INTERSECTIONS

Essays in the Sciences and Humanities

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Preface

This collection of essays began as a response to the limitations of the available textbooks used in writing courses that are taken typically by science and technology students, and taught by humanities instructors. We began this project with the premise that the essay is a variable and cross-disciplinary form, and with the awareness that most essay anthologies are collections of writings in either the humanities *or* the sciences. We wanted to question and cross that boundary. As we began to put this collection together, we proceeded from fairly simple desires. We are all experienced instructors of composition and literature classes, and we decided that we wanted to include essays that we would enjoy, or that we had enjoyed, teaching in the classroom—in particular, but not exclusively, to students whose interests or majors were in the sciences. We wanted a selection that would embrace the range of writing that reflects on technology, in both scientific and cultural fields; a selection that would demonstrate good, clear, emphatic, interesting writing on a variety of topics within those fields; a selection of essays that could serve as models of effective writing and that employed techniques that students could incorporate into their own writing.

We began by looking for essays by contemporary writers whose works we admire, in periodical publications that we enjoy reading. We searched our sources for appropriate essays and articles, then began to sort our initial choices and to seek out new pieces for representation across styles, subject matter, genders, and cultures. We collected essays that deal with biology, natural history, chemistry, computers, women's issues, engineering, business, economics, technology, scientific ethics, language, communication, and manners and morals. As our search continued, we began, inevitably, to consider some standard and classic essays by authors whose work has been tested successfully in many classrooms. Our collection soon acquired another characteristic: it spans a wide range of historical periods.

Keeping our mixed sciences/humanities audience in mind, we settled on five principles of selection. First, we have selected essays that provide some historical coverage of the essay as a literary form, without making *Intersections* into an anthology that is devoted solely to the history of the essay. We have included essays as early as Swift's from the beginning of the eighteenth century, but we have also included essays published as recently as 1998. Second, we have included essays that we find enjoyable to read. The quality of the writing itself was very important when we were making our choices. We have, therefore, selected essays by long-established writers, but we have also chosen essays by newer, sometimes relatively unknown, writers. The authors represented here have widely different backgrounds, training, and interests, and include scientists, journalists, artists, students, novelists, and sociologists. Third, we wanted this collection to have essays of varying length. Although it is true that students are often asked to write relatively short papers, we thought it was important to include some essays of significant length, to demonstrate that the art of extended exposition is not dead, and to show how to maintain an argument through several thousand words. Fourth, we wanted our collection to incorporate a significant number of Canadian essays without becoming an anthology only of Canadian writing; thus we have included

English essays by American, Canadian, and British authors, as well as a few pieces in translation. Finally, we wanted to collect science essays written by women—not only essays about women in science, but also good scientific writing by women.

Each essay we selected according to these criteria is listed alphabetically by its author's name, chronologically according to the date of its first publication, and alphabetically by its title, for easy access. We have also provided alternative indices, loosely arranged groupings distinguished by style, rhetoric, and theme. Each essay is followed by a brief commentary. These commentaries are meant to aid instructors in conducting classroom discussions of the essays, and to aid students in their reading of the essays. In addition, we have included questions for discussion and suggestions for writing. These questions address particular aspects and techniques of the individual essays, while making connections to other essays in the collection.

Finally, we have included several appendices: three samples of student writing, and a glossary of basic rhetorical terms to aid students in their comprehension of rhetorical devices and styles. The student writing includes an argumentative and comparative academic paper by a fourth-year English student on two best-selling pieces of popular culture; an academic research paper by a second-year English student on a famous (and famously difficult) piece of Canadian literature; and a technical report on the detection of land mines by a group of fourth-year Engineering students. These papers have been included for instructors to use as models for students, and to demonstrate explicitly many of the important features of good student writing: they demonstrate the effective development of a bibliography; the successful embedding of quotations from primary and secondary sources; the appropriate use of information from one field in another setting; and the use of "lively" prose, even in an "academic" assignment.

This is a collection that is designed to cross several boundaries and address several intersections: between genders, among countries, and between science and technology and the humanities. Our fondest hope is that readers, too, will cross boundaries in considering these essays—and that they will enjoy reading the essays collected here as much as we have enjoyed collecting them.

