



Science fiction writer Ray Bradbury.

CREATIVITY IN THE SPACE AGE

by Ray Bradbury

I think I should start by telling you how unscientific I am. It's the only way out of an embarrassing situation.

I am constantly afflicted by, not 14-year-old boys (which would be acceptable), or 12-year-old boys (which might be endurable), but by 9- or 10-year-old boys who come up and say, "Mr. Bradbury?"

I say, "Yes."

They say, "That book of yours—*The Martian Chronicles*—"

I say, "Yes."

"On page 194—"

"Yes."

"Where you have the moons of Mars rising in the east—"

I say, "Yes."

They say, "No."

At which point I feel like hauling off and hitting them. But I have never gone back to my book to check the facts; I refuse to be intimidated by 9-year-old boys.

So that's the kind of guy you have before you today. I started reading *Amazing Stories* when I was seven. I started collecting Buck Rogers comic

strips when I was eight. I started writing science fiction when I was twelve. I was considered the nuttiest student at L. A. High when I was seventeen; that is, I was writing about the Space Age 25 years ahead of time, which means I didn't get on very well with the girls at school. A reputation for writing about rockets gets around fast and I sort of had to work my way along with it until finally Sputnik and a few other missiles and people began to do me favors five years ago. I've had much fun the last five years telling everyone, "I told you so." I am not humble about it. I come right out and say it. Which makes me, I guess, a sort of Method sadist.

For most of my life I have had to endure the title of "science fiction writer." I have always been uneasy with that. I have never quite known what it meant. Now I am called a "space age writer." I'm not quite sure about that, either. It sounds a little bit more respectable. Actually, I think I am a writer of ideas. I am fascinated by ideas — and I am constantly amazed at the fact that we live in a culture *built* on ideas. Yet, how strange it is that in American arts, in television, motion pictures, novels, and short stories, how rarely do we *confront* ideas! Even though a school like this bursts with new concepts, how rarely all this filters out through our artistic society. That's why I am glad I work in the field of science fiction, where I can move your ideas out into our culture.

"Creativity in the Space Age" is a transcript of the talk given by Ray Bradbury, science fiction writer, at the ASCIT-Alumni Assembly hour in Dabney Lounge on February 6.

Why do I *want* to do this?

First of all, because you are the ardent blasphemers; each one of you sitting here today is a blasphemer. You are working directly against God, as God was seen in other ages. Consider almost any project you are working on today in the light of the intellectual activities of the past. We came to this continent, didn't like the size of it, so we began to tinker with space and time. We cut down the mountains and built skyscrapers in their place. We invented the locomotive and charged across the prairies to change that space and time. We invented airplanes and jets to further cut earth and air down to size.

Well, these are blasphemous activities. And we were the first of the ardent blasphemers in the world. We took the results of the Industrial Revolution, brought them here, and let them loose on this country. And since then we have been busy changing the look of death. We don't approve of death. We don't approve of old age. So we are doing things about them with our sciences.

Any one of these activities, a hundred years ago, would have caused most of us to be burned at the stake. And suddenly we hear a Pope — six years ago — Pope Pius XII — stating to a group of astronomical scientists visiting in Rome, "God does not intend to set limits to man's inquiry into space." Any Pope saying that, up until our time, would have been thrown out of the Church. We live in a blasphemous age — and resultantly a very exciting one because of all these new ideas that are beginning to form under rocket fire and pressure.

Herman Melville and Jules Verne

Now, I have admired and made a comparison recently of two writers who I think are the most American writers in our history — Herman Melville and Jules Verne. Why do I call Jules Verne an American writer? Because he is an ardent blasphemer in the tradition of Herman Melville. Let me illustrate for you. Ahab, in *Moby Dick*, says, "I don't like the universe. I don't like the way it is set up. I don't like God's laws or rules. I don't like the way God worries and tears at man through the manifestation of the mystery of the universe which looms before me in the guise of Moby Dick. Therefore, I will go strike through that mask, with my harpoon; I will peel away the layers of the universe. I will solve the mystery of death, time and existence. If need be, I will destroy this existence. If need be, I will kill myself and kill all my crew to solve this."

