Mc Graw Hill Education

TAKING SIDES 立场

辩证思维训练

(美) THOMAS A. EASTON 编

环境篇

15TH 第15版 EDITION

CLASHING VIEWS ON
ENVIRONMENTAL ISSUES

外语教学与研究出版社

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Members of the Academic Advisory Board are instrumental in the final selection of articles for each edition of TAKING SIDES. Their review of articles for content, level, and appropriateness provides critical direction to the editors and staff. We think that you will find their careful consideration well reflected in this volume.

TAKING SIDES: Clashing Views on ENVIRONMENTAL ISSUES

Fifteenth Edition

EDITOR

Thomas Easton
Thomas College

ACADEMIC ADVISORY BOARD MEMBERS

英语思辨，攻错他山

朱绩崧

学界奉为圭臬的《牛津英语大词典》（*The Oxford English Dictionary*）在side (n.)[1]条目的18.a.义项里，把18.b.所收词组“to take a (or one's) side, take sides. Also to hold side (with one)”里的side解释为[t]he position or interests of one person, party, etc., in contrast to that of an opposing one，个人立场相反、党派利益对立之意，了然无疑。

惜我愚钝，近年才明白，take sides不仅仅是英语词典里的一个词组，甚至可说是英国议会制度的根本；而议会制度，实在是英国对人类文明进步最大的贡献之一：通过take sides，把思辨，而非独断专行，尊奉为国事决策那不可撼动的核心机制。我们不会忘记，电影《铁娘子》（*The Iron Lady*）里梅里尔·斯特里普（Meryl Streep）新学一口英国腔就来西敏寺宫滔滔激辩的场景，那不是骂街，虽然嘘声迭起，那是两股思想在龙争虎斗，最终推进历史。

谈到西方好争论、善思辨的传统，古希腊已臻化境，垂范千古。但这并不意味着我国真如某些评论家所言，为定于一尊的儒学所戕害，使得读书人唯服从传承是务，从不挑战权威。

《古文观止》读到最后几卷，便会看到编注者吴楚材、吴调侯叔侄鼓励读者对古时定论大胆质疑的用心。如建文忠臣方孝孺的名篇《豫让论》，标新立异，一反古说，直指春秋时代为主雪仇的刺客豫让“不能扶危于未乱，而捐躯于既败者”，不配“国士”之誉。

甚至，在我们历史课本一向蔑之为“埋头故纸”、“皓首穷经”的乾嘉学派里，多数学者的考据也都具有很高的思辨性。从王念孙的《读书杂志》、刘宝楠的《论语正义》，到戴震“由字义以明经义”的治学方法和段玉裁《东原先生年谱》所载的戴氏札记——“仆生平著述最大者为《孟子字义疏证》一书，此正人心之要。今人无论正邪，尽以意见误名之曰理，而祸斯民，故《疏证》不得不作”——从文本到现实，立场鲜明，无不指向对真理的上下求索。

读书为求真。这句话，是儿时由老师灌输给我的，我不曾怀疑过。可也正是老师告诉我“乾嘉学派在历史上的作用是反动的”、“高考答题时，如遇到岳飞，不能勾选为民族英雄，他打的仗是人民内部矛盾”等等当年不容我怀疑辩驳的“事实”。

往事固不可追，令我大失所望的却是“寓教于乐”、“反对应试教育”了不知凡几年，中小学生竟在变本加厉地背记历史、语文的“标准答案”，到了易只字则为错的地步。有人甚至把中小学生语文水平的普遍降低归咎于英语课太多，视母语、外语修习为零和博弈，全然不去审视、拷问、批判当下严重阻碍思辨与创造的文科教育体制本身。试问这样的教育，又如何能培养出活泼泼的人来？如何能引导他们求真？

求真，真真何其不易也。有时，权威发声，莫敢深究。有时，缺乏条件，无从寻觅。信息爆炸、思路开阔的今天，更多情况下是众说纷纭，莫衷一是，乃至有时在“是”与“非”这两者之间，都不知何从矣。

