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## **Wormwood**

*Sarcophagus*, by Vladimir Gubaryev, translated by Michael Glenny (Penguin)

*The Star Chernobyl*, by Julia Vosnesenskaya (Quartet)

*Chernobyl: A Novel*, by Frederick Pohl (Bantam)

*Mayday at Chernobyl*, by Henry Hamman and Stuart Parrott (Hodder)

*State of the World 1987: Worldwatch Report*, by Lester Brown and others (Norton)

Is the Chernobyl doorstop on its way? Surely it must be. I refer to the 1200-page, three-kilogram blockbuster which looms at you from airport bookstalls all over the reading world. Imagine the blurb: 'Chernobyl - searing epic drama, torn from the headlines! Chernobyl - men and women against the ultimate force of nature - and against themselves! Chernobyl - high heroism, base cowardice, the clash of nations, the poignancy of personal tragedy. Chernobyl - East and West in confrontation, a technology facing its ultimate nightmare, a political system in upheaval.' The author, however, faces a daunting task. His novel must encompass, among other themes, the evolution of nuclear technology since the Thirties, both for weapons and for electricity, East and West; the current status and prospects for nuclear power around the world - its technical, economic, social and political implications, before and after Chernobyl; the political history of the Soviet Union, its internal structure and its relationships with the world outside its borders: the role of nuclear technology in Soviet and other political contexts; the safety of nuclear technology, East and West; the control of hazardous technical developments; the medical and environmental effects of radioactivity; the international administration of nuclear affairs; nuclear planning and decision-making, East and West; the nature and availability of information about nuclear activities, East and West; and the moral dimensions of all these convoluted topics. The author of such a work will also have to write about the people involved. To list the dramatis personae is to demonstrate the scope of the tale he will have to unfold. You have the station staff of Chernobyl 4, preparing and carrying out an experiment that will destroy their plant, devastate the surroundings and leave many of them dead or dying. You have their families and neighbours in Pripyat, Chernobyl and the other towns and villages near the nuclear plant: summarily uprooted from their homes and despatched thousands of kilometres, in a mass evacuation from which many will never return. You have the firemen, the helicopter crews and the miners who fought to bring the shattered reactor under control. You have the local functionaries who kept the truth from their people; the Party politicians from Moscow who rushed to the scene; the academicians and engineers who planned the desperate counter-measures; the administrators who organised the evacuation and relocation of 135,000 people; the medics in Kiev and Moscow Hospital 6 who attended the injured and irradiated; and Dr Robert Gale, the American surgeon who joined them. You have Mikhail Gorbachev, the charismatic, controversial Soviet leader, castigated for remaining silent from 26 April to 14 May, who nevertheless seized on the Chernobyl accident to add powerful impetus to his campaign of glasnost. You have the Soviet media people, initially so anodyne with their broadcasts of May Day parades, who nevertheless eventually made and transmitted the stunning 80-minute documentary *Warning*, which was unlike anything ever shown on Soviet television. One Soviet film director spent so much time at the site that he became the 32nd fatality, dying of radiation injuries early this year. And then you have Vladimir Gubaryev, science editor of *Pravda*. The first reporter on the scene at Chernobyl,

Gubaryev filed a series of pieces that appeared in *Pravda*. But he was so moved and incensed by the accident that he could not adequately convey his feelings in reportage, and, in July 1986, he wrote a play entitled *Sarcophagus*.

