

ROBERT A. HEINLEIN

Channel Markers

Editor's Note: On April 5, 1973, Robert A. Heinlein delivered the James Forrestal Memorial Lecture to the Brigade of Midshipmen at his alma mater, the U.S. Naval Academy at Annapolis. While every science-fiction reader knows Heinlein through his stories, where his characters often speak from many different points of view, here he speaks in his own person, about writing, about science fiction, and about the things in life that he considers to be most important.

Introduction by the Midshipman "Six-Striper": . . . a speaker who is not "A Stranger in a Strange Land."

Mr. Heinlein: Thank you, Brigade Commander—and "It's Great to Be Back," too!

Admiral and Mrs. Mack, Ladies and Gentlemen, Young Gentlemen of the Brigade—

For years I have refused all requests to speak . . . but when I was asked to speak at my alma mater I accepted at once—and caught myself in a bight, for I learned that I was expected to talk about science fiction, its impact on American society, and my experiences concerning it.

But I never discuss my stories and I am still more reluctant to discuss the work of my colleagues. As for the impact of speculative fiction, I am too close to the center to judge. And how can an author have experiences in connection with his work? He works alone, no company but a typewriter. About all that could happen to him would be an earthquake.

Let's see if the subject is something you want to hear about—How many of you ever read science fiction? Hands, please.

All right, I'll talk about science

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fiction . . . but I'll get in a few licks at the end on what *I* want to talk about.

Now who of you here tonight has read anything that I have written? Hands up again, please.

Thank you.

One more datum, please—How many of you are interested in writing for publication? May I see hands again?

Oh, come now, you're not being frank with me. Thousands of contacts with the public over more than thirty years cause me to estimate the number of aspirant writers among the adults of this country at fifty percent—or more. It is impossible that a group this large, all adult and all literate, could have so few in it who want to write. I can tell you in less than fifty words how to get published . . . but if you are too shy to admit that you are interested in writing and publishing what you write, I won't bother.

Let's try again. How many are interested in writing for publication? I won't talk if only a handful want to hear. Let's see hands.

All right, that's enough to justify discussing it. The rest of you are invited to dope off and think about the gatefold in *Playboy*.

Five Rules for Success in Writing:

First: You must *write*.

Second: You must *finish* what you write.

Third: You must refrain from re-writing except to editorial order.

Fourth: You must place it on the market.

Fifth: You must *keep* it on the market until sold.

That's all. That's a sure-fire formula for getting anything—anything at all!—published. But so seldom does anyone follow all five rules that the profession of writing is a soft touch for those who do—even though most professional writers are not too bright, not too wise, not too creative. For these rules work in series, not in parallel. If you bilge any one of them, you bilge completely—and your writing will not be published.

Let's see how they work. I said that half of the adult, literate population claim to want to write. Call that half of a hundred million. So we start with fifty million people.

Nine out of ten who *say* they want to write never get around to it. That leaves five million.

Not more than one in ten who start to write something ever finish what they start—finish it completely: corrected, typewritten, double-spaced, one side of the paper in standard format. That leaves—at most—five hundred thousand.

Of those who do finish a manuscript, nine-tenths of them won't leave well enough alone. They start fiddling with it, rewriting, polishing, changing . . . until they have squeezed the life out and lose interest. Now we are down to fifty thousand.

Most of these survivors don't send their work off to an editor. Oh, no!—that involves the chance of failure and they're not ready to face *that*. Writers—all writers including scarred old professionals—are inordinately fond of their brainchildren. They would rather see their firstborn child ravaged by wolves than suffer the pain of having a manuscript rejected. So instead they read their manuscripts aloud to spouses and long-suffering friends.

This leaves only five thousand survivors who actually send their work to market.

So off it goes to an editor—

—and back it comes with a rejection slip.

This is very painful to the ego.

The usual amateur stops right there. He is so discouraged that he puts away his manuscript and forgets it.

Or he might send it out once more. The second rejection is even more painful than the first. It takes real stubbornness to send it out a third time. Only a handful will send a manuscript out four times. A still smaller number will keep on sending it out, as many times as necessary, until it sells.

For it *will* sell. If a manuscript has any merit at all and its author keeps on trying, eventually it will sell. Some editor will find himself facing a deadline with blank pages still to be filled. He reaches into the slush pile and pulls out this

manuscript that he recalls as being bad but not utterly hopeless, re-reads it, and thinks, "Well, if I cut out that useless first page and start with the action—then tighten up the ending, cut out all those adjectives—then blue-pencil this description of weather—it would just about fit. Peggy! Send this bloke form letter number two, the one that lets me cut to fit—and add that paragraph about how we would like to see more of his work but not more than forty-five hundred words."