而相对综合型、重意合（parataxis）的汉语，英语是分析型语言，重形合（hypotaxis），语法规则更明确，对指代、性数格一致等形式要求更高，且有强烈的时态观。不能不说，这在很大程度上避免了汉语常见的因文害意：把一些站不住脚的歪理，用华丽辞藻一包装，就算是“美文佳构”了。（这方面，韩愈的个别名作，如为名教张目的《原道》，可算反面教材，远逊柳宗元的《驳复仇议》。后者的论理，简朴而流畅，本质上与今天英美法院经典判词如出一辙，堪称我国古代taking sides的典范。）加之英美学者好辩的传统在当代通过课堂教育、学术论文等形式得以强化，思辨的局面委实优于我国。

我素为古罗马倾倒，曾读国人编著的几种罗马史，又看了英国剑桥大学克里斯托弗·凯利（Christopher Kelly）教授写的《罗马帝国简史》（*The Roman Empire: A Very Short Introduction*），后者末章呈现的学者思辨生动别致，过目难忘，非我国传统重介绍“史实”的史书可比：20世纪初，英国历史学家、律师、自由党政治家詹姆斯·布赖斯（James Bryce）认为罗马帝国与大英帝国非常相似，都能维持高水平的内部和平与秩序，民人深谙工程技术，勇猛活跃，不畏困苦；牛津古代史教授弗朗西斯·哈弗菲尔德（Francis Haverfield）进一步说明，罗马帝国的成功，在于把行省居民同化为一个秩序井然、富有凝聚力的文明；曾奉职印度的英国古典学会会长埃弗林·巴林（Evelyn Baring）持不同看法，在“同化”问题上，大英帝国与罗马帝国有不可弥合的区别，单论印度语言、宗教、种族的多样性，就和罗马人征服的任何地区不同；哈弗菲尔德不同意巴林，认为英国之所以有印度问题，是因为征服印度时，印度已经发展成发达社会，文明形态稳固；牛津的古代史专家、考古学家D. G. 霍加斯（D. G. Hogarth）也反对巴林，认为罗马帝国有三个阶段，即“尚未同化”、“有意同化”、“积极同化”，大英帝国对印度犹处“尚未同化”的第一阶段。

把学者taking sides过程中的各种观点陈列出来，供读者思辨，是我国各阶段教材的短板。同时，也应注意，为提高我国学生的思辨水平以及英语能力，taking sides的内容不宜学科专业化程度过高（上述关于罗马帝国与大英帝国的争辩即有此虞），还是具有一定社会影响力、为民众熟知的话题更宜为组织教材的出发点。

美国著名的*Taking Sides*丛书，其宗旨正在于满足成长中的思考者兼英语学习者的需要。这套书系，诞生于20世纪80年代，迄今出版52种专题分册，多数一版再版，其中传媒凡12版，经济、环境达15版，社会、教育更已有17版之多。畅销程度，不劳赘言。

从题材看，外研社首批择取的七册分别覆盖了社会、教育、经济、环境、科技、大众传媒与全球性问题，无一不是当下公众话题的焦点。但呈现的手法却很“单一”，即先提出问题，再摆出正反双方最典型、最具说服力的论证，最后引导读者作进一步的阅读与思考：

问：计算机对学生成长是否有副作用？

正：有。学校对电脑技术的迷信与滥用，导致学生心智发育与创造力受损。

反：无。如对电脑善加利用，能促进教学革新，从而使学生获益。

后记："学校"或许正在由"地点"转变为"概念"，随着计算机技术的进步，许多教育手段都不必在课堂实施，但随之而来有许多新问题，需要探讨。多媒体能让学生与更多的信息产生互动，但往往也减少了学生与学生、学生与所在环境之间的互动。相关研究请见……（扩展阅读涉及三十余处学术资源）

（《教育篇》第10话题）

目录并不冗长，但当读者学完全书，必会惊喜地发现，自己在这一领域的知识结构已搭建得初具规模。摆在面前的问题往往庞大空疏，报章常见，迄无公断。从这个角度思考，有这样的道理可知；从那个方面切入，有那样的结论可得。读者的任务，就是跟着两派的思路各走一遍，最终判定哪派有理。当然，结果也可能是两派皆不尽善，或者需要修正调和之后才能获得正解。但无论如何，这一过程本身，实在是智力上的一次奥德修斯式的旅行（an intellectual odyssey）。