*Sarcophagus* is at the opposite pole from this hypothetical blockbuster. It has a single claustrophobic set: the medical experimental section of the Institute of Radiation Safety. In the excellent colloquial translation of the play's text by Michael Glenny, the short list of characters concludes with the laconic note: 'The action takes place, unfortunately, in the present day.' The play consists of two acts of three scenes each, and is conventional enough in style. It might be discounted as a formula piece, a succession of didactic arguments between stereotypes, were not the shadow of a terrible reality hovering over it. Those taking part include the six medics, an American doctor (Robert Gale, renamed Kyle), an investigator from the State Prosecutor, and ten patients. Nine are from Chernobyl: a stropy cyclist, a confused and worried peasant woman, a fireman, a general and his driver, a control-room operative, a geiger-counter operator, a physicist, and the director of the station. The tenth patient is a long-term resident, recuperating against the odds from a massive radiation overdose received at another nuclear centre. He reveals that he has changed his name from Krolik - meaning 'rabbit', like the experimental animals on the floor below - to Bessmertny - meaning 'immortal'. Word comes of an accident at Chernobyl 4. The Institute staff prepare to receive the victims, who arrive in a steady procession, each behaving as might be expected from his or her status. Each scene ends with a voice-over from a radio, intoning official information about civil defence in the event of nuclear war. Set-piece confrontations ensue. The station staff members quarrel about radiation readings; the cyclist is obstreperous, the fireman dogged and dutiful. The junior medics are variously able and unable to cope; the one called Nadezhda packs and leaves - her name means 'hope'. The peasant fusses about her cow Dasha. When the woman has been led back into her cubicle the senior medic marks: 'Don't tell her, but Dasha and every other living thing in that zone has already been destroyed. It had to be done.' The physicist is preoccupied with calculations, which indicate that 'the emergency failsafe system was switched off. That means there was someone who gave the order to switch it off.' 'Who?' 'Unfortunately I don't know.' 'One of the bosses,' says the driver. 'You may be right. None of the operatives, for example, would allow himself to take such a decision.' Bessmertny suggests: 'The director of the power station, perhaps?' 'Whoever was in that position could have given the order, but he must have realised what it might lead to.' At this point the door of a cubicle opens: 'I am the director of the nuclear power station. I gave no such order.' The lights fade as the voice-over drones on.

Act Two picks up where Act One left off. The Institute staff know that their efforts are doomed; one patient after another succumbs. The investigator arrives and begins taking statements, challenging inconsistencies. The general signed the certificates accepting the plant - although he knew it was sub-standard. The director took his grandchildren away, but did not alert the town. Furthermore, he got the job through pulling strings. The confrontation is heated and believable. At its height Bessmertny intrudes with a pungent suggestion.

'You're building the pyramids - the tombs of the Pharaohs. You're our nuclear Pharaoh! . . . tens of thousands of years hence . . . All our cities will have gone . . . Even the pyramids of Egypt will be just a handful of dust, yet the sarcophagus around this reactor of yours will still be standing . . . That's some monument to leave our descendants, isn't it?'

He asks the investigator if there will be a trial; the investigator says there has to be: 'and an open trial, what's more.' Bessmertny discovers that his bone marrow is 'absolutely standard', suitable for transplant. He declares that he wants his bone marrow transplanted into the director: 'I want to condemn him to life.' As the play ends, the voice-over dedicates the play to 'those who, at the cost of their lives and health, extinguished the nuclear flames of Chernobyl'.

*Sarcophagus* was published in the September 1986 issue of *Znamya* magazine, and staged in the Soviet Union shortly thereafter. The speed of its publication and production would be remarkable anywhere: in the Soviet Union it is unprecedented, and is all the more remarkable given its outspoken criticism of the Soviet system. Its direct and incisive message, grim and uncompromising, is one of the most encouraging signs thus far of the transformation taking place under Gorbachev.

