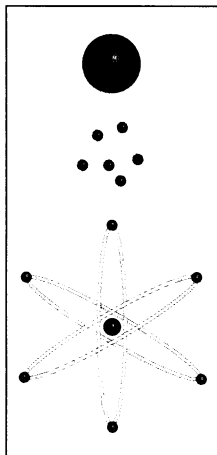


Thought is an ambitious project by the late professor of quantum chemistry at the Sorbonne and director of the Institut de Biologie Physico-Chimique, who died in 1996 at the age of 77. Over the last four decades, Pullman has edited or co-edited more than 40 major scientific books and collections in chemistry, physical chemistry, photochemistry, biochemistry, and cancer research, many of them in collaboration with his wife, Professor Alberte Pullman. This, his last book, is, according to historian of science Gerald Holton, "an engrossing and civilizing work."

The story of the atomic theory of matter lends itself better than almost any other historical journey to a grand panoramic approach to the history of scientific ideas. Following the approach of many of his French intellectual colleagues, Pullman has chosen to trace the history of the concept of the atom not primarily in the work of scientists, but rather largely in that of philosophers and other important critics. He follows the ideas of the atom through the long period of 2500 years since the notion of an indivisible fundamental constituent of matter was first formulated by the pre-Socratic Greek thinkers. A major theme that animates the book is the recurring tension between theology and science, reflected in the attempts by various Christian, Arab, Indian, and Jewish thinkers to either incorporate or reject atomism. The book's strength lies in its encompassing range and its accessibility to a wide audience. Much primary material is analyzed in extensive quotations, from the *Guide to the Perplexed* by the 12th-century physician, theologian, and philosopher Moses Maimonides to fascinating daydreams such as Diderot's moving and poetic letter to his beloved Sophie, in which he hoped that upon death "it were my fate to be one with you through the course of the centuries, if the molecules of your erstwhile lover were destined to become inspired, aroused, and to seek yours scattered in nature!"

Pullman uses texts to tease out what may or may not have survived from the ancients and the pre-moderns into our own contemporary conceptions. He is, unsurprisingly, at his best when dealing with recent developments in the physics and chemistry of atoms and nuclei, where he leaves no loose threads unexamined. If indeed Democritus was right in imagining that matter and energy are one, his notion of the void, which Descartes opposed so fiercely, has no



longer survived unchallenged.

Pullman is sympathetic to most of the protagonists in his book, atomists and anti-atomists alike, although he often judges their views in light of current scientific practices and theories—as if seeking to uncover eternal truths that he believes should have been self-evident. There is thus, implicit in this work, an urge to connect with the past, to construct a narrative of progress, and to weed out mistakes and missteps. Yet, it is an eminently readable and enjoyable book, which affords per-

spicacious insights into one of the most persisting scientific problems. Shall we say that atoms truly exist, indivisible and eternal? Pullman does not really tell us. Perhaps because we now have the elementary particle "zoo," and the philosophers in all of us may continue the discussion unabated.

NEW MEDIA: SOFTWARE

An Uneasy Marriage

Bruce McCallum

Origin is the preeminent data analysis and graphics software package available for a Windows environment. This software can be used for data plotting, graphics, and curve fitting (drawing curves through data points). Earlier versions of Origin had severely limited data management options in the worksheet portion of the program. It was with great anticipation, therefore, that I examined version 5.0, which integrates Origin with the spreadsheet features of Microsoft's Excel and the presentation features of PowerPoint.

Origin 5.0 requires Microsoft Windows 95 or Windows NT (4.0 running on a 486/DX or higher processor with 8 MB RAM). To obtain the full functionality of Excel, Microsoft Office 95 (Excel 7) and OLE2 must be installed, at a minimum. Origin runs as a server for OLE (object linking and embedding)-compliant applications such as PowerPoint, which means that PowerPoint can open Origin for editing an object within itself.

Version 5 contains several new features that make it easier to use, such as dockable toolbars, tabbed options boxes, and new

formatting controls for axes. Origin's non-linear curve-fitting menu has a new set of built-in pharmacological functions that enable users to calculate dose-response curves, one- and two-site competitive binding and biphasic effects in conjunction with a simultaneous graphical representations. Complex graphs can be designed with the layer control, which manipulates plots down to the level of individual data points and text characters.

Origin runs as an OLE server for OLE-compliant applications, such as PowerPoint. This means that Origin's graphing tools can be used to edit an Origin graph embedded in a PowerPoint file. OLE also enables users to directly utilize Excel data sets and spreadsheet functions while in Origin. Changes made to Excel workbooks can be saved either inside Origin projects or dynamically linked to Excel spreadsheets outside Origin over networked servers. Origin saves changes to external workbooks in both the Origin client file and the Excel host file. According to Microcal technical support, occasional installations of Excel will not communicate with Origin (they are working on this bug with Microsoft).

Some Excel spreadsheet functions can be used within Origin, including in-cell editing, relative and absolute cross-referencing, filling a multi-cell selection with a range of values or an array of formulas, and multiple worksheets in one workbook. However, the integration of Excel is incomplete. Users must still use the relatively cumbersome Origin syntax to plot data in a graphical format. Origin plots data from columns only, and the *y* data must fall within the same row range as the associated *x* data. The only Origin menus available when an Excel workbook is active are the File, Plot, and Window menus.

Curve-fitting functions are not available when Excel workbooks are active. Excel macros can be used inside Origin, but they have to be called with Origin's macro language, LabTalk.

The marriage of Origin to Excel compromises some of the functionality of each program. For the cost of this upgrade for Origin, users may reasonably expect more extensive spreadsheet integration, such as plotting from rows (as well as columns) and fitting data within an Excel workbook. A statistical module would be useful to complement the set of hypothesis-testing routines that are currently limited to *t* tests, one-way analysis of variance, and multiple regression. Despite these shortcomings, OLE implementation in Origin provides welcome enhancements, as noted above, and marks a pathway for future program development.



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