So now our hopeful is a published writer . . . and if he has been as stubborn in continuing to write as he has been about keeping his work on the market, he will have some manuscript that has been rejected several times but which he finds he can cut from seven thousand words to forty-five hundred—and does and finds that the cut version reads much better . . . and thereby begins to learn a most important lesson in the writing trade: that any manuscript is improved if you cut away the fat.

This last of five go-no-go gauges has eliminated another ninety percent. We started with fifty million; we now have only five hundred survivors.

These figures are substantially true. A few years ago my guild, the Authors League of America, made a survey to locate all professional writers. We found only four hundred who stated that they supported themselves and their fam-

ilies solely by free-lance writing. All the others had some other basic income.

Let's allow for population increase and for any the survey missed—not many, the real professionals have their names plastered all over the newsstands; they can't hide. So call it a maximum of five hundred.

Only five hundred making their livings at free-lance writing out of a population of over two hundred million. Less than one in four hundred thousand.

Yet I said that free-lance writing is a soft touch. It is. Do you know of any other occupation in which a man can be his own boss, with no capital investment, no employees to worry about, no payroll to meet, no hours to keep, no need to meet the public other than when and where and how it suits him, live anywhere he wants to, dress as he pleases, work only three or four months out of the year, take long, long vacations—and still make a very comfortable living?

What he *does* have to do is to follow those rules, every one of them, every time, without fail—and keep on following them, for year after year after year.

It means working when you don't feel like working, even though there is no one to tell you that you must. It means following these rules even when you are disheartened by a long string of rejections and your head aches and your

stomach is upset—and your wife thinks you are a fool not to look for a job. It means refusing to see your best friends when you are writing. It means telling your wife and children to get out of your study and *stay* out! It means offending people who can't understand that writing must *not* be interrupted—not for dinner parties, not for birthdays, not even for Christmas. It means getting a reputation as a bad-tempered, self-centered curmudgeon—and resigning yourself to living with that reputation no matter how eagerly you want to be liked—and writers do want to be liked, else they would not be trying to reach people through writing.

I probably haven't convinced you that those five rules are all it takes. But they are the business rules of anyone who makes anything and offers it for sale. Take a cabinetmaker specializing in handmade furniture. He must make furniture and he must complete each piece he makes. He never tears up a chair he has finished because he has thought of a better design. No, he offers that chair for sale and uses the new design to build another—this is the “no rewriting” rule.

Having finished a chair, he puts it on display and keeps it there until sold. At worst, he'll mark it down and put it in his bargain basement—and a writer does the same thing with a manuscript that

fails to sell to high-pay markets; he puts his cheap-rate pen name on it and sends it to the endless low-pay markets . . . with no tears; words are worth whatever the market will pay—no more, no less.

A beginner finds hard to believe that no-rewriting rule. A myth has grown up that a manuscript to be suitable for publication must be rewritten at least once.

Utterly false!

Would you refry an egg? Tear down a freshly built wall? Destroy a new chair? Ridiculous!

This silly practice of rewriting is based on the hidden assumption that you are smarter today than you were yesterday. But you are *not*. The efficient way to write, as with any other work, is to *do it right the first time!*

I don't mean that a manuscript should not be corrected and cut. Few writers are perfect in typing, spelling, punctuation, and grammar. Most of us have to go back and correct such things, and—above all!—strike out surplusage and fancy talk. The manuscript then needs to be retyped—for neatness; retyping is not rewriting. Rewriting means a new approach, a basic change in form.

Don't do it!

A writer's sole capital is his time. You cannot afford to start writing until you know what you mean to say and how you mean to say it. If you fail in this, it is not paper you are wasting but your sharply lim-

ited and irreplaceable lifetime.

An instructor in English who requires a student to rewrite is reinforcing the worst possible habit in the use of language, the inability to say it right the first time. If the student thus abused is a midshipman, he may wind up the sort of officer who can't write a letter or a report without making half a dozen false drafts. The Navy does not have time for such nonsense. Efficient use of language is an indispensable tool of the naval profession. Under battle conditions it can make the difference between success and disaster.

The most valuable course I took here was one called "Order Writing." Its emphasis was on clarity. When a section met, each midshipman drew a slip which outlined a situation and told him what he was—task force commander, ship's captain, whatever. He had a few minutes to study it, then was required to write on the blackboard an order to fit the situation, then he was under fire from all sides. No rewriting, no second chance—if the instructor or any midshipman in the section could find any plausible way to misconstrue that order, his mark for the day was zero. Otherwise it was 4.0—nothing in between.