Julia Voznesenskaya is a Russian poet whose activities put her in prison in the Soviet Union and then exiled her to West Germany. She takes as her motif the startling quotation from the Revelations of St John: 'And the third angel sounded, and there fell a great star from heaven, burning as it were a lamp, and it fell upon the third part of the rivers, and upon the fountains of waters; And the name of the star is called Wormwood: and the third part of the waters became wormwood, and many men died of the waters, because they were made bitter.' In Russian, the word for the variety of wormwood called *Artemisia vulgaris* is 'Chernobyl'. Anastasia, Anna and Alenka are three sisters: the Chekhovian resonance is clearly intentional. In a prologue we learn that after the loss of their parents Anastasia has sacrificed her career and fiance in order to look after the younger ones. Anastasia is a loyal Party member; Anna becomes a dissident and eventually an exile in the West; Alenka marries a physicist and moves to Chernobyl. The story proper begins seven years later. Anna hears in Stockholm about the accident and phones Anastasia in Leningrad, catapulting her into a desperate search for Alenka and her family. The narrative is simple and straightforward, vivid with the feeling of desperate frustration - that of an individual grappling with an indifferent bureaucracy and with an official mendacity concerning the accident and its impact. Anastasia's quest leads her ever closer to Chernobyl's grim 'zone' and ever farther from her faith in the Party and its teachings. The incidents recounted are, to a Western reader, at once utterly plausible and somehow alien: the alienation effect is heightened by the quotations from the Soviet media which turn up between chapters. The translation is readable and convincing, though there are moments when it edges dangerously near to 'Slavic twilight'. *The Star Chernobyl* is intense and memorable - not Tolstoy, but eminently worthy of its terrible topic. If only it were to be published in the Soviet Union! That would really demonstrate that 'the star Chernobyl', with its shattering fall, had also brought cleansing light into a long darkness.

*Chernobyl: A Novel* is the first Western book-length fiction about the accident. Frederick Pohl, an elder statesman of Science Fiction, chanced to be in the Soviet Union, on his fifth visit, just after the explosion. The result was a narrative re-creation of the events of the days from 25 April to 23 May 1986, from the viewpoint of a select group of fictional personae centred on the power station. Pohl's novel, like that of Julia Voznesenskaya, is not the 'blockbuster' prefigured above. It tells its harrowing tale in close personal focus, with only passing glances outward toward Moscow and the West. Most of the action, recounted hour-by-hour and minute-by-minute in Pohl's re-creation, takes place at the plant and in Pripyat, Chernobyl and Kiev. In his afterword Pohl notes that he was enabled to complete his research in the Soviet Union through the good offices of the Union of Soviet Writers: 'They opened many doors for me, and imposed no restrictions on what I might write and whom I might see. With their help I was able to interview scores of people with direct knowledge of the Chernobyl accident.' Even the technical background is generally sound, with forgivable lapses such as the recurring and inaccurate suggestion that the RBMK reactor produces plutonium whereas the pressurised-water reactor common in the West does not. (Both do, but RBMK plutonium is higher quality and more accessible.)

Pohl has been a skilled storyteller for decades, and as a Science Fiction practitioner he is at home with the technical context. He makes little attempt to address, except peripherally, the larger issues the accident raises; his book is, in its way, the complement to Voznesenskaya's. Hers is a story about individual outsiders affected by the accident, his is about individual insiders. Hers conveys an aura

of brooding Russian intensity, his the bright and even garish clarity of Western materialism. Unlike the nuclear industry itself, the Chernobyl-book business is clearly a growth industry. Voznesenskaya and Pohl, in their different ways, provide benchmarks for future commentators. Neither tells the full story; but both reinforce the gradually emerging communication between two very different societies. Can it be that the cloud from Chernobyl is helping to clear the air?

The cast list for the hypothetical novel will include many people outside Soviet borders. Among them will be the Swedish nuclear authorities who first alerted the world to the cloud of fallout sweeping over Europe. Nuclear authorities elsewhere, signally unprepared for such an event, contradicted themselves, and each other, hour by hour and day by day, improvising arbitrary regulations that only compounded public concern. Farmers and traders bore the brunt of these regulations; their customers did not know whom to believe, what to buy, what to avoid, what to do or not to do. Western politicians decried the secrecy that kept the Soviet Union from warning its neighbours about the accident: to the hawks, Chernobyl demonstrated that the Soviet Union could not be trusted over anything, especially arms-control. Western nuclear critics called to mind the comparable confusion and misinformation emanating from Three Mile Island and other Western nuclear mishaps, and were unimpressed by such strictures. Western media had a field day of lurid speculation about thousands of fatalities and mass graves. Western nuclear authorities responded to the calamity with offers of assistance: some of it was rejected, some of it accepted. The International Atomic Energy Agency rose impressively to the challenge, bridging the chasm between East and West, opening neutral channels of communication that provided the first dispassionate information about the nature and extent of the accident. In late August 1986 the IAEA held an international conference in Vienna, at which the Soviet authorities presented an official report on Chernobyl more comprehensive and more forthright than any Western observer had thought possible.