之所以要用荷马史诗的隐喻，是因为读*Taking Sides*与看街边吵架或中学生议论文最根本的差别，就是需要调用的思想、学术资源极多。以《社会篇》第8话题为例，菲利普·迪瓦恩（Philip E. Devine）在得出"酷刑不可保留"的结论之前，将自由主义政治学、康德学说、功利主义、自然法等一一引出，要言不烦。对迪瓦恩这位哲学学者而言，这些理论或许早已熟烂于胸。但对一般读者而言，为了确证作者没有断章取义，至少得就上述内容再读通几本导论、简介之类的书。顺便一提，酷刑当否的问题，我在近年畅销的一部法律通俗读物《法治》（*The Rule of Law*）论恐怖主义的一章中，也曾读到评论。作者、已故英国前首席大法官汤姆·宾厄姆（Tom Bingham）反对向恐怖主义犯罪嫌疑人施以酷刑的理由本质上与孔子的"己所不欲，勿施于人"无异，认为这是对法治原则的破坏。与迪瓦恩相较，其说直指人心，唯于学理微缺然。

事实上，*Taking Sides*书系所选文章，无论篇幅修短，莫不观点鲜明，针锋相对，而每一方都有强大的理据支撑，乍看难以撼动。由此，我们也不得不感叹，人类文明在今天呈现出的多样性，自有其道理，无论是同一文明内还是不同文明间发生的碰撞冲突，其背后都有复杂的理性动因，绝非皂白可以分明，需要我们全面观察，深度分析，最终选定立场。

我出身英文系，工作后常应媒体之邀，写些时事评论。落笔之前，现已养成习惯，会去新浪微博、知乎、Quora等网站，浏览各方的理性评论，在争议极大的问题上，熟悉*Taking Sides*封面上印的那两个词：Clashing Views（对立观点）。这是我在"后大学"时期补上的一堂课。

回想本科求学时，这方面所受教育几乎为零。教育的重点是背同义词、反义词

与词形变化。文章，读通便好，却读不透，因为读通之后，总觉所言有理，不会想着去倾听“不同的声音”。这个弊端，到写毕业论文时曝露无疑：说明文还凑合，议论文就写不好了。名虽论文，连核心的论点都渺不可寻。这几年，本专业内，我还常常看到号称博士论文的研究综述，或者连文献回顾都没有的论文。

为了矫正这一通病，不少学校从编教材上下功夫，课文引入争议性话题，意在以此激发学生的critical thinking——“批判性思维”遂成高校英语教师培训班极为青睐的广告亮点。可惜，在我有限的学术视野内，能一变风气的作品，尚阙如焉。我看到过浅尝辄止者，其内一篇课文，取自美国某小报，讲一对夫妻人工受孕后离婚，胚胎留在医院冰箱里，不知如何处置，遂对簿公堂。最终，作者只是提出问题，没能向学生指出解决的途径。如果有至少两种具备一定思想深度与差异性的观点呈现在教材里，附上扩展研读的书目、提要，教育的效果定会面目一新，我们也会真正地开始在语言教育中培养思想者，而不只是机械的记忆者、复制者。这一任务，如前所示，*Taking Sides*完全胜任。

我乐于推荐该书系作精读教材的另一项理由在于语言质量。就量而言，目前的精读课（Intensive Reading），阅读量普遍过低，一两千词的文章，一读就是十天半月，课程设计者不明白唯有大数量与短时间的结合，方成就intensive之效。与此相比，以本书系一卷之量，读一学期，日均1500词左右，恰到好处。以质而论，本书系符合我的外语习得理念：中高阶学生，应以非虚构作品（non-fiction）为“主食”。例如，本书系中有大量美国国会证言（congressional testimony），思维严谨，语言地道，学习西方法律、外交以及高等翻译等专业的学生如能熟读成诵，其英语学习的眼界势必更上层楼。从实用的角度看，有理、有力、有节的明快文风才是日常工作、生活所需，是语言的“常态”；文学作品中因作者意图而创造出的丰富表达，只是语言的“变态”。由常入变，初地坚固，发展空间亦大。反是，恐事倍功半。