Acknowledgments

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THE PLEASURES AND PAINS OF COFFEE

Honoré de Balzac

BIOGRAPHICAL NOTE

Honoré de Balzac (1799–1850) is considered one of the great French writers. His masterwork is a multi-volume novel entitled *La Comédie humaine* (1842–46). This essay appeared as part of an appendix (added after the first edition) to Anthelme Brillat-Savarin's *La Physiologie du goût* (1825). The full appendix deals with the effects of coffee, wine, and tobacco and is entitled *Traité des excitants modernes.* Balzac died while still quite young, probably in part due to the effects of drinking a good deal of very strong coffee.

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1 On this subject Brillat-Savarin is far from complete. I can add something to what he has said because coffee is a great power in my life; I have observed its effects on an epic scale. Coffee roasts your insides. Many people claim coffee inspires them; but as everybody likewise knows, coffee only makes boring people even more boring. Think about it: although more grocery stores are staying open in Paris until midnight, few writers are actually becoming more spiritual.

2 But as Brillat-Savarin has correctly observed, coffee sets the blood in motion and stimulates the muscles; it accelerates the digestive processes, chases away sleep, and gives us the capacity to engage a little longer in the exercise of our intellects. It is on this last point, in particular, that I want to add my personal experience to Brillat-Savarin's observations, and to add some remarks about coffee from the great sages.

3 Coffee affects the diaphragm and the plexus of the stomach, from which it reaches the brain by barely perceptible radiations which escape complete analysis; that aside, we may surmise that our primary nervous flux conducts an electricity emitted by coffee when we drink

Translated from the French by Robert Onopa. First published in *The Michigan Quarterly Review,* Spring 1996. Robert Onopa teaches in the Creative Writing Program at the University of Hawaii.

it. Coffee's power changes over time. Rossini has personally experienced some of these effects, as, of course, have I.

4 "Coffee," Rossini told me, "is an affair of fifteen or twenty days; just the right amount of time, fortunately, to write an opera."

5 This is true. But the length of time during which one can enjoy the benefits of coffee *can* be extended. This knowledge is so useful to so many people that I cannot but confess the secrets of releasing the bean's precious essence.

6 All of you, then you illustrious Human Candles—you who consume your own brilliant selves with the heat and light of your minds—approach and listen to the Gospel of the Watch, of Wakefulness, of Intellectual Travail!

7 1. Coffee completely pulverized in the Turkish manner has a much richer flavor than coffee ground in a coffee mill.

8 In many of the mechanical aspects of pleasure, Orientals are far superior to Europeans. Their particular genius—to observe as carefully as do those toads who spend entire years squatting on their haunches, holding their unblinking eyes open like two suns—has revealed to them what our science has only recently been able to show us through analysis. The principal toxin in coffee is *tannin*, an evil substance which chemists have not yet studied sufficiently. When the stomach membranes have been "tanned," or when the action of the tannin particular to coffee has numbed them by overuse, the membranes become incapable of contracting properly. This becomes the source of the serious disorders affecting the coffee connoisseur. There is a man in London, for example, whose immoderate use of coffee has left him with a stomach twisted in knots. An engraver in Paris I know personally needed five years to recover from the physical state his love of coffee had put him in. Finally, an artist, Chenavard, was burned to death by coffee: all because he went to cafés excessively, as workers go to cabarets, on the flimsiest excuse. Connoisseurs pursue coffee drinking the way they pursue all their passions; they proceed by increments, and, like Nicolet, move from strong to stronger stuff, until consumption becomes abuse. Yet when you pulverize rather than grind coffee, you crush it into a unique form of molecule which retains the harmful tannin and releases only the aroma. That is why Italians, Venetians, Greeks, and Turks can drink coffee incessantly without harm, a coffee the French contemptuously call *cafiot*. Voltaire drank just such coffee.

9 Remember, then. Coffee is composed of two elements: one, the extractable matter, which hot water or cold water dissolves quickly and which conducts the aroma; the other element, the tannin, is less dissolvable in water, and emerges from the surrounding plant tissue only slowly and with more effort. From which follows this axiom: *To brew coffee by contact with boiling water, especially for a long time, is heresy; to brew coffee with water that has already passed through coffee grounds is to subject the stomach and other internal organs to tannin.*

10 2. Using as a benchmark coffee brewed in the immortal coffeepot of my secretary, Auguste de Belloy (the cousin of a Cardinal, and, like him, related to the ancient and illustrious Marquis de Belloy), the very best coffee is made by an infusion of cold rather than boiling water; controlling the water temperature, after pulverizing the beans completely, is a second method of managing its effects.