

## SCIENCE FICTION

In an earlier study, *De la féerie à la science-fiction*,<sup>1</sup> I tried to show the internal consistency and the chronological succession of fairy tales, fantastic stories and works of scientific anticipation or extrapolation. They represent three *styles* of the imaginary, and illustrate, each in its own way ("like hollow molds," I said), the chief epochs of man's changing situation on his planet, as he himself saw it, more or less naively, in each case. First he depicted himself as powerless and wonderstruck; then confident in science and technology, he considered himself the fortunate conqueror of the planet; and finally he saw himself as isolated and marginal in the immensity of space—just at the very time when he was learning to move about in it.

In the study of these successive mythologies, each so easy to identify, I dealt almost exclusively with the contrast between the first two, and tried to explain the passage from the one to the other. I tried to show how and why ghost stories had replaced stories of enchanters, but I practically neglected to analyze the reasons why ghost stories, in turn, gave way to stories of extra-terrestrial universes and beings. I would like now to fill in this gap.

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Following the momentum of my reasoning, I suggested that science fiction represents the third stage of the type of literature

Translated by Mary Burnet.

<sup>1</sup> In *Images, images...*, José Corti, 1966, pp. 15-59; reprinted in *Obliques*, January 1975.

## *Science Fiction*

by which man defines his situation in the cosmos and through which he expresses what he lacks, and what worries him even more than what resources he has and what real troubles he suffers from. In other words, without laying too much stress on it, I advanced the idea that, in this function, science fiction might well be the successor to fairy tales and fantastic stories.

To support this idea I must first carry out at least two tasks: first, note the most common of the themes classified under this heading, and then try to explain why and how science fiction was born out of a radical change in the way the general public thinks about the place man occupies in infinite space, as science now shows it to him in a concrete, emphatic image.

It is a fact that science appears no longer only as the admirable tool that permits our species to dominate the planet, but also as a calamity that threatens either to blow it up or to make it uninhabitable. And it is at this precise time that a kind of narrative arises which is entirely different both from the stories told to delight children and from those that employ the supernatural to make grownups shudder. As used to be the case with ghost stories, a very characteristic thematics permits the new manner to be distinguished immediately, in spite of some inevitable overlappings. It is hardly possible that this happened by chance; one genre seems to be replacing the other. This cannot be affirmed convincingly, however, without showing that, despite its baffling variety, the genre that has won popular favor in such a short time is really asking a single question cloaked in many forms. So we should quickly reconnoiter the growing ranks of the invaders.

A first element is furnished by the existence of a number of inhabited worlds. It seems inevitable that other globes are carrying other species through the vast reaches of galactic space. So writers with lazy imaginations hasten to transpose various types of epics and adventure stories into a setting where the traditional episodes are refurbished—without losing anything of their old, monotonous candor, it must be said. The space ship and the disintegrator replace the stagecoach and the pistol, and the cosmonaut's struggle against the tentacles of his extra-terrestrial attacker is substituted for that of the diver against the octopus or the cowboy against the prairie Indian. At a higher level, quasi-philosophical problems are brought in. One author

suggests for example that, in countless worlds, populations who are identical down to the last detail and even to the last individual live a perfectly synchronized existence.<sup>2</sup>

In other cases, we are confronted with the destruction of the Earth. Men disappear in a cataclysm that devastates the globe. Worldwide nuclear war is the most frequent cause, but the most scientific one is provided by an acceleration of entropy which, through the ultimate dissipation of all energy, leads to a universal immobility, lukewarmness and uniformity.<sup>3</sup> One of the most striking of these stories tells of a Tibetan lamasery that orders a giant computer from the United States; the priests hope to use it to speed up the process of counting the nine billion names of God, which is the mission of man on Earth if not the reason for the world's existence. On their way home from setting up the machine, the installation engineers see the first stars go out.<sup>4</sup>

A third field is devoted to the improvement, the growing supremacy, and finally the revolt of the robots and electronic devices which end up by programming themselves and reproducing themselves. They then eliminate their human creators, reduce them to slavery and govern the universe in their stead.

Neuro-surgery and genetic operations at the chromosome level change human physiology. They develop unheard-of faculties and turn man into an ultra-receptive creature, with almost fabulous psychic or sensorial powers.