It was a *wonderful* course!

I think I have time to say one word about classes in "creative writing."

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GUEST EDITORIAL

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That one word is: *Don't!*

Creativity cannot be taught. One may teach grammar and composition; it is not possible to teach creative writing and any person who claims to do so is a fake. Creative artists are never taught; they invariably teach themselves. You can teach a young artist the tools of his trade; you cannot teach him to create. Nobody taught Shakespeare, or Mark Twain, or Edgar Allan Poe—or Erle Stanley Gardner or Rex Stout—and no one can teach *you*.

Science fiction—I don't write it because I am addicted to it; I am not. I've written and sold all sorts of things, technical articles, journalistic nonfiction, television scripts, detective stories, screenplays, adventure stories, even teen-age love stories told in female first person. But I usually write science fiction because it turned out that I made more money that way. I did not become a writer to see my name in print; I didn't give a hoot about that and had no literary ambitions. I was a naval officer by choice; I became a writer by economic necessity. I needed to pay off a mortgage and started writing to get the money. I was in poor health and could not handle a steady job—nor were there any jobs; I was disabled out of the Navy during the Great Depression, a time when lawyers

were driving milk trucks and graduate engineers were working as janitors.

But poor health is no great handicap to a free-lance writer; he does his important work in his head and he can do that in bed. If he can sit at a typewriter a few hours a day a few weeks out of the year, that's enough. If he can get someone else to type for him, he need not get out of bed at all.

You don't have to be laid up to be a writer but a large percentage of writers *are* handicapped, and still more became writers because ill health or some other handicap cut them off from more active jobs. H.G. Wells started because pulmonary tuberculosis made him unable to continue as a teacher. Robert Louis Stevenson started out to be an engineer, then was forced into his brilliant writing career by chronic ill health. Cyrano de Bergerac—the man with the nose—is one of the many military men who turned to writing after being disabled in combat—and his novel "La Voyage à la Lune" is the first case of a science-fiction writer using rocket propulsion for a spacecraft. A man in the class of '22 was disabled out about when I was and started selling sea stories. Another one, a World War One mustang, was retired for cancer. In the five years it took him to die, he taught himself to write and sold some sixty stories, science fiction based on his naval experience. I knew a

civil engineer who broke his back during the construction of the Golden Gate Bridge and turned to writing adventure stories after he was crippled. And a polio victim crippled in both legs and one arm—but he could turn out seventy words a minute of clean copy with two fingers of his right hand. A classmate of mine was let out as a midshipman for heart trouble—and a heart attack killed him—but in the meantime he supported himself for thirty years as a writer. Booth Tarkington dictated several of his best sellers after he was blind.

I don't think anyone knows what the percentage is of writers crowded into the trade by such causes. But being unable to work at a regular job is a great incentive in forming those habits necessary to success in writing. *It teaches one also a great respect for the reader.* The ultimate cash customer must be pleased, or there is no repeat trade. An author must acquire humility about this. What he has for sale is a luxury; no one has to buy it.

I think of it as competing for beer money; this keeps me steady on course. My purpose is to make what I write entertaining enough to compete with beer. Not to be as great as Shakespeare or as immortal as Homer but simply to write well enough to persuade the cash customer to spend money on one of my paperback reprints when he could spend it on beer.

I ask myself: Does this entertain *me*? Does it amuse me enough that, if I found it on a newsstand, I would be willing to pay cash to read it?

Or does it bore me?

If it bores me, I don't write it.

But what *you* write and how *you* say it, is up to *you*, and no one else.

I am indebted to my wife for this definition of "plot." "Plot," she told me, "is something thought up by professors of English to explain something that writers do anyhow."

There may be authors who plot their stories; I have never met one. Oh, an author often outlines what he intends to write. He may refer to that outline as his "plot." But I've never heard of a working author who worried about such things as "catastrophe" and "denouement" and "incitement" and "complications" and "dramatic unities" and suchlike fancy notions—nor will he let his written outline be a Procrustean bed. He *can't*. Once those characters come alive, once he can hear their voices, they live their own lives, they do as they please—and they kick that outline to pieces.

This is not just my own experience; I have heard it over and over again from other working authors.

For example: A few weeks ago we were shipmates with Miss Katherine Ann Porter, author of "The Ship of Fools." That story is three

or four times as long as most novels. I asked Miss Porter if she had planned to write so long a story.

