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The Ambivalent Triumph of Optimism

To increase—even to live—human populations require exploitable resources. Concern for the future of our children makes us wonder how long resources will last. Attitudes toward conservation depend largely on information furnished by the press, radio, and television. How good is this information? Mostly it is not very good. We don't have to probe the shoddier representatives of the press to illustrate the fine art of warping attitudes. A single example from a quality source will do.

How much petroleum is there in the world? This is not a simple question. Do we want to know the total amount of petroleum *resources*, both discovered and undiscovered? This is obviously debatable. A more useful base on which to lay plans for the near future is what is called *proved reserves*, which is defined as the supply "that can be economically produced with current technology at today's prices."

Before proceeding further it would be well to call attention to the confusibility of the terms *resources* and *reserves*. A creative writer who turned out a novel in which the two principal characters were named Jean Robinson and Jan Robertson would be criticized for causing needless confusion. Unfortunately the analysts of the real world frequently burden the public with terms that, though definitively different, scarcely differ to the eye and ear. Such are *resources* and *reserves*. These terms have been used for so long that they can hardly be jettisoned now. When a feeling of imminent confusion sweeps over the reader, he is urged to review the definitions in the preceding paragraph.

Even for reserves there is no precise and stable figure. A new technology may lower the cost of taking oil out of the ground. A rise in price will cause the ledger entry for some underground oil to be moved from the category of economically unrecoverable to that of economically recoverable. The scarcity that causes the price to rise "brings oil out of the ground," in the words of optimistic economists. Scarcity, in the mind of some economists, creates more oil. (Geologists know better.)

The price of oil is very sensitive to proved reserves, but decidedly insensitive to estimates of ultimate resources. (This difference tells us a great deal about human nature.) The official figure for proved reserves varies over time. Usually the estimate goes up a bit. Sometimes more than a bit—a fact almost invariably taken as an excuse for new expressions of optimism. Let's see how the Wall Street Journal treated one of these upward shifts in "proved reserves."

A headline on page 34 of the Journal for 9 February 1988 reads:

WORLD OIL RESERVES ROSE 27% IN YEAR
AS PRODUCER NATIONS BOOSTED ESTIMATES

The first two paragraphs of the 900-word report continue the optimistic note:

The world oil glut has suddenly got bigger, postponing the day of any severe shortages into the next century.

Based on authoritative new estimates, proved international oil reserves increased spectacularly within the past year—as much as 190 billion barrels, or 27%, despite the drilling downturn. That's enough new oil to satisfy global needs for an additional nine years, based on current use of 20 billion barrels annually.

What impression is left on the mind of the reader? He probably thinks that the human race found 190 billion barrels of oil during the past year, whereas the brutal fact is that the world used up and lost 20 billion barrels of oil during the year. The “finding” referred to occurred in account books kept by the Oil and Gas Journal, where 190 billion barrels were moved from the column for total (and unknown) oil *resources* to the column for oil *reserves*. In some fields of human endeavor this sort of wizardry is called “creative accounting.” What was created in this case was not oil but numerals in ledgers. (In international espionage this would be called “disinformation.”)

Yet the reporter says that “the supply increases puncture the widely held theory that the world is using up oil reserves faster than they are being replaced.” That's not quite right. The theory that is truly widely held by the knowledgeable is this: the world's oil *resources* are being used up faster than they are being replaced. Of that there is no shadow of doubt. At the very least, petroleum is being destroyed a million times faster than it is being synthesized by today's geological processes. It took hundreds of millions of years for nature to produce the present supply. It seems almost certain that we will have run through the economically recoverable reserves before the two hundredth anniversary of the Drake discovery well of 1859.

By the year 2059, will all the oil have been “used up”? No: there will still be oil in the ground at that time—billions of barrels of it. So long as petroleum is used primarily as a fuel, it is not the money price of oil but its energy price that will ultimately determine when the industry stops pumping. Assuming rationality prevails, that will be the day when the energy content of a barrel of oil “produced” will be less than the amount of energy that must be used to get the next barrel from the ground to the point of use. (A complete accounting must include the energy used in manufacturing the needed drilling equipment, in drilling the wells, in pumping the oil, and in refining, transporting, and distributing it.) If we act rationally—a preposterous assumption, perhaps—we will stop using oil when it takes 1,000 calories of energy to obtain a quantity of oil that yields only 999 calories. We will be damned fools if we authorize government subsidies to “producers” to pump fuel oil beyond that point.

