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OBSERVATIONS

ON THE CONTRARY

Slip an extra locust on the barbie?

More than half the world already eats insects; why not everyone?

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Following in the footsteps of John the Baptist, I've eaten honeyed locusts, although in my case from a tin. I've sucked formic acid directly from the abdomens of green ants (quite lemony in flavour). And I've devoured sorrel leaves with a paste made of crickets at Noma, a Copenhagen restaurant.

Far from such gastronomic exhibitionism setting me apart from the rest of humanity, it places me firmly with the majority. According to Dutch entomologist Marcel Dicke, more than half the world's population consumes insects—not out of necessity, but because they regard them as delicacies. Dicke was on hand at "Exploring the Deliciousness of Insects," an evening organised by the Wellcome Collection, London. While he provided the theory, the Nordic Food Lab, set up by Noma's founders, provided the practice.

Dicke's message was that insects are nutritionally rich and low in production resource, which matters in a world where the population is steadily increasing, people are eating more meat, and 70% of agricultural land is being used for grazing. Traditional supplies of animal protein soon won't be able to keep up with demand. Could insects be the answer?

In an update of his 2010 TED talk,[1] Dicke says of the planet's six million species of insects about 2000 are eaten. We already consume insect products: crab sticks and Campari depend for their colour on cochineal, derived from insects that live off cacti. But it's time we moved on to the insects themselves, Dicke believes, reeling off the advantages.

Firstly, insects are far enough away from us genetically that we're unlikely to acquire their diseases by eating them—a risk with eating mammals such as pigs and cows. Secondly, there's the favourable conversion factor: 10 kg of feed yields only 1 kg of beef compared with 7 kg of locust. With cows, much of the remaining 9 kg is manure. By comparison, insects produce less manure, carbon dioxide, other greenhouse gases, and ammonia en route to making protein.[2]

And insect meat is apparently of good quality**.** Protein, fats, vitamins, and minerals obtainable from mealworms are comparable with those from beef**.** One kilogram of grasshoppers contains the same amount of calories as 10 hot dogs, or six Big Macs. A couple of crickets contain as much calcium as a glass of milk, and so on. I haven't been able to check these claims: let's hope the next edition of McCance and Widdowson's *Composition of Foods* casts its net a little wider than before.

Clearly, it's Western attitudes to insect eating that need shifting, which was what the Nordic Food Lab was trying to achieve with its tasting menu. The lab described its goal as "post-gimmick entomophagy," citing the scorpion lollipop as an example of what it was trying to avoid. While not entirely escaping the charge of gimmickry, the organisers had nevertheless thought hard about not scaring off the timid with "a big insect to chomp down on" early in the proceedings.

In the generous sized aperitif, Anty-Gin and Tonic, wood ants had been distilled into invisibility. For the first course, two species of ants were visible on chimp sticks (modelled on those used by Jane Goodall's chimpanzees to hoick termites from their homes). The ants' distinctive citrusy flavours had to work hard against liquorice root, flax seed, buckwheat, raspberries, and coriander cress.

The next dish was described as "a bit more classical": a mousseline of wax moth larvae with morels, swimming in a thick sauce of fermented grains. And then came the big insects to chomp down on: butter roasted desert locusts served with a wild garlic and ant emulsion. This was paired with a house cricket broth and grasshopper garum, which tasted how you imagine boiled up windscreen scrapings might taste. To wash this down was oatmealworm stout (brewed from oatmeal and mealworms). Uncontentious icecream, decked out with every bee product you knew and several you didn't, ended the meal.

For the boffins from the food lab, the problem was not creating the menu but sourcing the ingredients—just as it is for top flight restaurants. Whisper it softly, but pet shops and zoos may have been roped in to help feed the five dozen at the Wellcome. The problem of scarcity is ironic given that there are between 200 and 2000 kg of insect per person on the planet. It's also likely to be a substantial barrier to further uptake in the west.

When it comes to supply, the Netherlands is furthest ahead, with one entrepreneur selling migratory locusts, mealworms, and buffalo worms in supermarkets (although freeze drying plays havoc with insect fats). The Netherlands is ahead in other ways, too, as Dicke was proud to report. The Dutch agriculture minister has put insects on the menu at her ministry's restaurant

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and taken her European Union counterparts out to a dinner of insects. Dicke showed a picture of Crown Princess (now Queen) Máxima, looking delighted to be presented with the first copy of Dicke's *Het Insectenkookboek* (English translation due later this year).

The idea of insect cookbooks may seem faddish and new, but Englishman Vincent M Holt got there a long time ago with his 1885 classic, *Why Not Eat Insects?* "I am confident," wrote Holt, "that on finding out how good they are we shall some day right gladly cook and eat them."

Apparently, the Victorians were partial to chocolate dipped ants, so we seem to have gone backwards since Holt's day. Maybe we'll only be driven to shed our inhibitions by necessity. And that may not be a long time coming.

Processionary moth soufflé, anyone?

1 Dicke M. Why not eat insects? 2010. www.ted.com/talks/marcel_dicke_why_not_eat_insects.html.
2 Oonincx DGAB, van Itterbeeck J, Heetkamp MJW, van den Brand H, van Loon JJA, et al. An exploration on greenhouse gas and ammonia production by insect species suitable for animal or human consumption. *PLoS ONE* 2010;5:e14445.

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