She answered, "Oh, heavens, no! I had a contract to write three 20,000-word stories.—I wrote the first two, then I had trouble with the third. I finally had to tell the publisher that I simply could not meet the contract for the third one—the characters were living their own lives and I had to let them do so."

Back to science fiction—More than ninety percent of all science fiction is trash. This is an example of Sturgeon's Law: ninety percent of everything is trash. Certainly this is true of the arts; take a look around you. Plays, motion pictures, poetry, music, sculpture, painting, writing—almost all of it is trash.

And this has always been true. For every Beethoven and Michelangelo and Rembrandt there were at least a dozen competitors doing well enough to make a living but whose work did not survive the test of time.

The same is true of science fiction. H.G. Wells wrote most of his science fiction three-quarters of a century ago—and those stories are still read: "The Invisible Man," "The War of the Worlds," "The Time Machine"—they are in every public library, available in book stores, often seen on newsstands. But what of the Frank Reade series, published at the same time,

extremely popular and all of them science fiction? Who reads them today? Who has even heard of them?

We find the same range in today's science fiction, from comic strips of the Buck Rogers sort to novels such as George Orwell's "1984" and Aldous Huxley's "Brave New World."

How many of you have heard of one book or the other—either "1984" or "Brave New World"? Hands up, please.

Thank you. How many have read one or the other of these books? Good. How many have read both "1984" and "Brave New World"?

Thank you. I think the ghosts of Mr. Orwell and Mr. Huxley have reason to be pleased; one book was published twenty-five years ago, the other just over forty. With thirty thousand new titles published each year it is hard to remember even the best sellers of five or ten years ago. Yet these two books are still fresh, still influential. Each makes us think, and the grim warnings in each are even more urgent today than when first published.

And both are acceptable as English literature.

And both are hard-core science fiction.

What *is* science fiction?

It is not prophecy. Despite the endless list of things which have appeared in science fiction before they were physical realities—radar,

submarines, television, automobiles, tanks, flying machines, spacecraft, communication satellites, organ transplants, giant computers, atomic bombs, nuclear power—you name it—science fiction is not prophecy.

Nor is it fantasy—even though critics ignorant of science often have trouble telling the two apart. I am not running down fantasy; I enjoy it and sometimes write it. But fantasy is not science fiction.

Science fiction is *realistic* fiction.

An analogous sort of nonfiction are the projections into the future called “scenarios,” produced by such as the Hudson Institute, the Club of Rome, and the Rand Corporation. They start with the real world and attempt to extrapolate the possibilities of our future history.

They ask themselves questions of the “What if—?” sort. What if a dozen or so of the less stable nations get atomic weapons? What if we lose the Panama Canal? What if someone develops a Domsday Machine and it winds up in the hands of a dictator as crazy as Hitler? What if we are cut off from oil from the Mideast? What if China or Russia attempts a preemptive strike at the other?

These futurologists work in teams, using computers and many other aids.

A serious science-fiction writer must attempt the same sort of thing, starting with the real world and asking “What if—?” But in-

stead of being a team of political scientists and military experts and physicists and psychologists and demographers, he must do it alone . . . then turn his scenario into a story which will entertain a reader—thousands of readers—or he has failed no matter how logically he has extrapolated the present into the future.

To do this—to write speculative fiction and have it make sense—a science-fiction writer must start with a wide and solid foundation of facts. He needs thorough grounding in history—all countries, all cultures, ancient and modern. Geography—physical and political and economic—and this should be made real in his mind by travel, every continent and as many countries as possible. Law—he must learn as much as he can about law—from Hammurabi’s Tablets on down through Justinian’s Code and Blackstone and Code Napoleon and the Geneva Convention to the People’s Courts in Communist countries and how they differ from our own.

Literature, languages—a man who knows only his own language doesn’t really know any language. Science—he needs to be widely read in *all* sciences: biochemistry, meteorology, nuclear physics, descriptive astronomy, cosmogony and geogony, demography, anthropology, many more. He needs to know the philosophy of science, the nature of the scientific method, the

difference between a natural law and a currently accepted theory. Mathematics—while even a professional mathematician can't keep up with all the new developments, nevertheless a serious writer of science fiction should be sufficiently at home with the language of science—mathematics—that neither Gödel's Proof nor the methods of statistical analysis are strangers to him, nor Boolean algebra, nor multidimensional non-Euclidean geometry.

Engineering and technology—a man can't make intelligent projections into the future unless he knows present-day technology.