至于“泛读”，也有一个基于*Taking Sides*的策略可行：各个话题牵涉到的著作，一学期可读上三五本。如读《环境篇》，可辅读雷切尔·卡森（Rachel Carson）的《寂静的春天》（*Silent Spring*）；读《科技与社会篇》，可辅读阿道司·赫胥黎（Aldous Huxley）的《美丽新世界》（*Brave New World*）。此时，不妨多些文学作品，加深对“精读”义理的体悟思辨，可全“文以载道”之功。

此外，*Taking Sides*对如今各高校流行的英语辩论也有直接的指导作用，无论其辩题还是论据，都可在模拟阶段直接取用。我更相信，认真研读过本书系的学生，其论文一定不会沦为简介、综述，不会抄袭维基、百度，因为他们掌握了论文写作的核心技术：如何灵巧运用事实与逻辑来作严肃的学术之论，而非执着于印象、习惯、偏见的意气之争。

总之，希望*Taking Sides*书系的引进，能综合我国英语学生的语言习得与思维训练，既提升交流的效率，更开启求真的法门，在乱云飞渡的当今时代，帮助读者迅速达成思想之质与辞藻之文的兼美共谐。

Topic Guide

This topic guide suggests how the selections in this book relate to the subjects covered in your course. You may want to use the topics listed on these pages to search the Web more easily. On the following pages a number of Web sites have been gathered specifically for this book. They are arranged to reflect the issues of this Taking Sides reader. You can link to these sites by going to http://www.mhhe.com/cls.

All the articles that relate to each topic are listed below the bold-faced term.

Business

3. Will Restricting Carbon Emissions Damage the Economy?
10. Should the Superfund Tax Be Reinstated?

Economics

3. Will Restricting Carbon Emissions Damage the Economy?

Energy

4. Is Global Warming a Catastrophe That Warrants Immediate Action?
5. Should We Drill for Offshore Oil?
6. Is Renewable Energy Really Green?

Environmental Law

1. Should the Precautionary Principle Become Part of National and International Law?

Environmental Philosophy

1. Should the Precautionary Principle Become Part of National and International Law?
2. Is Sustainable Development Compatible with Human Welfare?
6. Is Renewable Energy Really Green?

Environmental Policy

10. Should the Superfund Tax Be Reinstated?

Food

7. Does Commercial Fishing Have a Future?

Global Warming

4. Is Global Warming a Catastrophe That Warrants Immediate Action?

Politics

9. Do Environmental Hormone Mimics Pose a Potentially Serious Health Threat?
10. Should the Superfund Tax Be Reinstated?

Precautionary Principle

1. Should the Precautionary Principle Become Part of National and International Law?

Superfund

10. Should the Superfund Tax Be Reinstated?

Sustainability

2. Is Sustainable Development Compatible with Human Welfare?
7. Does Commercial Fishing Have a Future?

Technology

8. Should Society Impose a Moratorium on the Use and Release of "Synthetic Biology" Organisms?

Toxic Chemicals

8. Should Society Impose a Moratorium on the Use and Release of "Synthetic Biology" Organisms?
9. Do Environmental Hormone Mimics Pose a Potentially Serious Health Threat?
10. Should the Superfund Tax Be Reinstated?

Introduction

Environmental Issues: The Never-Ending Debate

Thomas A. Easton

When I teach environmental science, I often begin by explaining the roots of the word "ecology," from the Greek *oikos* (house or household), and assigning the students to write a brief paper about their own household. How much, I ask them, do you need to know about the place where you live, and why?