Most often, the author tries to focus his spotlight on shortcomings or quirks of the society in which he lives. He projects them into the future or onto a distant world. He carries to an extreme the consequences of advertising, overproduction, pollution, or the mechanization of life. He shows the effects of the creation and spreading of sensations which at first are almost imperceptible, then gradually become indispensable—for instance, some insidious background noise or some constantly changing, almost hypnotic spectacle. The writer composes satirical or semi-prophetic utopias which he uses to exaggerate and denounce the latent dangers of a society where such artificially stimulated

<sup>2</sup> Boileau and Narcejac, *Le grand Secret*.

<sup>3</sup> Campbell, *The Sky is Dead*.

<sup>4</sup> Arthur C. Clarke, *The Nine Billion Names of God*.

## *Science Fiction*

needs are still only in the embryonic stage, but where their inevitable development will make all life impossible.

The most ambitious writers tackle the paradoxes of time, space and causality, as we have been led to formulate them by the progress of mathematical physics, the problems posed by the relations between matter and energy, or the scruples of epistemological reflection.

Wars between worlds, interstellar expeditions, incursions into the past or the future, imaginative anticipations or rigorous extrapolations, uncontrollable or vindictive machines, biochemical metamorphoses of the human organism, sarcastic or menacing futurology: such is the disconcerting diversity of the literature which we agree to call science fiction. It must contain some hidden common denominator, since it is spontaneously labeled by the same name. What is more, even if one of the heterogeneous elements that compose it is found in some earlier work—in that of recent precursors like Wells and Jules Verne or of those farther back like Swift and Voltaire—everyone realizes that, in spite of obvious, staggering similarities, it is not quite the same; its tone is very different.

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Ever since apparently enigmatic or scandalous discoveries were made in topology, in relativity, in quantum physics—even before those spectacular feats, the invention of the nuclear bomb and the conquest of space—theoretical science, despite its revolutionary hypotheses and astounding successes, has ceased to be regarded as an imposing construction of fertile discoveries providing well-being and power to man. It surprises, disturbs and sometimes horrifies. From genetics to electronics, from biology to atomic explosions, it appears heavy with a terrible threat. Did not the psychological conditions for science fiction arise precisely out of this reversal in the public consciousness—just as the triumph of the experimental method led to the substitution of the fantastic for the wonderful, thanks to the literary exploitation of the fear of demoniac forces, still suspected of being alive and constantly on the prowl?

The reversal consists in the fact that terror or mystery stems no longer from the derangement of the order of things by entities

that escape from it, but from the immediate corollaries of very strict analysis, and from proven discoveries.

The transition is easy to follow. To be invisible is an old dream of mankind. The privilege was first a supernatural gift. Thus it is with Gyges' ring and in tales where a hat, a cloak, or a talisman conceals the wearer from the sight of others, while he himself continues to watch anyone he wants to. The fantastic adapts the theme by transposing it from an enchanted universe into the everyday world and conferring invisibility, not through a magic object, but through a laboratory-made serum whose effects can be explained by physico-chemical laws. But science fiction has to give up the idea. It does not confine itself to asking whether the ring or the cloak does not remain visible; it concludes that an invisible man is necessarily blind, for if the light rays go through the cells of his retina, they cannot make an impression on those cells. So the invention loses its object, which was to introduce a character who sees without being seen.

The same inherent objection applies to the man who can pass through walls: if his permeability to matter permits him to go through walls, which are vertical obstacles, then he must also go through floors, which are horizontal obstacles of the same type—so that he sinks into the ground to reappear on the other side of the world. As to vampires, they are easier to modernize: they no longer prowl around cemeteries or leave the traces of their sharp canines on the delicate throats of their victims, who are believed to be consumptive; they feed on the blood in hospital banks, where they choose the type that suits them. So there is no more need to strike them through the heart with a stick hardened in the fire on a moonless night; it suffices to change the labels on the bottles in the refrigerator: they will drink blood whose formula is incompatible with theirs and be destroyed forever. True, they lose the sinister halo that surrounded Dracula and Nosferatu. But the laws of science fiction are imperative. The lacquered walls of hospital rooms and the properties of Rhesus negative take precedence over the old settings and the ritual described long ago by Dom Calmet. The findings of science have driven out demoniac invention.