The man I am describing does not exist. I defined the Renaissance Man, who made the entire field of human knowledge his sphere. But it has been a long time since that was possible. Technology alone, by a conservative estimate, now doubles every ten years and has been doing so at least since World War Two. No man can keep up with such a flood of data.

Is it any wonder that ninety percent of all science fiction is trash?

Or that respected novelists of the contemporary scene almost always trip in their own ignorance if they try science fiction?

The surprising thing is that a small percentage of science fiction is *not* trash.

The situation is not as hopeless as I described it. A man who spends most of his time studying

can make a stab at keeping up with the enormous mass of knowledge needed as a foundation for writing intelligent science fiction. But he must *enjoy* studying—anything and everything. Card games don't tempt him; he turns on television only when there is something he *needs* to see; he may go to one movie a year. But he finds Mark's Handbook fascinating and the World Almanac delightful.

I have met most of the best writers of speculative fiction of this century. Without exception I have found them to be men of insatiable curiosity about *everything*. For example, one of them—still alive and writing; I heard him lecture a few weeks ago—read the Encyclopaedia Britannica all the way through while an undergraduate . . . then read it through again while taking his doctorate—which surprised me; he doesn't usually need to read anything twice.

In his spare time he supported himself—writing science fiction.

Is it surprising that this man's science fiction is always sensible, solidly grounded on the real world, no matter how wild his speculations may seem?

If you want to write and have insatiable curiosity, science fiction may be your dish.

Science fiction does have one superiority over all other forms of literature: It is the *only* branch of literature which even attempts to cope with the real problems of this

fast and dangerous world. All other forms don't even try. In this complex world, science, the scientific method, and the consequences of the scientific method, are central to everything the human race is doing and to wherever we are going. If we blow ourselves up, we will do it by misapplication of science; if we manage to keep from blowing ourselves up, it will be through intelligent application of science. Science fiction is the only form of fiction which takes into account this central force in our lives and futures. Other sorts of fiction, if they notice science at all, simply deplore it—an attitude very chic in the anti-intellectual atmosphere of today. But we will never get out of the mess we are in by wringing our hands.

The clock is pushing me. Let me leave you with one flat-footed prediction of the science-fiction type. Like all scenarios this one has assumptions—variables treated as constants. The primary assumption is that World War Three will hold off long enough—ten, twenty, thirty years—for this prediction to work out . . . plus a secondary assumption that the human race will not find some other way to blunder into ultimate disaster.

Prediction: In the immediate future—by that I mean in the course of the naval careers of the class of '73—there will be nuclear-powered, constant-boost spaceships—ships capable of going to Mars and back in a couple of weeks—and these ships

will be armed with Buck-Rogerish death rays. Despite all treaties now existing or still to be signed concerning the peaceful use of space, these spaceships will be used in warfare. Space navies will change beyond recognition our present methods of warfare and will control the political shape of the world for the foreseeable future. Furthermore—and still more important—these new spaceships will open the Solar System to colonization and will eventually open the rest of this galaxy.

I did *not* say that the United States will have these ships. The present sorry state of our country does not permit me to make such a prediction. In the words of one of our most distinguished graduates in his "The Influence of Sea Power on History": "Popular governments are not generally favorable to military expenditures, however necessary—"

Every military officer has had his nose rubbed in the wry truth of Admiral Mahan's observation. I first found myself dismayed by it some forty years ago when I learned that I was expected to maintain the ship's battery of USS *Roper* in a state of combat readiness on an allowance of less than a dollar a day—with World War Two staring down our throats.

The United States is capable of developing such spaceships. But the mood today does not favor it. So I am unable to predict that we will

be the nation to spend the necessary R&D money to build such ships.

(Addressed to a plebe midshipman:)

Mister, how long is it to graduation?

Sixty-two days? Let's make it closer than that. I have . . . 7.59, just short of eight bells. Assuming graduation for ten in the morning that gives . . . 5,220,860 seconds to graduation . . . and I have less than 960 seconds in which to say what I want to say.

(To the Brigade at large:)

Why are you here?

(To a second plebe:)

Mister, why are *you* here?

Never mind, son; that's a rhetorical question. You are here to become a naval officer. That's why this Academy was founded. That is why all of you are here: to become naval officers. If that is *not* why *you* are here, you've made a bad mistake. But I speak to the overwhelming majority who understood the oath they took on becoming midshipmen and look forward to the day when they will renew that oath as commissioned officers.

But why would anyone want to become a naval officer?

In the present dismal state of our culture there is little prestige attached to serving your country; recent public opinion polls place military service far down the list.