So mad Ahab goes forth in his ardent blasphemy and does *not* instruct himself well in his duties as blasphemer. So he goes down to his death in his ship and takes all with him save Ishmael.

This is the first of our most American writers who personifies the attitude that we have in this very school you are attending; the spirit of inquiry, the spirit of blasphemy, the spirit of finding out more about God's universe, of tearing it down and putting it back in new shapes. Ahab represents this, but demoniacally, destructively.

Along comes, at the same time, Cousin Jules Verne and says, "Now, Herman, this is all very well, and I appreciate how you feel about that whale that took off a leg. But what are we going to do? We are not going to destroy God. Let us instead plug in on the juice of the universe. Let us utilize the power lying all about us prisoned in dumb, blind immovable or moving matter. Let's be constructive in our blasphemy."

What does Jules Verne do through *his* mad captain Nemo? He constructs. Nemo says, "Give me your White Whale. I will not rend it; I will rebuild it. I will weld the first mechanical whale in history, and I will name it the *Nautilus*, and I will sail the seas of the world. I will not seek to destroy this symbol. I will live *inside* this symbol of mystery. And I will instruct men on moral attitudes toward one another." See the difference?

You start out with acts of blasphemy. But Melville annihilates; Verne comes along and builds scientifically on this knowledge. So he rears up the *Nautilus*. It sails the seas of the world, and he defies men in the middle of their cruel activities; he strikes down warships. He preaches with demoniacal ferocity: "Be better to one another. Let's not worry about God's relationship to man or man's relationship to God. Let's worry about man's relationship to man and what we do to each other with our machineries and sciences."

Two sides of the scientific coin

So the *Nautilus* sails forth and becomes known as what? Moby Dick! In the first chapter of *20,000 Leagues Under the Sea* the rumors that spread around the world refer to this *Nautilus* as the white whale. We know then that Verne read Melville. Thus these two fantastic authors represent the two sides of the scientific coin — the two sides of a blasphemous attitude about the universe and our place in it.

But one is more constructive, even though dedicated and a bit mad. And it is this latter attitude which makes Verne even more American and

represents your activities in the many, many years ahead of you and in the kind of studies that you are carrying out today. Verne says, "Let's take this juice, let's take this energy, let's inform ourselves — and from this information build new moralities, new attitudes, with which to go on building."

I have made this comparison in an introduction to a new edition of *20,000 Leagues Under the Sea* that just came out from Bantam Books. I think it's the first time anyone has ever fused these two writers, but I think we *must* fuse them, because we are going to go through an upheaval now, in the next 50 to 100 years, where all the religions of the world are going to turn topsyturvy in their attitudes toward the problem as argued two ways by Melville and Verne.

We have already seen the beginning of this change in attitude in the declaration of Pope Pius XII that I mentioned. Now all the other religions must follow or automatically go out of business. The thing for you to remember in the coming 50 years is that you are going to be providing information to the religions, and if they carry out their function, they will be giving you back philosophical and religious guidance in relation to the facts. Both sides need each other. It is not enough to collect facts. It is fascinating to collect them, but you must go to someone with them, or instruct yourself in how to act on the given facts.

I am not interested in how to build an atom bomb. I am interested in what we *do* with it after we build it, and how we move it into constructive channels, and use it to fire the light bulbs of the world. This is where our moral decision has to be made, and this is where your challenges will arise, ahead. This is the attitude I have toward writing science fiction then, and why I love working in this field.

A remarkable age

Consider what a remarkable age this is, what an exciting time it should be for you. Up until a hundred years ago mankind's ideas rarely existed outside himself. They only existed in a few forms. He could paint himself a picture and thereby put out on display in pictorial form an idea of his, in two dimensions. Or a sculptor could give us a statue, which was three-dimensional, which we could walk around, which we could touch. Or we had architecture, an idea fused into brick and mortar that we could go inside and live with, an idea then put out in three-dimensional form. And a few inventions in the world: for instance, the

wheel, and the use of the wheel revving up to explode in the Industrial Revolution.

