timata was drawn from Thucydides' text of the Melian Dialogue itself, in which the Athenian interlocutors insist that there was no longer any chance for further Melian neutrality. And he blatantly ignores ancient sources in suggesting that citing Athenian savagery by 416 was part of a modern "journalistic cliché," when, as I noted, the outrage over Melos was ancient, not modern—reflected in the contemporary views of Euripides and Xenophon. The latter historian explicitly noted the growing fear at Athens after Aegospotami that the defeated Athenians' numerous enemies might treat them as barbarically as they had the civilians on Melos, Histiaea, Scione, and Torone.

Incidentally there is no reason to fault Thucydides, as does Raphael, for not stating that Melos was a long-sought-after prize due to its rich natural resources. In fact, the island's professed neutrality and suspected Spartan sympathies—not the hopes of a natural bonanza—were what drew Athenian ships to Melos, and elsewhere in the Aegean, after neutrals or suspicious subjects.

Raphael ends with a warning not to imagine—as he himself has explicitly done for over three hundred pages by comparing everything from 9/11 to American film against supposed parallels in classical texts—that the ancient world can be distilled across time and space to connect to similar modern events and echoes. At least I think that is the message with which Raphael finishes his book, through a well-worn—and unintentionally self-incriminatory—quotation, followed by a nearly incomprehensible sentence:

> Three centuries ago, after reading Alexander Pope's now-classic version of the *Iliad*, Richard Bentley remarked, "It is a pretty poem, Mr. Pope, but you must not call it Homer." When we talk or write about the ancient Mediterranean world in modern terms, we should be aware that its inhabitants would not be at home in what wishful ingenuity or tendentious hindsight chooses to parade as the restored face or translated logos of antiquity.

Antiquity Matters closes out as tendentiously as it began—as if to remind us why Raphael's notion of antiquity is confined only to a chatty few.

Ludicrous, but interesting

Karl Sigmund
Exact Thinking in Demented Times: The Vienna Circle and the Epic Quest for the Foundations of Science.
Basic Books, 430 pages, $32

reviewed by James Franklin

The Vienna Circle, like the Bloomsbury Group, came in for a lot of criticism, especially from those not invited to their parties. Cliquish, precious, arrogant, excessively convinced of their own central place in the scheme of things, it was said. All true. But both groups included several geniuses and did achieve something outstanding.

Although the two groups spoke different languages and found themselves on opposite sides in the Great War, they were closely associated with two men crucial to both. Bertrand Russell, later in and out of the beds of Bloomsbury and busy writing potboilers on marriage and morals, had in 1910 co-authored *Principia Mathematica*, a massive book on symbolic logic and the foundations of mathematics which the Vienna Circle took as a model for their project of exactitude in thinking. From the other direction, Ludwig Wittgenstein brought his idiosyncratic version of Viennese thought to Cambridge and became the dominant figure in mid-twentieth-century British philosophy.

The essential idea of the Vienna Circle was that everything should be approached scientifically. Logic, precision, mathematics were in, anything smacking of "metaphysics" was out. What that meant is not what it would mean in an Anglophone culture. In English, "science" means the investigation of the causes of things through inductive reasoning from observations, generally free from any fanciful philosophical overhead. But a fundamental difference between Anglophone and German-speaking cultures was that German scientists had a near-compulsory immersion in philosophy in their upbringing. Causes were too "metaphysical" for them and induction too uncertain. In his new book, *Exact Thinking in Demented Times*, Karl Sigmund rightly

highlights, near the beginning of his story, a remarkable debate between the physicist-philosophers Ludwig Boltzmann and Ernst Mach, culminating in Boltzmann's inaugural professorial lecture in Vienna in 1903. Mach, then the leading figure in physics and its interpretation and the inspirer of Einstein's approach, argued that atoms, forces, and masses are not real. "Most researchers," Mach says, "ascribe a reality beyond the human mind to the basic concepts of physics, such as force, mass, and atom, whereas they have no other purpose than to connect experiences in an economical fashion." Causes, that is, are to be dismissed as "metaphysics," and all that really exist are observations, conceived as in the mind. Painful as it is to admit that Lenin got anything right, he hit the bull's-eye with his remark that "All our Machists are deeply mired in idealism."

Boltzmann was generally thought to have won the debate by demonstrating that the evidence for the real existence of atoms was by then overwhelming. But the young scientists and philosophers witnessing the debate, who would form the Vienna Circle in the Twenties, never quite escaped from the Machian vision. Discovering remnants of metaphysical thinking in one another's work provided hours of amusement. The result was one of the central texts of their "logical positivism," as it came to be known, Rudolf Carnap's *Logical Structure of the World* of 1928. What is the world made of? It is made of individual experiences, or sense-data. Those are individual and dispersed, so it will need a powerful glue to stick them all together to make a whole physical world. What is that glue? It is logic—that is, logic in the minimal sense of Russell's *Principia*, just connectives like "if," "and," "all." The idea that the physical world consists of sense-data united by logic is counterintuitive even by the standards of "great" philosophy.

