a better price. They decided to take all the risk from the customer and carry it themselves: ”We will bring the bread, put it on your shelves, and take the ones that are left unsold with us afterwards, billing only for the bread that is sold,” they told the shopkeepers.

In mid-October, four months after starting the business, Veikko had deals with the first three stores to carry the bread and despite all the trouble, baking continued.

”Veka has sometimes commented on this that he hasn’t regretted becoming an entrepreneur for a day, but had he known what it is like, he would have definitely not done it.” Teppo recalls.

TODAY, THE FOUR BROTHERS are all grown up and work at the bakery, eager to implement their big plans for the future while managing the day to day business.

Teppo completed his business studies at Tiimiakatemia in Jyväskylä and joined the company full time four years ago. He wrote his thesis about the strategies of bakeries—there was no escaping of the family business even when living in another town.

In his thesis, he found that 95% of the bakeries in Finland bake "everything for everyone” and all use very similar marketing, focusing on the same benefits. Here, he found an opportunity for the bakery to take a different path and focus its marketing efforts.

”When I came to Viipurilainen full-time, the business was running as usual, but there wasn’t enough time or knowledge to further

develop the business. Some of the relationships between employees were tense. And when you googled 'Viipurilainen kotileipomo', you would only find business directories with an address and a phone number—which almost no one answered." Teppo says.

It was time for some of the biggest changes in the history of Viipurilainen.

"During my studies, we had developed the image of what we want to look like and what kind of a bakery we want to be: real, funny, and different." Teppo says.

THROUGHOUT THE YEAR, the management organized five discussion sessions with the employees, talking about things that affect the everyday work.

"We created the rules we want to work by, discussed, and developed our baking to the direction where everyone shares the same idea of what good bread is. And we made it clear what we want to be. We wanted our employees to be proud to be working with us."

Despite the grand ideas, this wasn't a simple process. The change was big, and although it was mostly seen as a positive thing, demanded a lot from everyone.

VIIPURILAINEN KOTILEIPOMO has a strong visual identity: their packaging highlights the people who make the bread—bakers, millers and farmers and makes it clear where the flour comes from.

This visual style—which caught my attention

in the first place—was developed in cooperation between the bakery and a small ad agency run by Teppo's school mates from Jyväskylä. The people from the agency came to the bakery to bake bread and discuss the packaging and visual identity—all the things Viipurilainen wanted to do differently from other bakeries. The core idea was to create a recognizable style with a strong personality.

"We want to grow the appreciation for our bakers as well as the whole industry in the eyes of the customers," Teppo says.

The ad agency created a background image, Teppo wrote some inspiring texts and the packages started to take shape. Viipurilainen was determined to telling the stories of each of their bakers, so Teppo sat down with them and listened to what they were about. The bakery printed business cards for all of their bakers, added their stories and photos on the web page, and set out to renew the packaging one type of bread at the time.

All of this took about two years to complete.

THE RESULTS WERE GOOD, but this wasn't enough to affect the sales in a remarkable way. Viipurilainen needed to dig deeper.

"I thought that this would bring a lot of additional benefit to the customer, so I was very disappointed when people didn't understand our 'great' idea." Teppo says.

As the family thought about the idea more, asking what it was that the customer really wants, traceability of the flours used became the next big idea to pursue.

"Our rye comes from Vääksyn Mylly, so I called Kari Savola [CEO of the mill] and asked if it would be possible to trace the rye all the way back to the farm where it's grown. He made some inquiries and said that it is possible." Teppo says.

Vääksyn mylly is a small mill employing five people that mills grains from local fields to order. Their products are only sold at their own mill store and some specialty food stores—in grocery stores and supermarkets, they are not available. Its rye flour is ground using stone pairs.

Clearly a good match for the values of Viipurilainen kotileipmo.

AFTER A LITTLE MORE PLANNING, they identified two farmers, Risto Kailaniemi and Mikko Metsäkangas, who grow high quality rye in quantities big enough for the bakery's needs. Teppo had a few meetings with the farmers and millers to build a concept that would work well for all parties. Now, if you visit Viipurilainen's web site, you will notice that the farmers and the miller are presented on the site just as personally as the bakers working for the company.