Then quite suddenly, roughly a hundred years ago, man's ideas began to come on display in three-dimensional form, in multitudes — by the millions, and then by the billions — until suddenly now we live inside a robot society where we are a world of three billion people, serviced by anywhere from forty to fifty billion ideas, fused into machines. So, for the first time you have an idea which is blueprinted and put into a machine so that that idea can be looked at and handled. You can carry it in your pocket and listen to it, as with radio. You can ride in it, as in the case of automobiles or jets. You can work miracles with time and space as a result of these ideas being concretized, extruded from their original thought and blueprint.

This is a remarkable thing to make note of, all the more remarkable because most people make no note of it at all! So I *must* work in this field because I can grab these beautiful symbols to work with.

Fahrenheit 451

I had great fun during the McCarthy era writing my novel *Fahrenheit 451*, which concerned the firemen of the future. With all buildings made of fireproof plastic, the firemen no longer have a function in society. Therefore the politicians say, "Well, since you're not putting out fires any more, we've got a new job for you. When people send in alarms, you go out and you *burn books* — for starters; and then when you get the books burning merrily, you burn the house, and then you burn the people in the house — if they are subverts who read the Bible or the Koran or the Torah, or if they are just reading Shakespeare." This is a parable then — of the future — in which the firemen become our censors.

I wrote this as a protest against Senator McCarthy, and, strangely, he never laid a hand on me. I just stood there waiting for him to shake his head so it would fall off. He didn't know I had cut his throat from here to here. So there you have one of the great delights of writing science fiction, even though it is not as new-fashioned as it seems. For in the history of the world people have consistently worked in parables. Jesus made a good thing of it for quite a while before they stopped him. In Mussolini's Italy, people like Elio Vittorini and others wrote parables, fantasies, science fiction, so they could continue working under the nose of the dictator without discovery.

In line with this, people are always asking, "Where do you get those strange ideas of yours?" Let me give you an example:

About 12 years ago I was walking with a friend of mine down Wilshire Boulevard near Western in Los Angeles, talking about novels and short stories, when a police car pulled up. A policeman got out and said, "What are you doing?" And I said, "Well, we're putting one foot in front of the other — it's an old fashioned thing called 'walking'."

This disturbed the policeman. First of all, he hadn't seen a pedestrian in years — especially at night on Wilshire Boulevard near Western. Occasionally you see a few people get out of cars and walk ten doddering steps to a drug store or to mail something, but that's pretty rare. And to see people actually walking three or four blocks at a time — well, it's pretty unnerving.

So he kept questioning us, and the more he questioned, the angrier I got. My democratic rights were being breached, etc., etc. You know, liberals are crazy when it comes to this sort of thing. You touch them and you have a madman on your hands.

Burgling the modern way

So I said, "Look, let's imagine I'm a criminal, imagine I'm Jimmy Dale or a good friend of Dr. No's and I'm going to burgle a place up the street. How would I *do* this? I'd drive up in my Rolls Royce. I'd go in with my little silver tool kit and I'd burgle the place. I'd come out with the loot and I'd drive away. Nobody would pay any attention. This is the way crime is carried out in our technological society — under the guise of the normal function. Now I'm not going to call attention to myself by doing a crazy thing like *walking* up to a house, because all the dogs in a neighborhood get hysterical when they hear you walking by, even if you're wearing your new pair of light, whipped cream, marshmallow tennis shoes."

The logic of this began to filter down, down, down through the various retorts in the policeman's head. He gave off a noise like the device in *The Man in the White Suit*. He grunted. I couldn't tell if it was affirmative or negative. I got even more infuriated.

My friend and I had been eating soup at a drive-in down the way and I, on the way out of the restaurant, had put a little packet of soda crackers in my pocket. Now, as I talked to the policeman, I took the crackers out, put them in my mouth, started chewing, and sprayed him with

flakes. Well, he wasn't quite sure whether I was being hostile or not. He contented himself with brushing the flakes off and letting us go.

I went home in the middle of my fury, and wrote a short story called "The Pedestrian," which became a part of my book, *The Golden Apples of the Sun*, in which, in the future, a man went for a walk and the same thing happened, but instead it's a robot police car that drives up and says, "What are you doing?"

"Walking."

"What for?"

"To breathe the air."

"Don't you have an air-conditioner in your house?"

"Yes. But I'm walking to *see*."

"Don't you have a *television* in your house?"