The answers vary. Some of the resulting papers focus on people—roommates if the "household" is a dorm room, spouses and children if the students are older, parents and siblings if they live at home—and the needs to cooperate and get along, and perhaps the need not to overcrowd. Some pay attention to houseplants and pets, and occasionally even bugs and mice. Some focus on economics—possessions, services, and their costs, where the checkbook is kept, where the bills accumulate, the importance of paying those bills, and of course the importance of earning money to pay those bills. Some focus on maintenance—cleaning, cleaning supplies, repairs, whom to call if something major breaks. For some the emphasis is operation—garbage disposal, grocery shopping, how to work the lights, stove, fridge, and so on. A very few recognize the presence of toxic chemicals under the sink and in the medicine cabinet and the need for precautions in their handling. Sadly, a few seem to be oblivious to anything that does not have something to do with entertainment.

Not surprisingly, some students object initially that the exercise seems trivial. "What does this have to do with environmentalism?" they ask. Yet the course is rarely very old before most are saying, "Ah! I get it!" That nice, homey microcosm has a great many of the features of the macrocosmic environment, and the multiple ways people can look at the microcosm mirror the ways people look at the macrocosm. It's all there, as is the question of priorities: What is important? People or fellow creatures or economics or maintenance or operation or waste disposal or food supply or toxics control or entertainment, or all of these?

And how do you decide? I try to illuminate this question by describing a parent trying to teach a teenager not to sit on a woodstove. In July, the kid answers, "Why?" and continues to perch. In August, likewise. And still in September. But in October or November, the kid yells "Ouch!" and jumps off in a hurry.

That is, people seem to learn best when they get burned.

This is surely true in our homely *oikos*, where we may not realize our fellow creatures deserve attention until houseplants die of neglect or cockroaches invade the cupboards. Economics comes to the fore when the phone gets cut off, a pipe ruptures, the air conditioner breaks, strange fumes rise from the basement, trash bags pile up and begin to stink, or the toilet backs up. Toxics control suddenly matters when a child or pet gets into the rat poison.

In the larger *oikos* of environmentalism, such events are paralleled by the loss of a species, or an infestation by another, by floods and droughts, by lakes turned into cesspits by raw sewage, by air turned foul by industrial smokestacks, by groundwater contaminated by toxic chemicals, by the death of industries and the loss of jobs, by famine and plague and even war.

If nothing is going wrong, we are not very likely to realize there is something we should be paying attention to. And this too has its parallel in the larger world. Indeed, the history of environmentalism is, in part, a history of people carrying on with business as usual until something goes obviously awry. Then, if they can agree on the nature of the problem (Did the floor cave in because the joists were rotten or because there were too many people at the party?), they may learn something about how to prevent recurrences.

The Question of Priorities

There is of course a crucial "if" in that last sentence: *If people can agree. . . .* It is a truism to say that agreement is difficult. In environmental matters, people argue endlessly over whether anything is actually wrong, what its eventual impact will be, what if anything can or should be done to repair the damage, and how to prevent recurrence. Not to mention who's to blame and who should take responsibility for fixing the problem! Part of the reason is simple: Different things matter most to different people. Individual citizens may want clean air or water or cheap food or a convenient commute. Politicians may favor sovereignty over international cooperation. Economists and industrialists may think a few coughs (or cases of lung cancer, or shortened life spans) are a cheap price to pay for wealth or jobs.

No one now seems to think that protecting the environment is not important. But different groups—even different environmentalists—have different ideas of what "environmental responsibility" means. To a paper company cutting trees for pulp, it may mean leaving a screen of trees (a "beauty strip") beside the road and minimizing erosion. To hikers following trails through or within view of the same tract of land, that is not enough; they want the trees left alone. The hikers may also object to seeing the users of trail bikes and all-terrain-vehicles on the trails. They may even object to hunters and anglers, whose activities they see as diminishing the wilderness experience. They may therefore push for protecting the land as limited-access wilderness. The hunters and anglers object to that, of course, for they want to be able to use their vehicles to bring their game home, or to bring their boats to their favorite rivers and lakes. They also argue, with some justification, that their license fees support a great deal of environmental protection work.