"We want to keep the countryside alive—after all, we all come from the village of Viitaila, Asikkala. Also, flour grown nearby is ecological. In Finland, the agriculture is clean, using much less pesticides than farms in central and southern Europe, so the flour is also healthier. The long summer nights and cold winters make the grains grown in Finland

different as well. The color as well as mineral properties are different. Flour produced nearby is a value question for us." Teppo sums up the reasons for their focus on locally grown, traceable flour.

"If the consumer finds something wrong with our product, we can guarantee that we will find the reason", he also promises.

BUT IT'S ALSO A MATTER OF chemistry. As Teppo says, it's better to work with people who you enjoy being with:

"We meet with the mill every week and organize many events together. With the farmers, we chat often, and we have for example organized joint little christmas parties with the millers and farmers. I have always said that even if two producers offered the same price, I rather play at my sandbox with those who I have fun working with!"

FOR WHEAT, Viipurilainen kotileipomo hasn't been able to get the same level of traceability yet. They have been having discussions with Vääksyn mylly but haven't been able to find a suitable farming partner just yet. At the moment, all the wheat used at Viipurilainen comes from a bigger provider, Fazer, that cannot provide the same level of traceability.

In all, focusing on the traceability of the flour has proved to be a good decision for the bakery.

”We believe that this is something that matters to the consumer more and more all the time. We also see this as something that helps the farmers and the mill as well.” Teppo says.

The stores selling the products have also benefited from this focus on traceability and local flour.

”They want to sell products like ours. Therefore the reception has been warm and it negotiations have been quite enjoyable.” Teppo says.

But he continues to tell that traceability in itself is not enough. The product has to be good too. 70% of the bread sold in Finland is made by two of the biggest companies, so for a small bakery to reach the masses, there is a lot to do.

”Most of the bread in Finland is still sold in big supermarkets, where unfortunately a big part of the bread sold is fluff in plastic bags. There is a lot of work to do in rising customer awareness and changing the buying behavior is slow. People often act differently from what they say their values are.” Teppo says.

THE NEXT BIG STEP in the future is opening a new, spacier bakery at a better location. The current bakery is limiting the company's growth as there is no room left for baking any more bread than the bakers at Viipurilainen are currently baking. The current space leaves little room for experiments and trying out new breads—the operations have to be very optimized to get the maximum capacity out of the two ovens.

"Everything goes according to a plan and you have to be awake all the time so that the day's work goes smoothly. There can't be any breaks in the baking so someone has the responsibility in overseeing the process throughout the day. In our case, it's the baker operating the oven who tells—according to the rising of the breads—when a dough needs to be mixed and when it's time to roll the breads." Teppo says.

When I visited the bakery this May, I got to see this in action. I went to the bakery at nine in the evening and met the four brothers busy shaping their 100% rye loaves. During the four hours I spent at the bakery, there was something going on all the time: as the rye breads were baking, the four men rolled buns and wheat breads or packed breads from a previous batch. Whenever someone took a break, at least two of the bakers in the shift kept working.

Most of the work at the bakery is done by hand, including the packaging of the bread—and the bakers even deliver the bread to the stores themselves.

"Bakers come to work in shifts so that the number of people at work increases during the day. We have rotating shifts so that every baker bakes for one week, shapes for the next, and drives bread to stores for the third, and so on."

IF EVERYTHING GOES AS PLANNED, in the next couple of years, Viipurilainen kotileipomo will move to their new space in Asikkala, near the mill that produces their rye, and next to the main road used by people driving from Helsinki to their summer homes. This should attract more visitors and customers as the plan is also

"THERE IS A LOT OF WORK TO DO IN RISING CUSTOMER AWARENESS AND CHANGING THE BUYING BEHAVIOR IS SLOW. PEOPLE OFTEN ACT DIFFERENTLY FROM WHAT THEY SAY THEIR VALUES ARE."

to open their own shop, one dream that hasn't been possible to implement in the current space, which is old and located on a rather remote place.