And the logic of the thing grinds him and grinds him down to the ground until finally a cell door opens in the back of the police car and he's invited in and driven off for psychiatric investigation — for being "different."

Don't think

This is the way I come on my ideas — this kind of maddening exchange between myself and our semi-fraudulent society. I respond angrily, which is good. If you're going to work in any of the creative fields, you must live by your emotions. I have a large sign over my typewriter — it's been there for years — which says, "Don't think." It's just the reverse of the signs they hang at IBM. But I find it's true. It's all right to think before and after the fact, but during creation you must be emotional. You must love what you're doing. You must run with ideas, just as I ran immediately into "The Pedestrian."

If you are a real child of your time, you grow up inside this particular age full of ideas. We're surrounded by them. We're being shaped by them. We're being destroyed by them.

The idea of the automobile, for example, has changed the whole American family set-up in 70 years, has changed the mating habits of our society, has caused, one often thinks, one-third of our population to be conceived in drive-ins, and be entertained with Cary Grant at the same time. All these things are worth thinking about and writing about, and it's not being done. My reason for being alive then, is to explain the age to you in metaphorical terms, to excite you to it, so you will go and carry on many of the jobs of research to implement that age and build it yet again. And after I am gone, yet other people will rise up to



A painting from "Icarus Montgolfier Wright" prize-winning film written by Ray Bradbury and illustrated by Joseph Mugnaini, prominent American painter and art teacher at Otis Art Institute in Los Angeles.

cry, "This is what *our* age means."

Let me give you an example of this explaining an age to its inhabitants. I wrote a short story a few years ago called "Icarus Montgolfier Wright," in which I experimented with mythologies of the past, with scientific knowledge as we know it in the recent past and present, and projecting it into the immediate future. I tried to fuse, into one parable, man's age-old desire to fight his enemy, gravity – to fly, like the birds at morning, to get into the air, to get away from this earth which might destroy him some day. I wanted to say to our Time, "This is the old dream. We are now building the ships that will put the old dream into action, and we're going off into space." So I got Joe Mugnaini, the well-known American artist, to do 800 drawings and 200 final tempera paintings. It took him two years to do this – all on his own. These pictures were then photographed and made into a semi-animated film which won us an Academy Award nomination. Our purpose in making the film was to try aesthetically to excite people to the space age. Very simply that. Whether we have succeeded or not, it's an honest endeavor – a work of love. We had no money. The whole thing was done free. We all put our time in it. And the biggest involvement of time was the artist's.

You are at the *start* of our Renaissance. All of our art, all of our drama, must partake of these ideas. And if I do nothing else in the next – God

willing – 20 years of my life, I want to pollinate artists and writers and dramatists and people like you to go out and grab these ideas and take them to other people and say, "For God's sake, why aren't you doing something with them?"

I have always been very curious about the creative process. Nine years ago, when I lived in London, I called Bertrand Russell and asked if I mightn't come out for an evening because I wanted to talk to him, try to verify *his* processes – how he collected facts, what he did with them, how he trusted his subconscious to do his thinking for him. I discovered years ago there is a certain point where you must turn away from research, turn away from facts. When you have stuffed yourself as completely as you can with those things you feel are necessary to solve your problem, there is a certain point beyond which you can not push, because the harder you push, the more elusive the problem becomes.

Lord Russell was most gracious. He told me how he wrote some of his essays and books. And his was the exact process which I had instinctively come upon: he gave himself the information he needed, but at a certain point called a halt, and said, "I forget about it. I put it out of my mind. I turn to other things. I walk away." The next morning, a week, or a month later, he woke up and there the answer stood in the center of his head.

Now, this is the *intuitive* process you must learn to be comfortable with, to help you in your own work. At a certain point, *if* you've done your research, you *must* trust your subconscious to favor you with solutions. These are quite often emotional explosions when they come, especially for writers. I go *with* the explosion. I don't worry it. I don't ask myself what I am thinking or where I want to go; I just go, and the story writes itself.