It can't be the pay. No one gets rich on Navy pay. Even a four-star

admiral is paid much less than top executives in other lines. As for lower ranks the typical naval officer finds himself throughout his career just catching up from the unexpected expenses connected with the last change of duty when another change of duty causes a new financial crisis. Then, when he is about fifty, he is passed over and retires . . . but he can't really retire because he has two kids in college and one still to go. So he has to find a job . . . and discovers that jobs for men his age are scarce and usually don't pay well.

Working conditions? You'll spend half your life away from your family. Your working hours? "Six days shalt thou work and do all thou art able; the seventh the same, and pound on the cable." A forty-hour week is standard for civilians—but not for naval officers. You'll work that forty-hour week but that's just a starter. You'll stand a night watch as well, and duty weekends. Then with every increase in grade your hours get longer—until at last you get a ship of your own and no longer stand watches. Instead you are on duty twenty-four hours a day . . . and you'll sign your night order book with: "In case of doubt, do not hesitate to call me."

I don't know the average week's work for a naval officer but it is closer to sixty hours than to forty. I'm speaking of peacetime, of course. Under war conditions it is

whatever hours are necessary—and sleep you grab when you can.

Why would anyone elect a career which is unappreciated, overworked, and underpaid? It can't be just to wear a pretty uniform. There has to be a better reason.

As one drives through the bushveldt of East Africa it is easy to spot herds of baboons grazing on the ground. But not by looking at the ground. Instead you look up and spot the lookout, an adult male posted on a limb of a tree where he has a clear view all around him—which is why you can spot him; he has to be where he can see a leopard in time to give the alarm. On the ground a leopard can catch a baboon . . . but if a baboon is warned in time to reach the trees, he can outclimb a leopard.

The lookout is a young male assigned to that duty and there he will stay, until the bull of the herd sends up another male to relieve him.

Keep your eye on that baboon; we'll be back to him.

Today, in the United States, it is popular among self-styled "intellectuals" to sneer at patriotism. They seem to think that it is axiomatic that any civilized man is a pacifist, and they treat the military profession with contempt. "Warmongers," "Imperialists," "Hired killers in uniform"—you have all heard such sneers and you will

hear them again. One of their favorite quotations is: "Patriotism is the last refuge of a scoundrel."

What they never mention is that the man who made that sneering wisecrack was a fat, gluttonous slob who was pursued all his life by a pathological fear of death.

I propose to prove that that baboon on watch is morally superior to that fat poltroon who made that wisecrack.

Patriotism is the most practical of all human characteristics.

But in the present decadent atmosphere patriots are often too shy to talk about it—as if it were something shameful or an irrational weakness.

But patriotism is *not* sentimental nonsense. Nor something dreamed up by demagogues. Patriotism is as necessary a part of man's evolutionary equipment as are his eyes, as useful to the race as eyes are to the individual.

A man who is *not* patriotic is an evolutionary dead end. This is not sentiment but the hardest sort of logic.

To prove that patriotism is a necessity we must go back to fundamentals. Take any breed of animal—for example, *Tyrannosaurus rex*. What is the most basic thing about him? The answer is that *Tyrannosaurus rex* is dead, gone, extinct.

Now take *Homo sapiens*. The first fact about him is that he is not extinct, he is alive.

Which brings us to the second fundamental question: Will *Homo sapiens* stay alive? Will he survive?

We can answer part of that at once: Individually *H. sapiens* will *not* survive. It is unlikely that anyone here tonight will be alive eighty years from now; it approaches mathematical certainty that we will all be dead a hundred years from now as even the youngest plebe here would be a hundred and eighteen years old then—if still alive.

Some men do live that long but the percentage is so microscopic as not to matter. Recent advances in biology suggest that human life may be extended to a century and a quarter, even a century and a half—but this will create more problems than it solves. When a man reaches my age or thereabouts, the last great service he can perform is to die and get out of the way of younger people.

Very well, as individuals we all die. This brings us to the second half of the question: Does *Homo sapiens* as a breed have to die? The answer is: No, it is *not* unavoidable.

We have two situations, mutually exclusive: Mankind surviving, and mankind extinct. With respect to morality, the second situation is a null class. An extinct breed has *no* behavior, moral or otherwise.

Since survival is the *sine qua non*, I now define “moral behavior” as “behavior that tends toward sur-

vival.” I won’t argue with philosophers or theologians who choose to use the word “moral” to mean something else, but I do not think anyone can define “behavior that tends toward extinction” as being “moral” without stretching the word “moral” all out of shape.

We are now ready to observe the hierarchy of moral behavior from its lowest level to its highest.