"We will know by September if we get the building permit. If we do, we'll start building in the fall." Teppo says.

The Ylä-Hemmilä family stands firm with the project even through they know it will be yet another big change for the company.

"We believe that this move is important for our brand. We want to grow slowly and profitably, doing things smarter and more efficiently than we do now—without losing our small business identity."

The new location will also be an opportunity to add new elements to the business.

"Our goal is to further develop our business for example by providing rye bread baking courses, and seling sourdough starters. We all know that this also brings new risks, but we have made the decision that we are making this into a life's work."

BUILDING THE BUSINESS is a slow process that requires a lot of patience: you have to keep the day-to-day operations going, but at the same time, big plans and dreams for business development keep you going:

"I believe it's important to be able to dream and act on our ideas, as long as we remember that too much hippie stuff rarely brings profits. A good dose of realism is important." Teppo sums up the company's business philosophy.

EXOTIC FLOUR IDEAS

The world of flours you can include in your dough is vast. Here are some ideas for a few things to give a try, some more familiar, others more exotic.

BARLEY

BARLEY IS ONE OF THE oldest and most popular crops in the world. Its cultivation began over 10,000 years ago in the area of the Fertile Crescent (see page 4), and even today, ranks fourth on both area of cultivation and quantity produced, right after corn, rice, and wheat. In its original area in the Middle East, barley is still used for a wide range of traditional foodstuffs.

Today, barley is used mostly for beer making and animal feed, but it's healthy and has a lovely taste, and thus should not be neglected in bread making.

BARLEY CONTAINS gluten forming proteins but not enough for making a loaf bread completely from barley. A mixture of barley and wheat will however get you great results. Or you can go for a flatbread, such as the Finnish rieska or Swedish Tunnbröd, which make a delicious bread eaten still warm from the oven.

When baking a loaf bread with barley, go for full grain, fine barley flour with a mix of about 2 parts of barley to 3 parts of wheat. For a more detailed recipe, and a good, detailed writeup on barley, visit this article over at the bread blog Farine.

BUCKWHEAT

BUCKWHEAT IS PROBABLY best known as the main ingredient in Russian blinis and Japanese soba noodles. But despite its lack in gluten, it can just as well be used in bread making when mixed with flours rich in gluten and maybe some added gluten, if that doesn't feel too artificial to you.

Also, many people who are unable to digest gluten have started looking into buckwheat as a gluten-free alternative, so you will find many gluten-free bread recipes using buckwheat.

Buckwheat has a strong flavor that doesn't appeal to everyone, so you may want to try adding some honey and spices like suggested in this recipe. For another good buckwheat recipe, you can look at the Breton Bread recipe found in Richard Bertinet's book, Crust.

DURUM

DURUM IS THE HARDEST of wheat varieties and contains a lot of protein, but surprisingly not that much gluten. Therefore, even though durum—or semolina—is widely used in bread making, breads made without adding regular bread flours are rare. One such example is the Sicilian treat, Pagnotte di Enna.

Breads made of semolina have a rich flavor and a chewy texture, so they are well worth experimenting with.

KHORASON (KAMUT)

KHORASON, LIKE SPELT, is one of the so called ancient forms of wheat, cultivated in the early days of agriculture and now found again as a part of the trend towards all things organic and original. It is closely related to durum and thus shares most of its properties.

The gluten in khorason is not as strong as in regular wheat or even spelt, so it's a good idea

to mix the khorason flour with wheat or spelt at a ratio of about 50/50. According to the instructions from Shipton Mill, who produce khorason flour, gentle handling is required when making bread using this type of wheat.

If you are into ancient varieties of wheat, you might also want to look into emmer and einkorn.

RED CABERNET GRAPE FLOUR

CABERNET GRAPE FLOUR is technically not a flour, but powder made of the left-overs from wine-making. The powder has a delicious, fruity and earthy flavor and together with some rye and wheat makes for a great bread.