Before and after the Vienna conference, Western nuclear people declared endlessly that Chernobyl could not happen in the West. The technologies were different, the institutional arrangements were different, the political systems were different. This last point is the one that dominates *Mayday at Chernobyl*, by Henry Hamman and Stuart Parrott. The authors are journalists on the staff of Radio Free Europe/Radio Liberty, stations which beam broadcasts from the West into the Soviet Union. As might be expected with such a provenance, *Mayday at Chernobyl* returns again and again to what its authors see as the fundamental flaw at the heart of a communist society: that it is communist. Nevertheless, their reporting and analysis are well-documented and often revealing, especially about the administrative and decision-making processes that led up to the accident. The motif of the book is embodied in its title. The opening chapter evokes the clash of the two meanings of 'Mayday' - the celebration of the socialist ideal and the international distress call. The authors then discuss the official Soviet silence about the accident, and argue that 'the story of Chernobyl is also a story of the Soviet Union.' This takes them into a review of recent Soviet history - 'Stalin's legacy' - with discussion of the long-standing Soviet enthusiasm for nuclear energy. Their description of nuclear technology is in general commendably clear, even to the extent of noting that the Soviet RBMK is not the only reactor with the now notorious 'positive void coefficient': the Canadian CANDU and the fast breeder also exhibit this attribute.

Having given a concise account of the accident and its aftermath, they then consider radiation medicine and biology, the treatment of the Chernobyl victims and the consequences of the long-range fall-out. Their report on evacuation, clean-up and decontamination around the site is full of striking specifics drawn from Soviet sources. They survey government responses outside the Soviet Union and nuclear politics in the wake of Chernobyl. They call attention to the daunting question-marks that now hang over nuclear power and its global administration: but they reach no conclusions on that subject. In an 'Afterword' focusing once again on the Soviet dimension, they point out: 'Chernobyl offered numerous lessons. Mikhail Gorbachev seemed to have learned many

of them.' But 'Chernobyl was the most explicit demonstration possible of how urgent Gorbachev's task of "setting things in order" had become.'

To the WorldWatch Institute in Washington DC the task of 'setting things in order' is not Gorbachev's alone, but that of every citizen, and its urgency is mounting relentlessly. The Institute now publishes an annual report on the 'State of the World', and Chernobyl figures prominently in the 1987 report. Like its three precursors, this is a vade-mecum for anyone wishing to know just how serious the said 'state' has become, and what is being done to improve it. The Institute director Lester Brown and his colleagues lead off with an overall assessment of key issues, including energy, environment, material resources and planetary limits, underlining the human role in determining where we go from here. They analyse the demographic trends and problems, and outline the alarming implications of the drift from the land to the cities. Other chapters discuss recycling, sustainable agriculture, chemical cycles in the biosphere, designing sustainable economies and 'charting a sustainable course'. Embedded in these concerns is 'Reassessing Nuclear Power: the Fall-Out from Chernobyl', a case study by Christopher Flavin. Flavin travelled widely in Europe in 1986, carrying out interviews and gathering information, and his report suggests that the role of nuclear energy in future global planning will be very different from that foreseen officially only a decade ago.

All over the world countries are taking a second look at nuclear promises and assurances. More often than not, they do not like what they see. Nuclear energy has proved to be neither as economic nor as safe as its promoters have hitherto insisted; and its other problems - especially waste disposal and weapons-proliferation - are becoming steadily more intractable. Nuclear power will not vanish overnight, but, says Flavin, 'Chernobyl's sharply articulated message' is that this is 'a technology unsuited to human fallibility and open political institutions. The deliberate and planned abandonment of nuclear power would not indicate humanity's decline, but rather its advancement.'

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