The simplest form of moral behavior occurs when a man or other animal fights for his own survival. Do not belittle such behavior as being merely selfish. Of course, it is selfish . . . but selfishness is the bedrock on which all moral behavior starts and it can be immoral only when it conflicts with a higher moral imperative. An animal so poor in spirit that he won’t even fight on his own behalf is already an evolutionary dead end; the best he can do for his breed is to crawl off and die, and not pass on his defective genes.

The next higher level is to work, fight, and sometimes die for your own immediate family. This is the level at which six pounds of mother cat can be so fierce that she’ll drive off a police dog. It is the level at which a father takes a moonlighting job to keep his kids in college—and the level at which a mother or father dives into a flood to save a drowning child . . . and it is still moral behavior even when it fails.

The next higher level is to work,

fight, and sometimes die for a group larger than the family unit—an extended family, a herd, a tribe—and take another look at that baboon on watch; he's at that moral level. I don't think baboon language is complex enough to permit them to discuss such abstract notions as "morality" or "duty" or "loyalty"—but it is evident that baboons *do* operate morally and *do* exhibit the traits of duty and loyalty; we see them in action. Call it "instinct" if you like—but remember that assigning a name to a phenomenon does not explain it.

But that baboon behavior can be explained in evolutionary terms. Evolution is a process that never stops. Baboons who fail to exhibit moral behavior do not survive; they wind up as meat for leopards. Every baboon generation has to pass this examination in moral behavior; those who bilge it don't have progeny. Perhaps the old bull of the tribe gives lessons . . . but the leopard decides who graduates—and there is no appeal from his decision. We don't have to understand the details to observe the outcome: Baboons behave morally—for baboons.

The next level in moral behavior higher than that exhibited by the baboon is that in which duty and loyalty are shown toward a group of your own kind too large for an individual to know all of them. We have a name for that. It is called "patriotism."

Behaving on a still higher moral level were the astronauts who went to the Moon, for their actions tend toward the survival of the entire race of mankind. The door they opened leads to the hope that *H. sapiens* will survive indefinitely long, even longer than this solid planet on which we stand tonight. As a direct result of what they did, it is now possible that the human race will *never* die.

Many shortsighted fools think that going to the Moon was just a stunt. But the astronauts knew the meaning of what they were doing, as is shown by Neil Armstrong's first words in stepping down onto the soil of Luna: "One small step for a man, one giant leap for mankind."

Let us note proudly that eleven of the Astronaut Corps are graduates of this, our school.

And let me add that James Forrestal was the *first* high-ranking Federal official to come out flatly for space travel.

I must pause to brush off those parlor pacifists I mentioned earlier . . . for they contend that *their* actions are on this highest moral level. They want to put a stop to war; they say so. Their purpose is to save the human race from killing itself off; they say that too. Anyone who disagrees with them must be a bloodthirsty scoundrel—and they'll tell you that to your face.

I won't waste time trying to judge their motives; my criticism is of their mental processes. Their heads aren't screwed on tight. They live in a world of fantasy.

Let me stipulate that, if the human race managed its affairs sensibly, we could do without war.

Yes—and if pigs had wings, they could fly.

I don't know what planet those pious pacifists are talking about but it can't be the third one out from the Sun. Anyone who has seen the Far East—or Africa—or the Middle East—knows or certainly should know that there is *no* chance of abolishing war in the foreseeable future. In the past few years I have been around the world three times, traveled in most of the Communist countries, visited many of the so-called emerging countries, plus many trips to Europe and to South America; I saw nothing that cheered me as to the prospects for peace. The seeds of war are everywhere; the conflicts of interest are real and deep, and will not be abolished by pious platitudes.

The best we can hope for is a precarious balance of power among the nations capable of waging total war—while endless lesser wars break out here and there.

I won't belabor this. Our campuses are loaded with custard-headed pacifists but the yard of the Naval Academy is one place where I will not encounter them. We are in agreement that the United States

still needs a navy, that the Republic will always have need for heroes—else you would not be here tonight and in uniform.

Patriotism—moral behavior at the national level. *Non sibi sed Patria*. Nathan Hale's last words: "I regret that I have but one life to give for my country." Torpedo Squadron Eight making its suicidal attack. Four chaplains standing fast while the water rises around them. Thomas Jefferson saying, "The Tree of Liberty must be refreshed from time to time with the blood of patriots—" A submarine skipper giving the order "Take her *down!*" while he himself is still topside. Jonas Ingram standing on the steps of Bancroft Hall and shouting, "The Navy has no place for good losers! The Navy needs tough sons of bitches who can go out there and *win!*"

Patriotism—an abstract word, used to describe a type of behavior as harshly practical as good brakes and good tires. It means that you place the welfare of your nation ahead of your own even if it costs you your life.