In his book, Crust, Richard Bertinet shares a bread recipe that uses this flour (which he also sells through his online store) that is made using red wine as the liquid. While that makes a great bread, my wife likes a version I make using just water better. I still have to try using this flour in a sourdough loaf.

For more information on Cabernet Grape Flour, visit the producer's web site.

BARK FLOUR

WHEN TIMES GET TOUGH, people become creative. One of the best examples in recent history has been the use of inner bark from pine and birch trees for bread making.

Bark bread, Pettuleipä, was eaten in most of Finland and parts of Sweden in the 18th and 19th centuries whenever there wasn't enough rye available for bread making.

While bark still rings bad memories in people's ears, it is gaining fame as a heath food rich in minerals and low in calories. Alone, the taste is bitter and sour, but combined with rye flour at a low percentage, I hear it is delicious.

Finding bark flour for your own baking can be tricky: I have found one store in Finland that sells bark flour, and apparently there are some businesses that are trying to export the flour to the US and the rest of Europe, but I don't have much information.

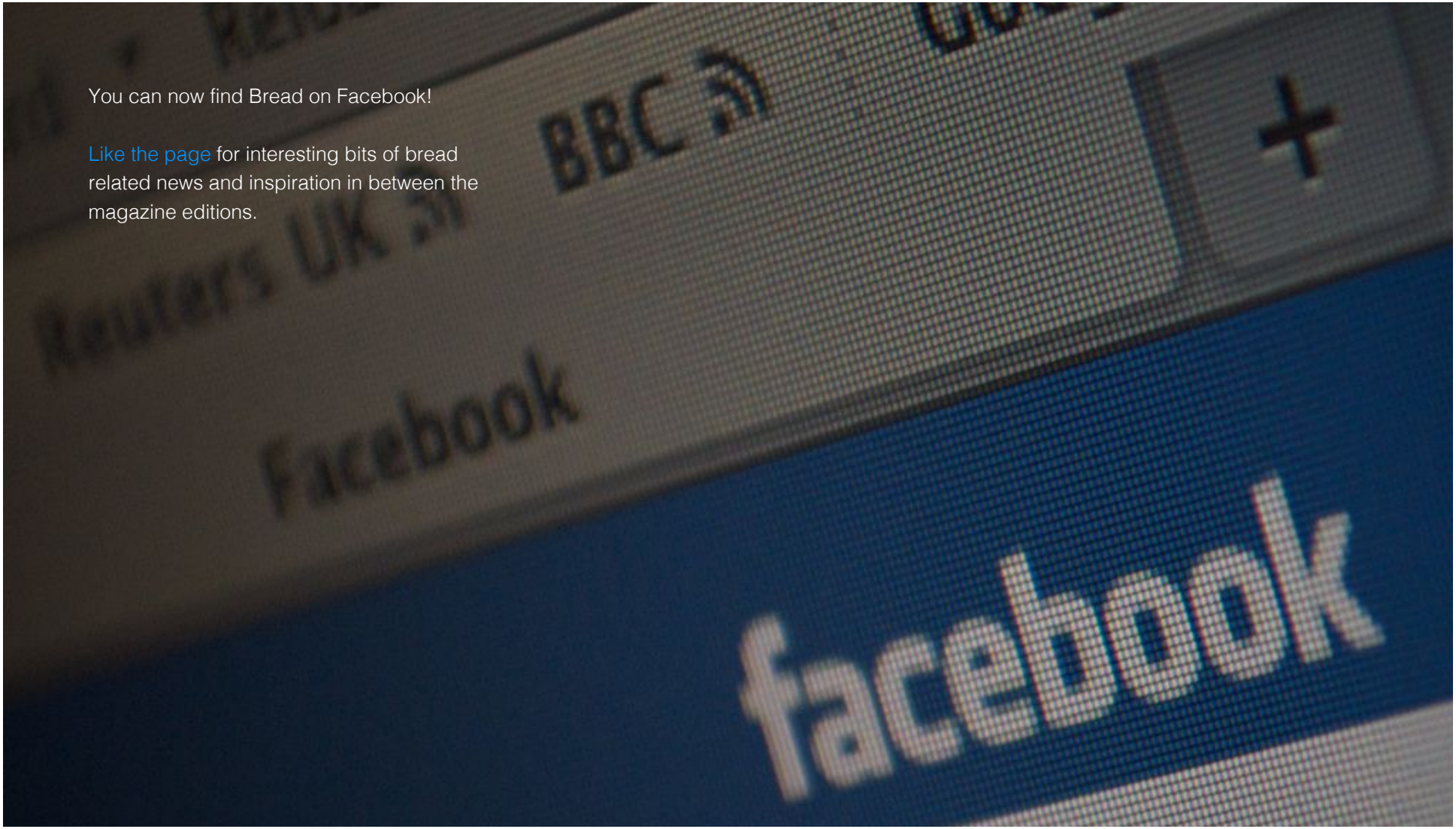
If you manage to find some bark flour, click here for a simple recipe to start from.