It is surprising how many hard-headed businessmen live in a world of illusions created by deceptive words. The financial world habitually speaks of the yearly “production” of oil. But the unvarnished truth is this: *we human beings have never produced so much as a single barrel of petroleum.* We merely extract oil from the

ground and then destroy it. Only nature produces it—and at a very slow rate. Yet an oil analyst for Morgan Stanley & Company says that in the light of the latest figures it is “difficult to argue that running out of oil should be mankind’s principal concern.”

But what does the word “mankind” imply? (Forget, for the moment, the sexist issue.) Surely the word implies not only extension in space but also extension in time. “Mankind” extends backward farther than the beginning of agriculture, some ten thousand years ago; and forward (if we can avoid nuclear destruction) many tens of thousands of years. By contrast, the forward horizon of money managers (like those at Morgan Stanley) is seldom as much as ten years away. To survive indefinitely in good shape a nation must take as its advisers people who can see farther than investment bankers.

So where did this 27 percent “increase” in oil come from? An accompanying table in the newspaper shows that the increase claimed for four areas of the world was two percent or less during the year. Only two areas claimed a greater increase: the western hemisphere (22 percent) and the Middle East (41 percent). The Middle East is especially interesting.

Abu Dhabi *tripled* the estimates of its reserves, making them nearly twice the reserves claimed by the United States. And Iran doubled its estimated reserves, the government justifying its accounting by saying that the new figures “came from the highest authority—in the name of God.”

The *Journal* article that began on such a positive note did not inform its readers of the true source of the revised figures until the last three paragraphs. This was consistent with a tradition of journalism that calls for putting the major emphasis in the first paragraph, while consigning qualifications to the end of an article. Space limitations often force the makeup man to cut off the tail of a piece at the last minute. If this article had been cut from 900 words to 700, the reader would not have learned of the hanky-panky taking place in oil accounting in the Mid-East. A more disturbing thought: perhaps the original article was 1,200 words long? In which case, what essential information was confined to the 300 words no reader ever saw?

It is not the *policy* of good newspapers to distort the news; but the *rules* of journalism often have that effect. Rule 1: Catch the reader’s attention with the leading sentence. Rule 2: Optimism attracts more readers than pessimism. Rule 3: If a last minute cut must be made, chop off the tail. No matter how objective a journalist may be, these rules, acting together, create an optimistic bias in newspaper reports.

Headline writers also contribute to the distortion of the news. The headline is often written under great pressure of time. A headline writer is almost certain *not* to look at the tail of the article. The content of the first few sentences determines the thrust of the headline.

Had a scientist been given the task of writing the headline for the article on oil reserves, the result would have been something like the following:

THE WORLD NOW POORER BY
TWENTY BILLION BARRELS OF OIL
BUT IMAGINATIVE ACCOUNTING
“CREATES” GREAT INCREASE IN MID-EAST

Why did Abu Dhabi and Iran go on such a binge of creative accounting? Therein lies the real story, but the reporter missed it. And it is doubtful if many readers suspected a different story. Too many readers in our part of the world have been brainwashed in optimism.

It Pays to be Optimistic—No Matter What

One would like to believe that truth will win out in the end, that unjustified optimism will be unmasked, that realism (called “pessimism” by some) will finally prevail. But this may not happen. Faith in the ultimate victory of truth comes naturally to scientists—and to many others in our science-infected society. We love to recall John Milton’s stirring words in the *Areopagitica*: “Though all the winds of doctrine were let loose to play upon the earth, so Truth be in the field, we do injuriously by licencing and prohibiting to misdoubt her strength. Let her and Falsehood grapple: who ever knew Truth put to the worse in a free and open encounter?”

Noble and comforting these words may be, but they are only words. How strong are the “winds of doctrine”? If the wealth of vested interest accelerates one wind to gale force while the opposing wind is but a gentle zephyr is it so certain that “Truth” will prevail? Or, if it will do so “in the long run,” how long is *long*?

We need to place oil resources in the framework of human ecology. The optimist may assume that petroleum supplies will last forever; the pessimist says, *not so*. In the long run, of course, the pessimist is bound to be right. Certainly by the year 2059 petroleum will be a curiosity, too expensive to use as a source of energy (though as a source of ready-made exotic chemicals it may still be worth pumping out of the ground). The “end of oil” (as fuel) may even come a good many decades before 2059; but come it will. What happens in the meantime to the fortunes of optimist and pessimist as they let their expectations guide their actions?

