Writer Aldous Huxley in the late 1930s.

IN RETROSPECT

Brave New World

Philip Ball reconsiders the mix of dystopian science fiction and satire 50 years after Aldous Huxley's death.

When *Brave New World* was published in 1932, science and technology were widely seen as holding utopian promise. The first antibacterials were being developed, the Haber-Bosch process had recently begun

to supply artificial fertilizers, and people were starting to fly between continents and converse across vast distances. Aldous Huxley's bleakly satirical vision of a technocratic, totalitarian state in which the masses are engineered into stupefied contentment

by eugenics, drugs, mindless hedonism and consumerism seemed to scorn that rosy view.

Brave New World
ALDOUS HUXLEY
Chatto & Windus:
1932.

Although it was lauded by some, including the logician and anti-war activist Bertrand Russell, the science boosters felt that Huxley had let the side down. *Nature's* reviewer at the time of publication sniffed that "biology is itself too surprising to be really amusing material for fiction." That reviewer was Charlotte Haldane, whose then husband, the geneticist J. B. S. Haldane, was not averse to predicting the future himself — but in a more optimistic vein.

Gradually, as the star of science waned in the nuclear shadow of Hiroshima and the cold war, *Brave New World* came to be seen as prophetic. But although its status as a classic of twentieth-century literature is rightly secure, what it says about technological development is too often misconstrued.

FEARS FOR THE FUTURE

Huxley's brave new world leaned heavily on the technologies that Haldane had forecast in his essay *Daedalus, or Science and the Future* (1924), particularly the idea of ectogenesis — the gestation of embryos and fetuses in artificial containers. For Haldane, this was a eugenic technique that could improve the human race — as his friend and Aldous's brother, the evolutionary biologist Julian Huxley, also believed. Aldous here, as elsewhere, sided with Russell, who had warned, "I am compelled to fear that science will be used to promote the power of dominant groups, rather than to make men happy." In a 1932 article, biochemist and Sinophile Joseph Needham described *Brave New World* as a note-perfect realization of Russell's concerns.

But Huxley's dystopia upset some champions of scientific progress much more than it did Charlotte Haldane. H. G. Wells, whose 1923 novel *Men Like Gods* served up a characteristically glorious scientific utopia, felt personally offended, allegedly saying "a writer of the standing of Aldous Huxley has no right to betray the future as he did in that book" (Huxley admitted that irritation with Wells's book was partly what provoked him to write *Brave New World* in the first place.)

So *Brave New World* did not appear out of nowhere, but was a contribution to a vigorous interwar debate about the influence of science on society, not least the roles of reproductive technologies. That debate was exemplified by the *To-day and To-morrow* essay series — of which *Daedalus* was the first — published in Britain by Kegan Paul between 1923 and 1931. Through it, scientists, philosophers, politicians, artists and feminists engaged deeply in a conversation that has never since been matched.

Within that context, *Brave New World* can be read as a turning of the tide in terms of perceptions of what science would bring: from optimism to foreboding. With the benefit of perspective, what should we make of it now?

The story is set in AD 2540 (or 632 'After Ford', the god of mass production). A World State manufactures its citizens by growing fetuses in bottles according to "Bokanovsky's Process": cloning many embryos from a single fertilized egg and treating them with chemical agents during development to produce a five-tier caste system of intelligence. Sex is recreational, love is obsolete and the idea of family is obscene.

Outside this society live small communities of 'savages' who maintain the old ways of reproduction and religion. One of them, a young man called John, has become eloquent (rather too much so, Huxley admitted) by reading Shakespeare — hence the quote from *The Tempest* that gives the book its ironic title. John echoes Miranda's naive phrase as he initially thrills to the prospect of visiting civilization, and then is horrified by the shallow, hedonistic passivity of its citizens. Lacking art, religion and any sort of genuine passion or curiosity, this stagnant society has, John says, paid "a fairly high price" for its empty happiness. He is eventually driven to despair and suicide.

The book begins with its most famous set-piece: the human 'hatchery'. Decked out in the "glass and bleakly shining porcelain of a laboratory", it houses incubators that contain "racks upon racks of numbered test-tubes". Thus, *Brave New World* reimagines the old myth of making artificial people (anthropoeia) in a form that was appropriate for the early twentieth century: no longer a lone and secretive quasi-chemical pursuit, but an industrial-scale operation. This is a perceptive revision of Mary Shelley's *Frankenstein* (1818), although it was anticipated in Karel Čapek's 1921 play *R.U.R.*, which described the manufacture of flesh-and-blood 'robots'.

In literary terms, Huxley's satire is rich, but his story and characters are thin. This is a common feature of science fiction from Jules Verne to J. G. Ballard, and has led some critics to insist that the genre can never produce 'true literature'. That is to utterly miss its point. As Robert Philmus argued in *Into the Unknown* (1970), science fiction from Jonathan Swift's 1726 work *Gulliver's Travels* onwards "draws upon the metaphors inherent in current ideas and transforms them into myth". Myth demands sketchy characters — it has concerns beyond the

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Aldous Huxley's 1958 essay *Brave New World Revisited* assessed the dystopian vision of his 1932 classic.

modernist focus on the individual psyche. Often those concerns are satirical: by materializing ideas, their limitations are revealed. As with Swift, so with Huxley.

In other words, *Brave New World*, like most classics of science fiction, is less a work of invention than one of analysis — it is about the present (in this case, the period between the wars), not the future. Huxley's target was contemporary fears of totalitarian communism and fascism, wariness about eugenics and scientific triumphalism, and anxieties about consumerism ("Our Ford" is the profanity of choice) and mass docility. He hits all these targets with humour that has true bite. The real issue is broader than the details — as Huxley put it, "not the advancement of science as such [but] the advancement of science as it affects human individuals".

MEANING MISREAD

What irks me is how persistently the book is misread as foresight, often for rhetorical and dogmatic purposes. When Louise Brown, the first baby to be born through *in vitro* fertilization (IVF), arrived in 1978, *Newsweek* trumpeted her first "lusty yell" as "a cry heard round the brave new world". The spectre of mass-produced, 'dehumanized' citizens was brandished by bioethicist Leon Kass, from his early opposition to IVF through to his thwarting of stem-cell research as the head of George W. Bush's Council on Bioethics.

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For a podcast of Philip Ball on *Brave New World*, see: go.nature.com/hoozdl

Brave New World has been co-opted as an off-the-shelf apocalyptic warning about where all such advances, from

xenotransplantation (the interspecies grafting or transplanting of organs and tissues) to cloning, will lead.

All the same, one has to admit that Huxley's vision was sometimes right on the money. His state controls its citizens not by Orwellian repression but through a drug (soma) administered to engender bovine passivity, along with the opiate of consumerism. "A really efficient totalitarian state would be one in which [leaders] control a population of slaves who do not have to be coerced, because they love their servitude," Huxley wrote. In his 1958 essay *Brave New World Revisited*, he rightly noted that "it now looks as though the odds were more in favour of something like *Brave New World* than of something like 1984". His dystopian state uses non-stop, trivial, sensual distractions to prevent people from paying too much attention to social and political realities. One doesn't have to be a conspiracy theorist to see those enervating distractions — infotainment, social media, celebrity-dominated news — being useful today to both authoritarian and liberal regimes.

Yet despite such flashes of prescience, *Brave New World* is not a cautionary fable about particular trajectories in science or politics. The Central Hatchery is not prophetic; it is symbolic. Like *Frankenstein*, the book's lasting power is as a tale about ways in which we can lose our humanity. These ways differ in every age, but the result is much the same. ■

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