To a corporation, dumping industrial waste into a river may make perfect sense, for alternative ways of disposing of waste are likely to cost more and diminish profits. Of course, the waste renders the water less useful to wildlife or downstream humans, who may well object. Yet telling the corporation it cannot dump may be seen as depriving it of property. A similar problem arises when regulations prevent people and corporations from using land—and making money—as they had planned. Conservatives have claimed that environmental regulations thus violate the Fifth Amendment to the U.S. Constitution, which says "No person shall . . . be deprived of . . . property, without due process of law; nor shall private property be taken for public use, without just compensation."

One might think the dangers of such things as dumping industrial waste in rivers are obvious. But scientists can and do disagree, even given the same evidence. For instance, a chemical in waste may clearly cause cancer in laboratory animals. Is it therefore a danger to humans? A scientist working for the company dumping that chemical in a river may insist that no such danger has been proven. Yet a scientist working for an environmental group such as Greenpeace may insist that the danger is obvious since carcinogens do generally affect more than one species.

Scientists are human. They have not only employers but also values, often rooted in political ideology and religion. They may feel that the individual matters more than corporations or society, or vice versa. They may favor short-term benefits over long-term benefits, or vice versa.

And scientists, citizens, corporations, and government all reflect prevailing social attitudes. When America was expanding westward, the focus was on building industries, farms, and towns. If problems arose, there was vacant land

waiting to be moved to. But when the expansion was done, problems became more visible and less avoidable. People could see that there were "trade-offs" involved in human activity: more industry meant more jobs and more wealth, but there was a price in air and water pollution and human health (among other things).

Nowhere, perhaps, are these trade-offs more obvious than in Eastern Europe. [. . .] The result, which became visible to Western nations after the fall of the Iron Curtain in 1990, was industrial zones where rivers had no fish, children were sickly, and life expectancies were reduced. The fate of the Aral Sea, a vast inland body of water once home to a thriving fishery and a major regional transportation route, is emblematic: Because the Soviet Union wanted to increase its cotton production, it diverted for irrigation the rivers that delivered most of the Aral Sea's fresh water supply. The Aral Sea then began to lose more water to evaporation than it gained, and it rapidly shrank, exposing sea-bottom so contaminated by industrial wastes and pesticides that wind-borne dust is now responsible for a great deal of human illness. The fisheries are dead, and freighters lie rusting on bare ground where once waves lapped.

The Environmental Movement

The twentieth century saw immense changes in the conditions of human life and in the environment that surrounds and supports human life. According to historian J. R. McNeill, in *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (W. W. Norton, 2000), the environmental impacts that resulted from the interactions of burgeoning population, technological development, shifts in energy use, politics, and economics in that period are unprecedented in both degree and kind. Yet a worse impact may be that we have come to accept as "normal" a very temporary situation that "is an extreme deviation from any of the durable, more 'normal,' states of the world over the span of human history, indeed over the span of earth history." We are thus not prepared for the inevitable and perhaps drastic changes ahead.

Environmental factors cannot be denied their role in human affairs, nor can human affairs be denied their place in any effort to understand environmental change. As McNeill says, "Both history and ecology are, as fields of knowledge go, supremely integrative. They merely need to integrate with each other."

The environmental movement, which grew during the twentieth century in response to increasing awareness of human impacts, is a step in that direction. Yet environmental awareness reaches back long before the modern environmental movement. When John James Audubon (1785–1851),

famous for his bird paintings, was young, he was an enthusiastic slaughterer of birds (a few of which he used as models for the paintings). Later in life, he came to appreciate that birds were diminishing in numbers, as were the American bison, and he called for conservation measures. His was a minority voice, however. It was not till later in the century that George Perkins Marsh warned in *Man and Nature* (1864), "We are, even now, breaking up the floor and wainscoting and doors and window frames of our dwelling, for fuel to warm our bodies and seethe our pottage, and the world cannot afford to wait till the slow and sure progress of exact science has taught it a better economy." The Earth, he said, was given to man for "usufruct" (to use the fruit of), not for consumption or waste. Resources should remain to benefit future generations. Stewardship was the point, and damage to soil and forest should be prevented and repaired. He was not concerned with wilderness as such; John Muir (1838–1914; founder of the Sierra Club) was the first to call for the preservation of natural wilderness, untouched by human activities. Marsh's ideas influenced others more strongly. In 1890, Gifford Pinchot (1865–1946) found "the nation . . . obsessed by a fury of development. The American Colossus was fiercely intent on appropriating and exploiting the riches of the richest of all continents." Under President Theodore Roosevelt, he became the first head of the U.S. Forest Service and a strong voice for conservation (not to be confused with preservation; Gifford's conservation meant using nature but in such a way that it was not destroyed; his aim was "the greatest good of the greatest number in the long run"). By the 1930s, Aldo Leopold (1887–1948), best known for his concept of the "land ethic" and his book, *A Sand County Almanac* (1949), could argue that we had a responsibility not only to maintain the environment but also to repair damage done in the past.