KEEP EXPERIMENTING!

AS YOU MAY HAVE NOTICED, the theme of experimentation keeps popping up from one article to another. I believe trying things yourself is the best way to learn, and when working with bread, what can really go wrong.

Anything edible can be used in bread. It may not always taste great, and you might have to change your recipe and try again, but in the end.

Making a terrible tasting loaf of bread is not the end of the world. And when you succeed in creating a mixture of flavors you enjoy—like the talkkuna lingonberry bread pictured on the left—the warm, happy feeling is well worth all the failed experiments before it!



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Like the page for interesting bits of bread related news and inspiration in between the magazine editions.

INTRODUCTION TO HOME MILLING

Storing flour as grains and milling your own flour is a sure way to always get the freshest possible flour for your baking — with all the nutritients and flavor intact.

But is it worth the investment in money and effort?

IF YOU ARE LUCKY, you can find a small mill that grinds fresh flour using stone pairs near your home. If that's the case, it's a good idea to take use of their offerings and support a local business while enjoying great bread. But mills like that are not very common these days when everything is big and focused, so it's more likely that you are like me, and have to travel almost two hours by car to reach your closest mill. In this case, if you don't want to settle with store bought flour, the choices left are rather limited: either you burn fuel to get your dose, or you buy your own small mill.

Prices for quality mills are quite high (the most basic KoMo model costs about 500 dollars in the US and 350 euros in Europe), so whether you really need one or not is a valid question.

IN THE CLASSIC BOOK, The Bread Builders, Alan Scott talks about the benefits of using fresh wholegrain flour: *"With its full compliment of vitamins, minerals, soluble and insoluble fiber, antioxidants and other beneficial phytochemicals, the whole-grain bread naturally provides nutritients that, day-to-day, protect against diseases that have become cronic in modern society: diabetes, several cancers, diverticular disease, and cardiovascular problems."*

The problem with store-bought flour is that most of these nutritients are lost quickly after the protective structure of the grain is broken in milling. Also, a big bart of the vitamins and minerals are located in the germ. The germ—the part of the grain that will become the new plant—contains fat, and therefore goes rancid quickly after being ground. That's why most modern mills remove the gem when making flour—even when it's labeled wholegrain!

THIS IS WHY, if you want to get the most of the nutritients in your flour, you should buy fresh stoneground flour and use it as soon as possible (for example, most of the vitamin E is lost within the first day from milling!), or mill the flour yourself.

As a side effect, you will also become more self-sufficient, as grains are easy to store.

AS I HAVEN'T made the investment and bought myself a grain mill yet, to get some first hand experience, I contacted Phil Agnew, the passionate home baker whom we met in the first edition of Bread, and asked him a few questions about milling your own flour.

—

JARKKO: Milling your own flour is not something every home baker is doing. How soon after starting your baking did you start milling your own flour as well? And how did that happen?

PHIL: I ONLY STARTED milling flour in the past year.