The Circle were more successful when they confined themselves to subjects where focussing on pure logic and eschewing physical reality were no barrier to progress and might even promote it. Mathematics, for example. Sitting quietly through many of the Circle's noisy gatherings in coffee shops and lecture halls, Kurt Gödel came to appreciate that there was an inherent flaw in the project of reducing everything to symbolic logic. In the last session before lunch at the meeting of the German Union of Mathematicians in Königsberg in 1930, he dropped a casual remark on what he had proved, which those with ears to hear knew immediately was the logical result of the century. His theorem, soon published as "On formally undecidable propositions of *Principia Mathematica* and related systems, I," had the implication that the total body of truths about numbers could not be the logical consequences of a finite set of axioms. Thus even in the home ground of number theory, the core part of mathematics, there is a reality "out there," prior to and not fully capturable by formal logical procedures.

Gödel had, indeed, more thoughts in profound disagreement with the Circle's philosophy, though characteristically he chose not to divulge them at the time. In later life, when he was a close companion of Einstein in Princeton, he revealed himself as a devotee of not just metaphysics, but the most extreme form of metaphysics, Platonism. We are, he thinks, equipped with a faculty of intuition which puts us in touch with a non-material realm of abstract mathematical forms such as numbers and sets. It exists out there (not there in space, of course, but in an abstract Platonic realm), and minds can commune with it. Nothing could be further from the original vision of the Circle.

Certain other lesser-known mathematical activities were also successes of the Circle. At the opposite extreme to Gödel, and possibly the loudest member of the Circle, Otto Neurath had a passion for communicating statistical information in forms that could be understood by the ordinary person. "Statistics," he said, "is pure joy for the international proletariat in its relentless struggle against the ruling classes!" His methods of, for example, conveying the size of different populations by rows of different numbers of stick figures were the forerunner of many useful visual methods of conveying information. A different kind of success was Oskar Morgenstern's development of game theory. That was a radically new ap-

proach to economics, military strategy, evolution, and other areas which can be conceived of as games, in the sense of a collection of agents which have to decide on strategies dependent on guessing what all the other agents will do.

The "demented times" of Sigmund's title are the increasingly turbulent political era of interwar Vienna, culminating in the *Anschluss* of 1938. The contrast with Anglophone countries is again strong. When the first Labour government was elected in Britain in 1924, there were fears that the established order might be overthrown. Would the new ministers, when they met the King, wear the correct court dress? Did they even have a full set of court dress with knee-breeches and sword? The King's private secretary, Lord Stamfordham, sourced cheap sets from Messrs. Moss Brothers, the class warriors of the new order compromised by wearing them, and crisis was averted. Not so in Vienna. Left and right paramilitary forces became increasingly active, parliament was disbanded, and the Chancellor responsible for that coup was himself assassinated. Then all politics came to a stop with Hitler's invasion in 1938. The Vienna Circle's members ranged from mild left to far left—Neurath had been minister for nationalization in the Bavarian Soviet Republic of 1919—and some were Jewish. The times were not well adapted for concentrating on abstract problems. Many were able to escape—Neurath, for example, by fleeing in a tiny open boat during the German occupation of Holland and being interned on the Isle of Man.

Karl Sigmund is well placed to tell the story. He is an emeritus professor of mathematics at the University of Vienna and grew up in that city at a time when it was still possible to hear a few survivors of the Circle reminiscing. His work is on evolutionary game theory, a descendant of the Circle's foundational steps in the field. He makes excellent use of the archival material available in Vienna. The book was first written in German and translated by himself with the help of Douglas Hofstadter, the author of *Gödel, Escher, Bach* (1979). His sympathies lie with the ideas of the Circle, but he is not afraid to say when they cross the line into the completely ludicrous. He has a particular talent for explaining the ideas—in physics, mathematics, and philosophy—very clearly and in short bites. The technical passages alternate seamlessly with the personal stories and historical context.