The modern environmental movement was kick-started by Rachel Carson's *Silent Spring* (Houghton Mifflin,1962). In the 1950s, Carson realized that the use of pesticides was having unintended consequences—the death of non-pest insects, food-chain accumulation of poisons and the consequent loss of birds, and even human illness—and meticulously documented the case. When her book was published, she and her book were immediately vilified by pesticide proponents in government, academia, and industry (most notably, the pesticides industry). There was no problem, the critics said; the negative effects if any were worth it, and she—a *woman* and a non-scientist—could not possibly know what she was talking about. But the facts won out. A decade later, DDT was banned and other pesticides were regulated in ways unheard of before Carson spoke out.

Other issues have followed or are following a similar course.

The situation before Rachel Carson and *Silent Spring* is nicely captured by Judge Richard Cudahy, who in "Coming of Age in the Environment," *Environmental Law* (Winter 2000), writes, "It doesn't seem possible that before 1960 there was no 'environment'—or at least no environmentalism. I can even remember the Thirties, when we all heedlessly threw our trash out of car windows, burned coal in the home furnace (if we could afford to buy any), and used a lot of lead for everything from fishing sinkers and paint to no-knock gasoline. Those were the days when belching black smoke meant a welcome end to the Depression and little else."

Historically, humans have felt that their own well-being mattered more than anything else. The environment existed to be used. Unused, it was only wilderness or wasteland, awaiting the human hand to "improve" it and make it valuable. This is not surprising at all, for the natural tendency of the human mind is to appraise all things in relation to the self, the family, and the tribe. An important aspect of human progress has lain in enlarging our sense of "tribe" to encompass nations and groups of nations. Some now take it as far as the human species. Some include other animals. Some embrace plants as well, and bacteria, and even landscapes.

The more limited standard of value remains common. Add to that a sense that wealth is not just desirable but a sign of virtue (the Puritans brought an explicit version of this with them when they colonized North America; see Lynn White, Jr., "The Historical Roots of Our Ecological Crisis," *Science*, March 10, 1967), and it is hardly surprising that humans have used and still use the environment intensely. People also tend to resist any suggestion that they should restrain their use out of regard for other living things. Human needs, many insist, must come first.

The unfortunate consequences include the loss of other species. Lions vanished from Europe about 2000 years ago. The dodo of Mauritius was extinguished in the 1600s (see the American Museum of Natural History's account at http://www.amnh.org/exhibitions/expeditions/treasure_fossil/Treasures/Dodo/dodo.html?acts). The last of North America's passenger pigeons died in a Cincinnati zoo in 1914 (see www.amnh.org/exhibitions/expeditions/treasure_fossil/Treasures/Passenger_Pigeons/pigeons.html?acts). Concern for such species was at first limited to those of obvious value to humans. In 1871, the U.S. Commission on Fish and Fisheries was created and charged with finding solutions to the decline in food fishes and promoting aquaculture. The first federal legislation designed to protect game animals was the Lacey Act of 1900. It was not until 1973 that the U.S. Endangered Species Act was adopted to shield all species from the worst human impacts.