I want to stress more clearly the sudden change illustrated by these minor but picturesque examples. By definition, science

## *Science Fiction*

fiction cannot make use of the *negotium perambulans in tenebris* of the Ninety-First Psalm, the invincible, formidable powers that walk in the darkness that lies beyond death and science. Such emanations ignore the laws of matter and of life; they are not at all concerned with physics, biology or the other sciences. They escape them from the start. There exists no defense weapon in the scientific or technological arsenal that can stop such heterogeneous evils. The specific property of science fiction, the one that characterizes the revolution for which it already provides the mythology and will tomorrow furnish the archives, is that it must refuse, from the start, to give any role to those "beings" or "things" without a material base who formed the very mainspring of the fantastic. They are excluded by the rules of the new game imposed by readers who, after having had their sensitivities to the supernatural very slowly eroded, end up by expecting science alone to provide the mystery and the anguish, the enigmas and the horrors, that can fascinate them and make them tremble. The unintelligible and the horrible have ceased to seem like forces that make a mockery of positive science, and the strange is no longer foreign to it. Nowadays the frightful, the extraordinary are contained in science itself and are almost a constitutional part of it: they are bound up with it. At an extreme, they look more scientific than science itself. It seems that they merely precede its arguments, its discoveries, if not its most alarming exploits.

The age of magic, which the fairy tale prolongs in fantasy, invented the flying carpet. Science designs and industry builds four-motored jets that make even the desire for a magic carpet useless. However, fantastic logic turns the aircraft into a ghost plane, carrying off to the kingdom of the dead its unsuspecting passengers, who gradually realize what is happening. I do not know what situation science fiction will work out on the basis of the dramatic conflicts it can derive from the difficulties raised by the notions of hyper-space and the limit of speed, but it will certainly be an ingenious and unexpected one. The problem of paradoxical displacement, contrary to accepted evidence, will have received its third solution. This time science fiction will exploit the resources offered by the space-time continuum.

The task of science fiction, which it carries out alternately in a routine way and with breathless daring, forces it to bend the

hypotheses and the speculations of science to the requirements of the novel. Like all literature that is fictional and partly escapist, it needs a universe that is different and at the same time capable of touching the reader's sensibilities, uncertain (but inflexible within the limits of certain conventions), where risk is possible, where it pays, where it is daring and can be renewed; in a word, it is subjected to the general rules that govern recreational activity. Therefore it was fated from the start to take advantage of the teaching of the universities and the controversies of the learned by turning them into concrete situations, if not into expressive images. What happened as a result of such a challenge—which an author may take up lightly or try to face with all the seriousness it requires? The solutions, it goes without saying, range from the worst to the best. They all reflect the same requirement, the one that gives its personality to science fiction.

Space and time are full of traps. The former is artfully disjointed, people with distortions and anastomoses by imitators of Moebius. It is neither homogeneous nor two-dimensional nor equipollent. It has pockets, abysses, intervals into which an individual, a town or a world suddenly disappears, although it may turn up again after having been spirited away, erased, incarcerated in an exasperating quarantine. As for time, it appears to be fluid, malleable, extendable or retractable. Its course may be suspended. It can be cyclical as well as linear, or, on occasion, repetitive like the groove on a worn record. A trip through the past is really made against time, like a film shown in reverse or a magnetic tape heard backwards, so that any sentence heard, from the last to the first sound emitted, is nothing more than a frightful rumbling. Gestures develop from their completion to their source. Effects precede causes.

Any traveler through time sent back to bygone centuries is necessarily an intruder, whose behavior alters the past and thus prepares a new future. He may prevent the occurrence of a situation, or cause the premature disappearance of a person (for example, one of his ancestors) that was a necessary link in the chain of circumstances which led him to be born and, consequently, to be able to undertake his unfortunate voyage. But if he was not able to do this, he was not able to change the past. On the other hand, if the past remains what it is, then

## *Science Fiction*

he was able to go back to it and intervene in it, thus making himself impossible. And so on. This kind of vicious circle is composed with bifurcations or duplications that lead to inextricable labyrinths. In one story involving an operation that changes the hero's sex, the reader perceives through certain signs (a recognizable scar or a family jewel that changes hands) that all the characters, male or female, young or old, are the same individual, who, through complicated chronological gymnastics, meets, marries and persecutes himself.