The personal stories are colorful and the contrasts between personalities are sketched neatly. Wittgenstein's "difficult" temperament is well known, but particularly clearly drawn here in his interactions (or refusal to interact) with his peers in his home town. Ludwig has given up philosophy because he has shown that all its problems are pseudoproblems. Ludwig has abused Russell for writing an introduction which praises him to the skies but fails to understand him. Ludwig has lost his job as a school teacher after beating the pupils when they don't learn. Ludwig has retired to his hut on a fjord in Norway to destroy his own earlier philosophy as well as everyone else's. Ludwig has returned to Vienna but sees no one. Ludwig has flown into a rage when the man to write the authorized account of his new philosophy is one change of mind behind the master. Ludwig has gone to the Soviet Union to devote himself to the cause of the proletariat but they have sent him back to Cambridge where he will be more useful. Whether Wittgenstein's philosophy was as autistic as his personality remains to be investigated with the care it deserves.

Mostly outside the scope of Sigmund's story is the long-term effect of the Circle's logical positivism on Anglophone philosophy. From the 1950s, Wittgenstein's influence increasingly permeated British linguistic philosophy. Willard Van Orman Quine, who had visited Europe and sat at the feet of Carnap in 1933, became the leading American philosopher. Karl Popper, sometimes regarded by the Circle as the in-house "official opposition," and his followers such as Thomas Kuhn occupied nearly the whole scene in the philosophy of science for decades. These figures naturally disagreed vigorously among themselves and attacked various theses of the original Viennese logical positivism. But, on essentials, they agreed with the Vienna Circle's approach and assumptions. Metaphysics was out and stayed out, symbolic

logic stayed in. English-language philosophy in the later twentieth century was long on careful logical analyses of what one might mean by this or that claim, often replete with Greek symbols. No one wrote "later" if they could write "at time $t_2 > t_1$." It was short on the entities traditionally discussed by philosophers, such as causes, consciousness, virtues, and God.

In recent decades, a certain diversity on these questions has become permissible. But philosophy has not yet entirely recovered from its walk in the Vienna Woods.

For benefit & pleasure

Abigail Williams
The Social Life of Books:
Reading Together in the
Eighteenth-Century Home.
Yale University Press, 352 pages, $40

reviewed by Henrik Bering

For many eighteenth-century Britons, attending church on Sunday marked the high point of the week. They expected a *performance* from the man on the pulpit, but unfortunately they were often disappointed. In her diary for September 29, 1785, Lady Eleanor Butler notes, "Went into the Church, heard the Vicar by his snuffling, Lisping, and Vile reading spoil the most awful and Solemn Service."

Sensing a need, John Trusler, an enterprising Church of England clergyman-turned-publisher, issued *The Sublime Reader* with careful instructions on how to perform the service, including the advice to keep the sermon "short and plain," so as not to overtax the listener.

Even better, he published a powerful collection of ready-made sermons for idea-strapped colleagues to resort to in a pinch. To fool eagle-eyed members of the congregation sitting in the church galleries, they were printed with a typeface that looked like handwriting, so that whoever was using them would not get caught cheating.

As Oxford professor Abigail Williams notes in *The Social Life of Books*, her charming study of the reading habits in "those newly wallpapered" parlors of the lesser gentry, on coming home from church, the head of the household would seek to reinforce the lessons of the day through reading aloud from the scriptures, and the onus was now on *him* to perform.

"Far from being a dying custom of preliterate communities, reading out loud *well* was at the very center of polite accomplishment," says Williams. The eighteenth century saw two opposing trends: with books becoming more available—from some 1,800 printed annually before the year 1700 to some 6,000 by 1800—more people would read on their own, silently. But there was also a "near obsession" with elocution and reading together in a social setting, which is what Williams sets out to document.

The practice of communal reading served a number of purposes: it helped develop poise and self-assurance, it provided a measure of parental control—an over-addiction to novels was supposed to be harmful for young girls—and, not least, it served as entertainment out in the shires: as Anne Vernon writes from deepest Oxfordshire, "for tis here as cold as xmas, and as wet, so I have nothing to doe but work and read my Eyes out."

"Reading aloud provided a soundtrack to other domestic activities," says Williams. The artist Mary Delany liked listening to Boswell's *Tour of the Hebrides* while knotting, and *The Lady's Magazine* noted: "hair-dressing has been very serviceable to reading—Look at the popular books of a circulating library, and you will find the binding cracked by quantities of powder and pomatum between the leaves."

Though more books were now available, says Williams, mass production had to wait till the following century, so there was a lively exchange of books through circulating libraries—as Williams notes, it was the books doing the circulating, not the libraries—through book clubs, and through individuals swapping books. Fanny Burney records how "Mrs. Streatfield's maid came to ask Mrs. Thrale whether she could lend her '*Milk and asparagus lost*.' So she sent her Milton's *Paradise Lost*, and this proved to be the object requested."

In this era of polite visiting, says Williams, the home became a "a semi-public reception space," and books played an important part in how one