Other unfortunate consequences of human activities include dramatic erosion, air and water pollution, oil spills, accumulations of hazardous

(including nuclear) waste, famine, and disease. Among the many "hot stove" incidents that have caught public attention are the following:

- The Dust Bowl—in 1934 wind blew soil from drought-stricken farms in Oklahoma all the way to Washington, DC;
- Cleveland's Cuyahoga River caught fire in the 1960s;
- The Donora, Pennsylvania, smog crisis—in one week of October 1948, 20 died and over 7000 were sickened;
- The London smog crisis in December 1952—4000 dead;
- The Torrey Canyon, Exxon Valdez, and—most recently—the 2010 BP Macondo oil spills, which fouled shores and killed seabirds, seals, and fish;
- Love Canal, where industrial wastes seeped from their burial site into homes and contaminated ground water;
- Union Carbide's toxics release at Bhopal, India—3800 dead and up to 100,000 ill, according to Union Carbide; others claim a higher toll;
- The Three Mile Island, Chernobyl, and Fukushima nuclear accidents;
- The decimation of elephants and rhinoceroses to satisfy a market for tusks and horns;
- The loss of forests—in 1997, fires set to clear Southeast Asian forest lands produced so much smoke that regional airports had to close;
- Ebola, a virus which kills nine-tenths of those it infects, apparently first struck humans because growing populations reached into its native habitat;
- West Nile Fever, caused by transmission of a mosquito-borne virus with a much less deadly record, was brought to North America by travelers or immigrants from Egypt;
- Acid rain, global climate change, and ozone depletion, all caused by substances released into the air by human activities.

The alarms have been raised by many people in addition to Rachel Carson. For instance, in 1968 (when world population was only a little over half of what it is today), Paul Ehrlich's *The Population Bomb* (Ballantine Books) described the ecological threats of a rapidly growing population, and Garrett Hardin's influential essay, "The Tragedy of the Commons," *Science* (December 13, 1968) described the consequences of using self-interest alone to guide the exploitation of publicly owned resources (such as air and water). (In 1974, Hardin introduced the unpleasant concept of "lifeboat ethics," which says that if there are not enough resources to go around, some people must do without.) In 1972, a group of economists, scientists, and business leaders calling themselves "The Club of Rome" published *The Limits to Growth* (Universe Books), an analysis of population, resource use, and pollution trends that predicted difficult times within a century; the study was

redone as *Beyond the Limits to Growth: Confronting Global Collapse, Envisioning a Sustainable Future* (Chelsea Green, 1992) and again as *Limits to Growth: The 30-Year Update* (Chelsea Green, 2004), using more powerful computer models, and came to very similar conclusions; Graham Turner, "A Comparison of *The Limits to Growth* with Thirty Years of Reality," *Global Environmental Change* (August 2008), notes that the *Limits to Growth* projections have been very much on track with actual events.

Among the most recent books is Jared Diamond's *Collapse: How Societies Choose to Fail or Succeed* (Viking, 2005), which uses historical cases to illuminate the roles of human biases and choices in dealing with environmental problems. Among Diamond's important points is the idea that in order to cope successfully with such problems, a society may have to surrender cherished traditions.

The following list of selected U.S. and U.N. laws, treaties, conferences, and reports illustrates the national and international responses to the various cries of alarm:

1967 The U.S. Air Quality Act set standards for air pollution.

1968 The U.N. Biosphere Conference discussed global environmental problems.

1969 The U.S. Congress passed the National Environmental Policy Act, which (among other things) required federal agencies to prepare environmental impact statements for their projects.

1970 The first Earth Day demonstrated so much public concern that the Environmental Protection Agency (EPA) was created; the Endangered Species Act, Clean Air Act, and Safe Drinking Water Act soon followed.

1971 The U.S. Environmental Pesticide Control Act gave the EPA authority to regulate pesticides.

1972 The U.N. Conference on the Human Environment, held in Stockholm, Sweden, recommended government action and led to the U.N. Environment Programme.

1973 The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) restricted trade in threatened species; because enforcement was weak, however, a black market flourished.

1976 The U.S. Resource Conservation and Recovery Act and the Toxic Substances Control Act established control over hazardous wastes and other toxic substances.

1979 The Convention on Long-Range Transboundary Air Pollution addressed problems such as acid rain (recognized as crossing national borders in 1972).

1982 The Law of the Sea addressed marine pollution and conservation.