Parallel or marginal fields of space, time that is telescoped or reversible lead to ramified and recurrent causalities where the reader's mind goes all the more easily astray because the author delights in transforming their intricacies into insoluble puzzles. But these absurd and irrefutable mirror games, where reason and common sense get hopelessly lost, are fortunately exceptional: such demonstrations of virtuosity are rare, difficult and soon become tiresome.

The theme of the trip through time is often combined with conjectural history. Specialists are always changing the fate of empires, for example by saving Christ from being crucified, making the Persians defeat the Greeks or the Carthaginians the Romans, or giving victory to the Confederates at Gettysburg or to Napoleon at Waterloo. "Politics fiction" changes the crucial decisions of history through an agent who appears and intervenes at precisely the proper time and place. In the midst of the Cold War, the Pentagon, wanting to do away with the Soviet Union, sends a team of specialists to intercept Lenin in the sealed railway car in which he is going back to Russia. The operation succeeds. The October Revolution does not take place. Holy Russia continues. But when the Pentagon envoys get back to Washington, the swastika is floating over the Capitol and the White House. For there was no Red Army at Stalingrad.

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Here I can see a second essential of science fiction coming into the picture: the idea of the plurality of the possible. In history, unless one clings to a stubborn and impenitent determinism, this idea is commonly accepted, with the proviso that no event that actually happened can be changed and that it excludes, forever,



any other that might have occurred instead. It is in this sense that the use of a traveler through time to turn a virtual piece of history into reality is a specific characteristic of science fiction. And science fiction is even truer to itself when it substitutes the plurality of possibilities for a solution which we accept as axiomatic. Because this solution is the only one we know, it does not occur to us to think of any other. Thus it is with our Earth, its biosphere, its geology, its fauna and flora, its magnetism. And with our own image, and our nature as a reasonable and sensitive animal endowed with an articulated language.

The new problematics, on the contrary, tries to discover the various other models that might have emerged and prospered instead of those which surround us or make us what we are. Different solutions might satisfy the same or comparable needs just as well or perhaps even better. It is not impossible that they exist somewhere on an unknown planet—solutions which seem to us far from reasonable but which are adapted to conditions no less remote from what we call normal. If we had received this constitution that astounds us, it would seem to us so obvious, so inevitable that only a madman could conceive of anything different.

The attitude of mind that inspires science fiction involves continual reference not to an existing model but to its possible variations, with a preference for extreme variations—those that approach zero or infinity. The Copernican revolution banished the Earth from the center of the universe to set in its place a motionless sun. Thus it contributed to replacing the wonderful with the fantastic, for if it was wonderful that the big light turned around the planet to give it alternately day and night, it seemed fantastic, unacceptable, that the Earth—which everyone felt motionless under his feet—should turn continuously around a star which any man could see with his own eyes, day after day, go through its changeless course all over again. This reversal, required by calculations and contradicted by the evidence of the senses, may well appear as one of the first scandals of which science was to cause so many later on. Today the succession of galaxies, the dizzying concept of light-years have reduced the Earth to the status of an imperceptible dot, lost in the limitless cloud of asteroids. At the same time, because of the first voyages into space, celestial bodies have taken on a reality they did not

## Science Fiction

have before. They are no longer tiny pinpoints scattered through the night sky, but areas that may be inhabitable. What is more, a calculation of the probabilities, if not mere reflection, shows that it is likely that more than one of these innumerable specks contains carbon, is surrounded by an atmosphere, has witnessed the birth of life and the development of an intelligent species.

