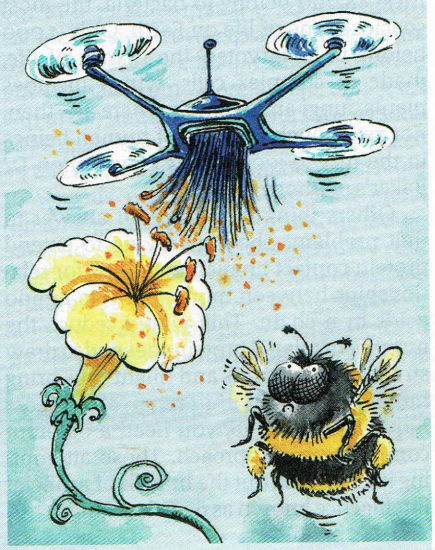
Pollination

Where the bee sucks

Plans for artificial pollinators are afoot



IT IS, in one way, the ultimate drone. In another, though, it is the antithesis of what a drone should be. Drones are supposed to laze around in the hive while their sisters collect nectar and pollinate flowers. But pollination is this drone's very reason for existing.

The drone in question is the brainchild of Eijiro Miyako, of the National Institute of Advanced Industrial Science and Technology, in Tsukuba, Japan. It is the first attempt by an engineer to deal with what many perceive as an impending agricultural crisis. Pollinating insects in general, and bees in particular, are falling in numbers. The reasons why are obscure. But some fear certain crops will become scarcer and more expensive as a result. Attempts to boost the number of natural pollinators have so far failed. Perhaps, thinks Dr Miyako, it is time to build some artificial ones instead.

His pollinator-bot does not, it must be said, look much like a bee. It is a modified version of a commercially available robot quadcopter, 42mm across. (By comparison, a honeybee worker is about 15mm long.) But the modifications mean it can, indeed, pollinate flowers. Specifically—and crucially—Dr Miyako has armed it with paintbrush hairs that are covered in a special gel sticky enough to pick pollen up, but not so sticky that it holds on to that pollen when it brushes up against something else.

Previous attempts to build artificial pollinators have failed to manage this. Dr Miyako, though, has succeeded. Experiments flying the drone up to lily and tulip flowers, so that the gel-laden hairs come into contact with both the pollen-bearing anthers and the pollen-receiving stigmata of those flowers, show that the drone can indeed carry pollen from flower to flower in the way an insect would—though he has yet to confirm that seeds result from this pollination.

At the moment, Dr Miyako's drones have to be guided to their targets by a human operator. The next stage will be to fit them with vision that lets them recognise flowers by themselves. Fortunately, visual-recognition software is sufficiently developed that this should not be too hard. In future, when you are walking through an orchard in bloom, listen out for the humming of the drones as well as the buzzing of the bees.