I first become enthralled by the idea when reading about the French baker Gerard Rubaud in Vermont. He was adding 30% of

freshly milled grains to his levains and final dough. I had never seen anybody doing this before.

Not long after this I had started reading The Bread Builders which has some lovely passages from the late Alan Scott on the virtues of freshly milled wholegrain flours. I have been thinking about this for some time and finally decided to do something about it last year.

I haven't looked back.

JARKKO: How does freshly milled flour differ from regular store bought flour?

PHIL: FOR ME, THEY ARE WORLDS APART.

To begin with, they smell nothing alike. Freshly milled wheat flour has a sweet flavor and aroma.

When baking with freshly milled flours, I tend to change my process a little. I pay very close attention to temperatures, using cooler water if necessary as they tend to ferment quicker. I also make use of a long autolyse before thorough kneading to allow the bran to soften.

I haven't noticed a significant change in the outside appearance of the loaf but the taste on the other hand is cleaner and fresh. I can finally taste the wheat.

JARKKO: What do you pay attention to when choosing the grains for milling?

PHIL: I PURCHASE WHITE WHEAT milling grains

from well known organic and biodynamic mills in Australia. I have used flours from these mills so I usually have a rough benchmark on how my milled flours should perform and taste.

I am still reasonably new to milling so I am learning quite a bit regarding the physical appearance of the grain and what to look for. So far I have had only one bad experience purchasing grains which was a batch of rye grains that was probably sprout damaged and fermented like crazy and caused disaster in my rye breads.

WHEN HELPING MY FRIEND bake, we were supplied a batch of starch damaged flour from a local biodynamic farmer who mills his own grain. It was the most stressful day I have ever experienced as the dough turned to slush throughout the fermentation. This happened as my mill was being shipped to me so I had become quite apprehensive by the time it finally arrived.

So far I have not had any issues with the wheat and spelt grains I mill.

JARKKO: Do you always use flour milled by yourself, or do you mix it with store-bought flour for different breads?

PHIL: I TRY TO BE FLEXIBLE depending on the type of bread I am trying to achieve. So, I still use white flour but there will always be fresh milled flour mixed with it.

I do sift the fresh flour on occasions but this will only remove the coarsest bran so I am left

with a high extraction flour that is still quite dark... but so flavorsome.

JARKKO: When buying flour, how do you choose the kind of flour you use in your baking?

PHIL: HERE IN AUSTRALIA, we don't seem to have a broad range of flours for home bakers and it feels like I have tried every kind of flour that I can lay my hands on.

There are some great biodynamic growers and millers in Australia but they are not local which makes it hard to source their products.

In the past I used organic flours from a local mill but have found it very strong. I have recently switched to a medium strength bakers flour when I bake lighter products. While it's not organic, it is reliable and has great color and flavor.

I tend to judge my bread by aroma and taste but I also really want a nice mouth feel. And while organic white flours had great flavor they felt tough and chewy.

JARKKO: How does milling your own flour change the baking process?

PHIL: MILLING DOES ADD an extra step in the process. I spend time the day before preparing flours and sifting if necessary.

At first I was milling right before mixing but this meant waking all in the house with the sound of grinding grain first thing in the morning. It also meant it was harder to control dough temperatures as the flour fresh from the mill was quite warm.

Now I mill no more than 12 hours before so the flour is measured out and sitting at room temperature before I begin mixing.

In the back of my mind I keep a little mantra going: *"everything happens quicker with freshly milled wholegrains"*.

JARKKO: What kind of grain mill do you use? Why did you choose this one?

PHIL: I AM USING a Komo Fidibus XL. After many weeks of deliberation I settled on the Komo for a few reasons.

It is beautifully assembled. Nat and I watched some YouTube clips about the company producing them and we related to the way they went about their business.

It easily produces the amount of flour I use for my baking and is practically self cleaning. I can't imagine my kitchen being without it now.

JARKKO: What kind of bread is best suited for home milled flour? Where should someone start experimenting with milling her own flour?