As you can imagine, I was pleased to find that Bertrand Russell worked this way. It made me feel more comfortable with my own crazy habits. For I had got into a series of heated arguments with John Huston, you see, on this very subject. I was in Ireland at the time writing the screenplay of *Moby Dick* for Huston, and at a given point in trying to understand *Moby Dick*, we despaired. It was just too much to assimilate and we were having trouble lining the scenes up. One night, I protested, "Look, John, we're *pushing* too hard. We can't stay up till three in the morning every night for weeks on end and get results. It's impossible. Now we know the book pretty well. We know what our problem is. Let's state it for ourselves again, right now. Then I'll go back to

the hotel in Dublin and put a pad and pencil by my bed before I go to sleep. You do the same. *One* of us will wake up in the morning with the solution to this lousy literary problem, which is destroying the entire screenplay."

Huston said, "You're crazy!"

I said, "No. I believe in this. I've experimented with it before. I don't know if *I'll* get it or if *you'll* get it, but one of us will."

The next morning my phone rang at seven o'clock. It was Huston on the phone, gibbering, "Ray, Ray, I've got it. I've got it. You were right. I woke up, I reached for the pad and paper, and I wrote it down."

He was right. He got it. And we went on from that point and had no trouble.

Now, there is a relationship between the things you are doing here at Caltech and the things I have gone through in my own work. The function I described to you with Bertrand Russell, and these other things I've been talking about, is the same thing that should be happening to you. It took a lot of work, a lot of reading, a lot of preparation, to finally come to a time where I relaxed utterly. At the time I relaxed I could start to be creative. Every creative product in the world, whether it's an invention, a social theory, a painting, or a book, is based on this very process. Avid preparation, a declaration of love in a given field — where you simply can't imagine yourself doing anything else *but* the thing you are doing — that's the first thing. Because love must carry you through all the hard work. If you don't have real affection for the thing you're doing, you can't get the work done.

So the prime mover of the world really should be that old-fashioned word "love." We don't teach it often enough. We're afraid to talk about it. We're afraid of being considered sentimental. But, my God! — you wouldn't be here, would you, most of you (at least I hope you wouldn't) if you didn't *love* your studies in some way? You have *one* thing, most of you, in your lives that you are really avid about. And when you leave here, you are going to go out after this thing. And this fills your lives up. It should — absolutely — or you shouldn't be here. You should be out in the world finding that thing that you really love.

Your love and exultation about your work must burst your skin. Then you can go and do all the hard work, all the research, and fill yourself so completely with it that original thought can occur. These things have to be lined up: Love, hard work, relaxation, creativity. In that order. Each helps the other. When you get the cycle going, the

whole thing turns over and you begin to get *more* ideas. The more you work, the more you love, the more you relax, the more you create, the more you *want* to work, the more you love, the more you relax, the more you create.

The point cannot be made too strongly. Remember it. And when you feel yourself falling away from this grace — which is the greatest grace given mankind — turn back to it. You must, because there is no reward in the world except your work and the way you apply yourself to it.

But you're lucky. Here you are in an environment which is conducive to creativity if you take advantage of it and remember these points we've been discussing.

This is the greatest age in history. And here *you* are on the threshold of the whole damn era. We're going to go into space. We're going to populate the planets. We're going to solve more secrets of the atom. We're going to do away with more death. We're going to destroy more disease. And you'll be part of this wonderful blasphemy that will turn into a new religion. The act that was blasphemous will become the act that is idolized and made use of constructively in religions we can't imagine and philosophies we can't guess.

The space age means for me our chance for immortality. In other words, though we don't voice it, when we cross space and colonize the planets, and move toward the stars, eventually this gift of life will pass on forever.

I think this is worthwhile. And you are part of this endeavor. This effort we will be making to live forever. For billions and billions of years our seed can be planted on planets circling suns billions of miles from here.

We're going to do this. We think of it now as a large problem; we haven't the faintest idea how we're going to build the starships that will take us from our own solar system, but we're going to do that too.

We are already experimenting with suspended animation, to take us on 50- and 100-year flights away from our solar system, and we're going to do it because we love life more than we hate it and because we do fear death and we do fear darkness.

We're going to move out. We're going to conquer darkness. This is the reason for the space age. All the other reasons are political. All the other reasons have nothing to do with the regeneration of mankind into infinity. This is the reason *I'm* in the effort.

I hope you will join me.