The plurality of inhabited worlds, which used to be the subject of philosophical discussions for men like Fontenelle, has become a serious and reasonable hypothesis, so obsessive that flying saucers are constantly seen in the sky and that these "unidentified flying objects," as they are prudently called, have become the subject of increasing numbers of rumors, fables and investigations. Are they probe-balloons, optical illusions or tricks? For our present purpose, it does not matter: what counts is the fact that they are believed in. For the first time, man really doubts whether he is alone in the universe. He is even so convinced of the contrary that he sees the night peopled with fluorescent disks, guided by visitors from beyond the sky. The fact that this conviction is widespread and persistent shows that science fiction, whether it stimulates it or benefits from it, coincides with a new concern which succeeds the fear of the metaphysical Beyond. Story-telling now neglects the Other World, and unfathomable death, in favor of distant but fraternal universes, where there reign types of life that are, after all, related to ours, where beings exist who may be less astonishing than the transparent jellyfish, the spiny and platonic polyhedric radiolaria, the limp amoeba or the bombardier beetle.<sup>5</sup>

The plurality of worlds confirms and multiplies the plurality of the possible. The inhabitants of nebulae have sense organs, it goes without saying, as well as prehensile and locomotor appendages. They communicate through a language that has a vocabulary, a morphology, a syntax, paradigms. They have political institutions, literature, music, and plastic arts, with competing schools and rival esthetics. They have developed sciences

<sup>5</sup> *Brachinus displosor*, able to project some thirty discharges of hydrogen peroxide and hydroquinone, giving off a heat 100 °C. (first studied by a doctor in Napoleon's army in Spain). He would make a remarkable recruit for a science fiction writer.

<sup>6</sup> See *Images, images...*, op. cit., pp. 32-39.

and technologies, or their equivalents. For them, something serves the purpose of morals, philosophy, religion.

The author, and the reader in his wake, is led in each case to imagine a natural history that will be both astonishing and plausible—different anatomies and physiologies, unheard-of nervous and cardio-vascular systems, modes of reproduction more elementary than segmentation or more poetic than the collaboration of wasps and orchids. The writer is free to set up the basic assumptions of the imaginary context as he pleases, but he is obliged not to contradict them in the course of his tale or the details of his descriptions. He must compose a coherent whole, all of whose manifestations are interdependent and form a closed system. The task is practically impossible. Theoretically it requires encyclopedic culture combined with unflinching perspicacity. So it indicates only a direction, a wager rarely accepted and still more rarely won. Such a challenge, however, seems to me one of the mainsprings of science fiction—I would almost say the one that justifies it.

This style of reasoning derives its laws and processes from the axiomatic. It leads one to consider everything as a special case in a series of equally legitimate contingencies. It incites one to search, if possible exhaustively, for the various answers that satisfy a given hypothesis. To list and classify the homologues, or, at an extreme, deduce them if one thinks one has hit on the principle that permits the corresponding requirements to be fulfilled—this is a process of analysis with which science fiction has made us familiar, if only by summary or even ludicrous methods. It has accustomed the reader to set aside perception and experience in order to pose problems in their most abstract generality. It incites him to consider, without prejudice, the solutions that at first sight seem the most disconcerting. The broadening of the cosmos leads in the end to the opening out of logic.

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The method of deductive exhaustion of conceivable analogues goes far beyond the field of the picturesque or preposterous tales that provide so many examples of it, most of them childish. It is a tool for intellectual prospecting that is valid far beyond the realm of science fiction. If I may submit personal testimony to

this, let me say that I once suggested that human reasoning is capable of making a catalogue not only of the motives which are present in fairy tales and fantastic stories, but also of those which are not included, those which could have or should have found a place there. I provided embryos of such lists and I tried to formulate their principle.<sup>6</sup> More recently I asked myself about the different forms an alphabet could take, or money, or a garden. In order to be sure not to forget the unexpected aspects they might present, I asked myself through what common characteristic they would be identified by an extra-terrestrial being who had never heard of them—what necessary and sufficient sign would label them unambiguously and prevent the ingenuous inquirer from confusing the garden with a vacant lot or a vegetable patch, or the alphabet with an assortment of signs unrelated to spoken language or the dictionary, a coin or a medal with a potsherd, a jewel, a talisman.

I do not at all overestimate such intellectual fencing. Nevertheless I am convinced that, although I refer constantly to scientific models like Mendelejeff's table, it cannot be gainsaid that familiarity with works of science fiction has led me, in some diffused way, to utilize in a much more concrete field the principle whose frivolous and picturesque dissemination they promote.