Men who go down to the sea in ships have long had another way of expressing the same moral behavior tagged by the abstract expression "patriotism." Spelled out in simple Anglo-Saxon words "patriotism" reads "Women and children first!"

And that is the moral result of realizing a self-evident biological fact: Men are expendable; women

and children are not. A tribe or a nation can lose a high percentage of its men and still pick up the pieces and go on . . . as long as the women and children are saved. But if you fail to save the women and children, you've had it, you're done, you're *through!* You join Tyrannosaurus rex, one more breed that bilged its final test.

I must amplify that. I know that women can fight and often have. I have known many a tough old grandmother I would rather have at my side in a tight spot than any number of pseudo-males who disdain military service. My wife put in three years and a butt active duty in World War Two, plus ten years reserve, and I am proud—very proud!—of her naval service. I am proud of every one of our women in uniform; they are a shining example to us men.

Nevertheless, as a mathematical proposition in the facts of biology, children, and women of child-bearing age, are the ultimate treasure that we must save. Every human culture is based on "Women and children first"—and any attempt to do it any other way leads quickly to extinction.

Possibly extinction is the way we are headed. Great nations have died in the past; it can happen to us.

Nor am I certain how good our chances are. To me it seems self-evident that any nation that loses its patriotic fervor is on the skids.

Without that indispensable survival factor the end is only a matter of time. I don't know how deeply the rot has penetrated—but it seems to me that there has been a change for the worse in the last fifty years. Possibly I am misled by the offensive behavior of a noisy but unimportant minority. But it does seem to me that patriotism has lost its grip on a large percentage of our people.

I hope I am wrong . . . because if my fears are well-grounded, I would not bet two cents on this nation's chance of lasting even to the end of this century.

But there is no way to force patriotism on anyone. Passing a law will not create it, nor can we buy it by appropriating so many billions of dollars.

You gentlemen of the Brigade are most fortunate. You are going to a school where this basic moral virtue is daily reinforced by precept and example. It is not enough to know what Charlie Noble does for a living, or what makes the wildcat wild, or which BatDiv failed to splice the main brace and why—nor to learn matrix algebra and navigation and ballistics and aerodynamics and nuclear engineering. These things are merely the working tools of your profession and could be learned elsewhere; they do not require four years together by the Bay where Severn joins the tide.

What you do have here is a tra-

dition of service. Your most important classroom is Memorial Hall. Your most important lesson is the way you feel inside when you walk up those steps and see that shot-torn flag framed in the arch of the door: "Don't Give Up the Ship."

If you feel nothing, you don't belong here. But if it gives you gooseflesh just to see that old battle flag, then you are going to find that feeling increasing every time you return here over the years . . . until it reaches a crescendo the day you return and read the list of your own honored dead—classmates, shipmates, friends—read them with grief and pride while you try to keep your tears silent.

The time has come for me to stop. I said that "patriotism" is a way of saying "Women and children first." And that no one can force a man to feel this way. Instead he must embrace it freely. I want to tell about one such man. He wore no uniform and no one knows his name, nor where he came from; all we know is what he did.

In my home town sixty years ago when I was a child, my mother and father used to take me and my brothers and sisters out to Swope Park on Sunday afternoons. It was a wonderful place for kids, with picnic grounds and lakes and a zoo. But a railroad line cut straight through it.

One Sunday afternoon a young

married couple were crossing these tracks. She apparently did not watch her step, for she managed to catch her foot in the frog of a switch to a siding and could not pull it free. Her husband stopped to help her.

But try as they might they could not get her foot loose. While they were working at it, a tramp showed up, walking the ties. He joined the husband in trying to pull the young woman's foot loose. No luck—

Out of sight around the curve a train whistled. Perhaps there would have been time to run and flag it down, perhaps not. In any case both men went right ahead trying to pull her free . . . and the train hit them.

The wife was killed, the husband was mortally injured and died later, the tramp was killed—and testimony showed that neither man made the slightest effort to save himself.

The husband's behavior was heroic . . . but what we expect of a husband toward his wife: his right, and his proud privilege, to die for his woman. But what of this nameless stranger? Up to the very last second he could have jumped clear. He did not. He was still trying to save this woman he had never seen before in his life, right up to the very instant the train killed him. And that's all we'll ever know about him.

This is how a man dies.

This is how a man . . . lives! ■