PHIL: YOU CAN INCORPORATE having a mill into any kind of bread making really. From using exclusively fresh milled flour for whole-grain breads to adding a small percentage to white breads for added flavour and fragrance.

I jumped right in and made some 100% whole-wheat breads the day after my mill arrived. Others may want to take a more cautious approach and include small amounts

of fresh milled flour and build confidence.

JARKKO: Would you have some tips to share with anyone who now is considering starting milling his own flour?

PHIL: PERHAPS TO BUY grains from a reputable mill. Even better would be one that produces it's own stone-milled flour so you can compare the flour you produce and how it performs.

Pay attention to the temperature of the flour coming off the mill. I have started refrigerating the grains to produce a cooler flour.

To follow Phil's bread making and home milling adventures, visit his blog at the popular bread making site, The Fresh Loaf.

GROW YOUR OWN WHEAT

If grinding your own flour isn't extreme enough, there is always the option of growing your own. While it's very unlikely that you will become self-sufficiant with wheat, it's a fun experiment to try with children.

MY INTEREST IN PERMACULTURE and building things with my hands often test the limitations of our two-bedroom apartment.

While I haven't been able to fit a bakery oven in our kitchen, our balcony already hosts a playhouse for the children and a small garden—and as its latest addition, a tiny field covered with sprouting wheat.

I had been thinking about whether it would be possible to grow wheat on the balcony or not for a couple of years already, but this spring, inspired by a Real Bread Campaign project called Bake Your Lawn, I decided to give it a try.

BAKE YOUR LAWN is a project aimed at teachers, parents, and other people who work with children and want to show them where bread comes from. At its best, Bake Your Lawn can bring local farmers, millers, and bakers together to help children grow their wheat, harvest it, mill it, bake it, and finally eat it. The project's grassroots guide is free and can be downloaded from the campaign's web site.

If you are curious and want to give growing your own wheat a shot, it's best to start by downloading the manual, reading it through, and then jumping in.

As this magazine comes out in the beginning of July, it's already a bit late for spring wheat, but don't worry, you can sow your winter wheat in October or November—or join the fun next spring, from January to late April. If you have a backyard where you can fit two to four square meters of wheat, that's optimal.

I don't have a backyard, and my wife wasn't very excited about my first idea of filling half of the balcony with dirt (and buying a tiny tractor), so I settled with something a bit smaller: a dozen or two of seeds and roughly 0.25 square meters of soil.

I will let you know how this works out after harvest time!

STARTING THE EXPERIMENT CAN BE a bit tricky as wheat seeds are not sold in the gardening stores where you would normally buy your carrot or cauliflower seeds—and the companies that do sell bread wheat do it in quantities that are clearly targeted at professional farmers: The smallest "mini pack" of bread wheat seeds I could find was 40 kilos! Not quite what I had mind for my balcony.

But don't be intimidated by these quantities. For me, contacting the friendliest looking of these big agriculture suppliers and telling that I was curious to give wheat a try to show my children where bread comes from did the trick.

0.25 square meters seemed to me like a joke, so I asked if I could buy enough seeds for two square meters—or one loaf of bread. The lady from the company, Kultajyvä, replied promptly, saying that I would need 60 grams or 700 seeds and that it would cost me 4 Euros and postage.

I ordered the seeds on the spot.