While I do not wish to present this confidence as an argument, it seems to me that my use of this approach should be credited to science fiction, at least to its specific masterpieces. True, I cannot deny that I have intentionally neglected almost all the books that claim to belong to the genre. That is because they continue earlier literary forms or are contaminated by outside influences. At a time when the literature of the imaginary is moulting, these hesitations and errors are almost inevitable. In the beginning, the fantastic preferred the explained supernatural to the unexplainable supernatural which was nevertheless its own original content: hence the inclusion of terrifying settings, mysterious glimmerings and the clanking of chains, characters dressed in shrouds, or the use of hypnotism, hallucinations and nightmares. All these elements were weaknesses, heresies. Similarly, science fiction today indulges in pointless interstellar transpositions of cape-and-sword novels, showdowns between opposing galaxies. In the frozen reaches of space, it keeps repeating the saga of the Far West. It continues the tradition of political and

social satire. It denounces the injustices or ridiculous aspects of institutions and morals by putting them in distant settings or describing the catastrophes they are preparing. Like Jules Verne, it runs ahead of the progress of technology and foresees more and more powerful and sophisticated weapons, machines and space ships. These last prophecies usually fail to impress: mere industry soon catches up with them.

I do not ignore this run-of-the-mill production. However, I have reduced science fiction to about twenty works of quite another level, which seem to me to represent its orthodoxy, as it were. In doing so, I have tried to discover as well as I could, on the basis of a limited number of samples devoid of any suspicious connections, the secret of the attraction and effectiveness of a very large number of works in which this core, diluted, becomes almost unrecognizable. The same is true of any closed type of literature, be it the detective story or the classical tragedy. A few examples are enough to characterize it, if one takes care to choose those that are free of all compromise.

However, even if I am right in this particular case to propose, as the foundation of science fiction, an attitude of mind based both on the exclusive authority of positive knowledge and on the plurality of possibilities, however shocking they may at first appear, it remains to be discovered how such a predilection came to permeate the diffused consciousness, and what unavowed foreboding or realization is hidden behind an infatuation that is so general and so strong, comparable to that which led to the flowering of the fantastic in the last century.

The answer may be found simply through studying the major themes involved, and, especially, the conclusion constantly suggested despite the diversity of the narratives: in science fiction, man is put back in his place. He is no longer the image of the Creator, but one tiny animal among thousands of others, bustling about one asteroid among thousands of others. He created science to conquer his habitat. He succeeded in establishing his domination over the fauna and flora. He dominates the atom and biology. On the other hand, he is threatened by nuclear missiles, by pollution, by the machines which he built to work, to calculate and to predict in his place and whose semblance of intelligence he rather stupidly fears, whereas they only exist thanks to his own. A mass of literature has convinced him that

## *Science Fiction*

computers, mere masses of metal that he has programmed himself, are getting ready to reduce him to slavery. He imagines hypothetical extra-terrestrial beings who are better than he is, wiser, more lucid, more generous, more powerful and better equipped, ahead of his own technology. He makes them the civilizers of the barbarian whom he now believes himself to be, and who blames himself for having boasted far too long of having a monopoly of culture.

In his passion for humility, even the machines whose vengeance he fears become a motive for self-accusation: if they are cruel, it is because he built them and they have within themselves, like a sort of original sin, the reflection of their creator's perversity.

Similarly, the mutants in whom human nature has been changed by the rash release of radioactive emanations or by dangerous manipulations of chromosomes or neurons are depicted as either martyrs or monsters; the former are victims of their exacerbated sensitivity, whereas the latter are scientists made cruel by their irrepressible ferocity. But whether they are geniuses or monsters, they are condemned to degenerate soon.

The more the role of science increases in science fiction, the higher blow the winds of panic and contrition. The heroes of the childish wars of the galaxies remain knights-errant and conquerors whose direct origin in tales of chivalry is barely concealed. But as soon as the role of reflection increases, we have humiliating comparisons with the inhabitants of the stars, the tyranny of computers and dehumanizing mutations. Or the annihilation of the earth by chain combustion or by the gradual shrinking of space resulting from a topological accident, or the disappearance of life as a consequence of a false move on the part of a geneticist working with a species of rodent—an error which soon has repercussions on the other animals, then on man, and finally on plants and micro-organisms, since according to good logic, the conjunction of chance and necessity, their cumulative effects may work for either good or evil. At the most abstract scientific level, insoluble dilemmas and unbearable paradoxes scoff at the evidence and inflict strange tortures on our reason. What science fiction derives from these, and offers to its readers, is probably due in large part to the gratuitous play of intelligences drunk with their own

subtlety. However, where the fine structures of the universe are concerned, it is easier to believe that they show an enforced docility. They give in helplessly in the face of objective contradictions where what is unthinkable coincides with what must be.