In the near term—five or ten years—the optimist who uses oil as if it would never be exhausted will prosper. But the pessimist who refrains from using this cheap, convenient, and extinction-fated resource will be at a disadvantage competing with the optimist. “Truth,” competing with “Falsehood,” will actually be “put to the worse in a free and open encounter” *in the near term*. Perhaps for several decades the optimist will win out—getting richer, earning more prestige in the community, marrying better, and perhaps having more children than the pessimist. Several decades is the better part of a person’s working life.

The pessimist expects that the decrease in the total amount of oil will drive the price up, but for a long time his expectation may be falsified. A small price rise may stimulate a great deal of exploration, resulting in the finding of more oil. A large rise in price will stimulate a search for economies in the use of oil, which, if successful, will lower the demand and drive down the price. Thus is the pessimist made to look foolish—in the short run.¹

The optimist is frequently praised as a citizen who stimulates “development” in the community, while the pessimist (“wrong,” time after time) is taunted with cries of “Chicken Little!” Following every prediction but the last, the sky does *not* fall: this is the millstone that hangs around the neck of every publicity-seeking pessimist. In the extended historical period from 1859 to 2059 (or whenever the prac-

tical supply of fuel oil finally does come to an end), optimists prosper in every decade but the last. This fact of life explains why a respected management consultant has put the matter this way: "An entrepreneur is an optimist by definition."² Only at the end of an era do surviving pessimists have a chance to be recognized by their fellow citizens as being (finally) right, but it is not likely that they will then be praised for their foresight. (Anyway, most of the pessimists may be dead by the time they are proven right.)

The favorable treatment of optimists in a capitalistic, commercial society meshes well with the facts of biology. Consider what animal behaviorists have learned about chickens. You can't find a more impressive example of machismo incarnate than a strutting, brilliantly colored rooster. Apparently hens think so too: quantitative studies show that flamboyant roosters do most of the "treading." When the behavior and coloring of roosters is toned down by hormone injections, hens become less responsive sexually. Sexual selection favors machismo—which, in Darwinian terms, is why roosters behave the way they do.³

It is not too much to classify what we call "optimism" in the human species as a form of machismo (which need not be confined to one sex). Most of us, most of the time, find that consorting with optimists is more fun than hanging around with pessimists. Statistically speaking, optimists must have an advantage over pessimists in many lines of human activity, including reproduction. If so, natural selection must, in general, favor optimistic personalities over pessimistic ones. Publicists who bias their reports to the optimistic side are merely "doin' what comes naturally." Nature takes care of her own.

Can Optimism Be Overdone?

Social forces select in favor of adaptive changes in a business firm, but finally the firm goes bankrupt, becomes extinct. Why? Because the healthy optimism that caused a firm to prosper in its youth may finally become the excessive optimism that sinks the company in old age. One business consultant described the reactions of a "mature" business concern thus: "When things are going well, the average businessman assumes they will continue to go well. When a problem arises, he assumes it will go away quickly by itself. By the time he wakes up to the fact that he really has a problem, it's often too late to do anything about it."⁴ Dinosaurs become extinct; businesses go bankrupt; nothing lasts forever.

One can argue that bankruptcies wouldn't occur if businessmen only had enough foresight. True; but this "iffy" statement gets us nowhere. More important is the fact that *bankruptcy serves a social purpose*: it selectively eliminates the less competent business concerns, leaving their social function (whatever it is) in the hands of the more competent. It may be difficult for creditors and shareholders of a defunct concern to view bankruptcy with complacency, but a society that prevents bankruptcy soon gets into trouble. One of the weaknesses of a socialist state is precisely that it lacks an efficient equivalent of bankruptcy. Without such a mechanism, inefficiency flourishes and waste snowballs.

Overoptimism is tolerable in the world of private capitalism precisely because capitalism is a "profit *and* loss" system. The error of too much optimism at the level

of a firm can be corrected before it does irreparable damage to society as a whole. What is learned from the error of one firm can make society as a whole stronger.

But overoptimism among those who are in political control of the total system of society has other consequences. A totalitarian dictator in control of the Office of Public Information can hide, for a while, a substantive failure. But when public knowledge catches up with reality, a nearly mortally wounded society may find itself being shoved aside by other societies.

When Lyndon B. Johnson was president of the United States, one of his esteemed advisers was the political scientist W. W. Rostow, a man of unquenchable technological optimism. Asked about the consequences of all-out thermonuclear war, he brightly opined that one of the benefits of a nuclear leveling of Manhattan Island would be this: the first phase of urban renewal would thus be accomplished at no cost to the United States Treasury.⁵ To recast an old saying, with optimists like this, who needs pessimists? (We will hear more of Rostow later.)