If the response you get from the seed providers in your country isn't quite as

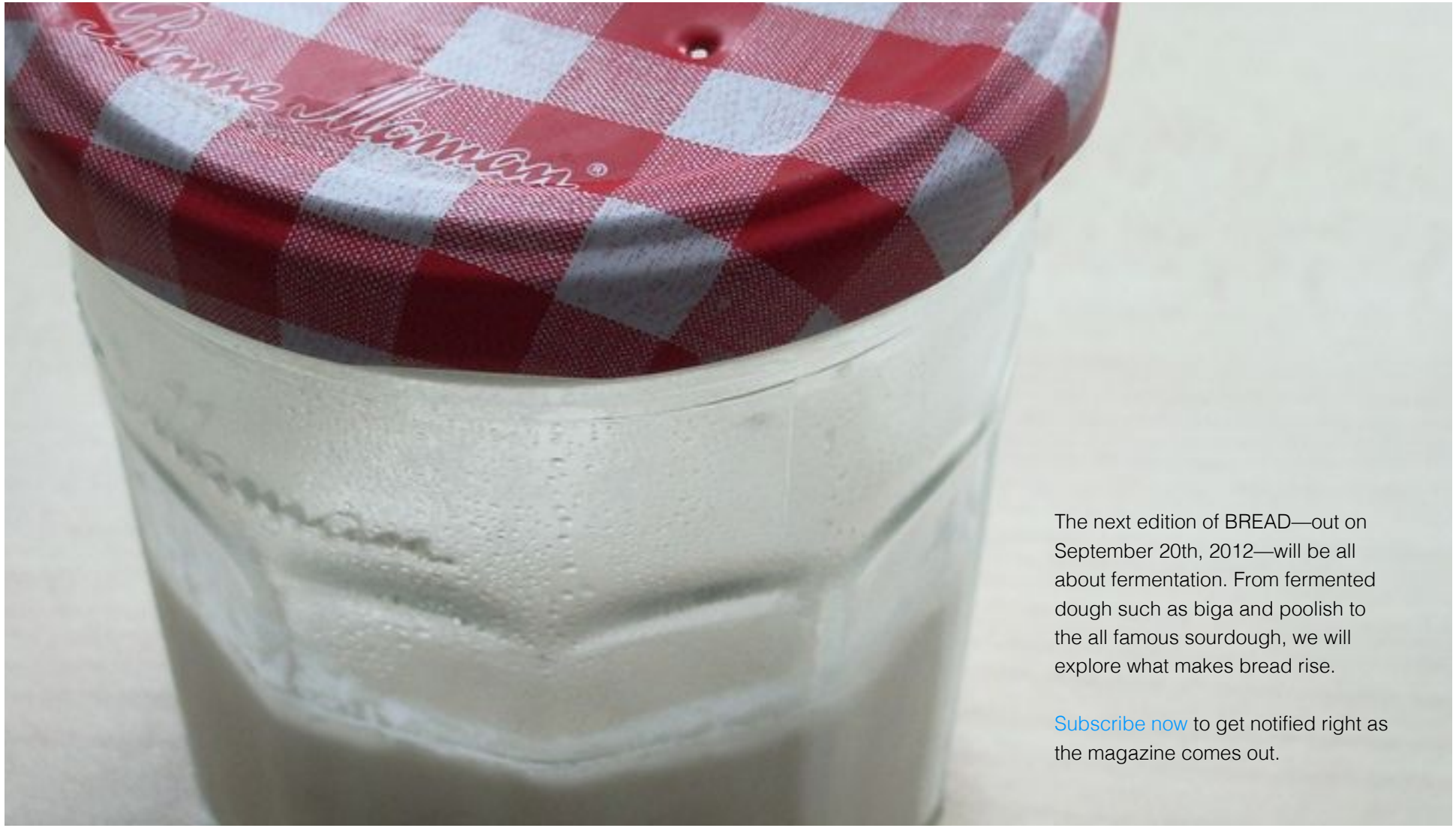
supportive, contacting a local farmer and asking if he has a handful of seeds to spare is a good idea to try.

Also, if you are in the UK, the guide contains a list of places that support the project.

MY EXPERIMENT has just begun, but if all goes well, when fall comes, I will have a few grains to show. Not enough for a loaf of bread, but just the right amount for a good experiment.

I will post progress reports and some photos on the magazine's Facebook page as well as my Twitter feed, but why settle with my reports when you can try it yourself?

If you decide to go ahead with the experiment, it would be fun to see your results and read about your experiences on the magazine's Facebook page as well!



The next edition of BREAD—out on September 20th, 2012—will be all about fermentation. From fermented dough such as biga and poolish to the all famous sourdough, we will explore what makes bread rise.

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