Man expected clarity, security and mastery. He now perceives (or thinks he perceives) that clarity leads to the unintelligible; mastery, to various disasters of which each is the counterpart of a triumph won; and the promised security to continuous anguish.

Relying on science and the technologies to which it gives birth, man, or more specifically Western, man, took unto himself a kind of monopoly of Divine Right. Quite correctly, he considered himself the exclusive maker of or heir to an incomparable conceptual tool and the sole holder of energy resources (steam, electricity, the atom) out of all proportion to the puny strength of the original primate. A privilege that can be communicated, extended to the whole species, as science fiction does not fail to remind us: it is purely a question of time. On this level, our zoological branch is irretrievably interdependent.

But science, the instrument of his power and the source of his pride, has ended up by troubling him who is both its instigator and its beneficiary. Its inexorable precision and progress is little by little convincing Western man (in fact, men everywhere who use libraries, laboratories and universities) of the relative banality and basic uncertainty of his condition. It confounds him with the plurality of worlds and of possibilities, frightens him through the dangers with which it threatens him and the dilemmas in which it entraps him. Science fiction charms its readers by keeping them in a state of mental disarray and half-motivated apprehension. With relation to the prospects offered by nineteenth-century science, a reversal has occurred that is comparable to the one provoked earlier by militant science itself. Yesterday's revolution gave birth to the fantastic; today's has produced science fiction—partly an amalgam of apotheosis and apocalypse; more modestly, a new image of a fortuitous man, marginal and ephemeral, lost in discouraging immensity.

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Such seems to me to be the present situation of the literature of fable. I do not know what its next phase will be. To end this



diagnosis and explain in what perspective it seems to me that the subject of my analysis should be seen, I must try to define its place in the long progression that has led the human species partly to shake off its animal condition to venture into space. With considerable lags due to the uneven levels of various cultures, mankind so far has gone through three great periods, of which, in my opinion, the fairy tale, the fantastic story, and finally science fiction provide spontaneous and significant illustrations. Each of them is very broadly represented in time and space, always with imperative and specific styles. These styles determine the way the tale is told. The very beginning of the narrative is sufficiently characteristic to become almost ritual.

A fairy tale begins: "Once upon a time..." This is because it takes place in the beginnings of time, in a distant and inaccessible past, in a closed and bygone universe. The fantastic story, like the realistic novel, begins with some such sentence as: "On July 23, 1910, at 11:50 p.m., at 64 rue Humblot..." This indicates that the story took place in our own world, yesterday or today, in a house just like any other—apparently at least, for horrible things will not fail to happen there soon. Science fiction, on the contrary, assumes a reassuring interval—the gulf of the future, or interstellar space. By definition, each of the episodes it recounts could begin, "On Proxima Centauri..." or "One of these days..." which amounts to the same thing.

These sentence openings are very little... Yet they alone tell us much about the three ages of the kind of literature in which man has best expressed his idea of his place in the universe.

In the beginning, he lives in an environment of which he understands little and from which he hardly distinguishes himself. It does not seem to him impossible that animals talk (as he does), that objects move around by themselves (as he does), or that words should be put into effect immediately (as he would like his own to be). He lives in a realm of wonders and enchantments, the world of Puss in Boots and the Sleeping Beauty, of Aladdin's lamp, which commands genii, and of the "Open, Sesame" which gives access to the treasure cave. The typical image of this bygone past, in which no natural law prevents the improbable from happening, is that of the patient, sweet orphan girl protected by her fairy godmother and persecuted by her witch of a stepmother. Since anything can happen at any instant, thanks to the magic



word and immediate metamorphosis, the enchanted world has no surprises and no mysteries: nothing but miracles. It is the field of the wonderful in the strict sense of the term.