The social value of optimism at the level of firms-within-a-nation is different from its value when the nation is the unit of selection. This is an example of what is called the *scale effect*, of which we will find many instances as we continue inquiring into the complexities of population. Many stupid actions taken by society could be avoided if more people were acutely aware of scale effects. Whenever the scale is shifted upward, one should always be alert for possible contradictions of the conventional wisdom that served so well when the unit was smaller. Optimism that is of survival value at the level of the firm may be fatal at the level of the nation as a whole. Failure of the electorate to appreciate scale effects can put the survival of a democratic nation in jeopardy. When all the candidates for president sound like gung-ho business promoters, what chance is there for reality thinking to prevail? When all politicians are hucksters of unqualified optimism, what hope is there for that open encounter of truth and falsehood that Milton praised? Unlimited optimism is a dangerous drug.

Beyond Optimism

Few characteristics more surely mark the true professional than his ability to distrust the tools he works with. Among the scholar's tools not the least hazardous are words. Because multitudes happily use words without worrying about them, it does not follow that a single word stands for a single thing—or indeed for anything at all. More: a person who thinks long and intensively about a subject often becomes convinced that he is working with things for which there are no words. At that point he may coin new words (which may or may not help).

The Latin words *maximum* and *minimum* had existed for many centuries when the philosopher Leibniz felt the need for another word to indicate “the maximum good” (which could be either the maximum of a good thing or the minimum of a bad one). So, in 1710, he coined the word *optimum* to stand for this concept.

Leibniz needed the new term to give rhetorical punch to his contention that ours “is the best of all possible worlds,” a view that was satirized by Voltaire in 1758 in his sprightly novelette *Candide*. In 1737, some Jesuits tried to damn Leibniz's sunny view by labeling it “optimism.” Then, as now, the suffix *-ism* was often added

with pejorative intent. (Consider the words *racism* and *sexism* in our own time: they certainly are not complimentary terms.) “Optimism,” however, has grown away from its uncomplimentary origin and is now deemed desirable by most people.

After Leibniz it was inevitable that the opposing term *pessimism* would soon be coined. The *Oxford English Dictionary* cites the poet Coleridge as the earliest user. This was in 1794—just in time, one might say, to be applied to Malthus’s famous essay on population (1798), which most people regard as supremely pessimistic. In true Buddhist fashion Malthus uncovered some of the causes of human sorrow, and tried to show that there are ways to become free of it. But few of those who damn Malthus have ever read extensively in his works. Trained as a minister in the Church of England, Malthus became an economist through self-education. After his death, the essayist Carlyle (in 1849) called economics “the Dismal Science.” And many people today think of the population portion of economics as the utterly dismal science.

Suppose the words *optimism* and *pessimism* had never been coined: would we be worse off? Words are convenient handles for dealing with facts; but the handles sometimes cause us to miss seeing the factual complexities to which they are attached. Every use of a classificatory term is an exercise in prejudice—an act of *prejudgment*. To recognize this you have only to listen to an argument in which the discussants bombard one another with the words *racism*, *fascism*, *communism*, *sexism*, *ethnocentrism*, and *bigotry*. Substantive issues are shortchanged in the excitement of hurling verbal spitballs.

Is population a dismal subject? Are the substantive facts of population pessimistic? Much depends on what you regard as the essential Malthusian doctrine. The title of Malthus’s book is *An Essay on the Principle of Population*, but he never bothered to tell us what *the* principle is. His silence has generated confusion ever since.

It is widely held that Malthusianism—note the pejorative *-ism*—leads to some such conclusion as this: “The growth of population will ultimately lead to universal disaster for the human race.” If that is a true and inescapable extraction from the facts, then the Malthusian theory is definitely gloomy.

A more defensible summary of population theory, however, would be something like the following: Disaster is a natural outcome of perpetual population growth, but disaster can be forestalled if society can find the will to put an end to population growth. Such a statement is only provisionally gloomy—in which case one might just as well say that it is provisionally cheerful.

Before we can discover the needed corrective measures we must change our image of the world we live in, making it correspond more closely to reality. For too long our “instinctive” reactions have presumed an uncrowded frontier that is forever open. Now that the wide open frontier is no more, we must make our behavior fit the reality of a limited earth. Continued population growth will produce an increasingly more crowded world. “Spaceship earth” is more than a metaphor.