However, man learns to be astonished, to observe, to verify. Slowly he discovers that phenomena do not occur by chance. He sets out to distinguish the possible from the impossible. Soon he surmises that an inflexible determinism governs the chain of causes and effects. He understands that nothing is lost, nothing created. Towards the end of the eighteenth century, in the European peninsula, science is constituted. It bans the wonderful. And by the same sign it gives birth to the fantastic.

From now on, any snag in the order of things is considered inadmissible. If one should occur, the result would be scandal and fear. The new universe, made up of policed cities and cultivated countryside, of rigorous hypotheses and conclusive experiments, could not possibly tolerate fairies and dragons. However, it stops at death and the Beyond, which are still full of evil creatures and energies of a type different from those whose properties are described by physicists. Though rational knowledge reigns over Nature in the daytime hours, the belief in hell and the Other World remains very much alive. Every evening, when the shadows fall, a sinister empire is reborn. So wherever the scientific conception of the world prevails, and only there, a conviction exists that the order of things cannot be transgressed, and there develops a mythology of ghosts and evil spells that seem intended to mock sovereign regularity: they break into the everyday world and give the lie, in terrible ways, to the certainties produced by laboratories and quantitative analysis.

The fantastic abandons Cinderella's coach, will o'the wisps and unicorns, but only to enlist the ghosts, the vampires and all the infernal entities that have come from the other side of death. Such is the theme of an almost exclusive predilection. And since science has established with just as much strictness the difference between the inert and the animate, the made object and the living being, the fantastic finds another of its favorite themes in the statue, the suit of armor or the doll that awakens to consciousness and begins to move. In both cases the unacceptable mystery and the source of horror stem from the breaking of one of the laws which, everyone now agrees, govern the world. In the first case spirits, that is, creatures devoid of matter, are in themselves

## *Science Fiction*

a challenge to the world into which they steal to work their evil ways. In the second, a purely material "thing," condemned by definition to passivity, escapes this passivity and suddenly shows incredible and menacing initiative. I am willing to argue that there is no motivation, in the fantastic, that is not based on deliberate blasphemy toward the most commonly accepted truths, so indissolubly do science and the fantastic seem to be linked. Just as the mainspring of the wonderful was enchantment, so that of the fantastic is the inadmissible.

Science is based on plausible hypotheses. It provides clear, verifiable and coherent explanations. Every machine that it builds, and that runs, proves that it is right. Rockets take cosmonauts to places where the adventurous Sinbad never dreamed of going. Electric or electronic devices carry out the kind of reputedly impossible tasks that obliging animals used to perform for the modest hero who wanted the king's daughter's hand.

However, a time comes when the robots and computers revolt against the engineers, just as statues, golems and puppets used to revolt against the man who had made them out of indistinct matter. Man lands on celestial bodies and wonders what partners he will find there. At the same time atomic fission, neuro-surgery and genetic manipulations give him other causes for worry and uncertainty. When discussions are held on the dimensions of space, the reversibility of time, the dilemmas of the axiomatic that ramify into multiple antinomies, then science looks no longer like a source of security and of evident truths, but like a generator of coming catastrophes and of paradoxes that contradict both perception and reason. Science fiction expresses this double distress. It utilizes, not the abominations that it was the mission of science to contain or dissipate, but those that arise from science itself. Science fiction does not oppose the fantastic to science; it is the ally of science and derives its subject-matter from it. If it brings in beings from outer space, they are simply part of a broadened Nature. They are not ghosts, but distant creatures similar to ourselves.

The three ages of fable make up the archives of the adventure of our species. Each provides a negative imprint of man's condition during a different phase of his evolution. In each case they reflect his needs, his aspirations, his longings and his fears. In the first episode, man has painfully extracted himself from

natural history. Later he wins domination over the planet. Then the fantastic compensates for his triumph, or rather exorcises it. Finally, the extent of his success opens the eyes of this industrious animal. He is caught between the smallness of a habitat which he is contributing to make uninhabitable and the immensity of universes in which he sees himself deprived of his supremacy, or in any case of his uniqueness. It is probably too soon to define the mainspring of this third age of the literature of the imaginary. Only the future, once the stage has been passed and a certain distance been taken from it, can choose its name. It may be perplexity or anxiety—in any case, one of the terms that denote the intellectual form of anguish.